



(1) tie LIMITED

- and -

(2) BILFINGER BERGER (UK) LIMITED

- and -

(3) SIEMENS plc

INFRACO CONTRACT

**RELATING TO THE
EDINBURGH TRAM NETWORK**

CONTENTS

| | | |
|-----|--|----|
| 1. | DEFINITIONS AND INTERPRETATION | 2 |
| 2. | TERM OF THE AGREEMENT | 2 |
| 3. | CONDITIONS PRECEDENT | 3 |
| 4. | PRIORITY OF CONTRACT DOCUMENTS | 4 |
| 5. | PROVISION AND INTERPRETATION OF INFORMATION | 6 |
| 6. | PROJECT PARTNERING..... | 7 |
| 7. | DUTY OF CARE AND GENERAL OBLIGATIONS IN RELATION TO THE INFRACO WORKS | 9 |
| 8. | SYSTEM INTEGRATION | 15 |
| 9. | TITLE..... | 17 |
| 10. | DEVELOPMENT, REVIEW AND FINALISATION OF THE DELIVERABLES | 21 |
| 11. | NOVATION OF THE SDS AGREEMENT TO THE INFRACO | 25 |
| 12. | NOVATION OF THE TRAM SUPPLY AGREEMENT TO THE INFRACO | 27 |
| 13. | NOVATION OF THE TRAM MAINTENANCE AGREEMENT TO THE INFRACO | 30 |
| 14. | TIE'S OBLIGATIONS..... | 34 |
| 15. | LOCAL CODES OF CONSTRUCTION PRACTICE | 34 |
| 16. | INTERFACE WITH NETWORK RAIL | 35 |
| 17. | INTERFACE WITH THE OPERATOR..... | 54 |
| 18. | LAND CONSENTS, PERMANENT LAND AND TEMPORARY SITES | 64 |
| 19. | CONSENTS AND TRAFFIC REGULATION ORDERS | 70 |
| 20. | BUILDING FIXING AGREEMENTS | 76 |
| 21. | NEW ROADS AND STREET WORKS ACT 1991 AND UTILITIES DIVERSION..... | 79 |
| 22. | ADVERSE PHYSICAL CONDITIONS AND ARTIFICIAL OBSTRUCTIONS | 80 |
| 23. | ACCESS TO THE INFRACO WORKS, THE SITE AND WORKSHOPS ETC..... | 82 |
| 24. | USE OF THE DEPOT..... | 83 |
| 25. | TIE REPRESENTATIVE | 83 |
| 26. | INFRACO'S SUPERINTENDENCE AND KEY PERSONNEL | 85 |
| 27. | REMOVAL OF INFRACO'S EMPLOYEES | 88 |

| | | |
|-----|--|-----|
| 28. | SUB-LETTING AND THE APPOINTMENT OF SUB-CONTRACTORS | 89 |
| 29. | SETTING-OUT..... | 92 |
| 30. | SAFETY AND SECURITY | 92 |
| 31. | CARE OF THE INFRACO WORKS | 93 |
| 32. | INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES | 94 |
| 33. | AVOIDANCE OF DAMAGE TO ROADS AND BRIDGES | 94 |
| 34. | WORK TO BE TO SATISFACTION OF TIE | 95 |
| 35. | QUALITY OF MATERIALS AND WORKMANSHIP, SAMPLES AND TESTS | 95 |
| 36. | EXAMINATION OF WORK BEFORE COVERING UP | 96 |
| 37. | REMOVAL OF UNSATISFACTORY WORK AND MATERIALS | 97 |
| 38. | URGENT REPAIRS AND EMERGENCIES..... | 98 |
| 39. | FOSSILS AND ANTIQUITIES..... | 99 |
| 40. | ERRORS AND/OR OMISSIONS IN THE INFRACO WORKS..... | 99 |
| 41. | COMPLETION OF CONSTRUCTION MILESTONES AND CRITICAL MILESTONES | 100 |
| 42. | COMPLETION AND CERTIFICATION OF TRAM MILESTONES | 101 |
| 43. | TRAM INSPECTOR..... | 102 |
| 44. | NOTIFICATION OF SECTIONAL COMPLETION OF SECTIONS A, B AND C..... | 103 |
| 45. | NOTIFICATION OF SERVICE COMMENCEMENT..... | 105 |
| 46. | SNAGGING AND PATENT DEFECTS..... | 106 |
| 47. | ISSUE OF NETWORK CERTIFICATE AND RELIABILITY CERTIFICATE | 107 |
| 48. | INFRACO TO SEARCH | 108 |
| 49. | NON-REMOVAL OF MATERIALS AND CONTRACTOR'S EQUIPMENT..... | 109 |
| 50. | CDM REGULATIONS 2007..... | 109 |
| 51. | NOTICE OF ACCIDENTS AND LIAISON WITH THE EMERGENCY SERVICES | 111 |
| 52. | MAINTENANCE..... | 112 |
| 53. | HAZARDOUS MATERIALS | 119 |
| 54. | RECORDS AND COMPUTER SYSTEMS | 120 |
| 55. | SURVEYS OF THE EDINBURGH TRAM NETWORK AND AUDITS OF MAINTENANCE PROCEDURES..... | 122 |

| | | |
|-----|--|-----|
| 56. | SERVICE PERFORMANCE AND QUALITY MONITORING..... | 122 |
| 57. | PERFORMANCE REVIEW..... | 126 |
| 58. | TUPE AND HANDOVER..... | 126 |
| 59. | STEP-IN FOR HEALTH AND SAFETY AND ENVIRONMENTAL REASONS | 130 |
| 60. | PROGRAMME | 131 |
| 61. | RATE OF PROGRESS AND ACCELERATION | 133 |
| 62. | LIQUIDATED AND ASCERTAINED DAMAGES | 135 |
| 63. | PROTESTOR ACTION..... | 139 |
| 64. | RELIEF EVENTS | 140 |
| 65. | COMPENSATION EVENTS | 143 |
| 66. | PAYMENT OF THE CONTRACT PRICE..... | 149 |
| 67. | PAYMENT IN RESPECT OF APPLICATIONS FOR MILESTONE PAYMENTS | 150 |
| 68. | PAYMENT IN RESPECT OF MAINTENANCE SERVICES | 153 |
| 69. | INTEREST ON LATE PAYMENTS AND SET-OFF | 155 |
| 70. | VALUE ADDED TAX | 156 |
| 71. | LABOUR TAX AND LANDFILL TAX FLUCTUATIONS..... | 157 |
| 72. | RETURNS OF LABOUR AND INFRACO'S EQUIPMENT | 158 |
| 73. | BEST VALUE..... | 158 |
| 74. | BOND, PARENT COMPANY COMPANY GUARANTEES AND COLLATERAL WARRANTIES | 160 |
| 75. | WARRANTIES..... | 163 |
| 76. | REQUIRED INSURANCES..... | 165 |
| 77. | INDEMNITY BY INFRACO, LIABILITY AND SOLE REMEDY | 174 |
| 78. | CONDUCT OF CLAIMS | 179 |
| 79. | MANAGEMENT OF VARIATIONS..... | 181 |
| 80. | TIE CHANGES..... | 182 |
| 81. | INFRACO CHANGES | 189 |
| 82. | SMALL WORKS CHANGES | 191 |
| 83. | ACCOMMODATION WORK CHANGES | 192 |

| | | |
|------|---|-----|
| 84. | QUALIFYING CHANGES IN LAW | 194 |
| 85. | PHASE 1B OPTION | 197 |
| 86. | NETWORK EXPANSIONS | 197 |
| 87. | SUSPENSION OF WORK | 198 |
| 88. | TERMINATION OR SUSPENSION FOR TIE DEFAULT | 199 |
| 89. | VOLUNTARY TERMINATION BY TIE..... | 202 |
| 90. | TERMINATION ON INFRACO DEFAULT | 202 |
| 91. | TERMINATION BY REASON OF FORCE MAJEURE..... | 206 |
| 92. | TERMINATION FOR CORRUPT GIFTS AND FRAUD | 207 |
| 93. | PERSISTENT BREACH | 209 |
| 94. | EFFECT OF TERMINATION OR EXPIRY | 210 |
| 95. | TRANSITION ON TERMINATION OR EXPIRY..... | 211 |
| 96. | SURVEYS PRIOR TO EXPIRY DATE..... | 215 |
| 97. | DISPUTE RESOLUTION PROCEDURE..... | 218 |
| 98. | ASSIGNATION, CHANGE IN LEGAL STATUS AND CHANGES IN CONTROL..... | 218 |
| 99. | NOT USED | 219 |
| 100. | SECURITY INTERESTS | 219 |
| 101. | CONFIDENTIAL INFORMATION..... | 219 |
| 102. | COPYRIGHT AND INTELLECTUAL PROPERTY | 223 |
| 103. | DATA PROTECTION | 229 |
| 104. | INFORMATION AND AUDIT ACCESS..... | 229 |
| 105. | HEALTH AND SAFETY, QUALITY ASSURANCE AND ENVIRONMENTAL MANAGEMENT SYSTEM | 231 |
| 106. | ENTIRE AGREEMENT | 232 |
| 107. | FURTHER ASSURANCE | 232 |
| 108. | VARIATIONS TO BE IN WRITING..... | 232 |
| 109. | WAIVERS | 233 |
| 110. | NO PARTNERSHIP OR AGENCY | 233 |
| 111. | NOTICES | 233 |

| | | |
|------|---|-----|
| 112. | INVALID TERMS | 234 |
| 113. | THIRD PARTIES RIGHTS | 235 |
| 114. | CONSENT AND APPROVAL..... | 235 |
| 115. | DISCRIMINATION..... | 235 |
| 116. | DEROGATIONS | 236 |
| 117. | APPLICABLE LAW..... | 236 |
| 118. | DUTY TO ACT REASONABLY..... | 236 |
| 119. | MITIGATION..... | 236 |
| 120. | JOINT AND SEVERAL LIABILITY | 236 |
| 121. | NO DOUBLE RECOVERY | 237 |
| | SCHEDULE PART 1 DEFINITIONS AND INTERPRETATION..... | 239 |
| | SCHEDULE PART 2 EMPLOYER'S REQUIREMENTS..... | |
| | SCHEDULE PART 3 CODE OF CONSTRUCTION PRACTICE AND CODE OF MAINTENANCE PRACTICE | |
| | SCHEDULE PART 4 PRICING | |
| | SCHEDULE PART 5 MILESTONE PAYMENTS..... | |
| | SCHEDULE PART 6 MAINTENANCE PAYMENT REGIME | |
| | SCHEDULE PART 7 MAINTENANCE CONTRACT PRICING ANALYSIS | |
| | SCHEDULE PART 8 BONDS, PARENT COMPANY GUARANTEES AND COLLATERAL WARRANTIES..... | |
| | PART A - PERFORMANCE BOND..... | |
| | PART B - RETENTION BOND | |
| | PART C - DEFECTS RECTIFICATION BOND..... | |
| | PART D - PARENT COMPANY GUARANTEES | |
| | PART E - INFRACO COLLATERAL WARRANTY TO TIE | |
| | PART F - SUB-CONTRACTOR COLLATERAL WARRANTY | |
| | SCHEDULE PART 9 DISPUTE RESOLUTION PROCEDURE..... | |
| | SCHEDULE PART 10 DISPUTE RESOLUTION PROCEDURE PANEL | |
| | SCHEDULE PART 11 REQUIRED INSURANCES..... | |

| | |
|---|--|
| SCHEDULE PART 12 KEY PERSONNEL..... | |
| SCHEDULE PART 13 THIRD PARTY AGREEMENTS | |
| SCHEDULE PART 14 DESIGN REVIEW & DESIGN MANAGEMENT PLAN | |
| SCHEDULE PART 15 PROGRAMME | |
| SCHEDULE PART 16 TRAM SUPPLY AGREEMENT | |
| SCHEDULE PART 17 TRAM SUPPLY - NOVATION AGREEMENT..... | |
| SCHEDULE PART 18 TRAM SUPPLY - COLLATERAL WARRANTY IN FAVOUR OF TIE | |
| SCHEDULE PART 19 TRAM MAINTENANCE AGREEMENT..... | |
| SCHEDULE PART 20 TRAM MAINTENANCE - NOVATION AGREEMENT | |
| SCHEDULE PART 21 TRAM MAINTENANCE - COLLATERAL WARRANTY IN FAVOUR OF TIE..... | |
| SCHEDULE PART 22 SDS AGREEMENT | |
| SCHEDULE PART 23 SDS NOVATION AGREEMENT | |
| SCHEDULE PART 24 SDS COLLATERAL WARRANTY IN FAVOUR OF TIE..... | |
| SCHEDULE PART 25 SPARE PARTS | |
| SCHEDULE PART 26 TIE OBLIGATIONS | |
| SCHEDULE PART 27 ASSET PROTECTION AGREEMENT AND BRIDGE AGREEMENT | |
| SCHEDULE PART 28 CERTIFICATES | |
| SCHEDULE PART 29 TIE AND CEC POLICIES | |
| SCHEDULE PART 30 INFRACO PROPOSALS..... | |
| SCHEDULE PART 31 DRAWINGS | |
| SCHEDULE PART 32 DEPOT LICENCE | |
| SCHEDULE PART 33 BUILDING FIXINGS AGREEMENT | |
| SCHEDULE PART 34 TRAM INSPECTOR AGREEMENT | |
| SCHEDULE PART 35 REPORTING PERIOD END DATES | |
| SCHEDULE PART 36 TUPE INFORMATION | |
| SCHEDULE PART 37 PHASE 1B..... | |
| SCHEDULE PART 38 APPROVED SUPPLIERS AND CONTRACTORS (AND TRADES)..... | |

| | |
|--|--|
| SCHEDULE PART 39 TRAM SUPPLY AGREEMENT AND TRAM MAINTENANCE AGREEMENT OBLIGATIONS | |
| SCHEDULE PART 40 ENVIRONMENTAL AND HEALTH AND SAFETY KEY PERFORMANCE INDICATORS | |
| SCHEDULE PART 41 GROUND CONDITIONS AND UTILITIES INFORMATION | |
| SCHEDULE PART 42 DEVELOPMENT PARTNERING AND OPERATING FRANCHISE AGREEMENT | |
| SCHEDULE PART 43 RESERVE ACCOUNT | |
| SCHEDULE PART 44 EAL WORKS | |

AGREEMENT

BETWEEN

- (1) **tie LIMITED** a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh EH1 1YJ ("**tie**") which expression shall include its successors, permitted assignees and transferees; and
- (2) **BILFINGER BERGER UK LIMITED**, a company incorporated in England and Wales under number 02418086 and having its registered office at 150 Aldersgate Street, London EC1A 4EJ which expression shall include its successors, permitted assignees and transferees; and
- (3) **SIEMENS PLC**, a company incorporated in England and Wales under number 00727817 and having its registered office at Faraday House, Sir William Siemens Square, Frimley, Camberley, Surrey GU16 8QD which expression shall include its successors, permitted assignees and transferees,

and (2) and (3) shall together be "**the Infraco**" and each separately an "**Infraco Member**".

WHEREAS

- A. Powers in respect of the design, construction, commissioning and operation of the Edinburgh Tram Network were conferred on CEC by the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006 which received Royal Assent on 8 May 2006 and 27 April 2006 respectively.
- B. Pursuant to a notice published in the Official Journal of the European Union on 31 January 2006 with reference 2006/S 20-021872, **tie** invited expressions of interest from appropriately qualified parties to carry out and/or manage the design, construction, installation, commissioning, tram procurement, system integration, infrastructure maintenance, tram maintenance and supply of related equipment and materials, trams and related infrastructure in respect of the Edinburgh Tram Network.
- C. By a competitive tendering process conducted in accordance with Law, **tie** has selected the Infraco to carry out the Infraco Works.
- D. Under separate agreements, **tie** has appointed the SDS Provider to provide system design services under the terms of the SDS Agreement, the Tram Supplier to supply trams, capital spares and special tools under the terms of the Tram Supply Agreement, and the Tram

Maintainer to provide tram maintenance services and supply consumable spares under the terms of the Tram Maintenance Agreement.

- E. **tie**, the Infraco, the SDS Provider, the Tram Supplier and the Tram Maintainer have respectively agreed to the novation of each of the SDS Agreement, the Tram Supply Agreement and the Tram Maintenance Agreement to the Infraco.
- F. It is acknowledged that this Agreement aims to achieve a project vision (the "**Project Vision**") for the Edinburgh Tram Network. This Project Vision involves the development of a tramway which will stand favourable comparison with the best in Europe. The quality of the tramway provided will be appropriate to Edinburgh's status and role as a European capital city and its city centre's designation as a World Heritage Site. The tramway will integrate as far as possible with other transport modes to serve the existing fabric of the City of Edinburgh, and promote appropriate development and social inclusion. It is intended that this goal be achieved in a spirit of partnership, utilising modern design and construction methods and standards.

NOW IT IS AGREED AS FOLLOWS

PART 1 - PRELIMINARY MATTERS

1. DEFINITIONS AND INTERPRETATION

- 1.1 Schedule Part 1 (*Definitions and Interpretation*) shall govern all matters concerning definitions and interpretation.

2. TERM OF THE AGREEMENT

- 2.1 Subject to Clause 3 (*Conditions Precedent*), this Agreement shall come into effect on the Effective Date and subject to Clauses 2.2, 2.3 and 2.4 shall continue in effect until the earlier of:
 - 2.1.1 the Expiry Date; and
 - 2.1.2 the Termination Date.
- 2.2 Not less than 180 days prior to the Expiry Date, **tie** shall be entitled to serve a notice extending the duration of this Agreement for 5 years so that the Agreement continues in effect until the earlier of:
 - 2.2.1 the Extended Expiry Date; and

- 2.2.2 the Termination Date.
- 2.3 If **tie** serves a notice pursuant to Clause 2.2:
- 2.3.1 the Agreement shall continue on the same terms as are in effect at the date of serving of such notice; and
- 2.3.2 the value of the extension shall be determined in accordance with Clause 80 (**tie Changes**) and such extension will be a Mandatory **tie** Change.
- 2.4 Not less than 180 days prior to the Extended Expiry Date, **tie** shall be entitled to serve a notice proposing an extension of the Term. If **tie** serves such a notice under this Clause 2.4:
- 2.4.1 **tie** and the Infraco shall negotiate in good faith to agree the terms of any amendment to this Agreement which will apply with effect from the day after the Extended Expiry Date for the duration of the period of such extension; and
- 2.4.2 the valuation of any extension shall be determined in accordance with Clause 80 (**tie Changes**); and
- 2.4.3 if **tie** and the Infraco agree the matters referred to in Clause 2.4.1 prior to the date when this Agreement would otherwise have expired, the Extended Expiry Date shall be extended to such date as may be agreed between **tie** and the Infraco, and with effect from the day after the Extended Expiry Date (being the date that would have occurred but for such extension), the Infraco shall perform its obligations under the terms of this Agreement as amended pursuant to this Clause 2.4.
- 2.5 **tie** may serve further notices proposing extensions to the duration of this Agreement up to a maximum total duration of 30 years and the provisions of Clause 2.4 shall apply *mutatis mutandis* to such further notices and any subsequently agreed extension.

3. CONDITIONS PRECEDENT

- 3.1 Except for the provisions of this Part 1 (*Preliminary Matters*), Clause 11 (*Novation of the SDS Agreement to the Infraco*), Clause 12 (*Novation of the Tram Supply Agreement to the Infraco*), Clause 13 (*Novation of the Tram Maintenance Agreement to the Infraco*), Clause 74 (*Bond, Parent Company Company Guarantees and Collateral Warranties*), Clause 76 (*Required Insurances*), Clause 77 (*Indemnity By Infraco, Liability and Sole Remedy*), Clause 97 (*Dispute Resolution Procedure*), Clause 101 (*Confidential Information*), Clause 102 (*Copyright and Intellectual Property*), Clause 106 (*Entire Agreement*), Clause 108 (*Variations to be in*

Writing), Clause 110 (*No Partnership or Agency*), Clause 111 (*Notice*), Clause 112 (*Invalid Terms*), Clause 113 (*Third Parties Rights*) and Clause 117 (*Applicable Law*), the obligations of the Parties under this Agreement shall be suspensively conditional upon the occurrence of the Commencement Date.

- 3.2 **tie** may by notice in writing to the Infraco waive any or all of the Conditions Precedent.
- 3.3 On the date that all of the Conditions Precedent (with the exception of any Conditions Precedent that have been expressly waived by **tie** in writing) have, in **tie's** opinion (acting reasonably) been satisfied, **tie** shall issue the CP Certificate.
- 3.4 The Infraco shall use its reasonable endeavours to satisfy or procure the satisfaction of the Conditions Precedent as soon as reasonably possible after the Effective Date.
- 3.5 In the event that the Commencement Date has not occurred by the date falling 3 months after the Effective Date (or such later date as may be agreed in writing between the Parties), **tie** may terminate this Agreement with immediate effect following the service of a notice to that effect on the the Infraco, and in which event, all provisions of this Agreement (other than Part 1 (*Preliminary Matters*), Clause 77 (*Indemnity By Infraco, Liability and Sole Remedy*), Clause 97 (*Dispute Resolution Procedure*), Clause 101 (*Confidential Information*), Clause 102 (*Copyright and Intellectual Property*), Clause 106 (*Entire Agreement*), 108 (*Variations to be in Writing*), 110 (*No Partnership or Agency*), 111 (*Notices*), 112 (*Invalid Terms*), 113 (*Third Parties Rights*) and Clause 117 (*Applicable Law*)), shall cease to have effect and such termination shall be without prejudice to any accrued rights or obligations as at that date.

4. PRIORITY OF CONTRACT DOCUMENTS

- 4.1 NOT USED
- 4.2 In the event of any ambiguity or discrepancy between any provisions in the main body of this Agreement and those in any Part of the Schedule, or between the provisions of any Schedules, **tie's** Representative shall state in writing which provision shall take priority, which shall be deemed to be instructions issued pursuant to Clause 34.1. Provided always that, unless expressly stated otherwise by **tie's** Representative the main body of the Agreement shall always take priority and the following order of priority will apply to Schedule Part 2 (*Employer's Requirements*) and Schedule Part 30 (*Infraco's Proposals*):
- 4.2.1 the Employer's Requirements; over
- 4.2.2 the Infraco's Proposals.

- 4.2A Notwithstanding Clause 4.2, if there is any ambiguity or discrepancy between the requirements set out in Schedule Part 44 (*EAL Works*) which the Infraco must comply with whilst carrying out works on the EAL Site and any provision of this Agreement the requirements set out in Schedule Part 44 (*EAL Works*) shall take precedence.
- 4.3 Nothing in this Agreement shall prejudice the Infraco's right to claim additional relief or payment pursuant to Schedule Part 4 (*Pricing*).
- 4.4 The Infraco confirms that it has studied in detail the Employer's Requirements and each document comprised therein and has satisfied itself that no discrepancies or errors exist within the Employer's Requirements or between it and the Infraco's Proposals. The Infraco acknowledges that it accepts all risks arising from any discrepancies, errors or omissions that subsequently appear within or between such documents and that, subject to Clause 4.2, 4.3 and 4.5, it shall not be entitled to make any claim against **tie** for an extension of time, additional payment, any relief or otherwise in respect of any such errors, discrepancies or omissions. The Infraco will notify **tie** forthwith upon becoming aware of a discrepancy or error within the Employer's Requirements or between the Employer's Requirements and the Infraco's Proposals. Where there is such discrepancy or error which cannot be resolved by the provisions of the Employer's Requirements, the Infraco shall as soon as reasonably practicable, and in any event within 5 Business Days, provide **tie** with proposals for resolving such discrepancy or error which comply with this Agreement.
- 4.5 Unless, within 10 Business Days of receipt by **tie** of the Infraco's proposals for resolving such discrepancy or error, **tie** notifies the Infraco requiring it to resolve the discrepancy in a different manner (which manner shall be binding but shall be reasonable in time and cost having regard to the Employer's Requirements and which shall be deemed to be instructions in accordance with Clause 34.1), the Infraco shall resolve the discrepancy in the manner proposed by it.
- 4.6 Subject to Clause 4.4, the Infraco shall review all documents, drawings or other subsequent information produced to amplify this Agreement and/or issued by **tie**, within 10 Business Days or such other period as is agreed by **tie** acting reasonably of the date of receipt of such documents, drawings or other subsequent information, and shall bring to the attention of **tie's** Representative any ambiguities or discrepancies, or requirements for further information arising from them. Save as otherwise stipulated in this Agreement and without prejudice to Infraco's express rights or remedies under this Agreement, failure to comply with this obligation shall prevent the Infraco from being entitled to an extension of time, additional payment, any relief or otherwise in respect of problems which would have been notified or

requests which would have been made had this obligation been complied with. Without prejudice to **tie's** express rights and remedies under this Agreement in relation to the consequences of the Infraco's failure to comply with this Clause 4.6, **tie** shall not be entitled to any remedy for breach of contract in respect of the Infraco's failure to comply with this Clause 4.6.

- 4.7 Clause 4.6 shall not apply to documents, drawings or other information to be considered under Schedule Part 14 (*Design Review and Design Management Plan*).

5. PROVISION AND INTERPRETATION OF INFORMATION

- 5.1 Subject to Clause 22 (*Adverse Physical Conditions and Artificial Obstructions*), Clause 64 (*Relief Events*) and Clause 65 (*Compensation Events*), the Infraco shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied itself before the Effective Date as to:

- 5.1.1 the ground conditions on the Site including the climatic, geotechnical, ecological, environmental, hydrological, sub-soil and sub-surface conditions;
- 5.1.2 all relevant safety requirements and environmental matters;
- 5.1.3 the form and nature of the Site;
- 5.1.4 the nature of the materials (whether natural or otherwise) to be excavated;
- 5.1.5 the extent and nature and difficulty of the work and materials necessary for the completion of the Infraco Works;
- 5.1.6 the quality of any existing structures which will form part of or be associated with or will be adjacent to the Edinburgh Tram Network;
- 5.1.7 the risk of injury or damage to property adjacent to the Site and to occupiers of such property;
- 5.1.8 the possibility of interference by parties other than **tie**;
- 5.1.9 the precautions and the times and methods of working necessary to comply with Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*) and, in accordance with Good Industry Practice, minimise any nuisance or interference, whether public or private, being caused to any third parties;

5.1.10 use by third parties of any of the land which will form part of or will be adjacent to the Edinburgh Tram Network;

5.1.10.1 the means of communication with and restrictions of access to the Site;

5.1.10.2 the accommodation the Infraco may require; and

5.1.10.3 in general to have obtained for itself all necessary information as to risks, contingencies and all other circumstances influencing or affecting the Infraco Works.

The Infraco shall to the extent necessary for the carrying out of the Infraco Works take due and proper account of the above risks associated with carrying out the Infraco Works and, save where provided otherwise in this Agreement, the Infraco shall not be entitled to any extension of time, relief or to any additional payment on grounds of any misunderstanding or misinterpretation of any such matter, nor shall the Infraco be released from any of the risks accepted or obligations undertaken by the Infraco under this Agreement on the ground that the Infraco did not or could not have foreseen any matter which might affect or have affected the execution of the Infraco Works.

PART 2 - GENERAL OBLIGATIONS

6. PROJECT PARTNERING

6.1 The Parties agree to work in mutual co-operation to fulfil their agreed roles and responsibilities and apply their expertise to carry out and complete the Infraco Works in accordance with this Agreement.

6.2 **tie** and the Infraco shall procure that each **tie** Party and each Infraco Party (as appropriate) shall work in accordance with the principles set out in Clause 6.1.

6.3 Subject to Clause 6.4, each Party ("**First Party**") undertakes to co-operate with the other ("**Second Party**") in order to facilitate the performance of this Agreement and in particular the First Party shall:

6.3.1 approach all Permitted Variations on a collaborative and Open Book Basis;

6.3.2 use reasonable endeavours to avoid unnecessary complaints, disputes and claims against or with the Second Party;

- 6.3.3 comply with the provisions of the Dispute Resolution Procedure in relation to any such complaints, disputes and claims with or against the Second Party;
- 6.3.4 not interfere with the rights of the Second Party in performing its obligations under this Agreement, nor in any other way hinder or prevent the Second Party from performing those obligations or from enjoying the benefits of its rights;
- 6.3.5 take reasonable steps to mitigate any foreseeable losses and liabilities of the Second Party which are likely to arise out of any failure by the First Party to take any of the steps referred to in Clauses 6.3.2 to 6.3.4 (inclusive); and
- 6.3.6 take all reasonable steps to manage, minimise and mitigate all costs.
- 6.4 Nothing in Clause 6.3 shall:
 - 6.4.1 interfere with the right of each of the Parties to arrange its affairs in whatever manner it considers fit (in compliance with Law) in order to exercise its rights and perform its obligations under this Agreement (in compliance with Law) and, in the case of **tie**, its duties and functions as a wholly owned subsidiary of CEC; or
 - 6.4.2 relieve either Party from any obligation contained in this Agreement or from any obligation to pay any debt due and payable under this Agreement.
- 6.5 Senior representatives from the Parties shall meet on a quarterly basis (or as may be otherwise agreed by the Parties) to review:
 - 6.5.1 any matter which has adversely affected or may adversely affect:
 - (a) the completion of the Infraco Works;
 - (b) the performance and presentation of the Edinburgh Tram Network;
 - (c) the functioning of the City of Edinburgh (including other modes of transport) and the people of Edinburgh, because of the carrying out of the Infraco Works; and/or
 - (d) the Infraco's ability to perform its obligations in terms of the Agreement;
 - 6.5.2 any proposal from either Party to:
 - (a) minimise costs; and/or

(b) optimise the performance and quality of the Edinburgh Tram Network.

- 6.6 Either Party may propose measures to address the matters set out in Clause 6.5.1 and a determination of what measures (if any) should be undertaken by the Infraco and/or **tie** to address such matters shall be considered in accordance with and subject to each Party's existing rights, obligations and the existing contractual mechanisms under this Agreement including but not restricted to the rights, obligations and contractual mechanisms set out in Clause 64 (*Relief Events*), Clause 65 (*Compensation Events*), Clause 80 (**tie** *Changes*), Clause 81 (*Infraco Changes*), Clause 82 (*Small Works Changes*), Clause 83 (*Accommodation Works Changes*) and Clause 84 (*Qualifying Changes in Law*).
- 6.7 Any proposal from either Party in terms of Clause 6.5.2 shall be reviewed in accordance with Clause 80 (**tie** *Changes*), Clause 81 (*Infraco Changes*) or Clause 82 (*Small Works Changes*) (as appropriate).
- 6.8 As required by **tie**, the Infraco shall procure the attendance of any of the Infraco Parties at the meetings described in Clause 6.5. The Infraco shall provide **tie** with reasonable notice of any regular progress meetings regarding performance of the Tram Supply Agreement and the Tram Maintenance Agreement and **tie** shall be entitled to attend such meetings where **tie** or **tie's** Representative have a right to attend such meetings (the Infraco using reasonable endeavours to secure such attendance) pursuant to the Tram Supply Agreement and the Tram Maintenance Agreement and, if **tie** reasonably requires to attend any other meeting, the Infraco shall use reasonable endeavours to facilitate such attendance.
- 6.9 The Infraco shall notify **tie** in writing no less than five Business Days prior to making any demand on any of the performance or reliability bonds held by the Infraco from sureties in respect of the performance of the Tram Supplier and Tram Maintainer.

7. DUTY OF CARE AND GENERAL OBLIGATIONS IN RELATION TO THE INFRACO WORKS

- 7.1 **tie** hereby appoints the Infraco in accordance with the terms of this Agreement and the Infraco hereby accepts full responsibility and agrees to carry out and complete the Infraco Works fully and faithfully in accordance with this Agreement.
- 7.2 Notwithstanding the specific responsibilities set out in Clause 7.3, the Infraco undertakes to **tie** that in carrying out and completing the Infraco Works it has exercised and undertakes to continue to exercise a reasonable level of professional skill, care and diligence to be expected of a properly qualified and competent professional contractor experienced in carrying out works and services of a similar nature to the Infraco Works in connection with projects of a

similar scope and complexity. The Infraco acknowledges that **tie** will rely upon the skill, care and diligence of the Infraco in connection with all matters for which the Infraco is responsible under this Agreement.

7.3 The Infraco shall (each as distinct and separate obligations), and shall procure that the Infraco Parties, carry out and complete the Infraco Works:

7.3.1 in accordance with and so as to comply in all respects with this Agreement;

7.3.2 so as to enable the Edinburgh Tram Network to be designed, constructed, installed, tested and commissioned, and thereafter operated and maintained;

7.3.3 in accordance with the Infraco's quality management system and plans as developed in accordance with Clause 105 (*Health and Safety, Quality Assurance and Environmental Management System*);

7.3.4 so as to ensure compliance with the Employer's Requirements;

7.3.5 so as to ensure compliance with the Infraco's Proposals;

7.3.6 in accordance with **tie** and CEC Policies;

7.3.7 in accordance with the Code of Construction Practice,

7.3.7.1 in each Section insofar as construction, renewals and/or commissioning activities are taking place in that Section; and

7.3.7.2 in other areas where construction, renewals or commissioning activities whether relative to any Network Expansion, Permitted Variation or otherwise, are being carried out;

7.3.8 in accordance with the Code of Maintenance Practice in the undertaking of the Maintenance Services,

7.3.8.1 in each Section insofar as a Certificate of Sectional Completion has been issued which applies to that Section; and

7.3.8.2 in other areas where construction or commissioning activities whether relative to any Network Expansion, Permitted Variation or otherwise, have been completed;

7.3.9 so as to ensure compliance with the Tram Legislation;

- 7.3.10 so as to ensure compliance with all applicable Law, Land Consents and Consents;
 - 7.3.11 so as to employ all reasonably practicable means to ensure that the environmental impacts are no worse than the residual impacts identified in the Environmental Statements and that such residual impacts are maintained during the Maintenance Services;
 - 7.3.12 in compliance with all applicable environmental regulations and requirements;
 - 7.3.13 in accordance with Good Industry Practice;
 - 7.3.14 so as to ensure that the design of the Edinburgh Tram Network is buildable and maintainable;
 - 7.3.15 so as to assist **tie** in relation to providing information that best value (pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003) has been secured in respect of the carrying out of the Infraco Works;
 - 7.3.16 in such manner as not wilfully to detract from the image and reputation of **tie**, Transport Edinburgh Limited, CEC, the Scottish Ministers, Transport Scotland or the Edinburgh Tram Network;
 - 7.3.17 in accordance with the OGC's "Excellence in Construction" initiative;
 - 7.3.18 so as to ensure that sustainability is considered and discussed with **tie** in relation to energy consumption and the supply of materials from sustainable sources for the Edinburgh Tram Network. The Parties acknowledge that the execution of the Infraco Works in compliance with the Infraco Proposals (in relation to sustainability) meet the requirements of this provision;
 - 7.3.19 in a manner that is not likely to be injurious to persons or property excluding any liability for persons or property injuriously affected by the Edinburgh Tram Network in so far as such liability does not arise as the result of either a breach of this Agreement or negligence on the part of the Infraco; and
 - 7.3.20 using the Key Personnel.
- 7.4 The Infraco undertakes and warrants that the Infraco's Proposals shall meet the Employer's Requirements.

- 7.5 The Infraco shall (and shall procure that the Infraco Parties) use reasonable endeavours to ensure that in carrying out the Infraco Works, it:
- 7.5.1 maximises productivity by reference to Good Industry Practice as applicable to construction or maintenance as relevant;
 - 7.5.2 minimises disruption to the city of Edinburgh;
 - 7.5.3 maintains safety, and minimises the potential for accidents, and safeguards the Infraco Works;
 - 7.5.4 safeguards efficiency in the obtaining of Consents; and
 - 7.5.5 minimises costs.
- 7.6 The Infraco shall at all times keep itself fully informed about current professional and technical standards and about all matters relating to, or which might have a bearing on, the carrying out of the Infraco Works.
- 7.7 The Infraco's duties and obligations under or pursuant to this Agreement will not be released, diminished or in any other way affected by any independent inquiry into any matter which may be made or carried out by **tie** or by any firm, company or party on **tie's** behalf nor by any action or omission of any such firm, company or party whether or not such action or omission might give rise to any independent liability of such firm, company or party to **tie**.
- 7.8 The Infraco is deemed to have satisfied itself that it fully understands the scope and extent of the requirements in respect of the Infraco Works, and that it has sufficient information or will at the relevant time have sufficient information, to enable it to carry out the Infraco Works.

Background Information

- 7.9 Subject to the express provisions of this Agreement, the Infraco acknowledges that certain Background Information has been made available to it in relation to this Agreement. Subject to the express provisions of this Agreement, **tie** does not give any warranty or undertaking as to the completeness, currency, accuracy or fitness for any purpose of any of the Background Information and neither **tie**, any **tie** Parties, CEC, TEL nor any of their employees shall be liable to the Infraco in contract, delict (including breach of statutory duty), or otherwise as a result of:
- 7.9.1 any inaccuracy, error, defect, omission, unfitness for any purpose or inadequacy of any kind whatsoever in the Background Information; nor

7.9.2 any failure to make available to the Infraco any materials, documents, drawings, plans or other information relating to this Agreement;

provided that nothing in this Clause 7.9 shall exclude any liability in respect of any statements made or information provided fraudulently.

7.10 Subject to the express provisions of this Agreement, the Infraco acknowledges and confirms that it has conducted its own analysis and review of the Background Information and has before the execution of this Agreement, or upon receipt if received thereafter, satisfied itself as to the veracity, accuracy, reasonableness, scope, materiality, currency (where applicable) and completeness of all such Background Information upon which it places reliance.

Liaison

7.11 The Infraco shall (and shall procure that the Infraco Parties) liaise with **tie**, any **tie** Party, the Operator and any other parties as may reasonably be required by **tie** to facilitate the production, by such persons, of any information required from them, in order that the carrying out of the Infraco Works and its other obligations under this Agreement can be progressed according to the Programme. The Infraco shall (and shall procure that the Infraco Parties) liaise with **tie**, any **tie** Party, the Operator, and any other parties as may be reasonably required by **tie** as often as is necessary in order to ensure that the Infraco Works are carried out properly and in accordance with the terms of this Agreement.

7.12 The Infraco shall in relation to any proposed Permitted Variation, collaborate and liaise with **tie** throughout the carrying out of the Infraco Works to ensure due consideration is given to the type of materials and optimum and cost effective construction and maintenance methods, construction and maintenance programmes, and temporary works, as appropriate.

Provision of all Labour, Goods, Materials and Services

7.13 The Infraco shall, subject to the provisions of the Agreement, provide all labour, goods, materials, Infraco's Equipment, Temporary Works, transport to and from and in or about the Site, services and everything whether of a temporary or permanent nature required in and for the execution and completion of the Infraco Works so far as the necessity for providing the same is specified in the Agreement or could be reasonably foreseen therefrom by a contractor experienced in work of a similar nature, scope and complexity as the Infraco Works.

7.14 The Infraco shall take full responsibility for the adequacy, stability and safety of all site operations and methods of construction, installation and maintenance in relation to the Infraco Works.

Prohibited Materials

- 7.15 The Infraco undertakes and warrants to **tie** that it has not specified for use and undertakes that it shall not specify for use and shall ensure that there shall not be used in relation to the Infraco Works, any materials which at the time of specification, installation or commencement of use (as the case may be):
- 7.15.1 are known to be deleterious in the particular circumstances in which they are specified to be used (either to health and safety or to the durability of the Infraco Works); or
 - 7.15.2 contravene any relevant standard or code of practice issued from time to time by the BSI Group or under a European directive relating to standards; or
 - 7.15.3 do not accord with the guidelines contained in the edition of the publication "Good Practice in Selection of Construction Materials" (Ove Arup & Partners) current at the date of specification or commencement of use; or reinstallation; or
 - 7.15.4 contravene Good Industry Practice.
- 7.16 The Infraco undertakes and warrants that on the date of use or installation on the Edinburgh Tram Network, any materials supplied as part of the Infraco Works shall be in accordance with Schedule Part 2 (*Employer's Requirements*).

Investigations and Surveys

- 7.17 The Infraco shall notify **tie** of any ground, physical, or geophysical investigations or archaeological or ecological surveys and other investigations or surveys which it intends to carry out before such investigations or surveys are carried out.

Abortive Works

- 7.18 As soon as reasonably practicable after the Infraco becomes aware that any element of the Infraco Works likely to be Abortive Work for any reason, the Infraco shall notify **tie** of:
- 7.18.1 the probable nature of the Abortive Work;
 - 7.18.2 the cause of the Abortive Work being abortive;
 - 7.18.3 the estimated effect of the Abortive Work in terms of cost, of time in completion of the Infraco Works and of any other matters in relation to the Agreement; and
 - 7.18.4 any measures to be taken which may mitigate that effect.

- 7.19 The Infraco and **tie** shall jointly investigate, and **tie** shall determine the actual extent of any Abortive Work.
- 7.20 Payment by **tie** to the Infraco in respect of any Abortive Work which has been carried out by the Infraco shall be valued in accordance with Clause 80 (*tie Changes*) and shall be paid by **tie** in accordance with Clause 67 (*Payment in respect of Applications for Milestone Payments*) provided always that no payment shall be due for Abortive Work to the extent it has resulted from any fault of the Infraco and/or any breach by the Infraco of its obligations under this Agreement.

Advanced Works Agreement

- 7.21 On the Commencement Date:
- 7.21.1 all work performed by the Infraco under the Mobilisation and Advanced Works Agreement shall be deemed to have been performed under this Agreement and the Mobilisation and Advanced Works Agreement shall terminate; and
- 7.21.2 subject to Clause 7.21.3, any claims which the Parties may have against each other under the Mobilisation and Advanced Works Agreement shall be deemed to be claims available to the Parties under this Agreement; and
- 7.21.3 to the extent that the Infraco has any entitlement to claim any additional time or costs in respect of Compensation Event (a) - (s) and (w) **tie** shall not be obliged in assessing such entitlements under Clause 65 (*Compensation Events*), to take account of any delay or costs to the extent that such delay or costs arose prior to the Commencement Date.
- 7.22 On the Commencement Date, all work performed by the Tram Supplier under the Tram Supply Advanced Works Agreement shall be deemed to have been performed under the Tram Supply Agreement and the Tram Supply Advanced Works Agreement shall terminate.

8. SYSTEM INTEGRATION

- 8.1 The Infraco shall ensure that the following key elements of the system integration of the Infraco Works are implemented:
- 8.1.1 insofar as identified within Schedule Part 2 (*Employers Requirements*), compliance with sub-system performance requirements as defined in Schedule Part 2 (*Employer's Requirements*) and to the extent not so identified in Schedule Part 2 (*Employer's*

Requirements), definition of sub-system performance requirements and demonstration by calculation that when such sub-systems are integrated they shall achieve the System Availability Target set out in Schedule Part 2 (*Employer's Requirements*) including the Operations Performance Specification during completion of construction, installation, re-installation or renewals;

- 8.1.2 management of technical interfaces including system wide issues such as electro-magnetic compatibility and stray current protection, noise, vibration and wheel/rail interface ensuring that each and every material issue arising is satisfactorily closed out following completion of construction, reinstallation or renewals and thereafter maintained as part of the Maintenance Services;
 - 8.1.3 test management including the preparation of method statements, test scripts, the setting of pass/fail criteria, and analysis for commissioning and re-commissioning;
 - 8.1.4 alignment of maintenance procedures with the operations procedures produced by the Operator to ensure they form a whole and safe system of work;
 - 8.1.5 system activation following installation, reinstallation and renewals;
 - 8.1.6 safety assurances and the Case for Safety are achieved at the issue of a Certificate of Sectional Completion and thereafter maintained and updated as required; and
 - 8.1.7 preparation and updating of a requirements traceability matrix which shall have the ability to trace the requirements of the Employer's Requirements through the design process, the testing procedures and the operation of the Edinburgh Tram Network.
- 8.2 The Infraco shall during the carrying out of construction, installation, reinstatement or renewals be fully responsible for ensuring that the Trams and any engineer's works vehicles are fully integrated with the Infraco Works. The Infraco shall thereafter be fully responsible for maintaining that the Trams and any engineering works vehicles are fully integrated with the Edinburgh Tram Network.
- 8.3 The Infraco shall carry out and thereafter maintain all of the system integration activities described in Schedule Part 2 (*Employer's Requirements*) and Schedule Part 30 (*Infraco's Proposals*) the achievement of which is tracked in accordance with Clause 8.1.7.
- 8.4 The Infraco shall liaise with the Operator and **tie** as instructed by **tie** in relation to:
- 8.4.1 system operation and related design issues;

8.4.2 the Systems Acceptance Tests; and

8.4.3 operational defects.

- 8.5 The Infraco shall be responsible for ensuring that all elements of the design (which form part of the Infraco Works) relative to the Edinburgh Tram Network are compatible with system integration and the Infraco shall make qualified personnel available to ensure system integration throughout the Term.
- 8.6 As part of the Infraco Works, the Infraco shall be responsible for managing the configuration control of the Edinburgh Tram Network, specifically, but not exclusively controlling the introduction of software changes and hardware modifications through version control.
- 8.7 The Infraco shall procure in particular that the Tram Supplier and the Tram Maintainer comply with their obligations under the Tram Supply Agreement and the Tram Maintenance Agreement as set out in of the Schedule Part 39 (*Tram Supply Agreement and Tram Maintenance Agreement Obligations*) and shall notify **tie** of any breach of such obligations by the Tram Supplier or Tram Maintainer as soon as practicable after the Infraco becomes aware of any such breach.

9. TITLE

General Provisions

- 9.1 Subject to Clauses 9.6 and 9.7, the Infraco shall transfer or ensure that it procures the transfer of title to CEC in all materials, goods, and equipment intended to form part of the completed Edinburgh Tram Network and all Parts (including Spare Parts and Special Tools but excluding such spare parts owned by Infraco and brought on to the Site for the purposes of this Agreement) supplied or provided by the Infraco pursuant to this Agreement, as the case may be, on the later of:
- 9.1.1 payment (less any retention applicable) by **tie** to the Infraco of the price for such materials, goods, equipment and Parts (including Spare Parts and Special Tools) in accordance with this Agreement, and
- 9.1.2 delivery of such item to the Depot or such other part of the Site where the Infraco Works are being carried out;
- and such title shall vest in CEC free and clear of all Security Interests and other third party rights of any nature. Subject to Clause 90 (Termination on Infraco Default), **tie** shall, and

shall procure that CEC shall, not take any action which would interfere with Infraco and the Infraco Parties use in the performance of the Infraco's obligations under this Agreement of the materials, goods, equipment and Parts in which title has passed to **tie** or CEC. If required, the Infraco shall at its own expense take all such steps and execute, and procure the execution of, all such instruments as **tie** may reasonably require to ensure that title so passes to CEC according to Law.

9.1.3 For the avoidance of doubt, an Insolvency Event in respect of one Infraco Member shall not absolve the other Infraco Member from its obligations in relation to the delivery of any goods, materials or equipment forming part of or required for the Infraco Works and in respect of which **tie** has made an advance payment to the Infraco, irrespective of how the Infraco Member determined such advance payment should be deployed.

9.2 Any materials, goods, and equipment intended to form part of the completed Edinburgh Tram Network and all Parts (including Spare Parts and Special Tools) in which title has passed to CEC which are at any time removed from the Edinburgh Tram Network will remain the property of CEC and the Infraco undertakes (and shall procure that the Infraco Parties so undertake) to the extent reasonably practicable, to clearly identify such materials, goods, and equipment and all Parts (including Spare Parts and Special Tools) as belonging to CEC and to keep all such Parts stored separately from any third party's property. The location of all such Parts shall be tracked in the Asset Management System at all times. Where, in the Infraco's reasonable opinion, it is necessary to dispose of any such materials, goods, equipment and Parts (including Spare Parts and Special Tools), the Infraco shall notify, and obtain the consent of, **tie** (such consent not to be unreasonably withheld) prior to such disposal. **tie** shall respond within 5 Business Days of receipt of such notification. Where **tie** has not responded within 5 Business Days, the Infraco may effect such disposal.

9.3 The Infraco shall at all times at its own expense label or otherwise clearly identify with a unique traceable coding system as being the property of CEC (and shall procure that Infraco Parties do likewise) any materials, goods, and equipment forming or intended to form part of the completed Edinburgh Tram Network and all Parts (including Spare Parts and Special Tools) in the Infraco's or any Infraco Party's possession or control in relation to which advance payment has been made and/or title has vested in CEC pursuant to this Agreement and the Infraco shall ensure that such items shall at all times in the Infraco's (or any Infraco Party's) possession or control be kept separate from the Infraco's or any third party's goods all to the extent that is agreed practicable by the Parties acting reasonably.

- 9.4 The Infraco shall incorporate provisions equivalent to those provided in Clauses 9.1 to 9.2 (mutatis mutandis) in every sub-contract in order to protect **tie** and CEC's interests in all supplies, materials, goods or equipment intended for the Infraco Works.
- 9.5 **tie** shall, at Infraco's request and where **tie** is satisfied that the Infraco has no equivalent contractual remedy, procure that CEC pursues any claim which CEC may have against the supplier of faulty or defective materials, goods, equipment and Parts in which title has vested in CEC and shall reimburse to Infraco all amounts recovered as a result of such claim subject to Infraco reimbursing the reasonable and proper costs incurred by CEC in pursuing the claim.

Title in the Trams

- 9.6 The Infraco shall procure that each Tram and item of Tram Related Equipment is supplied to **tie** free from all Security Interests, and other third party rights of any nature.
- 9.7 The Infraco shall procure that the Tram Supplier shall, pursuant to the Tram Supply Agreement, transfer title:
- 9.7.1 in each Tram, to CEC, on (i) delivery of that Tram to the Depot (or other designated delivery point in Edinburgh) and on the Certificate of Tram Commissioning being issued in respect of that Tram and in any event within twenty four hours of the successful completion of the Tram Commissioning Tests or (ii) by exception on an individual Tram basis, at the absolute discretion of **tie** and formalised in writing when a Tram is complete and a Factory Acceptance Test Certificate (as defined in the Tram Supply Agreement) has been issued pursuant to the Tram Supply Agreement;
- 9.7.2 to each item of the Tram Related Equipment to CEC, on the later of delivery of each item of the Tram Related Equipment to CEC and the Certificate of Tram Commissioning being issued in respect of the first Tram.

Interoperability and Warranty

- 9.8 The Infraco undertakes that all parts, components, systems, devices, equipment, software and mechanisms incorporated in the Edinburgh Tram Network and the Trams shall be at each Sectional Completion Date and thereafter be maintained so that they are:
- 9.8.1 fit for purpose, compatible and interoperable with each other; and
- 9.8.2 compliant with the Employer's Requirements

For the purposes of this Clause 9.8, "fit for purpose" in relation to any item means that it complies with the Employer's Requirements applicable to that item.

For the avoidance of doubt, this undertaking shall not apply to any items which are to be supplied to Infracore or any Infracore Party by or on behalf of **tie** or any **tie** Party.

9.9 The Infracore shall ensure that:

9.9.1 the relevant parts of the Edinburgh Tram Network (including all fare collection equipment except any Free Issue Fare Collection Equipment) are or will be Euro Compliant before any introduction of the single European currency in the United Kingdom and the Edinburgh Tram Network will not be affected by the introduction of the single European currency in the United Kingdom;

9.9.2 the Infracore's own internal systems and procedures are or will be Euro Compliant before the introduction of the single European currency in the United Kingdom and the Infracore Works will not be affected by the introduction of the single European currency in the United Kingdom; and

9.9.3 the relevant parts of the Edinburgh Tram Network (including all fare collection equipment except any fare collection equipment which is Free Issue Fare Collection Equipment to Infracore or any Infracore Party by or on behalf of **tie** or any **tie** Party) shall at all times throughout the Term be compliant with all Law applicable in relation to the Euro in the United Kingdom, including the rules on conversion, triangulation and rounding set out in EU Regulation Number 1103/97 and any subsequent or similar regulations or Law.

9.10 For the purposes of Clause 9.9 above "**Euro Compliant**" means that (i) the introduction of the Euro within the United Kingdom or any part thereof shall not affect the performance or functionality of any relevant items nor cause such items to malfunction, end abruptly, provide invalid results or adversely affect business, and (ii) all currency reliant and currency related functions (including all calculations concerning financial data) of any relevant items to enable the introduction and operation of the Euro, and (iii) in particular (but without limitation) each and every relevant item shall, to the extent it performs or relies upon currency related functions (including all calculations concerning financial data):

9.10.1 be able to perform all such functions in both the national currency of the United Kingdom and in Euros;

- 9.10.2 during any transition phase applicable to the United Kingdom, be able to deal with the dual denominations of the Euro and national currency of the United Kingdom;
- 9.10.3 recognise, accept, display and print all the Euro currency symbols and alphanumeric codes which may be adopted by any government and other European Union body in relation to the Euro;
- 9.10.4 incorporate protocols for dealing with rounding and currency conversion;
- 9.10.5 recognise data expressed in, and express any output data in, the national currency of the United Kingdom and the Euro; and
- 9.10.6 permit the input of data in Euros and display an outcome in Euros where such data, supporting **tie's** normal business practices, operates in Euros and/or the national currency in the UK.
- 9.11 Any malfunction or non-interopability of Free Issue Fare Collection Equipment or failure of **tie** or any **tie** Party to provide such Free Issue Fare Collection Equipment in accordance with the Programme shall be a Compensation Event under this Agreement provided that, in the case of malfunction or non-interopability Infraco has installed the equipment in accordance with the Employer's Requirements and the manufacturer's specifications. For the avoidance of doubt any instruction to remove or replace Free Issue Fare Collection Equipment shall be a **tie** Change provided such malfunction or non-interoperability has not been caused by the Infraco.

Availability of Trams and other goods and materials

- 9.12 Subject to the Tram Supplier transferring title to the Trams to CEC pursuant to the Tram Supply Agreement, and subject to Clause 90 (Termination on Infraco Default) **tie** shall, and shall procure that CEC shall, not take any action which would interfere with Infraco and the Infraco Parties use in the performance of the Infraco's obligations under this Agreement of the Trams and any materials, goods, and equipment in which title has passed to **tie** or CEC pursuant to this Agreement or the Tram Supply Agreement being available to the Infraco and the Infraco Parties for use in the performance of the Infraco's obligations under this Agreement.

10. DEVELOPMENT, REVIEW AND FINALISATION OF THE DELIVERABLES

- 10.1 The Infraco shall develop and finalise the Deliverables in accordance with the Programme and this Agreement, and **tie** shall review the Deliverables and procure that CEC reviews the

Deliverables (which shall include any amendment to any Submitted Item) in accordance with Schedule Part 14 (*Review Procedure and Design Management Plan*).

- 10.2 The Infraco shall submit any Deliverables associated with any Permitted Variations to **tie's** Representative for review pursuant to Schedule Part 14 (*Review Procedure and Design Management Plan*).
- 10.3 The Infraco shall allow **tie's** Representative, at any reasonable time, a reasonable opportunity to view any Deliverable at any stage of development, and this opportunity shall be made available to **tie's** Representative as soon as reasonably practicable following receipt of any written request from **tie's** Representative.
- 10.4 The Infraco shall establish and maintain an extranet which **tie**, any **tie** Parties and any other party reasonably required by **tie** may access remotely by computer (through an appropriate login/security regime) to view any Deliverables including any drawings comprised within the Deliverables and electronically store and/or print copies of such Deliverables.
- 10.5 The Infraco shall ensure that the Programme shall set out (and shall continue to set out) the manner and timing of each phase of the development and production of the Deliverables, the identity (where known) of the party producing the Deliverables, the order in which each Deliverable is to be submitted for review in accordance with the Review Procedure and the programme for uploading the Deliverables onto the extranet in accordance with Clause 10.3. , If at any time, **tie** considers that the Programme will not allow completion of the Infraco Works in accordance with this Agreement, then the Infraco shall make such adjustments as are necessary for that purpose.
- 10.6 The Infraco may, as necessary, update such Programme and shall submit the same from time to time to **tie's** Representative so that **tie** has at least 10 Business Days' notice (or such shorter period as may be agreed between the Parties) of any revision to the periods shown in the previous Programme and the Infraco shall submit to **tie's** Representative five copies of each draft Deliverable in hard copy form and one copy in agreed soft copy form (as appropriate to the format of the deliverable) no later than the end of the period shown in the Programme for that Deliverable.
- 10.7 Where **tie's** Representative does not consider that **tie** will be able to comply with the periods specified in Schedule Part 14 (*Review Procedure and Design Management Plan*) for indicating 'no objection' status or the making of objections in relation to any Deliverable because of the volume of documents to be received in accordance with the Submittal Programme, either the provisions of paragraph 1.4 of Schedule Part 14 (*Review Procedure and*

Design Management Plan) shall apply or **tie** may introduce an alternative timetable and the Infraco shall comply with such alternative timetable. Provided that, where **tie** is unable to comply with the time periods set out in Schedule Part 14 (*Review Procedure and Design Management Plan*) and such inability is not due to any breach of the Programme or this Agreement, omission or fault on the part of the Infraco, the introduction of an alternative timetable shall be a **tie** Change and the terms of Clause 80 (**tie** Changes) shall apply.

10.8 During the preparation of the Deliverables, **tie** and/or **tie's** Representative shall at its absolute discretion be entitled to call for a meeting to discuss the development of any Deliverable, and the Infraco shall give due consideration to any comments made by **tie** or **tie's** Representative at any such meetings. As soon as reasonably practicable following any such meeting, the Infraco will prepare and circulate to those attending the meeting, a report listing the Deliverables discussed and any comments made at such meeting.

10.9 If it should be found that any Deliverable does not fulfil the requirements of this Agreement, or the needs of any Approval Bodies, the Infraco shall amend the Deliverable. Such amendment shall be at the Infraco's cost except where such amendment is required in order for the Deliverable to meet the requirements of any Approval Bodies, where such requirements are:

10.9.1 inconsistent with or in addition to the Infraco Proposals or the Employer's Requirements;

10.9.2 not reasonable given the nature of the Approval Body; or

10.9.3 not reasonably foreseeable within the context of the Infraco's Proposals or the Employer's Requirements,

in which case such amendment shall be a Mandatory **tie** Change. All such amendments shall be made in accordance with Schedule Part 14 (*Review Procedure and Design Management Plan*) and shall ensure that the Deliverable shall satisfy the requirements of this Agreement and any Approval Bodies.

10.10 The Infraco shall provide **tie** with all Deliverables in accordance with the terms of this Agreement and where no timescale for provision of such Deliverables is specified in the Programme, such Deliverables shall be provided to **tie** as soon as reasonably practicable. The Infraco shall provide to **tie**, at no cost to **tie**, five copies of the agreed Deliverables in hard copy form and one copy in an agreed soft copy form (as appropriate to the format of the Deliverables).

- 10.11 In respect of any further copies of a particular Deliverable which **tie** may require, **tie** shall pay the Infraco the reasonable copying charges or other reasonable charges for the provision of the same to **tie**.
- 10.12 Subject to Infraco's express rights under this Agreement, the Infraco accepts all risks arising from any conflicts, ambiguities, discrepancies, errors or omissions that subsequently appear within or between any of the Deliverables, and the Infraco shall not be entitled to make any claim against **tie** for an extension of time, payment or otherwise in respect of any such conflicts, ambiguities, discrepancies, errors or omissions.
- 10.13 The Infraco shall within 12 Business Days notify **tie** upon becoming aware of any conflicts, ambiguities, discrepancies, errors or omissions within or between any of the Deliverables. Where there are any conflicts, ambiguities, discrepancies, errors or omissions, the Infraco shall provide with any such notification, its proposals for resolving such conflicts, ambiguities, discrepancies, errors or omissions in compliance with this Agreement. Such proposals could include the suggestion that no action is required. The Infraco shall proceed with its proposals to resolve any such conflicts, ambiguities, discrepancies, errors or omissions as soon as reasonably practicable. If the proposal from the Infraco is that no action is required or **tie** does not agree with the action proposed by the Infraco, **tie** may notify the Infraco, within 8 Business Days of the Infraco's notice, to resolve any conflicts, ambiguities, discrepancies, errors or omissions in a different manner (which notification shall be binding on the Infraco and shall be deemed to be instructions in accordance with Clause 34.1, but shall be reasonable in time and cost having regard to the Employer's Requirements).
- 10.14 The Infraco shall ensure that all Deliverables comply with the document control requirements specified at paragraph 3.1.2.1 of part A, and paragraph 3.1.2.1 of part B, of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*).
- 10.15 The Infraco shall keep on Site or in the office or offices established pursuant to Clause 10.16 one copy (in paper or electronic format) of all drawings for construction and of all specifications and the same shall at all reasonable times be available for inspection and use by **tie's** Representative and by any other person authorised by it.
- 10.16 The Infraco shall establish at the Site and/or elsewhere an office or offices which shall be staffed during all normal business hours and at which shall be kept a complete, up-to-date and orderly documentary record of the performance of the Infraco Works, all transactions entered into by the Infraco in relation to any potential or actual Permitted Variations and information (including any transactional information) in relation to any claims for additional costs or expenses from the Infraco to **tie** arising in accordance with the terms of this Agreement

(including Compensation Events). To the extent necessary to verify any claim made by the Infraco under this Agreement, **tie**, **tie's** Representative or their duly authorised representatives shall during all normal business hours be permitted to inspect the same and to take copies and to use such copying facilities as are maintained at the place where the records are kept.

- 10.17 The Parties shall adhere to the requirements of the Design Management Plan in terms of timescales, packaging, sequencing and provision of information to support the design approval process.
- 10.18 If the Parties agree to and, following such agreement, **tie** instructs an early release of Issued for Construction Drawings, any subsequent changes required to such Issued for Construction Drawings which arise from the later stages of the Review Procedure shall be instructed as necessary by **tie** and implemented by the Infraco (and the SDS Provider) without a **tie** Change, save where the aggregate costs of any such changes exceeds one million, five hundred thousand pounds (£1,500,000) in which event such change shall be instructed as a Mandatory **tie** Change (provided that there will be no such Mandatory **tie** Change or inclusion of costs in the above cap where the change to the Issued for Construction Drawings is required as a consequence of the SDS Provider or the Infraco being in breach of their obligations in respect of design content or quality pursuant to the SDS Agreement or this Agreement).

PART 3 - NOVATION OF SDS AGREEMENT, TRAM SUPPLY AGREEMENT AND TRAM MAINTENANCE AGREEMENT, AND PROVISION OF TRAM MAINTENANCE SERVICES

11. NOVATION OF THE SDS AGREEMENT TO THE INFRACO

- 11.1 **tie** has entered into the SDS Agreement with the SDS Provider. It is one of the conditions precedent to this Agreement coming into full effect that the Infraco shall enter into and execute a novation agreement with **tie** and the SDS Provider in the form set out in Schedule Part 23 (*SDS Novation Agreement*). **tie** shall execute and shall procure the execution by the SDS Provider of such novation agreement.
- 11.2 On the last date of execution of the novation agreement referred to in Clause 11.1, **tie** and the Infraco shall execute a collateral warranty agreement from the SDS Provider which is in favour of **tie** in the form contained in Schedule Part 24 (*SDS Collateral Warranty in favour of tie*).
- 11.3 The Infraco shall procure that the SDS Provider shall carry out and complete the SDS Services in accordance with the SDS Agreement. To the extent that the SDS Services are and have been carried out and completed in accordance with the SDS Agreement, Infraco will be deemed to

have complied with its obligations under this Agreement to procure that the SDS Provider in its capacity as an Infraco Party complies with the requirements of this Agreement.

- 11.4 The Infraco shall carry out all required management activities in order to manage the performance of the SDS Services and, subject to any express limitations or rights in relation to the performance of the SDS Services in this Agreement, the Infraco shall be wholly liable for the performance of the SDS Services.
- 11.5 The Infraco shall not amend the SDS Agreement (including the SDS Services) without the prior written approval of **tie** (such approval not to be unreasonably withheld or delayed) provided that **tie's** consent shall be deemed to have been given in relation to any amendment to the SDS Agreement (including the SDS Services) which is directly required as a result of any Permitted Variation in so far as such amendment has been raised by the Infraco as part of the process of approving such Permitted Variation in accordance with this Agreement.
- 11.6 As reasonably required by **tie**, the Infraco shall procure the attendance of the SDS Provider at any meeting in relation to the Infraco Works.
- 11.7 Subject to the provisions of the SDS Agreement, the Infraco shall use reasonable endeavours to procure that the SDS Provider shall perform any additional services which may be required and specifically instructed by **tie** in respect of the Edinburgh Tram Network and the requirement for any additional services shall be a **tie** Change in accordance with Clause 80 (**tie Changes**).
- 11.8 The Infraco shall not terminate in full the appointment of the SDS Provider without the prior written approval of **tie**, such approval not to be unreasonably withheld. If **tie** approves any such termination, a replacement designer shall be proposed by the Infraco in accordance with Clause 28 (*Sub-Letting and the Appointment of Sub-Contractors*).
- 11.9 If required by **tie**, on termination or expiry of this Agreement, the Infraco shall novate, assign or otherwise transfer the whole of the SDS Agreement as directed by **tie**, to:
- 11.9.1 **tie**, the Scottish Ministers, TEL, CEC, Transport Scotland or their successors with no worse financial standing than that of **tie**; or
- 11.9.2 to any other person whose obligations under the SDS Agreement are unconditionally and irrevocably guaranteed by a person falling within Clause 11.9.1.

In the case of such a novation or assignation, the Infraco shall be entitled, and **tie** shall assist the Infraco, to obtain a collateral warranty from the SDS Provider.

12. NOVATION OF THE TRAM SUPPLY AGREEMENT TO THE INFRACO

- 12A **tie** intends to enter into or has entered into a tram supply agreement with the Tram Supplier. It is one of the conditions precedent to this Agreement coming into full effect that the Infraco shall enter into and execute a novation agreement with **tie** and the Tram Supplier in the form set out in Schedule Part 17 (*Tram Supply Novation Agreement*). **tie** shall execute (if not already executed), and shall procure the execution by the Tram Supplier (if not already executed) of such novation agreement and the Tram Supply Agreement.
- 12.1 On the last date of execution of the novation agreement referred to in Clause 12A, **tie** and the Infraco shall, and the Infraco shall procure that the Tram Supplier shall, execute a collateral warranty agreement in favour of **tie** in the form contained in Schedule Part 18 (*Tram Supply Collateral Warranty in favour of tie*) and the Infraco shall provide the same as executed to **tie** on that date.
- 12.2 The Infraco shall procure that the Tram Supplier shall carry out and complete the Tram Supply Obligations in accordance with the Tram Supply Agreement.
- 12.3 The Infraco shall carry out all required management activities in order to manage the performance of the Tram Supply Obligations subject to any express limitations in this Agreement and the Infraco shall be wholly liable for the performance of the Tram Supply Obligations.
- 12.4 The Infraco shall not amend the Tram Supply Agreement (including the Tram Supply Obligations) without the prior written approval of **tie** (such approval not to be unreasonably withheld or delayed) provided that **tie's** consent shall be deemed to have been given in relation to any amendment to the Tram Supply Agreement (including the Tram Supply Obligations) which is directly required as a result of any Permitted Variation in so far as such amendment has been raised by the Infraco as part of the process of approving such Permitted Variation in accordance with this Agreement.
- 12.5 As reasonably required by **tie**, the Infraco shall procure the attendance of the Tram Supplier at any meeting in relation to the Infraco Works.
- 12.6 Subject to the provisions of the Tram Supply Agreement, the Infraco shall use reasonable endeavours to procure that the Tram Supplier shall supply any additional Trams and/or spare parts and provide any additional services, which are required by **tie** in respect of the Edinburgh Tram Network and the requirement for any additional supply and/or services shall be a **tie** Change in accordance with Clause 80 (*tie Changes*).

- 12.7 Within 5 Business Days of becoming aware that the Tram Supplier's continuing defective performance under the Tram Supply Agreement entitles, or is likely to entitle, the Infraco to serve a termination notice pursuant to the Tram Supply Agreement or entitles or is likely to entitle **tie** to serve a termination notice pursuant to this Agreement, the Infraco shall notify **tie**, such notification to include:
- 12.7.1 a statement that the Infraco has, or is likely to have, an entitlement to serve a termination notice on the Tram Supplier pursuant to the Tram Supply Agreement;
 - 12.7.2 the basis for and an explanation of the circumstances justifying such entitlement to serve the termination notice;
 - 12.7.3 the actions, if any, that the Infraco has been able to take to rectify the Tram Supplier's defective performance;
 - 12.7.4 the Infraco's proposal to deliver the Infraco Works with an alternative Tram Supplier or methodology for procuring an alternative Tram Supplier; and
 - 12.7.5 any obligations Infraco is prevented from or restricted in performing.
- 12.8 **tie** shall review the Infraco's notification and within 5 Business Days **tie** shall respond to the Infraco stating that:
- 12.8.1 it consents to the termination of the Tram Supply Agreement; or
 - 12.8.2 it wishes to agree a comprehensive plan which will have as its objective sustainable rectification (measured against agreed programme and production criteria over a set period) of the Tram Supplier's poor performance (the "**Tram Supply Rectification Plan**").
- 12.9 If **tie** notifies the Infraco of its intention to agree a Tram Supply Rectification Plan in accordance with Clause 12.8 above, the Parties, in such consultation with the Tram Supplier as the Parties may agree, shall negotiate in good faith and use their reasonable endeavours to agree the Tram Supply Rectification Plan, which shall set out:
- 12.9.1 the actions required to be taken by each of **tie**, the Infraco and the Tram Supplier in order to achieve the sustainable rectification (measured against an agreed revised programme and production criteria over a set period) of the Tram Supplier's poor performance;

12.9.2 any specific alternative terms or modifications to the terms of the Tram Supply Agreement;

12.9.3 any specific alternative terms or modifications to the terms of this Agreement;

such that neither Infraco or the Tram Supplier will be in breach of the Tram Supply Agreement or this Agreement if the Tram Supplier performs at that level.

12.10 If the Parties cannot agree the Tram Supply Rectification Plan within 60 Business Days of **tie** notifying the Infraco under Clause 12.9, then the Infraco shall be entitled to serve a termination notice on the Tram Supplier.

12.11 If **tie** notifies Infraco that it consents to the termination of the Tram Supply Agreement the Parties shall meet and agree in good faith a plan (the "**Tram Supply Termination Plan**") for the procurement of a replacement Tram Supplier, including agreement in relation to:

12.11.1 the timing of termination of the Tram Supply Agreement;

12.11.2 interim arrangements for the provision of services provided under the Tram Supply Agreement whilst a replacement Tram Supplier is being procured;

12.11.3 changes (if any) to be made to the Tram Supply Agreement for the re-procurement and consequential amendments to this Agreement as a result;

12.11.4 actions of **tie** and Infraco required to complete the procurement and the programme for implementing the procurement.

12.12 If **tie** notifies the Infraco that it wishes to agree a Tram Supply Rectification Plan or that it consents to the termination of the Tram Supply Agreement, provided that the Infraco is not in breach of any of its obligations regarding payment for the supply of Trams, the Infraco's obligations (including the application of liquidated damages for delay in the supply of Trams or as a result of a delay in the supply of Trams) specifically relating to the supply of Trams under this Agreement or which Infraco may be prevented in performing as a result of the Tram Supplier's failure to perform under the Tram Supply Agreement shall be suspended from the date Infraco serves a notice under Clause 12.7 until the Tram Supply Rectification Plan is agreed or a replacement Tram Supplier is appointed. Negotiation and implementation of a Tram Supply Rectification Plan or Tram Supply Termination Plan, shall be a **tie** Change under Clause 80 (**tie** Changes).

- 12.13 Amendments to this agreement agreed as part of a Tram Supply Rectification Plan or Tram Supply Termination Plan will be a Mandatory **tie** Change under this Agreement.
- 12.14 Under no circumstances shall the Infraco serve any notice to terminate the Tram Supply Agreement until such time as either:
- 12.14.1 **tie** has notified Infraco of its approval to such termination pursuant to Clause 12.8 above; or
- 12.14.2 the Parties have not been able to agree the Tram Supply Rectification Plan pursuant to Clause 12.9 above.
- 12.15 If required by **tie**, on termination or expiry of this Agreement, the Infraco shall novate, assign or otherwise transfer the whole or any part of the Tram Supply Agreement, as directed by **tie**, to:
- 12.15.1 **tie**, the Operator, the Scottish Ministers, TEL, CEC, Transport Scotland or their successors with no worse financial standing than that of **tie**; or
- 12.15.2 to any other person whose obligations under the Tram Supply Agreement are unconditionally and irrevocably guaranteed by a person falling within Clause 12.15.1.
- In the case of such a novation or assignment, the Infraco shall be entitled, and **tie** shall assist the Infraco, to obtain a collateral warranty from the Tram Supplier.

13. NOVATION OF THE TRAM MAINTENANCE AGREEMENT TO THE INFRACO

- 13.1 **tie** intends to enter into or has entered into a tram maintenance agreement with the Tram Maintainer. It is one of the conditions precedent to this Agreement coming into full effect that the Infraco shall enter into and execute a novation agreement with **tie**, and the Tram Maintainer in the form set out in Schedule Part 20 (*Tram Maintenance Novation Agreement*). **tie** shall execute (if not already executed), and shall procure the execution by the Tram Maintainer (if not already executed) of such novation agreement and the Tram Maintenance Agreement.
- 13.2 On the last date of execution of the novation agreement referred to in Clause 13.1, **tie** and the Infraco shall, and the Infraco shall procure that the Tram Maintainer shall, execute a collateral warranty agreement in favour of **tie** in the form contained in Schedule Part 21 (*Tram Maintenance Collateral Warranty in favour of tie*) and the Infraco shall provide the same as executed to **tie** on that date.

- 13.3 The Infraco shall procure that the Tram Maintainer shall carry out and complete the Tram Maintenance Services in accordance with the Tram Maintenance Agreement.
- 13.4 The Infraco shall carry out all required management activities in order to manage the performance of the Tram Maintenance Services and, subject to any express limitations in this Agreement, the Infraco shall be wholly liable for the performance of the Tram Maintenance Services.
- 13.5 The Infraco shall not amend the Tram Maintenance Agreement (including the Tram Maintenance Services) without the prior written approval of **tie** (such approval not to be unreasonably withheld or delayed) provided that **tie's** consent shall be deemed to have been given in relation to any amendment to the Tram Maintenance Agreement (including the Tram Maintenance Services) which is directly required as a result of any Permitted Variation in so far as such amendment has been raised by the Infraco as part of the process of approving such Permitted Variation in accordance with this Agreement.
- 13.6 As reasonably required by **tie**, the Infraco shall procure the attendance of the Tram Maintainer at any meeting in relation to the Infraco Works.
- 13.7 Subject to the provisions of the Tram Maintenance Agreement, the Infraco shall use reasonable endeavours to procure that the Tram Maintainer shall supply any additional spare parts and/or perform any additional services which are required by **tie** in respect of the Edinburgh Tram Network and the requirement for any additional supply and/or services shall be a **tie** Change in accordance with Clause 80 (**tie** Changes).
- 13.8 Within 5 Business Days of becoming aware that the Tram Maintainer's continuing defective performance under the Tram Maintenance Agreement entitles, or is likely to entitle, the Infraco to serve a termination notice pursuant to the Tram Maintenance Agreement or entitles or is likely to entitle **tie** to serve a termination notice pursuant to this Agreement, the Infraco shall notify **tie**, such notification to include:
- 13.8.1 a statement that the Infraco has, or is likely to have, an entitlement to serve a termination notice on the Tram Maintainer pursuant to the Tram Maintenance Agreement;
- 13.8.2 the basis for and an explanation of the circumstances justifying such entitlement to serve the termination notice;
- 13.8.3 the actions, if any, that the Infraco has been able to take to rectify the Tram Maintainer's defective performance;

- 13.8.4 the Infraco's proposal to deliver the Infraco Works with an alternative Tram Maintainer or methodology for procuring an alternative Tram Maintainer; and
- 13.8.5 any obligations Infraco is prevented from or restricted in performing.
- 13.9 **tie** shall review the Infraco's notification and within 5 Business Days **tie** shall respond to the Infraco stating that:
- 13.9.1 it consents to the termination of the Tram Maintenance Agreement; or
- 13.9.2 it wishes to agree a comprehensive plan which will have as its objective sustainable rectification (measured against agreed programme and production criteria over a set period) of the Tram Maintainer's poor performance (the "**Tram Maintenance Rectification Plan**").
- 13.10 If **tie** notifies the Infraco of its intention to agree a Tram Maintenance Rectification Plan in accordance with Clause 13.9 above, the Parties, in such consultation with the Tram Maintainer as the Parties may agree, shall negotiate in good faith and use their reasonable endeavours to agree the Tram Maintenance Rectification Plan, which shall set out:
- 13.10.1 the actions required to be taken by each of **tie**, the Infraco and the Tram Maintainer in order to achieve the sustainable rectification (measured against an agreed revised programme and production criteria over a set period) of the Tram Maintainer's poor performance;
- 13.10.2 any specific alternative terms or modifications to the terms of the Tram Maintenance Agreement;
- 13.10.3 any specific alternative terms or modifications to the terms of this Agreement;
- such that neither Infraco or the Tram Maintainer will be in breach of the Tram Maintenance Agreement or this Agreement if the Tram Maintainer performs at that level.
- 13.11 If the Parties cannot agree the Tram Maintenance Rectification Plan within 60 Business Days of **tie** notifying the Infraco under Clause 13.9, then the Infraco shall be entitled to serve a termination notice on the Tram Maintainer.
- 13.12 If **tie** notifies Infraco that it consents to the termination of the Tram Maintenance Agreement the Parties shall meet and agree in good faith a plan (the "**Tram Maintenance Termination Plan**") for the procurement of a replacement Tram Maintainer, including agreement in relation to:

- 13.12.1 the timing of termination of the Tram Maintenance Agreement;
- 13.12.2 interim arrangements for the provision of services provided under the Tram Maintenance Agreement whilst a replacement Tram Maintainer is being procured;
- 13.12.3 changes (if any) to be made to the Tram Maintenance Agreement for the re-procurement and consequential amendments to this Agreement as a result; and
- 13.12.4 actions of **tie** and Infraco required to complete the procurement and the programme for implementing the procurement.
- 13.13 If **tie** notifies the Infraco that it wishes to agree a Tram Maintenance Rectification Plan or that it consents to the termination of the Tram Maintenance Agreement, provided that the Infraco is not in breach of any of its obligations regarding payment for the maintenance of Trams, the Infraco's obligations (including the application of liquidated damages for delay in the maintenance of Trams or as a result of a delay in the maintenance of Trams) specifically relating to the maintenance of Trams under this Agreement or which Infraco may be prevented in performing as a result of the Tram Maintainer's failure to perform under the Tram Maintenance Agreement shall be suspended from the date Infraco serves a notice under Clause 13.8 until the Tram Maintenance Rectification Plan is agreed or a replacement Tram Maintainer is appointed. Negotiation and implementation of a Tram Maintenance Rectification Plan or Tram Maintenance Termination Plan, shall be a **tie** Change under Clause 80 (**tie Changes**).
- 13.14 Amendments to this agreement agreed as part of a Tram Maintenance Rectification Plan or Tram Maintenance Termination Plan will be a Mandatory **tie** Change under this Agreement.
- 13.15 Under no circumstances shall the Infraco serve any notice to terminate the Tram Maintenance Agreement until such time as either:
- 13.15.1 **tie** has notified Infraco of its approval to such termination pursuant to Clause 13.9 above; or
- 13.15.2 the Parties have not been able to agree the Tram Maintenance Rectification Plan pursuant to Clause 13.10 above.
- 13.16 If required by **tie**, on termination or expiry of this Agreement, the Infraco shall novate, assign or otherwise transfer the whole or any part of the Tram Maintenance Agreement as directed by **tie**, to:

13.16.1 **tie**, the Operator, the Scottish Ministers, TEL, CEC, Transport Scotland or their successors with no worse financial standing than that of **tie**; or

13.16.2 to any other person whose obligations under the Tram Maintenance Agreement are unconditionally and irrevocably guaranteed by a person falling within Clause 13.16.1.

In the case of such a novation or assignation, the Infraco shall be entitled, and **tie** shall assist the Infraco, to obtain a collateral warranty from the SDS Provider.

14. TIE'S OBLIGATIONS

tie shall carry out and complete or procure the carrying out and completion of the works set out in Schedule Part 26 (*tie Obligations*) (by no later than the date Infraco requires such works to be completed to allow it to comply with the Programme and achieve the Sectional Completion Dates by the Planned Sectional Completion Dates). Should **tie** fail to carry out these obligations in accordance with the Programme, such failure shall be deemed to be a Notified Departure.

PART 4 - INTERFACES

15. LOCAL CODES OF CONSTRUCTION PRACTICE

15.1 In the event that **tie** requires to establish a Local Code of Construction Practice, the Infraco shall:

15.1.1 provide **tie** with all reasonable assistance required by **tie** in establishing such Local Code of Construction Practice;

15.1.2 provide **tie** with all reasonable assistance required by **tie** in the identification and settlement of any issues that such party requires **tie** to take account of in such Local Code of Construction Practice and

15.1.3 provide **tie** with method statements for the execution of the Infraco Works that are relevant to the establishment of such Local Code of Construction Practice.

15.2 If compliance with Clause 15.1.1 or 15.1.2 or implementation of the Infraco Works in accordance with any Local Code of Construction Practice, causes any delay in the completion of the Infraco Works, or disruption to the Infraco's construction methodology or the Infraco to incur additional cost, such compliance or implementation shall be a Compensation Event to which Clause 65 applies.

- 15.3 If, in implementing the Infraco Works under any such Local Code of Construction Practice, the Infraco's performance against the Programme, its productivity, or its construction methodology has improved then this shall be a **tie** Change under Clause 80 (*tie Changes*).

16. INTERFACE WITH NETWORK RAIL

- 16.1A The Infraco acknowledges that **tie** will enter into the Asset Protection Agreement with Network Rail in relation to the Edinburgh Tram Network.

- 16.1B The Infraco undertakes to comply with its obligations in relation to Clauses 16.1 to 16.73 (inclusive).

- 16.1 For the purposes of this Clause 16, the following expressions shall, unless the context otherwise requires, have the following meanings:

"APA Commencement Date" means the last date of execution of the Asset Protection Agreement;

"APA Consent" means all approvals, permissions, consents, licences, certificates, registrations and authorisations (whether statutory or otherwise) which are required from time to time for the purposes of carrying out the APA Works, including such required in order to comply with any law and, for the avoidance of doubt, any consent required in respect of any Regulated Change shall be a **tie** Consent whilst any consent required from any third party to enter and remain upon that third party's land shall be dealt with under Clause 18 (*Land Consents, Permanent Land and Temporary Sites*);

"APA Deliverable" means any Deliverable relating to the design and construction of the APA Works;

"APA Works Programme" means the programme for the carrying out and completion of the APA Works;

"APA Works" means that part of the Infraco Works which are included in "the Works" as defined in the Asset Protection Agreement;

"Bridge Agreement(s)" means the respective agreements to be entered into between Network Rail and CEC and/or **tie** relating to the maintenance and responsibility for the bridges carrying the Edinburgh Tram Network over the Network at Carrick Knowe and Edinburgh Park;

"Contractor's Assurance Case" has the meaning given to that term in standard RT/LS/P/016;

"Direct Costs" means direct costs reasonably incurred by Network Rail in relation to the Edinburgh Tram Network which, for the avoidance of doubt, excludes any loss of production, loss of profit, loss of revenue, loss of contracts or any indirect or consequential loss;

"Group Standards" means:

- (a) technical standards to which railway assets or equipment used on or as part of the Network must conform; and
- (b) operating procedures with which the operators of railway assets must comply,

in each case as issued by the Rail Safety and Standards Board Limited and authorised pursuant to the Railway Group Standard Code;

"Interfacing Project" means the Airdrie-Bathgate Railway and Linked Improvements Project, the Edinburgh to Glasgow Electrification Project and any Edinburgh to Glasgow Route Enhancements or maintenance and renewals activities on the Network adjacent to the areas of the APA Works notified by Network Rail to **tie** on or before the date of the Asset Protection Agreement;

"Network" means the railway network of which Network Rail is the facility owner (as defined in section 17(6) of the Act);

"Network Licence" means the licence to operate the Network granted to Network Rail pursuant to section 8 of the Act;

"Network Operation Issue" shall have the meaning ascribed to it in the Asset Protection Agreement;

"Network Rail Standard" means a standards document (or the equivalent of such document) issued by Network Rail for its own use as amended by Network Rail from time to time in relation to the Network as a whole which applies to the performance of the APA Works;

"Possession" means planned safety arrangements which control or prevent the normal movement of rail traffic on the Network between defined locations and for a pre-defined period (including any speed restrictions);

"Railway" means the Network and Network Rail's operation of it;

"Regulated Change" shall have the meaning ascribed to it in the Asset Protection Agreement;

"**Sector**" means any one of the sectors A to N forming part of the APA Works and identified in Schedule 1 (*Functional Specification*) of the Asset Protection Agreement;

"**Stage Gate Four**" means the approval stage reached following Network Rail's Guide to Railway Investment Projects when approval in principal is required, as may be amended from time to time;

"**Standards**" means Group Standards, Network Rail Standards and any equivalent standards or any standards replacing or superseding any of them;

"**Taking Into Use**" means the act of taking into use of the APA Works or part thereof, and the taking out of use of other assets by Network Rail on the basis that Network Rail is satisfied that the assets in question have been inspected, tested and commissioned, as applicable, in accordance with the requirements set out in the Asset Protection Agreement and "Take Into Use" and "Taken Into Use" shall be construed accordingly;

"**Works Commencement Date**" means the latest of:

- (a) the APA Commencement Date;
- (b) the date upon which all APA Consents (subject to any waivers agreed between the **tie** and Network Rail) have been obtained;
- (c) the date of completion of any preliminary works required to be carried out pursuant to Clause 3 of the Asset Protection Agreement;
- (d) the date on which all the requirements of Clauses 7.4 (other than Clauses 7.4.3 and 7.4.6 to 7.4.9) and 9.2.1 of the Asset Protection Agreement have been satisfied; and
- (e) the date of receipt of evidence confirming that CEC has taken out or has procured that **tie** has taken out the insurances required pursuant to the Asset Protection Agreement

and, for the purposes of paragraph (b) above, the requirement to obtain APA Consents in respect of the Regulated Change process is waived to the extent which will enable works commencement in respect of those Sectors which do not form part of the subject matter of the Regulated Change. Such APA Consents must be obtained prior to works commencement in respect of those Sectors which are the subject matter of the Regulated Change;

- 16.2 The Infraco acknowledges that, in relation to the APA Works, any consent, approval or agreement which is sought by or from **tie** or Network Rail shall be construed as requiring that such consent, approval or agreement shall not be unreasonably delayed or withheld. The

Infraco further acknowledges that Network Rail retains all discretion in relation to safety issues, and that nothing in the Asset Protection Agreement shall require Network Rail to give or procure the giving of any consent or approvals which are contrary to safety or the efficient operation of the railway or which would put Network Rail in breach of the law, the Network Licence or any Standard (subject to Clause 16.20). Where the Infraco has acted in compliance with the terms of the Infraco Contract, any such exercise of discretion by Network Rail which causes delay to the APA Works shall be a Compensation Event.

- 16.3 For the avoidance of doubt, where an APA Consent requires that a new agreement (arising after the Effective Date) is entered into with a third party, a **tie** Change will be required where the obligations under such agreement are to be treated as Third Party Obligations;
- 16.4 The Infraco shall provide **tie** with all reasonable assistance (which, for the avoidance of doubt, shall not include the provision of any undertakings, guarantees, collateral warranties (save as otherwise required under this Agreement) or indemnities) and such documentation as may be reasonably required by **tie** in relation to any Regulated Change process in respect of the Edinburgh Tram Network.
- 16.5 Prior to the commencement of the APA Works, the Infraco shall take all measures and carry out such protective works as may be necessary to protect the safety and continuity of the Railway or to protect any property belonging to Network Rail against instability or physical damage from anticipated ground movement due to the construction of the APA Works, or to prevent, address, alleviate or comply with any Network Operation Issue.
- 16.6 The Infraco shall produce construction methodology for and undertake measures during the execution of the Infraco Works which will minimise ground movement so far as is reasonably practicable and avoid ground movement which may be anticipated to cause physical damage (other than damage of a superficial nature) to property of Network Rail. If the Infraco anticipates that any Infraco Works, including ground consolidation works or soil movement is likely to cause such damage, it shall notify **tie** accordingly. The Infraco shall consult with **tie** in respect of the measures necessary to be taken and shall implement such required measures, such implementation to be at the cost of the Infraco.
- 16.7 The Infraco acknowledges that Network Rail may, following any safety incident in respect of the railway, take immediate action to rectify the safety issue. The Infraco shall not impede or interrupt Network Rail from undertaking such actions where such actions are in accordance with the Asset Protection Agreement. The Infraco shall immediately notify **tie** of any Network Rail proposal, action, or attempt to interrupt the APA Works or take any such action.

- 16.8 Subject to Clauses 16.72, 16.73, 77.2, 77.3, 77.7 and 77.8, the Infraco shall reimburse **tie** in respect of any losses reasonably incurred as a result of the Infraco failing to adhere to the requirements of Clauses 16.4 to 16.6.
- 16.9 The Infraco acknowledges that Network Rail has undertaken to **tie** to provide reasonable access to land in which Network Rail has an interest prior to the APA Works Commencement Date solely for the purposes of:
- 16.9.1 carrying out site surveys relating to the works and any protective works required under Clause 16.4 to 16.6 above;
- 16.9.2 carrying out a conditions and defects survey in respect of those parts of Network Rail property which are specified by **tie**; and
- 16.9.3 storage of materials on those areas notified by **tie** to the Infraco.
- 16.10 The Infraco shall notify **tie** of any plant equipment or materials which are intended to be stored on Network Rail's land for the purposes of **tie** obtaining Network Rail's written approval to such storage. Any such storage shall be at the sole risk of the Infraco and the Infraco shall take such security measures as **tie** considers reasonably necessary to prevent such materials being used to vandalise the Railway.
- 16.11 Network Rail shall (save as referred to in this clause 16.11) at all times have unlimited access to the land in which it has an interest for the purposes of monitoring the APA Works or addressing Network Operation Issues. The Infraco and **tie** acknowledge that Network Rail's rights of access in terms of the Asset Protection Agreement are subject to Network Rail using reasonable endeavours not to interfere, hinder or obstruct the carrying out of the APA Works by the Infraco, and to complying with any relevant safety requirements, rules or regulations. The Infraco shall immediately notify **tie** where it considers that Network Rail is failing to adhere to any of these obligations and, upon such notification, **tie** shall act under the Asset Protection Agreement in seeking to procure that Network Rail will adhere to the obligations.
- 16.12 The Infraco shall promptly notify **tie** of any information in relation to the APA Works which is reasonably required to be obtained from Network Rail in order to carry out the APA Works. The Infraco shall be responsible for any delay arising as a result of its failure to identify and notify **tie** of the need for such information.
- 16.13 The Infraco and **tie** acknowledge that Network Rail shall carry out or procure the carrying out of its obligations under the Asset Protection Agreement:

16.13.1 in accordance with Legal Requirements (as defined in the Asset Protection Agreement) and such other statutory requirements and mandatory standards as may be applicable to the rail industry from time to time (including the Safety Case (as defined in the Asset Protection Agreement));

16.13.2 in accordance with the terms of any APA Consents;

16.13.3 in a timely, economic and efficient manner, having regard at any particular time to Network Rail's obligations, purposes and duties as operator, renewer, maintainer and developer of the Network;

16.13.4 with that degree of skill, diligence and prudence which should be exercised by a skilled and experienced network operator and owner; and

16.13.5 in accordance with and subject to the terms of the Asset Protection Agreement.

The Infraco and **tie** further acknowledge that the standards set out in Clauses 16.13.1 to 16.13.4 are in descending order of priority so that in the event of any conflict between two or more of such standards Network Rail's obligation will be to act in accordance with the standard listed higher above.

16.14 The Infraco shall immediately notify **tie** in the event that Network Rail acts in a way which is not in accordance with Network Rail's obligations as described in Clause 16.13, or is otherwise acting in a manner which is of concern to the Infraco and, upon such notification, **tie** shall act under the Asset Protection Agreement in seeking to procure that Network Rail will adhere to its obligations; **tie** shall immediately notify and provide details to the Infraco in the event of Network Rail notifying **tie** of it becoming aware of any matter which will prevent or impede the carrying out of the APA Works.

16.15 The Infraco shall respond as soon as reasonably practicable to any request by **tie** for documentation or assistance to assist Network Rail in obtaining any consent necessary for the APA Works.

16.16 The Infraco shall prepare any APA Deliverable submission in line with its APA Works Programme and shall notify **tie** not less than 25 Business Days prior to any such submission.

16.17 Upon submittal of any APA Deliverable in relation to the APA Works, the Infraco shall provide a list of the Standards, legal requirements and other guidance and codes of practice which it has complied with in preparing such APA Deliverable, and shall ensure that any further information, data and documents that are reasonably required by **tie** are provided as

soon as reasonably practicable. The Infraco shall comply with any procedures and requirements notified by **tie** to the Infraco from time to time in relation to the submittal of APA Deliverables, whether or not consistent with Clause 10 (*Development, Review, and Finalisation of the Deliverables*).

- 16.18 Where an APA Deliverable is returned by **tie** and receives full approval, the Infraco shall be entitled to proceed with APA Works as specified in the APA Deliverable. Where any APA Deliverable is approved with comments, the relevant APA Works may proceed after the Works Commencement Date subject to the inclusion of the comments, and the Infraco shall record the means of achieving compliance with such comments in writing and promptly submit this to **tie**. In the event that approval is not received in respect of the APA Deliverable, the Infraco shall not act upon the APA Deliverable, but shall amend the APA Deliverable in accordance with comments received and shall resubmit the same.
- 16.19 The Infraco shall not commence detailed design of any part of the APA Works until **tie** has confirmed to the Infraco that Network Rail has approved all relevant APA Deliverables.
- 16.20 The Infraco shall, and shall procure that each of its subcontractors shall, meet the requirements of Network Rail's Link Up Accreditation for all relevant classes of APA Works to be carried out by the Infraco or the particular subcontractor. The Infraco shall, when required by the Infraco, demonstrate that both it and its subcontractors hold the relevant certificate from Network Rail confirming that it and its subcontractor has a Contractor's Assurance Case.
- 16.21 The Infraco shall design, procure and carry out each element of the APA Works in accordance with all Standards as at the date that such element of the APA Works passes Stage Gate Four and any change of Standards for safety reasons thereafter or such derogations from the Standards as Network Rail and/or the relevant Approval Bodies may approve or consent to in writing. The Infraco shall design, procure and carry out the APA Works in accordance with the requirements which Network Rail are entitled to stipulate to **tie** under the Asset Protection Agreement.
- 16.22 The Infraco shall ensure that design of the APA Works is such as to enable construction of the APA Works in a manner which minimises disruption to the Railway and enables future construction or maintenance to be carried out on the rail Network and which, as far as is reasonably possible, minimises costs and disruption to the rail Network during construction or maintenance.
- 16.23 The Infraco shall meet with Network Rail and/or **tie** as may reasonably be required on reasonable notice during the Term in respect of matters to which clauses 7.2.5, 7.4.3 and 8.13

of the Asset Protection Agreement refer but only in the event and to the extent that the Infraco otherwise has ongoing obligations under the Infraco Contract in respect of such matters or as may be agreed between the Parties acting reasonably.

- 16.24 Prior to commencing the construction of the APA Works, the Infraco and each subcontractor shall produce a quality plan, environmental plan, and a safety plan specific to the APA Works in order to satisfy the requirements of achieving a Network Rail Contractor Assurance Case.
- 16.25 The Infraco shall prepare, in accordance with any reasonable requirements which **tie** may have, any documentation required by Network Rail to enable Network Rail to obtain Consents necessary for the APA Works. Any modification of the design and construction process necessary to secure such consents can be obtained shall be a **tie** Change save to the extent that the need for such modification arises due to a failure by the Infraco to anticipate the requirements in question in breach of Clause 7.1.
- 16.26 Where Network Rail obtain a consent necessary for the APA Works, **tie** shall supply the Infraco with copies of the approved drawings together with supporting design and check certificates and contract documents for the Infraco's use during the carrying out of the APA Works.
- 16.27 Where **tie** are obliged to obtain a consent necessary for the APA Works, the Infraco shall provide all reasonable assistance (which for the avoidance of doubt, shall not include the provision of any undertakings, guarantees, collateral warranties (save as otherwise required under this Agreement) or indemnities) to **tie** in obtaining consents for which **tie** are responsible (and in maintaining those consents during the Term but in that case only in so far as referable to the proper requirements of the Independent Competent Person or otherwise arising from a Bridge Agreement (following notification of execution by **tie** under Clause 16.55.4) to the extent that the Infraco is not relieved from such obligations under Clause 16.45, in circumstances where the need for and nature of such assistance ought reasonably to be anticipated in the exercise of the level of skill, care and diligence referred to in Clause 7.1.
- 16.28 Following completion of any Sector in relation to the APA Works, the Infraco shall remove from and leave such completed Sector clear of plant equipment and materials not reasonably required in respect of the ongoing obligations of the Infraco in respect of the APA Works and site thereof.
- 16.29 The Infraco shall ensure that, during the Term, neither it nor any of its subcontractors shall interfere with the availability of suitable access and egress rights into and from Haymarket Depot for all necessary purposes at all times to the reasonable satisfaction of Network Rail.

- 16.30 The Infraco shall not and shall not allow or permit or submit anything to be done by it or any of its subcontractors, which would adversely affect the continuous operation of train refuelling equipment and fuel tanks at Haymarket Depot. The Infraco shall ensure that, during the Term, neither it nor any of its subcontractors shall interfere with the safe and suitable access to such equipment and fuels tanks for all necessary purposes at all times to the reasonable satisfaction of Network Rail.
- 16.31 The Infraco shall ensure that all elements of the APA Works which relate to new or existing over-bridges, under-bridges and foot-bridges will comply with the Standards (subject to Clause 16.20) and the requirements of HMRI.
- 16.32 The Infraco shall, prior to the commencement of the APA Works, carry out a condition and defects survey in respect of the land coloured pink in the plans set out in Schedule Part 8 of the Asset Protection Agreement.
- 16.33 The Infraco shall submit an APA Works Programme for approval in principle by **tie** and Network Rail prior to the APA Works Commencement Date and shall do so sufficiently in advance of such date so as to allow **tie** and Network Rail a reasonable period in which to provide their approval. Such APA Works Programme shall include:
- 16.33.1 all submission dates for approval of APA Deliverables;
 - 16.33.2 submission data work package plans;
 - 16.33.3 the proposed detailed possession plan;
 - 16.33.4 details of all survey works;
 - 16.33.5 works inspection and testing plans;
 - 16.33.6 take-over and commissioning plans;
 - 16.33.7 details of interaction with any Interfacing Projects and how these will affect the programme; and
 - 16.33.8 verification of the critical path activities.
- tie** acknowledges that Network Rail is obliged in terms of the Asset Protection Agreement to both act reasonably and to co-operate in the planning and development of an APA Works Programme.

- 16.34 If this APA Works Programme is not sufficiently developed prior to the APA Works Commencement Date for approval, the Infraco shall, as soon as reasonably practicable, submit a full APA Works Programme in compliance with Clause 16.32 above, and shall liaise with **tie** in respect of revising such APA Works Programme until it is approved. The Infraco shall use reasonable endeavours to ensure that it has minimised the disruptive possession requirements in consultation with **tie** and Network Rail. The Infraco shall undertake the arrangements reasonably required by **tie** in respect of the interface of the APA Works with the Interfacing Projects through the agreed point(s) of contact notified by **tie**. The Infraco shall comply with the reasonable requirements of **tie** in respect of the procurement of necessary resources to facilitate the use of possessions on the dates identified in the APA Works Programme (as updated from time to time in accordance with this Clause 16 (*Interface with Network Rail*)).
- 16.35 The Infraco shall, where required by **tie**, produce a revised programme and possession dates where it becomes clear, in consultation with **tie**, that in the reasonable opinion of **tie** the progress of the APA Works is not sufficient to meet the previously agreed programme and possessions timetable.
- 16.36 The Infraco shall act with all due expedition in relation to consultation and development of plans which will affect the time table for Possessions. In the event that the Infraco is responsible for any delay which renders any Possession obsolete or insufficient for the purposes of the APA Works, the Infraco shall reimburse **tie** for all costs associated with the Possession(s) which are cancelled or not used as a result and the Infraco shall not be entitled to an extension of time, additional payment or relief in such circumstances.
- 16.37 The Infraco shall not commence any part of the APA Works prior to the APA Works Commencement Date.
- 16.38 Prior to undertaking each particular part of the APA Works, the Infraco shall:
- 16.38.1 obtain **tie's** prior written approval (not to be unreasonably withheld) to the APA Works Programme and method statement for the carrying out and completion of that particular part of the APA Works and any associated movement of materials, plant and equipment on or near the railway;
- 16.38.2 in relation to any APA Works to be undertaken in an area which is the subject of a Regulated Change process, await a notice to proceed from **tie** in respect of this part of the APA Works prior to commencing works in the areas which are subject to the Regulated Change. A **tie** Change shall occur if such a notice to proceed is not issued in accordance with the agreed APA Works Programme.

16.39 During the construction of the APA Works the Infracore shall:

- 16.39.1 take all steps required to ensure that the APA Works are carried out in a way that minimises disruption to the railway and any third party using it or having an interest in the land affected by the APA Works;
- 16.39.2 establish and maintain a robust procedure to ensure the safe access for all authorised personnel to the railway in connection with the Works;
- 16.39.3 not interfere, and ensure that no subcontractor interferes, with existing points of emergency access to the network without **tie** having obtained the prior agreement of Network Rail in writing;
- 16.39.4 submit in writing for the approval of **tie** (such approval not to be unreasonably withheld) any proposals for the provision of personnel to supervise Possessions or the APA Works;
- 16.39.5 carry out the APA Works efficiently at such times and in such a way as to minimise, in so far as is reasonably practicable, any interference with traffic operating on the rail network;
- 16.39.6 carry out the APA Works to the satisfaction of **tie** and Network Rail in respect of the protection, safety and efficient operation of the railway and the safety of persons and property on or near the railway;
- 16.39.7 procure that all materials and goods used in the APA Works shall be new, of good quality, suitable for their purpose, in compliance with all applicable Standards (subject to Clause 16.20) and not generally known in the railway industry to be deleterious at the time of incorporation;
- 16.39.8 maintain the APA Works until Completion of "the Works" as defined in the Asset Protection Agreement.
- 16.39.9 cause the APA Works to be completed with all reasonable dispatch and in any event by 30 June 2011, as such date may be extended with consent of **tie**;
- 16.39.10 arrange for the relocation to a suitable environment of any flora and fauna which is subject to conservation and which may be affected by the APA Works;
- 16.39.11 temporarily erect fencing to protect the network from trespass and vandalism to the reasonable satisfaction of **tie** and Network Rail;

- 16.39.12 provide for such barriers, supervision, and lighting of the APA Works as may be reasonably specified by **tie** as being necessary during the carrying out of the APA Works;
- 16.39.13 comply with the requirements of Network Rail with regard to Network Rail's signalling arrangements and the prevention of any adverse effects which may be caused by the lighting of the APA Works;
- 16.39.14 provide **tie** with reasonable notice in writing of any inspections or testing of the APA Works by the Infraco or its subcontractors and allow **tie** the opportunity to procure Network Rail attendance at such inspection, demonstration or testing;
- 16.39.15 notify **tie** in writing once it considers (a) a Sector has been completed is capable of being certified as completed and (b) the APA Works have been completed and are capable of being certified as being completed;
- 16.39.16 provide **tie** with such information at such times and in such form as **tie** may reasonably require about the APA Works to enable Network Rail to populate its asset register.
- 16.40 The Infraco shall consult with **tie** and Network Rail and prepare a Construction Phase Plan (as defined in the CDM Regulations) for the APA Works alone, and submit it to **tie**. The Infraco shall amend such plan to take account of any reasonable comments made by **tie** or passed on from Network Rail.
- 16.41 The Infraco shall prepare a relevant data manual for the APA Works alone to form part of the health and safety file for CDM purposes. The manual shall be finalised and passed to **tie** for onward delivery to Network Rail with such number of copies as Network Rail may reasonably require prior to completion of the APA Works.
- 16.42 The Infraco shall use reasonable endeavours to identify any relationship between the APA Works and Interfacing Projects which have been notified to it by **tie** or Network Rail. The Infraco shall mitigate and control the APA Works elements of such interface as far as is reasonably practicable.
- 16.43 The Infraco shall at its own cost make good any property of Network Rail which has been damaged or interfered with in during the course of the APA Works, and shall carry out any remedial work as may be required to ensure that the APA Works comply with the Asset Protection Agreement. The Infraco shall carry out any demonstrations or tests for any part of

the APA Works which are reasonably required by **tie** as a result of such damage, interference or remedial work under this Clause 16.42 at its own cost.

16.44 The Infraco acknowledges that Network Rail may require **tie** to suspend the carrying out of the APA Works when Network Rail has notified **tie** that such suspension is necessary in order to prevent, address, alleviate or comply with a Network Operation Issue (and that **tie** may in such an event instruct Infraco to suspend the APA Works to the extent necessary to comply with Network Rail's requirement; provided that Network Rail has complied with the restrictions upon it in this regard set out in clauses 10.2 and 10.3 of the Asset Protection Agreement. Any such suspension shall be a Compensation Event to the extent that such suspension has not been caused by any act or omission of the Infraco.

16.45 The Infraco shall from notification of execution of each Bridge Agreement by **tie** under Clause 16.55.4 until the expiry of the Term comply with the terms of each of the Bridge Agreements, save where the terms of such Bridge Agreement are inconsistent with the draft Bridge Agreement in the Schedule Part 27 Section B (*Asset Protection Agreement and Bridge Agreement*), and provided that:

16.45.1 reference in the Bridge Agreement to "in accordance with the Asset Protection Agreement" shall be construed for the purposes of this Clause 16.45 as being in accordance with Clause 16.1 of this Agreement;

16.45.2 the Infraco shall not be responsible for any costs of Network Rail arising under the Bridge Agreement;

16.45.3 Clause 16.20 shall apply to the Standards relevant to the Bridge Agreement;

16.45.4 if Network Rail exercise a right to fix apparatus under the Bridge Agreement, any impact on the Infraco shall be treated as a **tie** Change;

16.45.5 the Infraco shall incur no liability under the Bridge Agreement in respect of future railway alterations; and

16.45.6 for the avoidance of doubt, the liability of the Infraco in respect of the compliance with the Bridge Agreements remains subject to Clauses 77.2, 77.3, 77.7, 77.8, 16.72 and 16.73;

16.46 Prior to Network Rail taking any action or ordering any suspension envisaged to which Clause 16.44 would apply, **tie** shall involve the Infraco in consultation with itself and Network Rail in order to identify the best course of action in relation to the Network Operation Issue. **tie** shall

provide the Infraco with all information which it receives from Network Rail in relation to the Network Operation Issue, including updates in relation to the estimates of any duration of suspension, and shall notify the Infraco as soon as practicable once the APA Works can be resumed.

- 16.47 Where **tie** requires the Infraco to take any action as the result of an instruction from Network Rail in respect of a Network Operation Issue, the Infraco and **tie** acknowledge that Network Rail is entitled to issue instructions directly to the Infraco where **tie** is not available. The Infraco and **tie** acknowledge that, for these purposes, such direct instructions from Network Rail shall be treated as an instruction from **tie's** Representative under Clause 25 (*tie's Representative*).
- 16.48 The Infraco and **tie** shall exchange information and otherwise cooperate with each other in accordance with the reasonable requirements of Network Rail, so far as is necessary to enable Network Rail to review and revise its safety regime relating to maintenance, repair, improvement, alteration and operation of the Railway during the construction of the APA Works and for a period of 12 months following completion of the APA Works.
- 16.49 The Infraco acknowledges that Network Rail may inspect the APA Works (including ultrasonic examination of the operational track) at any time prior to the date of Taking Into Use and **tie** shall inform the Infraco of any areas requiring such attention and the level of priority for such work. The Infraco shall carry out such work within the time-scale specified within the Standards (subject to Clause 16.20). If the Infraco unreasonably fails to do so, it acknowledges that Network Rail is entitled to undertake such corrective or remedial work itself and recover the costs thereof from **tie** (subject to **tie** being entitled to recover such costs where the measures and/or timescales are determined to have been disproportionate or unnecessary under the Dispute Resolution Procedure as defined in the Asset Protection Agreement), and **tie** shall be entitled to recover such costs from the Infraco, subject to Clauses 77.2, 77.3, 77.7, 77.8, 16.72 and 16.73.
- 16.50 The Infraco shall comply with the reasonable requirements of Network Rail in respect of Taking Into Use of the APA Works to the extent that such are to be Taken Into Use, and to provide Network Rail with reasonable assistance in respect of these procedures and the procedures for certifying completion of a Sector of the APA Works and those applicable to completion of the APA Works as a whole.
- 16.51 Following completion of the APA Works, the Infraco will:

- 16.51.1 within two years (but not less than 18 months) of the completion of the APA Works, repeat the condition and defects survey required under Clause 16.32 in adherence with the access requirement and procedures agreed with Network Rail in relation to the APA Works;
- 16.51.2 make good any damage caused to Network Rail property by the carrying out and completion of the APA Works and, subject to intended alterations arising as a consequence of the APA Works, reinstate all Network Rail property so damaged to a condition substantially the same as existed at the APA Works Commencement Date as evidenced by the condition and defects survey; and
- 16.51.3 carry out and complete rectification and remedial works which may be necessary as a consequence of the Infraco or any subcontractor failing to carry out and complete the APA Works in accordance with the Asset Protection Agreement. In the event that the Infraco does not carry out such works within three months of completion of the APA works, it acknowledges that Network Rail may carry out such works and recover the costs thereof from **tie**, and **tie** shall be entitled to recover such costs from the Infraco.
- 16.52 The Infraco shall not use or operate or permit any third party to use or operate any operational Railway track (other than for testing as agreed with Network Rail and **tie**). The Infraco shall not, and shall procure that no other party shall, use or operate any of the APA Works or areas in which the Infraco has been working for commercial purposes.
- 16.53 The Infraco acknowledges that if, in consequence of the construction of the APA Works or existence of the APA Works, Network Rail incurs additional costs and expense in connection with the repair, maintenance, improvement, operation or alteration of the Railway which would not have been incurred but for the construction of the APA Works or existence of the APA Works, and in so far as such additional cost or expense arises as a result of Infraco's breach of the Infraco Contract, such additional cost or expense shall be paid by **tie** to Network Rail, and **tie** shall be entitled to recover such additional expense from the Infraco, provided that such additional expense is incurred prior to 1 April 2014 and subject to Clauses 77.2, 77.3, 77.7, 77.8, 16.72 and 16.73.
- 16.54 The Infraco acknowledges that in the event of acts of trespass or vandalism occurring on or from the Site (or on or from a bridge or its approaches under a Bridge Agreements(following notification of execution by **tie** under Clause 16.55.4)) which endangers the safety of the railway or the safety of Network Rail property or persons on or near the Railway, Network Rail may (subject to the terms of Clause 12.8 of the Asset Protection Agreement or Clause 2.11 of the Bridge Agreement, as the case may be) take immediate action at the cost of **tie** to

safeguard the Railway or such person or property. Where such actions are properly taken prior to the Completion of the Works (as defined in the Asset Protection Agreement) or, at any time in the case of a Bridge Agreement issue, and are necessary as a result of the Infraco's failure to implement security obligations in accordance with the Infraco Contract, the Infraco shall reimburse **tie** for any such costs, subject to Clauses 77.2, 77.3, 77.7, 77.8, 16.72, and 16.73.

16.55 From the date set for completion of the relevant Sector of the APA Works until (a) in the case of those parts of the APA Works that are to be Taken Into Use, the date that the relevant Sector or part thereof is Taken Into Use; (b) in the case of those parts of the APA Works which shall be the subject of any Bridge Agreement, the date of execution of the relevant Bridge Agreement; and (c) in the case of those parts of the APA Works which are not to be Taken Into Use or are not to be the subject of any Bridge Agreement, the date of completion of the APA Works as a whole (such parts of the APA Works being in each case hereinafter referred to as the "**Completed Areas**");

16.55.1 To the extent that the APA Works were undertaken by the Infraco, the Infraco shall be responsible for maintaining such Completed Areas in good and substantial order and repair to the reasonable satisfaction of **tie** and shall secure these Completed Areas against acts of trespass or vandalism;

16.55.2 subject to the terms of the Agreement, the Infraco shall assume all risk and responsibility for loss, damage or destruction of the Completed Areas and for the costs of rectifying or reinstating such loss, damage or destruction (provided that the Infraco shall not be responsible for any loss, damage or destruction caused or arising as a result of the acts or omissions of Network Rail of any person for whom Network Rail is responsible);

16.55.3 the Infraco shall immediately notify **tie** if it considers that Network Rail is not providing access which is reasonably sufficient in order to undertake its obligations under this Clause 16.55.

16.55.4 **tie** will immediately notify the Infraco when any Bridge Agreement is executed and provide the Infraco with a certified true copy of the same.

16.56 Following the date of completion of any Sector, the Infraco shall be entitled to occupy and use such areas and maintain them subject always to the reasonable conditions of Network Rail. The right to occupy and use such areas shall subsist from:

16.56.1 the date of Sector completion for each Sector in respect of allowing the Infraco to secure the area, undertake reasonable inspection and rectify defects arising in respect of the completed Sector;

16.56.2 the date which is the later of (a) the date of completion of the APA Works as a whole and (b) the date upon which **tie** confirms to the Infraco that procedures are agreed between all relevant parties in respect of testing, commissioning and trial running of the passenger tramway (including driver training);

16.56.3 and until the Service Commencement Date;

The right to occupy and use is not granted for any other purpose unless expressly permitted under the Asset Protection Agreement.

16.57 Subject to clauses 77.2, 77.3, 77.7, 77.8, 16.72 and 16.73, the Infraco shall indemnify and keep indemnified **tie** from liability to Network Rail arising in any way directly out of the occupancy or use by the Infraco, or any act, failure or negligence or omission of the Infraco or any subcontractor in respect of any Completed Area.

16.58 Subject to Clauses 16.59 to 16.63 below, variations to the APA Works howsoever arising (each an "**APA Variation**") shall be dealt with in accordance with the provisions of Clause 80 (*tie Changes*) and Clause 81 (*Infraco Changes*).

16.59 Where the Infraco reasonably believes that a variation is required to the APA Works (an "**Infraco APA Variation**"), it shall promptly notify **tie** of that fact and shall, as soon as is practicable thereafter, provide **tie** with full details of the reason why it considers that an Infraco APA Variation is required. The Infraco acknowledges that **tie** is required to notify Network Rail of any such variations and will use its reasonable endeavours to respond promptly to **tie** in respect of any queries which arise in relation to the variation proposal. Where it is agreed between **tie** and Network Rail that such Infraco APA Variation is required, then this shall be an Infraco Change.

16.60 The Infraco acknowledges that, in relation to any proposed variation of the APA Works, information is required by **tie** to provide Network Rail with details of the steps that the Infraco proposes to take in order to implement the variation, and that details of the Infraco's view of any APA Consents which must be obtained or amended for the purposes of the APA Variation must also be supplied. The Infraco shall promptly prepare and supply **tie** with any such information as soon as reasonably practicable, and in any event to allow **tie** to comply

with its obligations to Network Rail within the timescales set out in the Asset Protection Agreement.

- 16.61 As reasonably required by **tie**, the Infraco shall meet with **tie** and Network Rail to agree matters such as alterations to the APA Works Programme, the requirement for additional Possessions, the impact on Direct Costs and any amendments needed to the APA Works requirements in relation to an APA Variation following approval in principle by Network Rail of the same.
- 16.62 The Infraco shall as between Infraco and **tie** be responsible for any Direct Costs which Network Rail incurs in connection with any Infraco APA Variation. The Infraco shall within 15 Business Days pay to **tie** on behalf of Network Rail any such Direct Costs which are properly due and notified to the Infraco by **tie** with supporting vouching.
- 16.63 Where in terms of the provisions of Clause 80 (*tie Changes*) and Clause 81 (*Infraco Changes*), as applicable, an APA Variation is to proceed and requires that additional APA Works are to be executed in respect of a Sector for which Sector completion has been certified, the Infraco shall undertake reasonable endeavours to ensure that a re-certification of that Sector can be undertaken by Network Rail once the APA Variation in question has been implemented.
- 16.64 The Infraco acknowledges the circumstances in clauses 3.6, 11.1 and 14 of the Asset Protection Agreement which entitle **tie** or CEC to recover from Network Rail Direct Costs and/or relief. The Infraco agrees to supply all information practicably obtainable in so far as reasonably required by **tie** within the timescale specified in the Asset Protection Agreement so as to enable **tie** to make a claim against Network Rail where such circumstances arise. In the event the **tie** should have been able to claim against Network Rail, but were unable to do so due to a failure of the Infraco to identify and/or provide information due as aforesaid in relation to the event to which the claim relates, the Infraco will not be able to make a claim against **tie** for costs, or make any claim under Clause 64 (*Relief Events*) or 65 (*Compensation Events*).
- 16.65 Where Infraco reasonably believes that a claim or action is required to be taken against Network Rail in association with the requirements of the APA Works, it shall immediately notify **tie** and provide all reasonable assistance in order to formulate and conduct such claim or action.
- 16.66 Subject to the terms of the Infraco Contract (including, without prejudice to the foregoing generality, Clauses 77.2, 77.3, 77.7, 77.8, 16.72, and 16.73) the Infraco shall indemnify and keep indemnified **tie** for all reasonable Direct Costs incurred during the Term in relation to

any negligence, breach of the Infraco Contract, act or omission of the Infraco in relation to electromagnetic interference originating from the APA Works and the effect thereof on Network Rail and the rail Network during and after construction of the APA Works which arises during the Term;

- 16.67 The Infraco shall give **tie** all reasonably required information in connection with any claim arising under the Asset Protection Agreement during the Term.
- 16.68 The Infraco acknowledges the events of termination arising under clause 21 of the Asset Protection Agreement, and shall immediately notify **tie** in the event that the Infraco considers that any event, act or omission has occurred which may entitle termination by either Network Rail or **tie** under that clause.
- 16.69 Subject to Clauses 16.72 and 16.73, the Infraco agrees to take such reasonable steps as are notified to it by **tie** or Network Rail to rectify any breaches, acts or omissions by the Infraco of its obligations under the Agreement which may entitle Network Rail to terminate the Asset Protection Agreement.
- 16.70 Subject to Clause 16.72 and 16.73, the Infraco acknowledges the circumstances in clauses 12.11 and 20 of the Asset Protection Agreement under which Network Rail may recover monies from CEC or **tie** , and undertakes when reasonably requested by **tie** to use reasonable endeavours to mitigate the circumstances under which Network Rail may make such a claim against **tie** or CEC.
- 16.71 **tie** and the Infraco each acknowledge that any notice, objection or communication to be given by the Infraco in relation to the APA Works, which may be required to be communicated to Network Rail, will necessarily involve a review by Network Rail in order to respond to such notice, objection or communication. **tie** and the Infraco shall act reasonably in giving such notice, objection or communication in order to allow Network Rail an adequate period for review and providing Network Rail with sufficient information to undertake such review.
- 16.72 Notwithstanding any other provision of the Infraco Contract, the Infraco's liability and extent of any obligations of any nature in respect of : (1) any failure to handback any part of the Network after the planned expiry of a Possession; or (2) any claim of any nature arising from the terms of any Track Access Agreement, Freight Access Agreement or any contract in any way incorporating the Depot Access Conditions or the Station Access Conditions (such terms having the meaning ascribed to them in the Asset Protection Agreement) shall be limited to £40,000 for each and every incident subject to an aggregate limit of £500,000 for all such liabilities, obligations or claims – and that subject to Clauses 77.2, 77.3, 77.7, 77.8, and 16.73.

- 16.73 Notwithstanding any other provision of the Infraco Contract, the Infraco's liability and extent of any obligations of any nature in respect of NR Immunisation shall be subject to an aggregate limit of £750,000 for all such liabilities, obligations or claims – and that subject to Clauses 77.2, 77.3, 77.7, 77.8 and 16.72. This Clause 16.73 shall not apply to the elements of NR Immunisation costs referred to in the Schedule Part 4 Appendix J Paragraph 3 (*Pricing*).

17. INTERFACE WITH THE OPERATOR

Operator Events

- 17.1 Nothing in this Clause 17 (*Interface with the Operator*) shall modify or dilute the general or specific obligations of the Infraco which concern interface or co-operation with the Operator.
- 17.2 Subject to Clauses 17.3 and 17.4 in the event that any of the events or circumstances defined as Operator Events occur and to the extent that the Infraco can demonstrate to **tie's** satisfaction, **tie** acting reasonably, that there has been a resultant material adverse effect on the Infraco's ability to perform any of its obligations or exercise any of its rights pursuant to this Agreement the Operator Event shall be a Compensation Event and the Infraco shall be entitled to relief and/or compensation on the basis set out in Clause 65 (*Compensation Events*) in respect of such Operator Event provided that where Infraco has predominantly caused or materially contributed to the occurrence effect or duration of the Operator Event the compensation available to Infraco pursuant to Clause 65 (*Compensation Events*) shall be reduced to the extent of such causation or contribution.
- 17.3 If any Operator Event occurs, the Infraco shall:
- 17.3.1 notify **tie** and the Operator as soon as practicable after being on notice of the Operator Event (and in any case no later than 1 day after being on initial notice of the Operator Event) of the occurrence of the Operator Event and, as soon as reasonably practicable after such notification from the Infraco (and in any case no later than 2 Business Days after such notification or such longer period as agreed between the Parties), the Infraco shall notify **tie** and the Operator of the likely occurrence, severity (including additional costs) and duration of the Operator Event and any likely impact on the ability of the Infraco and/or any Infraco Party to perform its obligations in relation to the Infraco Works; and
- 17.3.2 NOT USED
- 17.3.3 be responsible for recording the effects of the Operator Event on the ability of the Infraco and/or any Infraco Party to perform its obligations in relation to the Infraco

Works and for providing **tie** with an accurate and comprehensive report on such effects of the Operator Event within 5 Business Days of being on notice of such Operator Event, such report to detail emerging additional costs and expected (or actual) duration of this Operator Event.

- 17.4 The Infraco shall take all reasonable measures to prevent and to mitigate any Operator Event from materially adversely affecting the proper performance of the Infraco Works (including the Maintenance Services) provided that the Infraco can do so without unreasonable inconvenience or cost.
- 17.5 **tie** shall arrange a meeting with the Operator, the Infraco, **tie** and **tie's** Representative to discuss and agree a plan for corrective measures necessary to address any Operator Event and to permit the Infraco to resume unrestricted (or the best, even if restricted, level of) performance of the Infraco Works within the shortest practicable time period. It shall be the **tie's** responsibility to obtain the Operator's cooperation with any corrective measures agreed by the Parties to be taken by the Infraco, whether temporary or permanent.
- 17.6 NOT USED
- 17.7 The Infraco shall be under a continuing obligation to report promptly, and in any event within 2 Business Days, upon becoming aware of same, to the Operator and to **tie** any incident, matter or operational irregularity which may precede the occurrence or indicate the existence of an Operator Event.

Design Input and Technical Requirements

- 17.8 In accordance with Schedule Part 14 (*Review Procedure*), the Infraco shall, from the Effective Date of this Agreement, take account of any comments from **tie** in relation to operational issues when refining its Design, Maintenance Plans, standards, procedures and safety documentation in accordance with Schedule Part 2 (*Employer's Requirements*) and when ensuring system integration in accordance with Clause 8 (*System Integration*). The Infraco shall as part of the Mobilisation Services comment on maintainability issues and provide review and support during the design and construction process, seeking to optimise the whole life asset cost. These comments shall be deliverable to the Operator in addition to **tie**.

Operation and Maintenance Procedures

- 17.9 The Infraco acknowledges that the Operator shall be responsible for Operator Maintenance of the Edinburgh Tram Network. The Infraco shall not obstruct the performance by the Operator of the Operator Maintenance. **tie** shall procure that the Operator does not obstruct the

performance by the Infraco or any Infraco Party of the Maintenance Services. The Infraco shall liaise with the Operator in relation to the Maintenance Services and Operator Maintenance.

17.10 Subject to Clause 17.10.3 Infraco acknowledges that **tie** and the Operator may agree from time to time to delegate to the Operator the exercise of **tie's** contractual rights under this Agreement. Where **tie** delegates the exercise of any of its contractual rights under this Agreement the provisions of this Clause 17.10 shall apply.

17.10.1 Subject to Clause 17.10.4, **tie** may from time to time by notice in writing to the Infraco, delegate the exercise of specific contractual rights to a suitable specified employee of the Operator (the "**Operator's Representative**").

17.10.2 The Infraco shall observe, and shall procure that any Infraco Parties observe, all reasonable instructions of Operator's Representative given in accordance with this Agreement.

17.10.3 The Operator's Representative shall have no authority to terminate this Agreement, make any claim for payment (under indemnity or otherwise), raise any claim, suit or action against the Infraco, instruct a **tie** Change, amend this Agreement nor to relieve the Infraco of any of its obligations under this Agreement.

17.10.4 **tie** may by notice in writing to the Infraco change the identity of the Operator's Representative. **tie** shall consult with the Infraco prior to the appointment of or replacement for Operator's Representative, taking account of the need for liaison and continuity in respect of this Agreement. Such appointment or change shall have effect on the date specified in the written notice.

17.10.5 During any period when an Operator's Representative has not been appointed (or when the Operator's Representative is unable through illness, incapacity or any other reason whatsoever to carry out or exercise his functions under this Agreement), **tie** shall carry out the functions which would otherwise be performed by the Operator's Representative.

17.10.6 Instructions given by the Operator's Representative under Clause 17.10 and 17.11 shall be in writing. Provided that if for any reason it is considered necessary to give any such instruction orally the Infraco shall comply therewith.

17.10.7 Any such oral instruction shall be confirmed in writing as soon as is possible under the circumstances. Provided that if the Infraco confirms in writing any such oral

instruction which confirmation is not contradicted in writing by the Operator's Representative or **tie's** Representative forthwith it shall be deemed to be an instruction in writing by the Operator's Representative.

17.10.8 Upon the written request of the Infraco, **tie's** Representative shall specify in writing under which of his duties and authorities the instruction is given.

17.10.9 **tie** shall procure that any Operator's Representative shall not exercise their delegated contractual rights in a way which is likely to interfere with the discharge of Infraco's obligations under this Agreement.

17.11 The Infraco shall:

17.11.1 promptly notify the Operator and **tie** of any requirement for Operator Maintenance of which the Infraco becomes aware; and

17.11.2 co-operate with the Operator in relation to the planning and execution of Operator Maintenance and Maintenance Services.

17.12 If, at any time after the Service Commencement Date, it appears likely to the Infraco that any planned works or activities (including Maintenance Services) to be carried out by the Infraco will necessitate interruption to or restriction of the Transport Services on the Edinburgh Tram Network, the Infraco (as appropriate) shall:

17.12.1 notify **tie** and the Operator not less than 42 days prior to such planned works or activities, and take all reasonable steps to support **tie** in notifying passengers as soon as reasonably practicable in advance of the carrying out of such planned works or activities, of the nature of such work and the likely disruption or restriction of the Transport Services; and

17.12.2 take all steps which are reasonably practicable to minimise the adverse consequences of such works or activities to passengers.

17.13 In the event of any unplanned works or activities (including Maintenance Services) to be carried out by the Infraco as a result of a system failure, breakdown or an emergency caused by a failure of the Infraco to comply with its obligations under this Agreements, the Infraco shall:

17.13.1 notify **tie** and the Operator as soon as possible of the nature of such works or activities and the likely disruption or restriction of the Transport Services;

17.13.2 take all reasonable steps to support **tie** in notifying passengers as soon as reasonably practicable of the nature of such works and activities and the likely disruption or restriction of the Transport Services; and

17.13.3 take all steps which are reasonably practicable to minimise the adverse consequences of such works and activities to passengers. Where **tie** considers that such works and activities will result in the Transport Services not being provided for any period, the Infraco shall take such steps that shall include support and, save in relation to any failure to provide the Tram Supply Obligations the Tram Maintenance Services, compensation to the Operator in providing an alternative means of transportation being in service as soon as reasonably practicable. For the purposes of this Clause 17.13.3, the Parties acknowledge that it will generally be reasonably practicable for the Operator to arrange for an alternative means of transportation to be in service within 90 minutes of becoming aware of the requirement for it.

DPOFA Changes

17.14 **tie** shall notify the Infraco of any proposed variation under the DPOFA which in **tie's** opinion (acting reasonably) may affect the Infraco's performance of its obligations or the exercise of its rights under this Agreement or increase the likelihood of a claim arising under Clause 17.33 and the Infraco shall respond with comments ("**DPOFA Change Response**") within 15 Business Days of being notified by **tie** of any proposed variation under DPOFA (a "**DPOFA Change**").

17.15 If in the DPOFA Change Response, Infraco have provided information in relation to or agreed with **tie's** assessment in relation to:

17.15.1 any adverse impact which the DPOFA Change will have on the Infraco Works or the ability of, or cost to the Infraco of performing its obligations under this Agreement, or the rights of Infraco under this Agreement or increase the likelihood of a claim arising under Clause 17.33; or

17.15.2 any valid reason why the Infraco would be entitled to refuse to implement any **tie** Change required as a result of the DPOFA Change in accordance with Clause 80.12

(being the "**DPOFA Adverse Impact**")

the Infraco shall provide **tie** and the Operator with a written report within 15 Business Days (or such longer period as the Parties acting reasonably agree) providing details of the DPOFA Adverse Impact and Infraco's proposals for avoiding or mitigating the DPOFA Adverse

Impact and any **tie** Changes which, in the opinion of the Infraco, acting reasonably, will be required as a result of the DPOFA Change ("**DPOFA Change Report**").

17.16 **tie** shall review the DPOFA Change Report promptly and if **tie**, acting reasonably, is satisfied that a modification to the proposed DPOFA Change is required to address any issue arising from the DPOFA Change Report, **tie** shall instruct such modification under the change provisions of the DPOFA and any change required to the Infraco Works shall be a Mandatory **tie** Change pursuant to Clause 80 (**tie Changes**).

17.17 Failure by the Infraco to respond as stipulated in Clauses 80 and 17.15 shall be a bar to any claim for relief or compensation under Clause 80 (**tie Changes**) or otherwise. Infraco shall not be entitled to refuse to perform its obligations which are affected by the DPOFA Change unless so entitled pursuant to Clause 80.12.

Safety

17.18

17.18.1 The Infraco shall provide a permanent representative for the Project Safety Certification Committee who shall be responsible for the Infraco's mandatory participation in and technical contribution to the Project Safety Certification Committee's output and the discharge of its responsibilities.

17.18.2 The Infraco's obligations with regard to safety shall encompass at a minimum:

17.18.2.1 participation on a compulsory basis in all liaison meetings with the Independent Competent Person, HMRI and Emergency Services;

17.18.2.2 the development and implementation of a safety management system (the "**Infraco Safety Management System**") which shall address without limitation:

- (i) Infraco staff competency and its continual assessment;
- (ii) training on all safety related issues;
- (iii) safety procedures;
- (iv) record keeping and audit;
- (v) certification of materials and equipment;

- (vi) frequency and mode of audit by **tie** of the Infraco Safety Management System;
- (vii) incident response and management; and
- (viii) continual improvement and best practice.

17.19 **tie** and the Operator shall be entitled to review the Infraco Safety Management System (and its implementation) at any time upon notice which is appropriate in the circumstances and in any case within no more than 3 days. For the avoidance of doubt, **tie** and the Operator shall be entitled to immediate access upon the occurrence of an incident.

17.20 It shall be the responsibility of the Infraco to undertake and complete verification, through agreed procedure, of the safety and service readiness of the Edinburgh Tram Network prior to service start-up every morning no later than one hour (or such other time as agreed between the Parties) prior to Transport Services commencing each day and to certify this status to **tie** and to the Operator in an agreed form.

17.21 In the event that the Operator can demonstrate to the Infraco that the Edinburgh Tram Network is not ready for service start up in accordance with Clause 17.19 or such other process as is agreed between the Parties, the Infraco shall notify **tie** and the Infraco shall rectify any deficiency in accordance with this Agreement which is preventing the commencement of Transport Services in accordance with this Agreement.

17.22 The Infraco shall liaise effectively with the Operator in co-ordination of health and safety issues at the Depot in accordance with the Depot Licence.

Maintenance

17.23 The Infraco shall give the Operator and **tie** a minimum of one month's prior notice in outline of any planned maintenance forming part of the Maintenance Services to be carried out on any part of the Edinburgh Tram Network, such initial notice to be followed by at least 14 days notice in detail and, in relation to Infrastructure Maintenance Services, 7 days notice of individual method statements relating to such works or activities anywhere on the Edinburgh Tram Network.

17.24 Not less than 6 months prior to the Planned Service Commencement Date, the Infraco shall provide **tie** and the Operator with a combined maintenance plan demonstrating how the effects of planned maintenance on the provision of Transport Services in accordance with Timetable shall be minimised, based upon the Maintenance Plan and, subject to a copy of the Operator

Maintenance Plan being supplied to the Infraco not less than 12 months prior to the Planned Service Commencement Date, the Operator Maintenance Plan. **tie** shall review such combined maintenance plan in accordance with Schedule Part 14 (*Review Procedure and Design Management Plan*).

Operational Interface and Operator Mobilisation

17.25 Following the Service Commencement Date subject to Clause 17.20, the day-to-day operation of the Edinburgh Tram Network shall be the responsibility of the Operator. To enable the efficient operation of the Edinburgh Tram Network, the Infraco shall provide technical advice where practicable to **tie** and to the Operator during normal working hours regarding the operational deployment and integration of the various components of the Edinburgh Tram Network which relate to the scope of work under this Agreement and any other non-confidential and non-financial information regarding their design, construction, standards, integration, operation and maintenance which the Operator and **tie** may reasonably request provided such request does not adversely impact on the delivery of the Infraco Works.

Facilities and Access

17.26 The Infraco shall in so far as reasonably practicable at all times provide to the Operator and **tie** such access to the places where the Infraco Works are being performed and the Tram testing facilities during the construction of the Infraco Works as the Operator may reasonably require and in accordance with Clause 17.27.

17.27 The Infraco acknowledges that the Operator and **tie** will require access to the Site, the places where the Infraco Works are being performed and the Tram testing facilities in order to prepare for the operation of the Edinburgh Tram Network . The Infraco agrees:

17.27.1 that it will co-operate with the Operator and **tie** and plan to avoid any interference with mobilisation by the Operator; and

17.27.2 that the presence of the Operator and **tie** on at such locations will not in any circumstances be treated as partial completion of the Infraco Works;

provided that such access shall not disrupt or interfere with the performance by Infraco or any Infraco Party of the Infraco Works and **tie** shall, and shall procure that the Operator shall, during any period when it or they have access to such locations, the Infraco Works and the Tram testing facilities, comply with all rules and regulations applicable to working at those premises for the safety of persons and convenience of the public.

- 17.28 Pursuant to Clause 17.23 **tie** agrees that where any damage is caused to the Infraco Works by the Operator or by **tie**, the repair of such damage shall not be part of the Infraco's obligations under this Agreement unless such damage results from fair wear and tear or from operations by the Operator or **tie** in accordance with the Operations and Maintenance Manual but where **tie** requires the Infraco to repair such damage, it will issue a **tie** Notice of Change in respect of such repair works.

System Acceptance

- 17.29 The Infraco shall ensure that at all times it works closely and effectively with the Operator in the performance by the Operator of the Operator's obligations and the performance by the Infraco of the Infraco's obligations pursuant to the Systems Acceptance Tests and the associated obligations on testing and commissioning set out in Schedule Part 2 (*Employer's Requirements*).
- 17.30 In the event that as a direct consequence of an Operator Event, the Infraco is unable to progress or is hindered in the performance of its obligations pursuant to the Systems Acceptance Tests and the associated obligations on testing and commissioning set out in Schedule Part 2 (*Employer's Requirements*), it shall notify **tie** and the Operator in writing as soon as practicable stating the reasons and the action required in order to remedy the situation.

Partnering

- 17.31 The Infraco shall use reasonable endeavours to work collaboratively with the Operator and **tie** shall procure that the Operator shall use reasonable endeavours to work collaboratively with the Infraco at all times in order to:
- 17.31.1 maximise productivity during the Infraco Works and minimise disruption for the public and third parties;
 - 17.31.2 ensure the effective discharge of the Infraco's obligation to deliver complete system integration throughout the Infraco Works in accordance with Clause 8 (*System Integration*);
 - 17.31.3 satisfy the levels of technical systems availability required following the Service Commencement Date to support the provision of the Transport Services
 - 17.31.4 minimise and give best advance notice to one another and to **tie** of any interruption to Transport Services caused by any Operator Event, DPOFA Infraco Event or Infraco Default, maintenance (planned or unplanned) or third party incident;

- 17.31.5 not hinder proper performance of the Project Development Services, the Project Operations and all obligations under this Agreement;
- 17.31.6 mutually support adherence to the Programme and all related timelines and programmes;
- 17.31.7 report promptly to one another and to **tie** any proposed change permitted under the DPOFA (in the case of the Operator) or this Agreement (in the case of the Infraco), which is likely to or will have a material impact on the performance of any obligations owed to **tie** or the exercise of rights under this Agreement and/or the DPOFA (as appropriate) by the Infraco and/or the Operator during design, construction, operation or maintenance of the Edinburgh Tram Network, and to jointly inform **tie** regarding measures proposed to avoid or mitigate such impact; and
- 17.31.8 to use reasonable endeavours to agree and implement whenever appropriate measures to minimise the likelihood of disputes or claims arising from or in connection with the interface between the Operator's rights and obligations and the Infraco's rights and obligations pursuant to DPOFA and this Agreement respectively.
- 17.32 Subject to the provisions of Clauses 17.30, 77.3, 77.7 and 77.8, in the event that a DPOFA Infraco Event occurs, Infraco shall indemnify **tie** against any costs, claims, losses, liabilities or other expenditure (save to the extent incurred as a result of any act or omission of the Tram Supplier or Tram Maintainer in which case **tie's** rights under Clause 77 shall apply) ("**DPOFA Claims**") which **tie** is required to pay to the Operator pursuant to DPOFA, save that any element of DPOFA Claim arising by reason of any delay in the performance of the Infraco's obligations under this Agreement prior to Service Commencement Date shall be recovered by **tie** solely through the operation of Clause 62 (*Liquidated and Ascertained Damages*). Infraco shall not be liable indemnify **tie** against any DPOFA Claims to the extent the DPOFA Infraco Event giving rise to the DPOFA Claims has arisen as a result of an amendment to DPOFA not notified to Infraco in accordance with Clause 17.14.
- 17.33 Where, in this Agreement, the Infraco is required to liaise, co-operate, work with, meet or otherwise interface with the Operator, **tie** shall procure that the Operator shall liaise, co-operate, work with, meet or otherwise interface with the Infraco to enable the Infraco to comply with such obligations in relation to the Operator under this Agreement.
- 17.34 Where the Operator or **tie** have predominantly caused or materially contributed to the occurrence, effect or duration of a DPOFA Infraco Event the amount payable by Infraco as a result of a DPOFA Claim shall be reduced to the extent of such causation or contribution.

- 17.35 Where, in relation to the Tram Supply Agreement and as directed by the Infraco, the Tram Supplier is obliged to accept and act upon reasonable instructions from the Operator in respect of specific contractual rights including safety management, possession co-ordination and maintenance interaction, such instructions are likely to impede or delay the execution of works by the Tram Supplier then, on the Infraco's request, the Operator shall be required by **tie** under DPOFA to confirm them in writing to the Tram Supplier. In so far as the written instructions do not arise from an act or omission under this Agreement or under the Tram Supply Agreement or procedures by the Tram Supplier, the Infraco or the Tram Supplier (as relevant) shall not be liable for such non-execution or delay and liquidated damages shall not be applied. If the instructions or actions require the addition of works or duties or deliveries not included in the scope of the Tram Supply Agreement and where the Tram Supplier claims reasonable, substantiated economic compensation for such works from the Infraco in accordance with Clause 49 (*Compensation Event*) of the Tram Supply Agreement, this shall be a Compensation Event under this Agreement.

PART 5 - LAND ISSUES, CONSENTS AND SITE

18. LAND CONSENTS, PERMANENT LAND AND TEMPORARY SITES

18.1 tie:

18.1.1 warrants to the Infraco that it will grant access to the Permanent Land and Temporary Sites and provide Infraco with all necessary Land Consents in each case accordance with this Clause 18.

18.1.2 hereby grants a non-exclusive licence to the Infraco to enter and remain upon the Permanent Land for the duration of the Term and an exclusive licence to the Infraco to enter and remain upon the Designated Working Area for the duration of the time required (pursuant to Schedule Part 15 (*Programme*)) for completion of the Infraco Works to be executed on such Designated Working Area; and

18.1.3 shall provide the Infraco with all necessary Land Consents in relation to the Permanent Land for the duration of time required (pursuant to Schedule Part 15 (*Programme*)),

in either case only in so far as the same is required for the purposes of carrying out the Infraco Works. For the avoidance of doubt, the rights provided to the Infraco pursuant to this Clause 18.1 shall not confer nor be deemed to confer upon the Infraco a right of ownership, a lease or any other interest in the Permanent Land other than a right of access, egress or occupancy as is required for the purposes of carrying out the Infraco Works.

- 18.2 Subject to any rights to enter upon any Temporary Sites pursuant to Clauses 18.4 to 18.10 (inclusive) and any requirement to carry out Accommodation Works outwith the Permanent Land, the Infraco shall not design or construct any part of the Edinburgh Tram Network upon or otherwise encroach upon any land outwith the Permanent Land for the purposes of carrying out the Infraco Works without the prior written consent of **tie**.
- 18.3 In relation to the parts of the Permanent Land referred to in schedule 6 to each of the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006, the Infraco shall use such sites for the purposes set out in relation thereto in the said schedule 6.
- 18.4 Where the Infraco requires access to any Temporary Site for the purposes of carrying out the Infraco Works, it shall give **tie** not less than 40 days notice and at the same time as providing such notice, shall be required to provide to **tie**:
- 18.4.1 an estimate as to the amount of time that the Infraco will occupy such site; and
- 18.4.2 a breakdown of the use of such site in the form of a detailed programme of works.
- 18.5 **tie** shall, within 40 days of the notice issued by the Infraco pursuant to Clause 18.4 (or such longer period as may be referred to in such notice) provide access to the Infraco to the relevant Temporary Site for the purpose referred to in Clause 18.6, including the provision of any necessary Land Consents in relation thereto.
- 18.6 Without prejudice to any other term of this Agreement, the Infraco shall comply with the terms of schedule 7 of each of the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006 in relation to the purpose for which possession of any Temporary Site can be taken in accordance with Clauses 18.4 to 18.10 (inclusive).
- 18.7 The Infraco's possession of any Temporary Site pursuant to Clauses 18.4 to 18.10 (inclusive) shall be subject to an overriding obligation to minimise the period of any such possession.
- 18.8 Without prejudice to Clause 18.7, the Infraco shall not, without the prior written agreement of **tie**, remain in possession of any Temporary Site after the end of the period of 28 days following completion of the Infraco Works to that Temporary Site save where the Infraco has established a site office on such Temporary Site, when the period shall be 3 months.
- 18.9 The Infraco shall provide **tie** with as much notice as is reasonably practicable of its vacation of any Temporary Site in relation to which it has taken possession.

- 18.10 Before giving up possession of any Temporary Site, the Infraco shall remove all temporary works and restore the land to the reasonable satisfaction of the land owner (as notified to the Infraco by **tie**), provided that the Infraco shall not be required to replace a building removed on any Temporary Site in accordance with the Tram Legislation. For the avoidance of doubt, the Infraco shall:
- 18.10.1 not demolish a building or any part thereof without the consent of **tie**; and
- 18.10.2 provide **tie** with sufficient evidence (including a detailed record of the condition of the land both before and after the occupation of the Temporary Site) to show that it has complied with its restoration obligations under this Clause 18.10.
- 18.11 Without prejudice to the rights of access to be granted to Infraco by **tie** pursuant to Clause 18.1 and 18.5, Infraco shall comply with the requirements of Clause 18.17A and Schedule Part 13 (*Third Party Agreements*) when it is in occupation of the Permanent Land or any Temporary Site pursuant to this Clause 18 (*Land Consents, Permanent Land and Temporary Sites*).
- 18.12 For the purposes of performing the Maintenance Services, the Infraco shall provide **tie** and any relevant land owner with not less than 40 days notice of its intention to enter upon and take temporary possession of any land outwith the Permanent Land, provided that, the Infraco may not be entitled to request any land which is referred to in Clause 18.14 below. The requirement to give prior written notice set out in this Clause 18.12 shall not apply where any building fixing agreement entered into pursuant to this Agreement contains a right for Infraco or any Infraco Party to enter onto any land for the purposes of performing the Maintenance Services.
- 18.13 On the expiry of the 40 days notice referred to in Clause 18.12 above (or such longer notice period as is provided by the Infraco in the said notice), **tie** shall procure that the Infraco shall be entitled to take possession of such land in accordance with section 27(1) of either the Edinburgh Tram (Line One) Act 2006 or the Edinburgh Tram (Line Two) Act 2006 (as appropriate).
- 18.14 For the avoidance of doubt, the Infraco shall not be entitled to take possession of any land pursuant to Clause 18.12 where such land:
- 18.14.1 is more than 20 metres from any Infraco Works;
- 18.14.2 is not reasonably required for the purposes of, or in connection with the Maintenance Services;

- 18.14.3 involves taking possession of any house or garden belonging to a house; or
- 18.14.4 involves taking possession of any building (other than a house) if it is for the time being occupied.
- 18.15 Without prejudice to the obligations of **tie** to provide access to the Permanent Land or any Temporary Site to the extent set out in this Clause 18 (*Land Consents, Permanent Land and Temporary Sites*), the Infraco shall notify **tie** as soon as reasonably practicable on becoming aware of any Land Consents which may be required in order to carry out and complete the Infraco Works. For the avoidance of doubt, the Infraco shall be responsible for obtaining, at its own cost, any Land Consents required outwith the Permanent Land or Temporary Sites as aforesaid and, **tie** shall use reasonable endeavours to assist the Infraco to obtain such Land Consents provided that the costs of such assistance shall be paid by the Infraco to **tie**.
- 18.16 As required by **tie**, the Infraco shall use reasonable endeavours to assist **tie** to obtain any Land Consents, any amendments to existing Land Consents and any new Land Consents in respect of the Permanent Land and the Temporary Sites, including providing works programmes, providing any relevant information, and notifying land owners. Any reasonable costs associated with assisting **tie** shall be paid by **tie** to the Infraco.
- 18.17 The Infraco warrants that it shall not breach the terms of any Land Consent in respect of the Permanent Land or any Temporary Site with which it is issued by **tie** in accordance with this Agreement. If the Infraco breaches any term of any Land Consent, the Infraco shall be required to seek any amendment to the existing Land Consent or new Land Consent which may be required in order to carry out and complete the relevant Infraco Works. In the circumstances where a breach of the Land Consent has arisen because of the breach of this Agreement by the Infraco or a wilful act or wilful omission by the Infraco, the Infraco shall not be entitled to apply for an extension of time or any payment to the extent that such extension of time or payment is required as a direct result of the breach of the Land Consent caused by the Infraco or any Infraco Party. If the Infraco does not obtain the required amendment or new Land Consent, **tie** shall be entitled to recover the costs from the Infraco which are associated with **tie** obtaining such amendment or new Land Consent.
- 18.17A Without prejudice to the rights of access to be granted to Infraco by **tie** pursuant to Clause 18.1 and 18.5, the Infraco shall take all necessary steps in delivering the Infraco Works to ensure that neither **tie** nor CEC will be put in breach of their obligations to third parties pursuant to the third party undertakings and commitments contained in Schedule Part 13 Section B. If, in complying with this obligation:

- 18.17A.1 the Infraco incurs costs or suffers delay as a result of adverse impact on the Programme or unreasonable constraints on its construction methodology due to constraints or requirements in such third party undertakings and commitments which are materially different to the obligations under this Agreement and which could not reasonably have been foreseen by an experienced transport infrastructure contractor executing works in the operating environment of a major UK city;
- 18.17A.2 the Infraco is required to undertake minor works;
- 18.17A.3 works are required which are outwith the Base Date Design Information contained in Schedule Part 4 (*Pricing*);

then the circumstances under 18.17A.1 shall be a Compensation Event, any minor works required under 18.17A.2 shall be deemed to have been instructed by **tie** pursuant to Clause 83 (*Accommodation Works*) and 18.17A.3 shall be dealt with as a **tie** Change.

18.17B The Infraco undertakes to comply with its obligations in relation to Schedule Part 13 Section A (*Third Party Agreements*) and shall not cause **tie** or CEC to be in breach of such agreements (or to be unable to exercise their rights pursuant thereto) by reason of its failure to perform such obligations.

18.17C Before commencing any works pursuant to Clause 18.17A.3, the Infraco shall notify **tie** of its intention to execute such works. **tie** shall respond to such notification within 10 Business Days. If **tie** instructs such works in its response, such instruction shall constitute a Mandatory **tie** Change for the carrying out of such works. If **tie** does not instruct such **tie** Change in its response, the Infraco shall not carry out such works and shall not be in breach of any of its obligations under this Agreement as a result of not carrying out the works.

18.17D In the event that the Infraco considers and demonstrates to **tie**, acting reasonably, that it is impossible and not just more expensive to carry out any part of the Infraco Works without breaching its obligations to comply with the requirements of Third Party Obligations or its other obligations under Clause 18.17A, **tie** shall endeavour to obtain an appropriate amendment or deletion of the relevant third party requirements or constraint to remove such impossibility provided that Infraco has submitted supporting information on what measures it will use to minimise the effect of the Infraco Works on the third party in question and Infraco will not be required to continue to comply with such third party requirements. If **tie** cannot obtain the relevant amendment or deletion, **tie** shall instruct the Infraco pursuant to a **tie** Change.

- 18.18 If the Infraco suffers delay from failure on the part of **tie** to give possession or access in accordance with the terms of this Clause 18 (*Land Consents, Permanent Land and Temporary Sites*), such failure shall be a Compensation Event and the terms of Clause 65 (*Compensation Events*) shall apply.
- 18.19 Subject to Clause 18.23 and Clause 83 the Infraco shall provide or acquire at its own cost any additional access, land, rights or facilities outside the Permanent Land and the Temporary Sites being provided by **tie** in accordance with this Clause 18 (*Land Consents, Permanent Land and Temporary Sites*) for the purposes of the Infraco Works.
- 18.20 If having used reasonable endeavours to obtain access to land, rights or facilities outside the Permanent Land and the Temporary Sites required to allow it to carry out any part of the Accommodation Works, Infraco is refused or is unreasonably delayed access (or such access having been granted is subsequently withdrawn) to such land, rights or facilities sufficient to allow completion of the Accommodation Works Infraco shall serve a notice on **tie** (an "Accommodation Works Notice") which shall contain the following information:
- 18.20.1 the land, rights or facilities to which Infraco has been unable to gain access;
- 18.20.2 the steps taken to gain such access to land, rights or facilities;
- 18.20.3 the circumstances in which access has been withdrawn or denied; and
- 18.20.4 details of any other parts of the Infraco Works which can not be carried out in accordance with the Programme if the Accommodation Works are not completed.
- 18.21 Within 15 Business Days of receipt of an Accommodation Works Notice, **tie** may notify Infraco that it disputes the circumstances to which Clause 18.20 applied have occurred. If such a notice is served by **tie**, the Parties shall use reasonable endeavours to resolve such dispute within 10 Business Days of the service of such a notice, failing which either Party will be entitled to refer the matter for determination to the Dispute Resolution Procedure.
- 18.22 If **tie** does not dispute the Accommodation Works Notice pursuant to Clause 18.21, any delay or failure to obtain access to land, rights or facilities to which Clause 18.20 applies shall be a Compensation Event and the terms of Clause 65 (*Compensation Events*) shall apply and **tie's** Representative shall issue further instructions regarding the Accommodation Works Notice given pursuant to Clause 83 (*Accommodation Works Changes*).

19. CONSENTS AND TRAFFIC REGULATION ORDERS

19.1 Subject to Clause 19.2, **tie** shall:

19.1.1 obtain and maintain in effect all Temporary Traffic Regulation Orders ("**TTROs**") required for the execution of the Infraco Works prior to Service Commencement Date and all Traffic Regulation Orders with permanent effect required for the operation and maintenance of the Edinburgh Tram Network and shall call-off under existing TTROs, all at such times and for such periods as may be required to allow Infraco to carry out and complete the Infraco Works in accordance with the Programme and On Street Construction Works Methodology; and

19.1.2 obtain and maintain in effect all other Consents which are **tie** Consents.

19.2 The Infraco shall provide all supporting information necessary to enable **tie** to obtain a TTRO or call-off under an existing TTRO and all other reasonably necessary assistance and support to **tie** for the purposes of **tie's** activities pursuant Clause 19.1 in accordance with the Employer's Requirements.

In the event that the failure of the Infraco to provide assistance timeously and in accordance with the Employer's Requirements causes a delay in **tie** obtaining the relevant Temporary Traffic Regulation Order or Traffic Regulation Order, Infraco shall not be entitled to any relief or additional payment in respect of resultant delay or cost that Infraco or any Infraco Party may suffer as a result of the delay in obtaining the TRO or TTRO except where such failure arose as a result of a Notified Departure, **tie** Change or Compensation Event.

19.3 The Infraco shall obtain and maintain all Design Stage Consents, Construction and Maintenance Stage Consents and Temporary Traffic Regulation Orders (required after the Service Commencement Date) required for the performance and completion of the Infraco Works.

19.4 **tie** shall provide all reasonable assistance to the Infraco and Infraco Parties in obtaining and maintaining Consents for which the Infraco and/or the Infraco Parties are responsible. Where Infraco notifies **tie** in writing that it or the Infraco Parties are encountering difficulty in obtaining or maintaining a Consent, **tie** shall, where appropriate, provide support to the Infraco and/or the Infraco Parties by making representations to the relevant Approval Body, provided always that the Infraco (or the relevant Infraco Party) has submitted all required information relevant to the process of seeking the Consent in compliance with the Approval Body's timescales and requirements.

19.5 Infraco shall obtain and maintain in full force and effect the Design Stage Consents and the Construction and Maintenance Stage Consents.

19.5.1 The obtaining and maintaining of Design Stage Consents form part of the scope of services provided by the SDS Provider to the Infraco, save that where Infraco has elected to undertake designs itself or is procuring others to undertake such designs (that is to say Infraco Design), in which case Infraco is responsible for supporting the SDS Provider with relevant technical expertise in accordance with the SDS Agreement in order for SDS Provider to obtain the Design Stage Consents that relate to these elements of the design for the Infraco Works.

19.5.2 Subject to Clause 19.6 below, failure to obtain a Design Stage Consent (including Additional Consents) from the relevant Approval Body in respect of a design which the SDS Provider is responsible for preparing by the date on which it is shown as required in the Consents Programme included in the SDS Novation Agreement and/or Schedule Part 15 (*Programme*), shall be a Compensation Event.

19.5.3 The Infraco shall itself be responsible for obtaining the Construction and Maintenance Stage Consents.

19.6 Clause 19.5.2 shall apply following the inability of the SDS Provider to obtain (or maintain) a Design Stage Consent for which it is responsible and in accordance with the Consents Programme contained in the SDS Novation Agreement, provided that:

19.6.1 the Infraco:

- (i) has informed **tie** of the reasons (if any) given by the relevant Approval Body for declining to issue or renew the Design Stage Consent by the programmed date and has provided appropriate supporting documentation to **tie**;
- (ii) has informed **tie** as soon as practicable after it became aware that the Design Stage Consent may not be obtained or renewed by the programmed date;
- (iii) has used reasonable endeavours to afford **tie** the opportunity to meet with the relevant Approval Body within 3 Business Days of notification pursuant to Clause 19.6.1(i) and (ii) with a view to resolving the situation and supported **tie** by its attendance at such meeting, accompanied by the SDS Provider;
- (iv) has acted in order to mitigate the impact of the failure to obtain or renew the Consent;

- 19.6.2 the Infraco has taken all reasonable steps to manage the SDS Provider to ensure the SDS Provider obtains or renews the Design Stage Consents and ensures timely provision of adequate required information to the relevant Approval Body in accordance with the Consents Programme, the Design Delivery Programme, the agreed requirements of the Approval Body and the Design Management Plan as set out in Schedule Part 14 (*Review Procedure and Design Management Plan*);
- 19.6.3 where the Approval Body is CEC, the inability to obtain or renew the Consent is not the result of the Infraco reprogramming the Infraco Works or instructing the SDS Provider to reprioritise the Design Delivery Programme (save where such reprogramming or reprioritisation is the direct result of a **tie** Change, a Relief Event, a default by **tie** or a Compensation Event or has been agreed pursuant to Clause 19.16), such that CEC has insufficient time or information in which to respond to an altered timescale;
- 19.6.4 where the Approval Body is CEC and where CEC has failed to respond and comply with the timescale requirements set out in the Consents Programme, such failure has not been caused by incomplete or late submissions by the SDS Provider or the Infraco as required by the Consents Programme, Schedule Part 14 (*Review Procedure and Design Management Plan*), SDS Agreement (other than as a result of a Compensation Event, Relief Event, default by **tie** or **tie** Change);
- 19.6.5 the failure to obtain or renew the Consent is not a consequence of a failure of the SDS Provider to perform its obligations under the SDS Agreement in terms of the quality or content of the relevant design submissions and as required pursuant to the Consents Programme contained in Schedule Part 15 (*Programme*), Schedule Part 14 (*Review Procedure and Design Management Plan*) and, where relevant, Clause 10 (*Design Development and Finalisation*); and
- 19.6.6 the failure to obtain or renew a Design Stage Consent for Infraco's Design is not a consequence of a failure of the Infraco to provide all the necessary information timeously in accordance with Schedule Part 14 (*Review Procedure and Design Management Plan*) and with the Programme or a failure of the Infraco to provide adequate technical support to the SDS Provider pursuant to Clause 19.5.1 or a consequence of the content or quality of the Infraco Design but not, for avoidance of doubt, on the grounds of design principle, scope, form or specification where such design meets the Employer's Requirements and the Infraco Proposals.

- 19.7 Subject to Clause 19.6, Clause 19.5.2 shall apply where, and to the extent that, a Consent is sought and the relevant Approvals Body
- 19.7.1 requires changes to design which could not reasonably have been anticipated from the previous formal or informal consultations or communications with the Approvals Body; or
- 19.7.2 does not deliver the Consent within the period stated in the Consents Programme or such Consents Programme updated in accordance with these terms.
- 19.8 Clauses 19.6.3 and 19.6.4 shall not apply to a Consent where CEC is the Approval Body and where CEC, acting reasonably, has agreed in writing to a proposal from Infraco to changes in the sequencing, packaging, timescales, reprogramming or reprioritisation implemented by Infraco from the Consents Programme, the Design Delivery Programme and the Design Management Plan as set out in and the Schedule Part 14 (*Review Procedure and Design Management Plan*), provided that Infraco has provided reasonable advance notice to **tie** and to the Approvals Body including full details of the proposed changes.
- 19.9 Responsibility for obtaining, maintaining or renewing any Consent which is not specified in the Consents Programme ("**Additional Consent**") shall be allocated as follows:
- 19.9.1 where the Additional Consent is a Design Stage Consent, it shall be the responsibility of the Infraco to manage the SDS Provider in obtaining the Consent (to the extent that such Consent is the responsibility of the SDS Provider to obtain under the SDS Agreement), save for Consents which relate to design prepared by the Infraco itself in which case the Infraco shall be responsible for the Consent which, if appropriate, shall be dealt with as an Infraco Change;
- 19.9.2 where the Additional Consent is a Construction and Maintenance Stage Consent, it shall be the Infraco's responsibility and, if relevant, shall be dealt with as an Infraco Change;
- 19.9.3 where the Additional Consent is a **tie** Consent, **tie** shall be responsible for obtaining, maintaining or renewing it.
- 19.9.4 Where the Additional Consent is not a Design Stage Consent or a Construction and Maintenance Stage Consent and **tie** requires Infraco to obtain it, then **tie** shall instruct Infraco and such instruction shall be a **tie** Change.

The Parties shall provide all reasonable support to one another in relation to obtaining and maintaining such Additional Consents and each shall bear its own costs in obtaining any Additional Consent, save where the Additional Consent is required as a result of a **tie** Change, in which case the costs related to obtaining the Additional Consent shall be included in the valuation pursuant to Clause 80 (**tie** Change).

- 19.10 **tie** shall obtain the Network Rail Possessions required by Infraco to carry out and complete the Infraco Works in accordance with the Programme. The Infraco shall prepare and provide to **tie** in accordance with the Programme all required technical and design documentation necessary to enable **tie** to apply to Network Rail to obtain Consents for the booking or rebooking of possessions (which have been obtained by **tie** based on the Infraco Proposals) in accordance with the Programme. **tie** shall be responsible for the charge payable to Network Rail for possessions, save where new possessions are needed due to the Infraco's default or delay (save where such default or delay has been caused by a default by **tie**, a Compensation Event, Relief Event or a **tie** Change) in which event any associated charges shall be paid by the Infraco. Cancellation or alteration by Network Rail of possession dates, timings or duration with insufficient notice or replacement possessions shall be a Compensation Event.
- 19.11 The Infraco shall update the Consents Programme by each Reporting Period End Date showing progress and any Additional Consents to be obtained. **tie** shall be entitled to request information in relation to the progress of the application for any Design Stage and Construction and Maintenance Stage Consent and the Consent itself and the Infraco shall provide the same at no cost to **tie**.
- 19.12 The Infraco shall notify any relevant Approval Bodies, with a copy to **tie**, of the dates and times when the Infraco will require their services on the Site and shall be responsible for the co-ordination of their works if necessary with the remainder of the Infraco Works.
- 19.13 Where **tie's** authorisation or completion of documentation in respect of compliance with any Law is required, the Infraco shall furnish the relevant documentation to **tie** and, where possible, permit **tie** a period of 10 Business Days to authorise or complete it.
- 19.14 Except where otherwise provided in this Agreement and except in respect of **tie** Consents, the Infraco shall, or procure that the relevant Infraco Party shall, give all notices and pay all fees required to be given or paid in connection with the procurement of any Consent.
- 19.15 Without prejudice to the Infraco's obligations and rights under Clauses 18, 20, 32.1 and 32.2 and subject to **tie's** obligations to provide Land Consents in relation to the Permanent Land and the Temporary Sites pursuant to Clauses 18.1 and 18.5 and **tie's** obligations pursuant to

this Clause 19, if the carrying out of the Infraco Works or the remedying of any defects therein is likely to necessitate any interference with the rights of adjoining or neighbouring landowners, tenants or occupiers, then the Infraco shall use reasonable endeavours to obtain the prior written agreement of such landowners, tenants and/or occupiers on terms and conditions acceptable to the Infraco, acting reasonably. **tie** shall provide such reasonable assistance as requested by the Infraco in obtaining any such agreement. The Infraco shall comply with any conditions contained in any such agreement.

- 19.16 The Infraco may, upon reasonable notice to **tie**, request a change to the Consents Programme, in order to re-sequence or re-prioritise submissions in order to preserve the Programme (or to mitigate adverse impact upon it). In the event that the Infraco can demonstrate to **tie**, acting reasonably, that the change requested is necessary to prevent or mitigate the effect of a **tie** Change, a Relief Event, a Compensation Event or a Notified Departure or that such re-sequencing or re-prioritising does not create an increase or change in CEC's resourcing requirement or its work load per unit time in processing the relevant submissions, then **tie** shall approve such change within a timescale that is reasonable in the circumstances.
- 19.17 If having used reasonable endeavours, having acted in accordance with Good Industry Practice in relation to any construction methodology relevant to the granting of a Construction and Maintenance Stage Consent and having provided all necessary information required to obtain such Construction and Maintenance Stage Consent, Infraco is refused such Construction and Maintenance Stage Consent or the granting of such Construction and Maintenance Stage Consent is unreasonably delayed, then such refusal or delay shall be a Compensation Event to which Clause 65 (Compensation Event) shall apply.
- 19.18 Where the Infraco obtain an APA Consent, the Infraco shall forward two copies of such APA Consent to **tie**.
- 19.19 The Infraco shall not be entitled to any relief or compensation and the provisions of Clause 65 (Compensation Events) shall not apply in the event that Infraco Design is (i) not submitted to the SDS Provider in accordance with the Consents Programme and Schedule Part 14 (*Review Procedure and Design Management Plan*); or (ii) is rejected by the Approvals Body on grounds of content or quality but not, for avoidance of doubt, on the grounds of design principle, scope, form or specification where such design meets the Employer's Requirements and the Infraco Proposals.

20. BUILDING FIXING AGREEMENTS

- 20.1 The Infraco shall submit Proposals to **tie** at least 6 months (other than any revised Proposal referred to in Clause 20.3 in which case such Proposals shall be submitted to allow sufficient time for **tie** acting expeditiously to review and agree in order to comply with the Programme) prior to the date on which the Infraco proposes to install, maintain, modify or replace any relevant supporting infrastructure in order to comply with the Programme. The Infraco shall, prior to taking any action under Clause 20.4 or otherwise in relation to the installation, maintenance, modification or replacement of any relevant infrastructure, obtain **tie's** consent to the Proposals referred to in this Clause 20.1, which consent shall not be unreasonably withheld or delayed provided that if **tie** unreasonably withholds or delays such consent the Infraco shall be entitled to refer the matter to the Dispute Resolution Procedure.
- 20.2 Concurrently with the action under Clause 20.1 and subject to Clause 19 (*Consents and Traffic Regulation Orders*) the Infraco shall obtain all necessary Consents or approvals from the relevant planning authority for the installation of temporary poles as an alternative for every proposed building fixing, in order that Clause 20.9.1.2 can be implemented forthwith on said clause being utilised.
- 20.3 In the event that **tie** do not consent to the Proposals referred to in Clause 20.1, the Infraco shall submit revised Proposals to **tie** to install, maintain, modify or replace any relevant supporting infrastructure, in order to obtain **tie's** consent in accordance with Clause 20.1, in order to comply with the Programme.
- 20.4 In the event that **tie** gives its consent to the Proposals referred to in Clause 20.1, the Infraco shall obtain all necessary Consents or approvals from the relevant planning authority in accordance with Clause 19 (*Consents and Traffic Regulation Orders*).
- 20.5 Where it is agreed, pursuant to Clause 20.3, that a building fixing is to be used, modified or replaced, the Infraco shall:
- 20.5.1 at its own cost:
- 20.5.1.1 provide **tie** with all information **tie** reasonably requires in order to secure the consent of the Heritable Proprietor and any other relevant party to allow the Infraco to carry out a survey in order to ascertain whether the relevant building may safely support the loadings which will be imposed upon it by the building fixings (or modification or replacement thereof) to be attached

thereto for as long as may be required in connection with the Edinburgh Tram Network; and

20.5.1.2 carry out the relevant survey

to allow **tie** and Infraco to enter into or vary a Building Fixing Agreement with the Heritable Proprietor under Clause 20.6; and

20.5.2 at its own cost, by the date falling 90 Business Days before the date on which the building fixing (or modification or replacement thereof) is scheduled to be affixed in accordance with the Programme, provide **tie** with all information **tie** reasonably requires in order to secure the agreement of the Heritable Proprietor to allow the siting, modification or replacement (as the case may be) of building fixings in such locations as the Infraco has set out in the Proposals issued pursuant to Clause 20.1, which agreement shall be documented and set out in the form of a Building Fixing Agreement or a variation to the existing Building Fixing Agreement or in the form of a new Building Fixing Agreement, subject to any amendments that **tie** may agree.

20.6 Subject to Clause 20.11, the Parties shall enter into any Building Fixing Agreement required pursuant to Clause 20.5.2 and **tie** shall procure that CEC and the Heritable Proprietor enter into such Building Fixing Agreement.

20.7 If any Heritable Proprietor withholds consent as envisaged by Clause 20.5, **tie** may, at its own cost, utilise the procedure for application to the Sheriff Court pursuant to section 16(4) of either the Edinburgh Tram (Line One) Act 2006 or the Edinburgh Tram (Line Two) Act 2006 (as appropriate).

20.8 Where **tie** decides to use the procedure referred to in Clause 20.7, the Infraco will use all reasonable endeavours to assist **tie** in such proceedings and **tie** shall reimburse Infraco for its reasonably and directly incurred costs in complying with this obligation.

20.9 Where **tie** uses the procedure referred to in Clause 20.7, and the application is rejected by the Sheriff Court, in whole or in part, or where **tie** determines that the rejection is likely to be upheld by the Sheriff Court, the Infraco, as directed by **tie** (acting reasonably) shall:

20.9.1.1 where in Infraco's opinion (acting reasonably) there is sufficient time within the construction programme, submit alternative plans for affixation of building fixings to alternative buildings at or around the same location; or

20.9.1.2 where in Infraco's opinion (acting reasonably) there is not sufficient time within the construction programme to propose such alternative plans, install a temporary pole in accordance with Clause 20.3 provided Infraco has obtained the application or applications required in order to obtain all necessary Consents or approvals from the relevant planning authority in accordance with Clause 20.4; or

20.9.1.3 submit alternative plans for affixation of building fixings to alternative buildings at or around the same location and install foundations for a temporary pole in accordance with Clause 20.3.

For the purposes of this Clause 20.9, **tie** will review such alternative plans and then issue a **tie** Change which shall be a Mandatory **tie** Change and the provisions of Clause 80 (**tie** Changes) shall apply.

20.10 If a relevant Heritable Proprietor or other appropriate party serves notice on the Infraco prior to the Expiry Date pursuant to Law or pursuant to a Repairs Notice or Redevelopment Notice under a Building Fixing Agreement (each as defined therein), requiring the temporary removal of a building fixing, the Infraco shall, subject to obtaining any necessary Consents for such removal and the erection and use of a temporary pole to support OLE at that location, remove the relevant building fixing or any part thereof as required by the terms of the relevant notice and shall be entitled to support the OLE at that location by erecting a temporary pole provided that as soon as reasonably practicable upon completion of the third party's works in respect of which the notice was served the Infraco shall:

20.10.1 remove any temporary pole; and

20.10.2 thereafter support the OLE forming part of the Edinburgh Tram Network at that location by way of a building fixing and not by any other method.

For the purposes of this Clause 20.10 such removal shall be a Mandatory **tie** Change and the provisions of Clause 80 (**tie** Changes) shall apply.

20.11 If having undertaken a survey pursuant to Clause 20.5.1.2, the Infraco is reasonably of the opinion that the building to which a building fixing is to be attached, modified or replaced cannot safely support the loadings which will be imposed upon it by such building fixing (or modification or replacement thereof) for as long as may be required in connection with the Edinburgh Tram Network and there is no alternative building at or around the same location to which the building fixing could reasonably be attached, and the Infraco submits to **tie** the survey and report upon which such opinion is based and either:

- 20.11.1 **tie** confirms in writing to the Infraco that it does not dispute such opinion; or
- 20.11.2 it is determined by the Dispute Resolution Procedure that such opinion is correct,
- then the Infraco shall be entitled to select the method for supporting the OLE at that location subject to obtaining all necessary Consents or approval from the relevant planning authority.
- 20.12 If, following compliance with Clauses 20.2, 20.4 and 20.9, having used reasonable endeavours (including application of Good Industry Practice) and provided all necessary information in a timely fashion required to obtain a Consent for any building fixings, the granting of such Consent to the Infraco is either refused or is delayed, such refusal or delay shall be a Compensation Event pursuant to Clause 65 (*Compensation Events*).
- 20.13 Clauses 20.7, 20.8, and 20.9 shall apply equally to circumstances where a Building Fixing Agreement is entered into but the successor to the whole or any part of the interest of the Heritable Proprietor in question refuses to honour the terms of the same or to enter into a fresh Building Fixing Agreement as to when a Heritable Proprietor withholds consent envisaged by Clause 20.5.
- 20.14 Subject to Clauses 77.2, 77.3, 77.7 and 77.8 (and where applicable Clauses 16.72 and 16.73), Infraco shall indemnify CEC during the Term in respect of any payments properly made pursuant to Clause 4 of any Building Fixing Agreement to the extent that liability to make such payment has arisen as a result of the Infraco's breach of its obligations under this Agreement.
- 21. NEW ROADS AND STREET WORKS ACT 1991 AND UTILITIES DIVERSION**
- 21.1 In this Clause 21 (*New Roads and Street Works Act 1991 and Utilities Diversion*) "**NRSA**" shall mean the New Roads and Street Works Act 1991.
- 21.2 NOT USED
- 21.3 All other expressions common to the Act and to this Clause 21 (*New Roads and Street Works Act 1991 and Utilities Diversion*) shall have the same meaning assigned to them by **NRSA**.
- 21.4 The Infraco shall obtain any street works licence, road opening permits and any other consent, licence or permission (other than any Land Consents) under **NRSA** that may be required for the carrying out of the Infraco Works on public roads and shall supply **tie** with copies thereof including details of any conditions or limitations imposed.

- 21.5 The Infraco shall be responsible for giving to any relevant utility any required notice (or advance notice where prescribed) of its proposal to commence any work. A copy of each such notice shall be given to **tie**. The Infraco shall use reasonable endeavours to assist **tie** and CEC in relation to the operation of NRSWA to recover contribution from, where appropriate, any relevant statutory undertaker.
- 21.6 If at any time during the Term works are carried out on the Permanent Land:
- 21.6.1 by or on behalf of a utility;
- 21.6.2 by the roads authority or any other third party authorised to carry out such works by the roads authority;
- except in any case where the works are executed by Infraco or an Infraco Party pursuant to Infraco's obligations under this Agreement ("**Third Party Works**");
- 21.6.3 Infraco shall not be in breach of and shall be relieved of its obligations under this Agreement to the extent such breach is caused by such Third Party Works; and
- 21.6.4 where such Third Party Works do not meet the standards set in the Employer's Requirements to which Infraco is obliged to maintain the Infraco Works in accordance with Clause 52, Infraco shall be relieved of its obligations to meet the standards set in Schedule Part 2 (*Employer's Requirements*) in relation to such Third Party Works and shall not be obliged to repair, reinstate or otherwise maintain such works except if otherwise instructed by **tie**, in which case such instruction will be a **tie** Change provided that the Infraco notifies **tie** promptly upon becoming aware of the occurrence of such Third Party Works.

22. ADVERSE PHYSICAL CONDITIONS AND ARTIFICIAL OBSTRUCTIONS

- 22.1 NOT USED
- 22.2 If at any time prior to 3 weeks before the commencement of engineering and construction activities (as shown in the Programme) on the affected area of the Site, the Infraco identifies or has reason to believe that there is unexploded ordnance, unidentified utility apparatus not listed in the Utilities Information or adverse physical conditions, ground conditions, artificial obstructions and/or land which is contaminated (other than land which is contaminated by the Infraco) and is not listed in the Ground Condition Information, the Infraco shall as early as practicable give written notice thereof to **tie**.

22.3 When giving written notice in accordance with Clause 22.2, the Infraco shall give details of (i) any anticipated effects of such unexploded ordnance, unidentified utility apparatus not listed in the Utilities Information, adverse physical conditions, ground condition, artificial obstructions or land which is contaminated, (ii) the measures it has taken, is taking or is proposing to take, (iii) the associated estimated costs, and (iv) the extent of the anticipated delay in or interference with the carrying out of the Infraco Works.

22.4 Following receipt of the notice by **tie** pursuant to Clause 22.2, **tie's** Representative shall:

22.4.1 require the Infraco to investigate and report upon the practicality, cost and timing of alternative measures which may be available; and/or

22.4.2 give written consent to the measures notified by the Infraco under Clause 22.3 with or without modification; and/or

22.4.3 give written instructions as to how the unexploded ordnance, utility apparatus which is not identified in Schedule Part 41 (*Ground Conditions and Utilities Information*), adverse physical conditions, ground condition, artificial obstructions or land which is contaminated are to be dealt with

and **tie's** Representative shall either order a suspension under Clause 87 (*Suspension of Work*) or instruct a **tie** Change in respect of the work to be carried out under this Clause 22.4 as a Mandatory **tie** Change under Clause 80 (**tie** Changes).

22.5 Notwithstanding the provisions of Clause 5 (*Provision and Interpretation of Information*), the discovery by Infraco at any time following the date 3 weeks before the commencement of engineering and construction activities (as stated in the Programme) on the affected area of the Site:

- (a) unexploded ordnance;
- (b) utility apparatus which is not identified in Schedule Part 41 (*Ground Conditions and Utilities Information*) and which could not have, or the nature of which could not have, reasonably been foreseen from the use of and interpolation from the Utilities Information; or
- (c) adverse physical conditions, ground conditions, artificial obstructions and/or land which is contaminated, where such contamination has not been included in the Contract Price Analysis which could not have or the nature of which could not have reasonably been foreseen from the use of and interpolation from the Ground Condition Information;

shall be a Compensation Event in accordance with Clause 65 (*Compensation Events*) provided that:

- 22.5.1 the Infraco demonstrates to the reasonable satisfaction of **tie's** Representative that the Infraco has used its reasonable endeavours to adjust the order and sequence in which the Infraco proposes to execute the Infraco Works in order to minimise the effects of the delay in, or if possible to avoid altogether any delay in, the progress by the Infraco of the Infraco Works; and
- 22.5.2 the Infraco demonstrates to the reasonable satisfaction of **tie's** Representative that the Infraco has used its reasonable endeavours to minimise and mitigate any extra costs incurred in relation to such adverse physical conditions, ground conditions, artificial obstructions, unexploded ordnance, unidentified utility apparatus or land which is contaminated; and
- 22.5.3 the Infraco demonstrates to the reasonable satisfaction of **tie's** Representative that any claim for additional time relates to timing implications which exceed those that are contained within the Programme in relation to the discovery of unexploded ordnance, unidentified utility apparatus, adverse physical conditions, ground conditions, artificial obstructions or land which is contaminated.

23. ACCESS TO THE INFRACO WORKS, THE SITE AND WORKSHOPS ETC.

- 23.1 **tie**, **tie's** Representative and any person authorised by **tie** or **tie's** Representative shall upon reasonable prior notice being given have access during normal working hours to the areas where the Infraco Works are being carried out and to the Site (so far as the same is under the Infraco's control) and to all workshops and places where work is being prepared or whence materials, manufactured articles, machinery and equipment (including the Trams) are being obtained for the Infraco Works (including the premises of any Infraco Party) and the Infraco shall afford every facility for and every assistance in obtaining such access or the right to such access provided that such access shall not disrupt or interfere with the performance by Infraco or any Infraco Party of the Infraco Works and **tie** shall, and shall procure that **tie's** Representative and any person authorised by **tie** or **tie's** Representative shall, during any period when it or they have access to the Site, the Infraco Works and the Tram testing facilities, comply with all rules and regulations applicable to working at those premises for the safety of persons and convenience of the public.

24. USE OF THE DEPOT

- 24.1 On completion of the construction of the Depot, the Infraco shall enter into and execute the Depot Licence in the form set out in Schedule Part 32 (*Depot Licence*).
- 24.2 Subject to the Infraco executing the Depot Licence and complying with and procuring the Infraco Parties' compliance with the obligations in this Clause 24 (*Use of the Depot*) and the Depot Licence, the Infraco and the Infraco Parties shall have the right to access and use those parts of the Depot which the Infraco and the Infraco Parties properly require to so use for the purpose of carrying out the Infraco Works (including the Maintenance Services) in accordance with this Agreement.
- 24.3 The Infraco agrees that:
- 24.3.1 the right to access and use the Depot granted pursuant to this Clause 24 (*Use of the Depot*) and the Depot Licence shall terminate on the earlier of the Termination Date or the Expiry Date; and
- 24.3.2 the Infraco's and the Infraco Parties' right to use such parts of the Depot shall not create any relationship of landlord and tenant.
- 24.4 Neither CEC nor **tie** give any warranty as to the condition or fitness for purpose of the Depot.
- 24.5 Subject to the exception set out in Clause 77.2, **tie** and CEC shall not be liable for the death of or injury to persons or damage to any property or for any losses, claims, demands, actions, proceedings, damages, costs or expenses or other liability incurred by the Infraco and/or the Infraco Parties or any person in the use of the Depot.
- 24.6 Nothing in this Clause 24 (*Use of the Depot*) or the Depot Licence shall restrict **tie's** and **tie** Parties' absolute right of access to any part of the Depot at any time provided that if such access disrupts or interferes with the performance by Infraco or any Infraco Party of the Infraco Works, such disruption or interference shall be a Compensation Event.

PART 6 - PERSONNEL

25. TIE'S REPRESENTATIVE

- 25.1 Subject to Clause 25.2, **tie's** Representative may exercise the authority of **tie** specified in the Agreement. **tie's** Representative shall:

25.1.1 be responsible for the day to day monitoring of the Infraco Works to be performed by the Infraco;

25.1.2 exercise such functions and powers of **tie** under this Agreement as **tie** may notify in writing to the Infraco from time to time; and

25.1.3 be the primary point of contact for the Infraco with **tie**;

and the Infraco shall observe, and shall procure that any Infraco Party observes, all reasonable instructions of **tie** and **tie's** Representative given in accordance with this Agreement. The Infraco shall not and shall procure that any Infraco Party shall not act upon any instruction from any other party unless confirmed by **tie** or **tie's** Representative in writing. If the Infraco or any Infraco Party shall receive any such instructions, the Infraco shall notify **tie** or **tie's** Representative immediately.

25.2 **tie** may by notice in writing to the Infraco from time to time, restrict the authority of **tie's** Representative and/or require **tie's** Representative to obtain the specific approval of **tie** before exercising any such authority. In the event of such restriction or requirement, the Infraco shall look to **tie** to exercise the relevant authority or to confirm that **tie** has given the relevant approval.

25.3 Except as expressly stated in the Agreement, **tie's** Representative shall have no authority to amend the Agreement nor to relieve the Infraco of any of its obligations under the Agreement.

25.4 **tie** may by notice in writing to the Infraco change the identity of **tie's** Representative. **tie** shall consult with the Infraco prior to the appointment of any replacement for **tie's** Representative, taking account of the need for liaison and continuity in respect of this Agreement. Such change shall have effect on the date specified in the written notice.

25.5 During any period when a **tie's** Representative has not been appointed (or when **tie's** Representative is unable through illness, incapacity or any other reason whatsoever to carry out or exercise his functions under this Agreement), **tie** shall carry out the functions which would otherwise be performed by **tie's** Representative.

25.6 No decision, act or omission of **tie** or **tie's** Representative shall, except as otherwise expressly provided in this Agreement:

25.6.1 in any way relieve or absolve the Infraco from, modify, or act as a waiver or personal bar of, any liability, responsibility, obligation or duty under this Agreement;

- 25.6.2 in the absence of an express written instruction or authorisation issued by **tie** under Clause 80 (**tie Changes**) constitute or authorise a variation; or
- 25.6.3 be construed as restricting or binding **tie** in any way save with regard to the specific project matters to which it relates.
- 25.7 Where **tie's** Representative is not a single named individual, **tie's** Representative shall within 7 days of the Effective Date notify to the Infraco in writing the name of the individual who will act on its behalf and assume the full responsibilities of **tie's** Representative under the Agreement. **tie's** Representative shall thereafter in like manner notify the Infraco of any replacement of the named individual.
- 25.8 **tie's** Representative may from time to time delegate any of the duties and authorities vested in **tie's** Representative, and **tie's** Representative may at any time revoke such delegation. Any such delegation:
- 25.8.1 shall be in writing and shall not take effect until such time as a copy thereof has been delivered to the Infraco or the Infraco's Representative; and
- 25.8.2 shall continue in force until such time as **tie's** Representative shall notify the Infraco in writing that the same has been revoked.
- 25.9 Instructions given by **tie's** Representative or by any person exercising delegated duties and authorities under Clause 25.8 shall be in writing. Provided that if for any reason it is considered necessary to give any such instruction orally the Infraco shall comply therewith.
- 25.10 Any such oral instruction shall be confirmed in writing as soon as is possible under the circumstances. Provided that if the Infraco confirms in writing any such oral instruction which confirmation is not contradicted in writing by **tie's** Representative forthwith it shall be deemed to be an instruction in writing by **tie's** Representative.
- 25.11 Upon the written request of the Infraco, **tie's** Representative or the person exercising delegated duties or authorities under Clause 25.8 shall specify in writing under which of his duties and authorities the instruction is given.

26. INFRACO'S SUPERINTENDENCE AND KEY PERSONNEL

- 26.1 The Infraco shall provide all necessary superintendence during the construction and completion of the Infraco Works. Such superintendence shall be given by sufficient persons having adequate knowledge of the operations to be carried out (including the methods and

techniques required, the hazards likely to be encountered and methods of preventing accidents) for the satisfactory and safe construction of the Infraco Works.

- 26.2 The Infraco's senior representative on the Site ("**Infraco's Representative**") must be approved by **tie**, for which purpose the Infraco shall first provide **tie** with full details of the experience and qualifications of the Infraco's Representative.
- 26.3 The Infraco shall ensure that, so long as the Infraco's Representative remains an employee or servant of the Infraco and is not incapacitated by illness or otherwise nor absent in consequence of his reasonable holiday entitlement, the Infraco's Representative shall undertake overall supervision of the Infraco Works for whatever time may be required to ensure the completion of the Infraco Works in accordance with the Agreement. The Infraco's Representative shall be responsible for the safety of all Infraco Works.
- 26.4 The Infraco's Representative shall:
- 26.4.1 act as the principal point of contact for **tie**, and **tie's** Representative in relation to all matters related to this Agreement;
 - 26.4.2 have full authority to act on behalf of the Infraco for all purposes of this Agreement, and **tie** and **tie's** Representative shall be entitled to treat all instructions and directions of the Infraco's Representative as those of the Infraco; and
 - 26.4.3 manage and co-ordinate the provision of the Infraco Works by the Infraco (and any Sub-Contractor) and the integration of provision of the Infraco Works with the tasks being performed by **tie's** internal team and the other advisers and contractors appointed by **tie** (where such tasks have been notified to the Infraco), and liaise with **tie's** Representative in relation to matters arising in relation to the Infraco Works.
- 26.5 The Infraco's Representative shall not be changed by the Infraco without the consent of **tie** to such change (which consent shall not be unreasonably withheld or delayed) and the Infraco shall provide **tie's** Representative with full details of the experience and qualifications of the proposed substitute Infraco's Representative. The Infraco shall take account of the need for liaison and continuity in respect of the provision of the Infraco Works in accordance with the Programme when any change is proposed.
- 26.6 The Infraco shall also nominate a deputy to the Infraco's Representative. During any period when the Infraco's Representative is unable through illness, incapacity, annual leave or any other reason whatsoever to carry out or exercise his functions under this Agreement, such

deputy shall carry out the functions which would otherwise be performed by the Infraco's Representative.

- 26.7 **tie** may at any time request the removal from the Infraco Works of the Infraco's Representative or his deputy for reasons of incompetence or gross misconduct and request the prompt appointment of a satisfactory substitute, approved by **tie** and the Infraco shall provide **tie's** Representative with full details of the experience and qualifications of the proposed substitute.
- 26.8 Any costs incurred by the Infraco in replacing the Infraco's Representative (in any circumstances) shall be borne by the Infraco.
- 26.9 The Infraco shall ensure that the Key Personnel shall have day-to-day responsibility for and be involved in the performance of the Infraco Works.
- 26.10 In addition to the Key Personnel, there shall at all times be a sufficient number of staff (including all relevant grades of supervisory staff) available for the provision of the Infraco Works in accordance with this Agreement. This obligation shall include ensuring that there are sufficient staff to cover periods of holiday, sickness and other absences, and anticipated and actual peaks in servicing the requirements for the Infraco Works.
- 26.11 The Infraco shall locate staff at such locations as the Infraco considers convenient for the Infraco Works, provided that:
- 26.11.1 the Infraco acknowledges that it will not be entitled to any reimbursement from **tie** in relation to the travel of any person to or from Edinburgh, or for the accommodation or subsistence of any person visiting Edinburgh; and
- 26.11.2 **tie** will require the Infraco to make the Key Personnel available for meetings in Edinburgh at such times as **tie** may, in its absolute discretion direct subject to reasonable advance notice of such meetings being given by **tie** to the Infraco.
- 26.12 The Infraco shall, and shall use reasonable endeavours to procure that the Tram Supplier and Tram Maintainer, ensures that there are no changes to the Key Personnel without **tie's** prior written consent (such consent not to be unreasonably withheld or delayed) and that any replacement persons shall be of at least equivalent status and ability to the person whom they replace.

- 26.13 The Infraco shall use all reasonable endeavours to ensure the continuity of the personnel assigned to perform the Infraco Works and shall select Key Personnel having careful regard to those persons' existing work load and other planned commitments.
- 26.14 The Infraco shall ensure that its Key Personnel shall:
- 26.14.1 have the level of skill, experience and authority appropriate to (i) the Infraco Works to which such staff are allocated, and (ii) the standards to be achieved pursuant to this Agreement; and
- 26.14.2 receive such training and supervision as is necessary to ensure the proper performance of this Agreement and compliance with all regulatory requirements appropriate to and required for the performance of the Infraco Works in accordance with this Agreement.
- 26.15 All Key Personnel should have a nominated deputy who shall be capable of fulfilling the duties of the person to whom they are deputising in the event of their absence and who shall be kept fully informed of project status in the relevant area.
- 26.16 The Infraco shall not, during the period of this Agreement, contract or retain as an adviser or consultant, any person currently or previously employed or engaged as appropriate in the previous 3 months by **tie** unless the prior written approval of **tie** has been obtained. For the avoidance of doubt, this Clause 26.16 shall not apply to the SDS Provider, the Tram Supplier and the Tram Maintainer.
- 26.17 The Infraco shall (and shall procure that the Key Personnel, its staff employed in the performance of the Infraco Works and the Infraco Parties) comply with all regulatory requirements appropriate to and required for the performance of the Infraco Works, **tie's** Drug and Alcohol Policy.
- 26.18 The Infraco shall not at the Depot or at any premises from where any Infraco Parties carry out the Infraco Works and/or any obligations under this Agreement at any time allow the consumption of, or work under, the influence of alcoholic liquors or drugs or give, sell or barter any alcoholic liquors or drugs or permit or suffer any such gift, sale or barter to be made by any Infraco Party.

27. REMOVAL OF INFRACO'S EMPLOYEES

- 27.1 The Infraco shall employ or cause to be employed in and about the construction and completion of the Infraco Works and in the superintendence thereof only persons who are careful, skilled and experienced in their several trades and callings. The Infraco shall ensure

that its site supervisors and operatives who are involved in carrying out the Infraco Works shall have CSCS (or equivalent) certification, if relevant to the works they are performing.

- 27.2 Notwithstanding the provisions of paragraph 6 of parts A and B of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*), **tie's** Representative shall be at liberty to object to and require the Infraco to remove or cause to be removed from the Infraco Works any person employed thereon who in the opinion of **tie's** Representative mis-conducts himself or is incompetent or negligent in the performance of his duties or fails to conform with any particular provisions with regard to safety which may be set out in this Agreement or persists in any conduct which is prejudicial to safety or health, and such persons shall not be again employed upon the Infraco Works without the permission of **tie's** Representative.
- 27.3 Any costs incurred by the Infraco in removing, or causing to be removed, a person in accordance with this Clause 27 (*Removal of Infraco's Employees*) shall be borne by the Infraco.

28. SUB-LETTING AND THE APPOINTMENT OF SUB-CONTRACTORS

- 28.1 The Infraco shall not sub-contract the whole of the Infraco Works.
- 28.2 Subject to Clauses 28.3 and 28.4, the Infraco may sub-contract part of the Infraco Works with the prior written approval of **tie**, to a sub-contractor, supplier, sub-consultant, specialist and/or other party for performance of that specific part of the Infraco Works. The consent of **tie** shall be deemed to have been given to the appointment of the Tram Supplier, the SDS Provider and the Tram Maintainer. The consent of **tie** shall also be deemed to have been given to the appointment of the sub-contractors listed in Schedule Part 38 (*Approved Suppliers and Sub-Contractors and Trades*) and to the listed aspects of the Infraco Works and/or trades required for the Infraco Works in respect of which the Infraco may appoint a sub-contractor, sub-consultant, specialist and/or other party.
- 28.3 In respect of the Key Sub-Contractors not already approved and listed in Schedule Part 38 (*Approved Suppliers and Sub-Contractors and Trades*), the Infraco shall supply a reasonable level of relevant information (including curriculum vitae, information on relevant experience and technical capacity, insurance details and the methodology for provision of the sub-let works) required by **tie** to enable a decision to be made by **tie** on the suitability of the proposed Key Sub-Contractors to perform the relevant part of the Infraco Works. **tie's** decision on the use of and identity of any sub-contractor, supplier, sub-consultant, specialist and/or other party shall not be unreasonably withheld or delayed provided that **tie** is entitled to so withhold its decision if:

- 28.3.1 **tie** considers that the proposed Key Sub-Contractor has an unacceptable safety record;
- 28.3.2 such Key Sub-Contractor will not provide a collateral warranty in accordance with Clause 28.7 unless Infraco provides a collateral warranty in accordance with Clause 28.10;
- 28.4 The Infraco shall obtain **tie's** approval to the form of sub-contract for any work which is to be sub-contracted to each Key Sub-Contractor in advance of such sub-contract's execution. **tie** shall notify the Infraco of its approval within 10 Business Days of a request for such approval by the Infraco which approval may only be withheld by **tie** acting reasonably if:
- 28.4.1 the sub-contract does not in substance reflect the Infraco and the relevant Key Sub-Contractor as parties to such sub-contract, the provisions listed in Schedule Part 38 (*Approved Suppliers and Sub-Contractors and Trades*) Part II in so far as they relate to the work that is to be sub-contracted; or
- 28.4.2 the terms of the sub-contract will result in Infraco being unable to perform its obligations under this Agreement.
- 28.5 The Infraco shall, and shall procure that every Sub-Contractor shall, provide and employ in connection with the execution of the Infraco Works:
- 28.5.1 only such technical assistants as are skilled, experienced and assessed as competent for undertaking a specified range of activities in their respective occupations and, as appropriate, such sub-agents, foremen and leading hands as are competent to give proper supervision to the work they are required to supervise; and
- 28.5.2 such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution of the Infraco Works.
- 28.6 Notwithstanding the provisions of paragraph 6 of parts A and B of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*), **tie's** Representative shall be at liberty after due warning in writing to require the Infraco to remove from the Infraco Works any employee of the Infraco and/or an employee of a Sub-Contractor who mis-conducts itself or is incompetent or negligent in the performance of its duties or fails to conform with any particular provisions with regard to safety which may be set out in the Agreement or persists in any conduct which is prejudicial to safety or health and such employee shall not be again employed upon the Infraco Works without the permission of **tie's** Representative.

- 28.7 Subject to Clause 28.10, the Infraco shall procure that every Key Sub-Contractor (excluding the Tram Supplier, the Tram Maintainer and the SDS Provider) provide to **tie** a collateral warranty prior to the date of execution of the relevant sub-contract:
- 28.7.1 in favour of **tie** in the form set out in part F of Schedule Part 8, (*Bonds, Parent Company Guarantees and Collateral Warranties*) with only such amendments as **tie** may approve such approval to be provided by **tie** within 10 Business Days of receipt of the proposed collateral warranty; and/or
- 28.7.2 in favour of CEC, EAL, TEL and Network Rail (in this case, where relevant to Network Rail infrastructure, the operational railway and railway assets or its safety case and emergency procedures) in respect of carrying out the Infraco Works in the form set out in part F of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) or in the case of EAL in the form set out in Appendix 8 to Schedule Part 44 (*EAL Works*); or
- 28.7.3 where the form referred to in Clause 28.7.1 or 28.7.2 cannot be obtained, in a different form acceptable to both Parties acting reasonably and taking account of industry practice and in the case of a collateral warranty to be granted in favour of any person other than **tie**, the beneficiary's requirements.
- 28.8 NOT USED.
- 28.9 Subject to Schedule Part 4 (*Pricing*) the Infraco shall be and shall remain wholly liable to **tie** under this Agreement for carrying out and completing the Infraco Works including any part of the Infraco Works carried out by any Sub-Contractor.
- 28.10 In any case where the Infraco is unable to obtain a collateral warranty from a Key Sub-Contractor in accordance with Clause 28.7 and can demonstrate to **tie's** satisfaction that it has used reasonable endeavours to do so prior to entering into contract with such Key Sub-Contractor the Infraco shall, if so required by **tie**, expressly warrant the Key Sub-Contractor's works in the form as would have been granted by the Key Sub-Contractor with the exception of the cap on liability under such collateral warranty which shall be expressed in the same terms as the Infraco Collateral Warranty. The inability to provide the collateral warranty from the Key Sub-Contractor in the circumstances described in this sub-clause shall not constitute a breach of this Clause 28.

PART 7 - GENERAL CONSTRUCTION AND MAINTENANCE OBLIGATIONS

29. SETTING-OUT

- 29.1 Save in relation to the Tram Maintenance Services and the Tram Supply Obligations, until the issue of the Patent Defects Rectification Certificate in terms of Clause 46, the Infraco shall be responsible for the accurate setting-out of the Infraco Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Infraco Works and for the provision of all necessary instruments, appliances and labour in connection therewith.
- 29.2 Save in relation to the Tram Maintenance Services and the Tram Supply Obligations, until the issue of the Patent Defects Rectification Certificate in terms of Clause 46, if at any time during the progress of the Infraco Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Infraco Works, the Infraco, on being required so to do by **tie's** Representative, shall at its own cost rectify such error to the satisfaction of **tie's** Representative (acting reasonably).
- 29.3 The checking of any setting-out or of any line or level by **tie's** Representative shall not in any way relieve the Infraco of its responsibility for the correctness thereof and the Infraco shall carefully protect and preserve all bench-marks, sight rails, pegs and other things used in setting out the Infraco Works.

30. SAFETY AND SECURITY

- 30.1 The Infraco shall throughout the execution and completion of the Infraco Works have full regard for the safety of all persons entitled to be upon the Site and shall keep the Site (so far as the same is under its control) and the Infraco Works, in an orderly state appropriate to the avoidance of danger to such persons.
- 30.2 The Infraco shall provide and maintain at its own cost all lights, guards, fencing, warning signs and watching when and where necessary, or required by **tie's** Representative (acting reasonably), or required in accordance with Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*), and/or in accordance with Good Industry Practice or by any statutory or other competent authority for the protection of the Infraco Works or for the safety of the public or others whilst minimising inconvenience.
- 30.3 The Infraco shall comply with, shall procure that the Infraco Parties shall comply with all their respective duties and obligations under all Law and requirements having the force of law relating to the health, safety and conduct of construction or maintenance operations.

- 30.4 The Infraco shall use reasonable endeavours to procure that other persons authorised to be on the Designated Working Area (so far as the same is under its control) comply with all their respective duties and obligations under all Law and requirements having the force of law relating to the health, safety and conduct of construction or maintenance operations.

31. CARE OF THE INFRACO WORKS

- 31.1 Save in respect of the Trams and Tram Related Equipment, the Infraco shall take full responsibility for the care of the Infraco Works from the Commencement Date until, in relation to each Section, the date of issue of a Certificate of Sectional Completion in relation to that Section.
- 31.2 In relation to each Section, from the date of issue of a Certificate of Sectional Completion in relation to that Section the provisions of Clause 52 (*Maintenance*) shall apply.
- 31.3 In the event of any loss or damage to the Infraco Works or part thereof while the Infraco is responsible for the care thereof in terms of Clause 31.1, the Infraco shall subject to Clauses 76.17, 76.18, 76.19A, 76.19B, 76.19C, 76.19 and 76.30 at its own cost rectify such loss or damage so that the Infraco Works conform in every respect, subject to Clause 76, with the provisions of this Agreement.
- 31.4 The Infraco shall take full responsibility for the care of the Trams and Tram Related Equipment from the Commencement Date until, in relation to each Tram and item of Tram Related Equipment, the date of issue of a Certificate Tram Commissioning in relation to that Tram.
- 31.5 In relation to each Tram and item of Tram Related Equipment from the date of issue of a Certificate of Tram Commissioning in relation to that Trams the Infraco shall comply with the provisions of Clause 52 (*Maintenance*).
- 31.6 In the event of any loss or damage to the Trams or the Tram Related Equipment while the Infraco is responsible for the care thereof in the terms of Clause 31.4, the Infraco shall, subject to Clause 76.17, 76.18, 76.19A, 76.19B, 76.19C, 76.19 and 76.30 at its own cost rectify such loss or damage so that the Trams or the Tram Related Equipment conform in every respect with the provisions of this Agreement. For avoidance of doubt, the Infraco shall have no responsibility in connection with damage to the Trams or Tram Related Equipment which is caused by vandalism occurring after the date of delivery to the Depot and the relevant Certificate of Tram Commissioning.

32. INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES

- 32.1 The Infraco shall comply with the requirements of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*) with regard to the maintenance of access to properties, bus stops and bus services and the closure of roads.
- 32.2 The Infraco shall at all times seek to minimise any nuisance or inconvenience to or interference with the business or operations of the owners, tenants or occupiers of the Site or other premises upon or in the locality of the Site, to all bus operations and to the public generally, including measures to reduce the nuisance from noise, dust, smell, fumes and vibration during the carrying out of the Infraco Works. The Infraco shall comply with the requirements of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*) in this regard.

33. AVOIDANCE OF DAMAGE TO ROADS AND BRIDGES

- 33.1 The Infraco shall use every reasonable means to prevent any of the roads or bridges communicating with or on the route to the Site from being subjected to extraordinary traffic within the meaning of the Roads (Scotland) Act 1984 by any traffic of the Infraco or any Infraco Party. In particular, the Infraco shall select routes and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of the Infraco's Equipment and materials or manufactured or fabricated articles from and to the Site shall be limited as far as reasonably possible and so that no unnecessary damage or injury may be occasioned to such roads and bridges.
- 33.2 The Infraco shall be responsible for and shall pay the cost of strengthening any bridges or altering or improving any road communicating with or on the route to the Site to facilitate the delivery of the Trams by the Tram Supplier and the installation of the Infraco's Equipment or Temporary Works required in the carrying out of the Infraco Works. Subject to Clauses 77.3, 77.7 and 77.8, the Infraco shall indemnify and keep indemnified **tie** against all claims for damage to any road or bridge communicating with or on the route to the Site caused by such movement including such claims as may be made by any competent authority directly against **tie** and/or CEC pursuant to any Law or other statutory instrument and shall negotiate and pay all claims arising solely out of such damage.
- 33.3 If, notwithstanding Clause 33.1, any damage occurs to any bridge or road communicating with or on the route to the Site arising from the delivery of the Trams by the Tram Supplier, materials or manufactured or fabricated articles being or intended to form part of the Infraco Works and/or the Temporary Works, the Infraco shall notify **tie's** Representative as soon as

the Infraco becomes aware of such damage or as soon as the Infraco receives any claim from the authority entitled to make such claim. **tie** shall not be liable for any costs, charges or expenses in respect thereof in relation thereto.

34. WORK TO BE TO SATISFACTION OF TIE

- 34.1 The Infraco shall construct and complete the Infraco Works in strict accordance with this Agreement and shall comply with and adhere strictly to **tie** and **tie's** Representative's instructions on any matter connected therewith (whether mentioned in this Agreement or not) provided that such instructions are given in accordance with the terms of this Agreement and will not cause Infraco to be in breach of this Agreement. The Infraco shall take instructions only from **tie**, **tie's** Representative, subject to Clause 25.8, from **tie's** Representative's duly appointed delegate or the Operator or Operator's Representative in accordance with 17.10.
- 34.2 The whole of the materials, Infraco's Equipment and labour to be provided by the Infraco under Clause 7 (*Duty of Care and General Obligations in Relation to the Infraco Works*) and the mode, manner and speed of construction of the Infraco Works are to be in accordance with this Agreement.
- 34.3 If in pursuance of Clause 34.1 (including for the avoidance of doubt any instructions of **tie's** Representative, of **tie's** Representative's duly appointed delegate or of the Operator or Operator's Representative in accordance with 17.10 deemed to have been given pursuant or in accordance with Clause 34.1), **tie's** Representative shall issue instructions which involve the Infraco in delay or disrupt its arrangements or methods of construction or so as to cause the Infraco to incur cost then such instructions shall be a Compensation Event under Clause 65 (*Compensation Events*) except to the extent that either such instructions have been required as a consequence of the Infraco's breach of its obligations under this Agreement or such delay and/or extra cost result from the Infraco's default. If such instructions require any variation to any part of the Infraco Works, **tie** shall be deemed to have issued a **tie** Notice of Change requiring such variation, which **tie** Change shall be a Mandatory **tie** Change.

35. QUALITY OF MATERIALS AND WORKMANSHIP, SAMPLES AND TESTS

- 35.1 Save in relation to the Tram Supply Obligations and Tram Maintenance Services all materials and workmanship shall be the respective kinds described in this Agreement or where the Agreement is silent, to the standard proposed by the Infraco and reviewed in accordance with Schedule Part 14 (*Design Review and Design Management Plan*). Save in relation to the Tram Supply Obligations and Tram Maintenance Services all materials and workmanship shall be subjected to such tests as may be specified in this Agreement at the place of manufacture or

fabrication or preparation or on the Site or such other place or places. The Infraco shall undertake such testing and provide such assistance, instruments, machines, stores, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used, and shall supply samples of materials before incorporation or use in the Infraco Works for testing as may be selected and required by this Agreement, provided that in relation to the Tram Supply Obligations and Tram Maintenance Services all such materials and workmanship shall be the respective kinds and described and shall be subjected to such tests as may be specified in the Tram Supply Agreement and Tram Maintenance Agreement respectively.

- 35.2 All samples shall be supplied by the Infraco at its own cost.
- 35.3 The costs of making any test identified in this Agreement shall be borne by the Infraco. Subject to Clauses 36 and 35.4, in the event that the Infraco is required in accordance with Clause 35.1 to undertake any test which is not identified in this Agreement but is required by **tie**, the requirement to undertake such test shall be a **tie** Change.
- 35.4 In the event that the Infraco is required in accordance with Clause 35.1 to undertake any test which is not identified in this Agreement but is required by **tie** as a result of a breach by the Infraco of its obligations under this Agreement, then the costs of making such test shall be borne by the Infraco.

36. EXAMINATION OF WORK BEFORE COVERING UP

- 36.1 Save in relation to the Tram Maintenance Services and the Tram Supply Obligations, no work shall be covered up or put out of view without the consent of **tie's** Representative (acting reasonably), and the Infraco shall afford full opportunity for **tie's** Representative and any other parties authorised by **tie** to examine any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. Save in respect of unscheduled or reactive maintenance, the Infraco shall give no less than 48 hours notice to **tie's** Representative whenever any such work or foundations are ready or about to be ready for examination and **tie's** Representative shall within 48 hours of such notice, unless he considers it unnecessary and advises the Infraco accordingly, attend for the purpose of examining such work or of examining such foundations.
- 36.2 Save in relation to the Tram Maintenance Services and the Tram Supply Obligations, the Infraco shall uncover any part or parts of the Infraco Works or make openings in or through the same as **tie's** Representative may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of **tie's** Representative (acting reasonably). If any

such part or parts have been covered up or put out of view after compliance with the requirements of Clause 36.1 and are found to have been carried out in accordance with the Agreement, the cost of uncovering, making openings in or through, reinstating and making good the same shall be borne by **tie** and Infraco will be entitled to include such costs in its next application for payment but in any other case all such costs shall be borne by the Infraco.

37. REMOVAL OF UNSATISFACTORY WORK AND MATERIALS

37.1 Save in relation to the Tram Supply Obligations and Tram Maintenance Services **tie's** Representative shall during the progress of the Infraco Works have power to instruct in writing:

37.1.1 the removal from the Site within such reasonable time or times specified in the instruction, of any materials which are not in accordance with the Agreement ; and/or

37.1.2 substitution of such materials with materials in accordance with the Agreement ; and/or

37.1.3 the removal and proper replacement (notwithstanding any previous test thereof or interim payment therefor) of any work which in respect of:

37.1.3.1 materials or workmanship; or

37.1.3.2 design by the Infraco for which the Infraco is responsible;

is not in accordance with the Agreement . After consultation with the Infraco and with the agreement of **tie**, **tie's** Representative may allow all or any of such materials, workmanship or design to remain and confirm this in writing to the Infraco (which shall not constitute a **tie** Change under Clause 80 (**tie** Changes)) and in which case the use of such materials in accordance with this Agreement shall not be a breach of this Agreement.

37.2 In the case of default on the part of the Infraco in carrying out such instruction, **tie** shall be entitled to carry out or procure the carrying out of such instruction, and all costs and expenses properly incurred by **tie** in relation to such default shall be recoverable from the Infraco by **tie** and may be deducted by **tie** from any monies due or to become due to the Infraco.

37.3 Failure of **tie** or **tie's** Representative to disapprove any work or materials shall not prejudice the power of **tie** or **tie's** Representative subsequently to take action under this Clause 37 (*Removal of Unsatisfactory Work and Materials*).

- 37.4 If any workmanship or materials are not in accordance with this Agreement, **tie's** Representative may issue such orders or directions under Clauses 35 (*Quality of Materials and Workmanship, Samples and Tests*) or Clause 36 (*Examination of Work Before Covering Up*) to test or open up for inspection as are reasonable in the circumstances to establish the likelihood or extent, as appropriate to the circumstances, of any further similar non-compliance.
- 37.5 To the extent that such orders or directions issued pursuant to Clause 37.4 are as a result of previous and repeated non-compliance, whatever the result of the test or opening up, and notwithstanding Clauses 35.3, 36.2 and 48 (*Infraco to Search*), the cost of such test or opening up and the cost of reinstatement shall be borne by the Infraco. The orders or directions shall not constitute **tie** Changes under Clause 80 (**tie** Changes) but shall, unless the test or inspection showed that the workmanship or materials were not in accordance with the Agreement, be a Relief Event under Clause 64 (*Relief Events*).

38. URGENT REPAIRS AND EMERGENCIES

- 38.1 In accordance with the provisions of paragraph 6 of parts A and B of Schedule 3 (*Code of Construction Practice and Code of Maintenance Practice*), if, in the opinion of **tie's** Representative (acting reasonably), any remedial or other work or repair is necessary by reason of any emergency, accident or failure or other event giving rise to an immediate threat to health and safety (including users and/or members of the public) during the carrying out of the Infraco Works, **tie's** Representative shall so inform the Infraco with confirmation in writing.
- 38.2 Thereafter, if the Infraco is unable or unwilling to carry out such work or repair in accordance with the appropriate time period identified in paragraph 6 of parts A and B of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*), **tie** may itself carry out or procure the carrying out of the said work or repair.
- 38.3 If the work or repair so carried out by **tie** is work which the Infraco was liable to carry out at its own expense under the Agreement, all costs and expenses properly incurred by **tie** in relation to such work shall be recovered from the Infraco by **tie** and may be deducted from any monies due or to become due to the Infraco.
- 38.4 If the Infraco carries out such work or repair, the Infraco shall be paid in accordance with Clause 67 (*Payment in Respect of Applications for Milestone Payments*) or Clause 68 (*Payment in Respect of Maintenance Services*) the amount of any direct and demonstrable costs as may be reasonable except to the extent that such extra cost results from the Infraco's default.

39. FOSSILS AND ANTIQUITIES

- 39.1 All fossils, EAL Artefacts, antiquities, and other objects having artistic, historic or monetary value and human remains which may be found on or at the Site are or shall become, upon discovery, the absolute property of CEC or, in the case of the EAL Artefacts, EAL.
- 39.2 Upon discovery of any such item during the course of the Infraco Works, the Infraco shall:
- 39.2.1 immediately inform **tie's** Representative of such discovery;
 - 39.2.2 take all steps not to disturb the object and, if necessary, cease any Infraco Works in so far as the carrying out of such Infraco Works would endanger the object or prevent or impede its excavation; and
 - 39.2.3 take all necessary steps to preserve the object in the same position and condition in which it was found.
- 39.3 **tie** shall procure that **tie's** Representative promptly, and in any event within 3 Business Days of notice being given by the Infraco pursuant to Clause 39.2.1, issues an instruction to the Infraco specifying what action **tie's** Representative requires the Infraco to take in relation to such discovery.
- 39.4 The Infraco shall promptly and diligently comply with any instruction issued by **tie's** Representative referred to in Clause 39.3 and such instruction shall be a **tie** Change and Clause 80 (**tie** Changes) shall apply.
- 39.5 If directed by **tie's** Representative, the Infraco shall allow representatives of **tie** to enter the Site for the purposes of removal or disposal of such discovery provided that such entry shall be subject to **tie** complying with all relevant safety procedures, which shall include the Infraco's site rules and any reasonable directions with regard to site safety that may be issued by or on behalf of the Infraco's Representative from time to time.

40. ERRORS AND/OR OMISSIONS IN THE INFRACO WORKS

- 40.1 Subject to the limitation in respect of the duration of Infraco's liability for Patent Defects and latent defects under this Agreement if during the carrying out of the Infraco Works and/or where the Infraco has completed the Infraco Works, **tie** becomes aware of any error or omission in the carrying out of the Infraco Works or of any other breach of this Agreement by Infraco (except where such error, omission or breach has been caused by a Notified Departure, Compensation Event, Relief Event or **tie** Change in relation to the element of the works

affected by such Notified Departure, Compensation Event or Relief Event) **tie** shall notify the Infraco, who shall, at its own expense and in liaison with **tie**, rectify any error or omission or breach, or where this is agreed by **tie** to be impracticable or undesirable, take such other agreed steps to address the error or omission.

- 40.2 Any reasonable and demonstrable direct costs to **tie** associated with the Infraco remedying any such errors or omissions or breaches shall be paid by the Infraco to **tie**.
- 40.3 These arrangements shall in no respect diminish **tie's** ability to recover damages from the Infraco for losses incurred by **tie** consequent upon the error or omission or breach in question.
- 40.4 If and to the extent that the Infraco fails to carry out the necessary rectification and/or other agreed steps in accordance with Clause 40.1 to **tie's** reasonable satisfaction and/or within a reasonable period of time, **tie** shall be entitled to carry out such rectification and/or other agreed steps itself, or procure the carrying out by a third party of such rectification and/or other agreed steps at the Infraco's expense and shall recover any costs from the Infraco as a debt.

PART 8 - MILESTONE COMPLETION, TESTING AND COMMISSIONING

41. COMPLETION OF CONSTRUCTION MILESTONES AND CRITICAL MILESTONES

- 41.1 The Infraco shall give **tie's** Representative not less than 14 Business Days notice of the date upon which the Infraco considers that any of the Construction Milestones or Critical Milestones will be achieved and the associated tests to be undertaken in accordance with the Employer's Requirements carried out. **tie's** Representative shall be entitled to inspect the Infraco Works on the date or dates reasonably specified by the Infraco in accordance with this Clause 41.1, and to attend any of the tests to be carried out. The Infraco shall procure that such of its staff as **tie** may reasonably request shall accompany **tie's** Representative on any such inspection. If **tie's** Representative does not in accordance with this Clause 41.1 attend any tests, or does not carry out an inspection on the date or dates specified by the Infraco in Infraco's notice he shall be entitled, upon giving reasonable notice to the Infraco, to specify a new date or dates for his attendance at such tests or for the carrying out of such an inspection. **tie's** Representative's failure to attend such tests or to carry out such inspections (or rearranged inspections or tests) and the carrying out of such tests or inspections on the new dates notified by the **tie** Representative shall be a Compensation Event and Clause 65 shall apply.
- 41.2 Within 7 Business Days of any inspection made pursuant to Clause 41.1, **tie's** Representative shall notify the Infraco of any outstanding matters (including further evidence of achievement

of the Construction Milestone or Critical Milestone and the repetition of any of the tests which are required to be carried out and passed in accordance with the Employer's Requirements) which must be attended to before the relevant Construction Milestone or Critical Milestone will have been achieved in accordance with this Agreement. The Infraco shall attend to all such matters and shall, if necessary, give **tie** further notices in accordance with Clause 41.1 (but dealing only with matters raised in the notification under this Clause 41.2) so that the procedures in Clause 41.1 and this Clause 41.2 are repeated as often as may be necessary to ensure that all outstanding matters in relation to the Construction Milestone or Critical Milestone are attended to. Conduct of all tests, including repetitions, in accordance with the Employer's Requirements shall be at the cost and under the responsibility of the Infraco.

- 41.3 The Infraco shall notify **tie** when a Construction Milestone or a Critical Milestone has been achieved in accordance with this Agreement and **tie's** Representative shall issue the relevant Construction Milestone Completion Certificate or Critical Milestone Completion Certificate (as appropriate) to that effect stating the date upon which the Construction Milestone or Critical Milestone was achieved. The issue of a Construction Milestone Completion Certificate or Critical Milestone Completion Certificate shall, in the absence of manifest error, bad faith or fraud, be conclusive evidence for the purpose only of ascertaining that the Construction Milestone or Critical Milestone have been achieved on the date stated in such certificate.

42. COMPLETION AND CERTIFICATION OF TRAM MILESTONES

- 42.1 The Tram Milestones are as shown in Schedule 5 to the Tram Supply Agreement and as shown in the Programme.
- 42.2 Certification of tram vehicle delivery and tram vehicle commissioning and testing shall be carried out as stipulated pursuant to the Tram Supply Agreement. The issue of a Certificate of Tram Delivery and issue of a Certificate of Tram Commissioning by the Tram Inspector shall be deemed to be certification of the achievement of the relevant Construction Milestone or Critical Milestone under the Infraco Contract. The Tram Mobilisation Milestone shall be deemed to have been achieved on signature of the Tram Supply Agreement. All other Tram Milestones as set out in Schedule 5 to the Tram Supply Agreement and the Tram Maintenance Mobilisation Milestones will be certified as complete jointly by Infraco and the **tie** Representative when the activities referred to are complete in accordance with the Tram Supply Agreement and the Tram Maintenance Agreement and such certification shall be deemed to be achievement of a relevant Construction Milestone or Critical Milestone under the Infraco Contract.

43. TRAM INSPECTOR

43.1 NOT USED.

43.2 NOT USED

43.3 NOT USED.

43.4 Neither ~~tie~~ nor the Infracore shall, without the other's prior written approval (not to be unreasonably withheld or delayed):

43.4.1 terminate, repudiate or discharge the Tram Inspector Agreement or treat the same as having been terminated, repudiated or otherwise discharged;

43.4.2 waive, settle, compromise or otherwise prejudice any rights or claims which the other may from time to time have against the Tram Inspector; or

43.4.3 vary the terms of the Tram Inspector Agreement or the service performed or to be performed by the Tram Inspector.

43.5 The Parties shall comply with and fulfil their respective duties and obligations arising under the Tram Inspector Agreement.

43.6 The Parties agree to co-operate with each other generally in relation to all matters within the scope of or in connection with the Tram Inspector Agreement. All instructions and representations issued or made by either of the Parties to the Tram Inspector shall be simultaneously copied by that Party to the other and both Parties shall be entitled to attend all inspections undertaken by or meetings involving the Tram Inspector Agreement.

43.7 In the event of the Tram Inspector's appointment being terminated otherwise than following full performance, the Parties shall liaise and co-operate with each other in order to appoint a replacement consultant to act as the Tram Inspector as soon as reasonably practicable. The identity of any such replacement shall be as agreed by the Parties and the terms of his appointment shall, unless otherwise agreed, be as set out in the Tram Inspector Agreement.

43.8 In the event that, pursuant to Clause 43.7, it is necessary to appoint a replacement consultant, the Parties shall as soon as reasonably practicable, in compliance with all Law relating to procurement which is applicable to either Party, appoint a suitably qualified and experienced consultant to act as the Tram Inspector for the purpose of this Agreement.

43.9 In the event that the Parties fail to agree the identity and/or terms of a replacement Tram Inspector in accordance with Clause 43.7, within 60 days of the previous Tram Inspector's appointment being terminated, then either Party may refer the matter for determination under the Dispute Resolution Procedure.

43.10 **tie** shall be responsible for the cost of the appointment and services of the Tram Inspector.

44. NOTIFICATION OF SECTIONAL COMPLETION OF SECTIONS A, B, C AND D

44.1 The Infraco shall give **tie's** Representative not less than 14 Business Days notice of the dates when the relevant Systems Acceptance Tests are to be carried out and the date upon which the Infraco considers that each of Section A, Section B, Section C and Section D will be substantially completed, commissioned and will have satisfactorily passed the relevant Systems Acceptance Tests. **tie's** Representative shall inspect the Infraco Works on the date or dates reasonably specified by the Infraco in accordance with this Clause 44.1 and to attend any of the tests to be carried out. The Infraco shall procure that such of its staff as **tie** may reasonably request shall accompany **tie's** Representative on any such inspection.

44.2 Within 7 Business Days of any inspection made pursuant to Clause 44.1, **tie's** Representative shall notify the Infraco of any outstanding matters (including further evidence of achievement of substantial completion or commissioning and the repetition of any of the relevant System Acceptance Tests which are required to be carried out and passed in accordance with the Employer's Requirements) which must be attended to before the Section will have been substantially completed, tested and commissioned in accordance with this Agreement. The Infraco shall attend to all such matters and shall, if necessary, give **tie** further notices in accordance with Clause 44.1 (but dealing only with matters raised in the notification under this Clause 44.2) so that the procedures in Clause 44.1 and this Clause 44.2 are repeated as often as may be necessary to ensure that all outstanding matters in relation to the Section are attended to. Conduct of all tests, including repetitions, in accordance with the Employer's Requirements shall be at the cost and under the responsibility of the Infraco.

44.3 When a Section has been substantially completed, tested and commissioned in accordance with this Agreement, **tie's** Representative shall issue a Certificate of Sectional Completion to that effect stating the date upon which, the Section was substantially completed, tested and commissioned provided always that a Certificate of Sectional Completion shall not be issued:

44.3.1 in respect of Section B, unless a Certificate of Sectional Completion has already been issued in respect of Section A, except where **tie**, acting reasonably, decides otherwise;
and

- 44.3.2 in respect of Section C, unless a Certificate of Sectional Completion has already been issued in respect of both Section A and Section B; and
- 44.3.3 in respect of Section D, unless a Certificate of Sectional Completion has been already issued in respect of Section A, Section B and Section C.
- 44.4 The issue of a Certificate of Sectional Completion shall, in the absence of manifest error, bad faith or fraud, be conclusive evidence for the purpose only of ascertaining that the Sectional Completion Date has occurred on the date stated in such certificate.
- 44.5 **tie** shall be entitled to apply a retention of 10% of any Milestone Payment payable on the issue of any Certificate of Sectional Completion for Sections A, B and C, if **tie** is not satisfied that all Consents (other than **tie** Consents) relating to the installation of the Infraco Works relevant to each Section have been obtained, are in full force and effect and are unconditional to the extent practicable at the particular stage of the Infraco Works, (unless where a Consent is conditional, such condition relates only to the passage of time) until such time as such Consents have been obtained.
- 44.5A The issue of the Certificate of Section Completion for Section D pursuant to Clause 45.3 (*Notification of Service Commencement*) shall be conditional upon **tie** being satisfied that all Design Stage Consents and Construction or Maintenance Stage Consents relating to the issue of the Certificate of Section Completion and required to enable **tie** to legally commence full operation of Edinburgh Tram Network for passenger service (the "**Necessary Consents**") have been obtained by the Infraco and are in full force and effect and are unconditional to the extent practicable at the particular stage of the Infraco Works or, if conditional, such conditionality relates only to the passage of time before the Necessary Consents comes into full force and effect.
- The absence of any Necessary Consents (save for the reasons above) shall entitle **tie** to apply a retention of 10% of the relevant Milestone Payment until the Infraco has obtained all such outstanding Necessary Consents.
- 44.6 For the purposes of this Clause 44 (*Notification of Sectional Completion of Sections A, B, C and D*), 'substantial completion' shall mean successful testing and commissioning of the Section in accordance with the relevant System Acceptance Tests and the provision of all relevant documents all in accordance with Schedule Part 2 (*Employer's Requirements*). **tie's** Representative may at his absolute discretion issue a Certificate of Sectional Completion notwithstanding that minor items of work ("**Snagging**") and, in relation to the issue of a Certificate of Sectional Completion for Section D, Patent Defects remain to be completed, in

which event such incomplete work and/or commissioning and/or adjustment shall be completed by the Infraco in accordance with the provisions of Clause 46 (*Snagging and Patent Defects*). **tie** shall identify any such Snagging on a Snagging List.

45. NOTIFICATION OF SERVICE COMMENCEMENT

- 45.1 The Infraco shall give **tie's** Representative not less than 14 Business Days notice of the date upon which the Infraco considers that Section D will be substantially completed, commissioned and will have satisfactorily passed the Systems Acceptance Tests. **tie's** Representative shall inspect the Infraco Works on the date or dates reasonably specified by the Infraco in accordance with this Clause 45.1 and to attend any of the tests to be carried out. The Infraco shall procure that such of its staff as **tie** may reasonably request shall accompany **tie's** Representative on any such inspection.
- 45.2 Within 7 Business Days of any inspection made pursuant to Clause 45.1, **tie's** Representative shall notify the Infraco of any outstanding matters (including further evidence of achievement of substantial completion or commissioning and the repetition of any of the Systems Acceptance Tests which are required to be carried out and passed in accordance with the Employer's Requirements) which must be attended to before Section D will have been substantially completed, tested and commissioned in accordance with this Agreement. The Infraco shall attend to all such matters and shall, if necessary, give **tie** further notices in accordance with Clause 45.1 (but dealing only with matters raised in the notification under this Clause 45.2) so that the procedures in Clause 45.1 and this Clause 45.2 are repeated as often as may be necessary to ensure that all outstanding matters in relation to Section D are attended to. Conduct of all tests, including repetitions, in accordance with the Employer's Requirements shall be at the cost and under the responsibility of the Infraco.
- 45.3 When Section D has been substantially completed, tested and commissioned in accordance with this Agreement, **tie's** Representative shall issue a Certificate of Service Commencement to that effect stating the date upon which, Section D was substantially completed, tested and commissioned provided always that a Certificate of Service Commencement shall not be issued until **tie** has issued to the Infraco a Certificate of Sectional Completion in relation to each of Section A, Section B, Section C and Section D.
- 45.4 The issue of a Certificate of Service Commencement shall, in the absence of manifest error, bad faith or fraud, be conclusive evidence for the purpose only of ascertaining that the Service Commencement Date has occurred on the date stated in such certificate.

45.5 For the purposes of this Clause 45 (*Notification of Service Commencement*), 'substantial completion' shall mean successful testing and commissioning of Section D in accordance with T1, T2 and T3, the provision of all required Spare Parts, relevant documents and that the maintenance staff have been trained, all in accordance with Schedule Part 2 (*Employer's Requirements*). **tie's** Representative may at his absolute discretion issue a Certificate of Service Commencement notwithstanding that Snagging and Patent Defects remain to be completed, in which event such incomplete work and/or commissioning and/or adjustment shall be completed by the Infraco in accordance with the provisions of Clause 46 (*Snagging*). **tie** shall identify any such Snagging on a Snagging List.

46. SNAGGING AND PATENT DEFECTS

- 46.1 Any Snagging on a Snagging List shall be completed by the Infraco within 20 Business Days of receipt by the Infraco of such Snagging List. The scheduling of carrying out of Snagging shall be agreed between the Infraco and **tie** (in consultation with the Operator if appropriate) and if the Snagging cannot be completed within the said 20 Business Days, then **tie** (acting reasonably and taking into account long lead times) shall determine a longer period to enable completion.
- 46.2 All Snagging shall be carried out by the Infraco, at its own expense. In so far as this creates additional workload or support from the Operator, then any reasonable, direct costs associated with such additional workload or support shall be paid by the Infraco.
- 46.3 Save where prevented from doing so by reason of a Relief Event or a Compensation Event, or as otherwise agreed in writing with **tie**, if the Infraco fails to carry out any such Snagging in accordance with the agreed schedule, **tie** shall, by giving 5 days written notice, be entitled to carry out that Snagging itself or by using other contractors and **tie** shall be entitled to recover all reasonable direct costs and expenses properly incurred by **tie** in relation to such work from the Infraco and **tie** may deduct the same from any monies that are or may become due to the Infraco. For the avoidance of doubt, this shall not provide any relief to the Infraco from any liability of this Agreement.
- 46.4 When all Snagging has been completed, **tie's** Representative shall issue to the Infraco a Snagging Rectification Certificate stating the date on which the Infraco shall have completed its obligations to carry out such Snagging
- 46.5 Save as provided for under Clauses 46.6 to 46.9, the issue of a Snagging Rectification Certificate shall not be taken as relieving the Infraco from any liability arising out of or in any

way connected with the performance of its obligations under the Agreement other than in respect of Snagging.

- 46.6 The Infraco's liability in respect of Patent Defects related to any design, construction, installation and maintenance of the Infraco Works which took place prior to the issue of the Service Commencement Certificate shall cease upon the issue by **tie** of the Patent Defects Rectification Certificate pursuant to Clause 46.9 or when the Infraco shall have made all payments due pursuant to Clause 46.8 below.
- 46.7 The Infraco's liability in respect of Patent Defects which arise as a result of the carrying out of the Maintenance Services after the Service Commencement Date shall cease in accordance with Clause 96.7.
- 46.8 If any Patent Defects as mentioned in Clause 46.6 are identified by **tie** within the Patent Defect Notification Period such Patent Defects shall be notified by **tie** to the Infraco in a schedule of defects which **tie** shall deliver to the Infraco not later than 14 days prior to the expiry of the Patent Defect Notification Period.
- 46.9 The Infraco shall remedy any Patent Defects notified in accordance with this Clause 46.8 within a reasonable time after receipt of such schedule of defects notified by **tie** in accordance with Clause 46.8. Should the Infraco fail to remedy such Patent Defects **tie** may, upon giving 20 Business Days notice to the Infraco, carry out or engage other contractors to carry out the necessary remedial works and **tie** shall be entitled to recover all reasonable direct costs and expenses properly incurred from the Infraco and Clause 46.6 shall apply.
- 46.10 Within 10 Business Days of all Patent Defects which **tie** have required to be made good under Clause 46.8 having been made good, **tie** shall issue a Patent Defects Rectification Certificate which certificate shall be conclusive evidence that the Patent Defects to which such certificate applies to have been made good.
- 46.11 In the event of termination for any reason after Service Commencement Date, the provisions of Clause 95 (Transition on Termination or Expiry) and Clause 96 (Surveys Prior to Expiry Date) shall apply in relation to the Infraco's liability for Patent Defects.

47. ISSUE OF NETWORK CERTIFICATE AND RELIABILITY CERTIFICATE

- 47.1 The Infraco shall give **tie's** Representative not less than 14 Business Days notice of the dates when Systems Acceptance Tests T4 and T5 are to be carried out. **tie's** Representative shall inspect the Infraco Works on the date or dates reasonably specified by the Infraco in accordance with this Clause 47.1 and to attend any of the tests to be carried out. The Infraco

shall procure that such of its staff as **tie** may reasonably request shall accompany **tie's** Representative on any such inspection.

- 47.2 Within 7 Business Days of any inspection made pursuant to Clause 47.1, **tie's** Representative shall notify the Infraco of any outstanding matters (including further evidence of achievement of Systems Acceptance Tests T4 and T5 (as appropriate) and the repetition of Systems Acceptance Tests T4 and T5 (as appropriate) which must be attended to before Systems Acceptance Tests T4 and T5 (as appropriate) can be considered to have been passed in accordance with this Agreement. The Infraco shall attend to all such matters and shall, if necessary, give **tie** further notices in accordance with Clause 47.1 (but dealing only with matters raised in the notification under this Clause 47.2) so that the procedures in Clause 47.1 and this Clause 47.2 are repeated as often as may be necessary to ensure that all outstanding matters in relation to Systems Acceptance Tests T4 and T5 (as appropriate) are attended to. Conduct of all tests, including repetitions, in accordance with the Employer's Requirements shall be at the cost and under the responsibility of the Infraco.
- 47.3 When Systems Acceptance Test T4 has been passed in accordance with this Agreement, **tie's** Representative shall issue a Network Certificate to that effect stating the date upon which Systems Acceptance Test T4 was passed. The issue of a Network Certificate shall, in the absence of manifest error, bad faith or fraud, be conclusive evidence for the purpose only of ascertaining that Systems Acceptance Test T4 was passed on the date stated in such certificate.
- 47.4 When it is satisfied that Systems Acceptance Test T5 has been passed in accordance with this Agreement, **tie's** Representative shall issue a Reliability Certificate to that effect stating the date upon which, in its opinion, Systems Acceptance Test T5 was passed. The issue of a Reliability Certificate shall, in the absence of manifest error, bad faith or fraud, be conclusive evidence for the purpose only of ascertaining that Systems Acceptance Test T5 was passed on the date stated in such certificate.
- 47.5 For the avoidance of doubt, the issue of a Network Certificate and/or Reliability Certificate pursuant to this Clause 47.5 shall be conditional upon **tie** being satisfied that all Construction and Maintenance Stage Consents required for the issue of a Network Certificate and/or Reliability Certificate have been obtained, are in full force and effect and are unconditional save in circumstances where Clause 19.17 applies.

48. INFRACO TO SEARCH

- 48.1 The Infraco shall, if required by **tie's** Representative in writing during the carrying out of the Infraco Works, carry out such surveys, searches, tests or trials as may be necessary to

determine the cause of any defect or fault under the directions of **tie's** Representative. Unless the defect or fault is one for which the Infraco is liable under the Agreement, the cost of the surveys, searches, tests or trials carried out by the Infraco as aforesaid shall be borne by **tie**. If the defect or fault is one for which the Infraco is liable, the cost of the surveys, searches, tests or trials carried out as aforesaid shall be borne by the Infraco and the Infraco shall in such case repair, rectify and make good such defect or fault at its own expense.

49. NON-REMOVAL OF MATERIALS AND CONTRACTOR'S EQUIPMENT

- 49.1 Save where provided for in the Maintenance Plan, no Trams, engineers works vehicles, Spare Parts, Special Tools, Infraco's Equipment, Temporary Works, materials for Temporary Works or other goods or materials owned by the Infraco and brought on to the Site for the purposes of the Agreement and which continue to be required for the execution and completion of the Infraco Works shall be removed without the written consent of **tie's** Representative (which consent shall not unreasonably be withheld) except where the removal of any such items from Site concerns items belonging to a sub-contractor no longer engaged in the performance of the Infraco Works, in which case the Infraco shall be responsible for ensuring that the removal has no adverse effect on the progress of the Infraco Works or on the performance of its obligations under this Agreement.
- 49.2 Subject to the exception set out in Clause 77.2, and subject to Clauses 52.17 and 76, **tie** shall not at any time be liable for the loss of or damage to any Trams, engineers works vehicles, Spare Parts, Special Tools, Infraco's Equipment, Temporary Works, goods or materials.
- 49.3 Save where required for Maintenance Services, if the Infraco fails to remove any of the said Infraco's Equipment, Temporary Works, goods or materials in accordance with Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*) from a Section within such reasonable time after the issue of a Certificate of Sectional Commencement in respect of that Section as **tie's** Representative may allow, then **tie** may sell or otherwise dispose of such items. From the proceeds of the sale of any such items, **tie** shall be entitled to retain any costs or expenses incurred in connection with their sale and disposal before paying the balance (if any) to the Infraco.

PART 9 - SAFETY

50. CDM REGULATIONS 2007

- 50.1 In this Clause 50 (*CDM Regulations 2007*):

"Regulations" means the Construction (Design and Management) Regulations 2007 or any statutory re-enactment or amendment thereof for the time being in force;

"CDM Coordinator" and **"Principal Contractor"** mean the persons so described in the Regulations;

"Health and Safety File" means the file prepared by virtue of regulation 20(2) of the Regulations.

50.2 The terms used in this Clause 50 shall have the meaning ascribed to them in the Regulations unless the context otherwise requires.

50.3 Where and to the extent that the Regulations apply to the Infraco Works:

50.3.1 Turner & Townsend Management Solutions Limited is appointed CDM Coordinator and shall discharge the responsibilities and functions of a CDM Coordinator in terms of the Regulations in relation to the Infraco Works; and

50.3.2 the Infraco is appointed Principal Contractor in respect of the Infraco Works and shall discharge the responsibilities and functions of a Principal Contractor in terms of the Regulations in relation to the Infraco Works.

50.4 In relation to the Infraco Works, Infraco warrants and undertakes that:

50.4.1 it is competent to perform the duties imposed on it by the Regulations;

50.4.2 it has performed and fulfilled and will continue to perform and fulfil the duties imposed on it by the Regulations, in its capacity as the Principal Contractor;

50.4.3 it has allocated and will continue to allocate adequate resources to ensure that it performs and fulfils its duties under the Regulations properly; and

50.4.4 it has not started and will not start any construction work until a construction phase plan, in terms of the Regulations, has been prepared.

50.5 Any action under the Regulations taken by either the CDM Coordinator or the Principal Contractor and in particular any alteration or amendment to the Health and Safety File shall be deemed to be a **tie's** Representative's instruction pursuant to Clause 34 (*Work to be to Satisfaction of tie*) provided that the Infraco shall in no event be entitled to any additional payment and/or extension of time in respect of any such action to the extent that it results from any action, lack of action or default on the part of the Infraco.

- 50.6 If any such action of either the CDM Coordinator or the Principal Contractor could not in the Infraco's opinion reasonably have been foreseen by an experienced contractor the Infraco shall as early as practicable give written notice thereof to **tie's** Representative.
- 50.7 The Infraco shall continue to carry out its role as Principal Contractor in respect of the Infraco Works, notwithstanding that any other works are being carried out at the same time as the Infraco Works.
- 50.8 The Infraco shall provide any information required by the CDM Coordinator in relation to the CDM Regulations within 3 Business Days (where reasonably practicable), or such other period as may be agreed, of any request, or sooner where reasonably practicable (for the avoidance of doubt, this does not affect **tie's** responsibility in terms of the Regulations, to provide the pre-construction information).
- 50.9 Following the Service Commencement Date the Infraco shall comply with the Health and Safety File.

51. NOTICE OF ACCIDENTS AND LIAISON WITH THE EMERGENCY SERVICES

- 51.1 In the event of any notifiable accident or dangerous occurrence connected with the carrying out of the Infraco Works, the Infraco shall be responsible for reporting a notifiable accident or dangerous occurrence to **tie** and to the Health and Safety Executive or to the ORR (as the case may be in accordance with the Memorandum of Understanding between the Health and Safety Executive and ORR dated 1 April 2006) under the Reporting of Injuries and Diseases and Dangerous Occurrences Regulations 1995, unless the notifiable accident or dangerous occurrence is otherwise reported by an employer of workers on Site with a duty under the Reporting of Injuries and Diseases and Dangerous Occurrences Regulations 1995 to report accidents in which its employees are injured.
- 51.2 The Infraco shall liaise regularly with the Emergency Services, during the design, construction, testing and commissioning, operation and maintenance of the Edinburgh Tram Network. In particular, such regular liaison will include:
- 51.2.1 notification and clearance for temporary traffic management arrangements;
- 51.2.2 Edinburgh Tram Network design and implementation; and
- 51.2.3 the supply by the Infraco of training to a reasonable number of personnel of the Emergency Services (to be provided by the Infraco free of charge) to effect rescue procedures during construction, operation and maintenance.

PART 10 - MAINTENANCE SERVICES

52. MAINTENANCE

- 52.1 In relation to each Section, from the date of issue of a Certificate of Sectional Completion in relation to that Section and in relation to Trams, from the Tram Maintenance Commencement Date, the Infraco shall carry out all maintenance, repair, renewals and remedial works to the Edinburgh Tram Network as is necessary:
- 52.1.1 to maintain the Edinburgh Tram Network in accordance with the Maintenance Programme and the Maintenance Plan;
 - 52.1.2 to ensure that all the requirements of the Maintenance Specification are met at all times;
 - 52.1.3 to comply with those Operator Procedures as may be agreed between the Parties from time to time and that apply to the Maintenance Services;
 - 52.1.4 ensure that **tie** is informed of any adverse impact of design, redesign or modification to the Infraco Works which is likely to have an adverse impact on maintenance effectiveness and subject to Clauses 80 (*tie Change*) and 81 (*Infraco Changes*) to prevent such design, redesign or modification being undertaken if requested to do so by **tie**;
 - 52.1.5 to ensure that no modification, maintenance or repair work to the Edinburgh Tram Network, Spare Parts or Special Tools within the scope of the Maintenance Services shall prejudice the Case for Safety;
 - 52.1.6 so as not to prejudice the health or safety of, or unreasonably interfere with the proper performance of the duties of the Infraco, the Operator, employees and third parties or otherwise expose the Infraco and/or **tie** to liability under the Health and Safety at Work etc. Act 1974 or the Transport and Works Act 1992 or any other legislation relating to health and safety;
 - 52.1.7 to maximise the extent to which the Edinburgh Tram Network is Available Infrastructure and the Trams are Available Trams and to minimise unplanned interruption to such availability;

- 52.1.8 to sustain the functionality of the component parts of Edinburgh Tram Network as built for a period not less than the relevant stipulated design life, if any, stipulated in the Employer's Requirements;
- 52.1.9 the Edinburgh Tram Network is handed back to ~~tie~~ on the Expiry Date or the Termination Date (whichever is earlier) in a condition consistent with the Infraco having complied with the requirements of this Clause 52 (*Maintenance*) provided that the Infraco shall not be in breach of this Clause 52.1.9 by reason of fair wear and tear or by reason of any work being required to which Clause 52.17 applies where there was not sufficient time between the damage occurring and the Expiry Date or Termination Date (as appropriate) to enable the Infraco to carry out such work; and
- 52.1.10 nothing in this Clause 52.1 shall impose any obligation on the Infraco to carry out any Operator Maintenance.
- 52.2 The Infraco shall work with the Operator to ensure the daily handover of the Edinburgh Tram Network to the Operator for operation which shall include the completion of a handover checklist confirming the extent to which the Edinburgh Tram Network is Available Infrastructure and the Trams are Available Trams.
- 52.3 The Infraco shall work with the Operator to ensure the daily handback of all or part of the Edinburgh Tram Network from the Operator to the Infraco following operation of the Edinburgh Tram Network and take into account any comments received from the Operator on the performance or condition of the Edinburgh Tram Network.
- 52.4 The Infraco shall carry out and complete the Infrastructure Maintenance Services in accordance with this Clause 52 (*Infrastructure Maintenance*) subject to its ability to sub-contract the Infrastructure Maintenance Services pursuant to Clause 28 (*Sub-Letting and the Appointment of Sub-Contractors*).
- 52.5 The Infraco shall, during the Mobilisation Period, carry out or procure that the Mobilisation Services are carried out on or before the date for the appropriate Mobilisation Milestone .
- 52.6 The Infraco shall carry out (or shall procure the carrying out of) all Maintenance Services in a safe manner and so that the Edinburgh Tram Network is capable of being operated in a safe and efficient manner free from any unreasonable risk to the health and well being of persons using or maintaining it and free from any reasonably avoidable risk of pollution, nuisance, interference or hazard.

- 52.7 During the Term, the Infraco shall be responsible for, without limitation providing, employing and training all staff necessary to perform the Maintenance Services in accordance with this Agreement and the total cost of providing those staff, the Maintenance Services (including the total cost of providing Spare Parts and Special Tools) is included in the Contract Price.
- 52.8 During the Mobilisation Period, the Infraco shall be responsible for, without limitation, providing all staff necessary to perform the Mobilisation Services in accordance with this Agreement, and the total cost of providing the Mobilisation Services is included in the Contract Price.
- 52.9 The Maintenance Services shall comprise only materials and goods which are of satisfactory quality and unless otherwise agreed in writing, the Infraco shall supply only new materials and goods, save where existing materials and goods have been satisfactorily repaired or reused by the Infraco in accordance with Good Industry Practice and, where applicable, as permitted under the Maintenance Plan.

Spare Parts and Special Tools

- 52.10 The Infraco shall be responsible for the provision of all Spare Parts and Special Tools necessary or required for the Maintenance Services. All such Spare Parts shall meet the technical and safety requirements of the Maintenance Specification. Special Tools to be provided pursuant to this Clause 52.10 shall, as a fundamental condition of this Agreement, be provided with a valid certificate of calibration (where appropriate). The Infraco shall notify **tie** as soon as reasonably practicable after becoming aware of any breach of warranty or supply of defective Spare Parts and Special Tools by the Tram Supplier or Tram Maintainer.
- 52.11 The Infraco shall also ensure that throughout the term of this Agreement all Special Tools which require calibration or testing in order that they shall be fit for their intended purpose shall have a valid test and/or calibration certificate (where appropriate), and the Infraco shall give to **tie** within 5 Business Days of any request by **tie** a copy of the current test or calibration certificate (where appropriate).
- 52.12 The Infraco shall acquire adequate stocks of such Spare Parts and Special Tools to ensure that there is always a Minimum Spare Parts Pool at the Depot and, in any case, sufficient Spare Parts and Special Tools to enable the Infraco to carry out (or procure the carrying out of) the Maintenance Services in accordance with this Agreement and manage reorder levels and lead times such that the stock of Spare Parts or Special Tools are maintained at or above the level of the Minimum Spare Parts Pool.

52.13 NOT USED

52.14 Every Reporting Period, the Infraco and **tie** shall review the level of the Minimum Spare Parts Pool in light of the requirements for Spare Parts in delivering the Maintenance Services pursuant to this Agreement and the Infraco shall make recommendations to **tie** in relation to any adjustments to be made to the Minimum Spare Parts Pool either in relation to the extent of the Minimum Spare Parts Pool or the quantity of any of the Spare Parts required to meet the Minimum Spare Parts Pool. **tie** shall review the Infraco's recommendations and where necessary consult further with the Infraco as to the adequacy of the Minimum Spare Parts Pool in the light of ongoing maintenance pursuant to the Maintenance Services and, subject to Clause 52.12 and the Infraco having taken such steps as are possible to rectify the situation, if **tie**, in its absolute discretion, is of the opinion that it would be appropriate to vary the Minimum Spare Parts Pool then such variation shall be a **tie** Change and the terms of Clause 80 (**tie** Changes) shall apply.

Repairs

52.15 Subject to Clause 46, the Infraco shall effect the repair of all defects in, failures of or damage to the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment irrespective of cause. The Infraco shall effect all such repairs in a manner consistent with its obligations under this Agreement and in a manner which causes the minimum disruption to the operation of the Edinburgh Tram Network and to enable the Edinburgh Tram Network (excluding the Free Issue Fare Collection Equipment) to be Available Infrastructure and the Trams to be Available Trams.

52.16 The Infraco shall bear all of the costs of complying with Clause 52.15 to the extent that any damage to the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment is caused by:

52.16.1 a breach of this Agreement by the Infraco; and/or

52.16.2 NOT USED

52.16.3 any negligent act or negligent omission by the Infraco or any Infraco Party.

52.17 To the extent that any damage to the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment is not caused by:

52.17.1 a breach of this Agreement by the Infraco; and/or

52.17.2 NOT USED

52.17.3 any negligent act or negligent omission by the Infraco or any Infraco Party,

then **tie** shall bear the necessary, reasonable and demonstrable costs of the Infraco repairing such damage and any repairs in respect of such damage shall be a Mandatory **tie** Change and the terms of Clause 80 (**tie** *Changes*) shall apply.

52.18 All repairs to and replacements of the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment shall be carried out to a standard that restores the defective, failed or damaged part of the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment to a condition which meets the requirements of the Maintenance Specification (subject to normal wear and tear) and enables the Infraco to comply with its obligations under this Clause 52 (*Maintenance*).

52.19 Where necessary, the Infraco shall be entitled to carry out temporary repairs to the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment subject to obtaining the prior approval of HMRI, the Operator, **tie** and all appropriate regulatory authorities. All temporary repairs shall be fully repaired at the earliest opportunity and in any event as soon as reasonably practicable upon receipt of written notice from HMRI, **tie** or the Operator (as the case may be) stating that it no longer considers such temporary repairs to be safe and/or fit for their purpose.

52.20 In respect of any incident or failure affecting the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment, the Infraco shall provide such assistance, information and advice as the **tie** or Operator shall reasonably require, including such assistance as **tie** or Operator shall reasonably require in:

52.20.1 the Infraco attending the site of the occurrence to assess the cause of the problem, with a required response time of no more than 15 minutes between the hours of 6:01 am and 10:00 pm or 1 hour between the hours of 10:01 pm and 6:00 am from **tie's** or the Operator's request for attendance to a representative of the Infraco departing from the Depot or elsewhere to attend.

52.20.2 rectifying the problem where such rectification falls within the scope of the Maintenance Services;

52.20.3 implementing measures to overcome and/or mitigate the effect on operation of the Edinburgh Tram Network excluding the Free Issue Fare Collection Equipment;

52.20.4 implementing temporary repairs where such repairs fall within the scope of the Maintenance Services; and

52.20.5 recovering any part of the Edinburgh Tram Network (including the Trams but excluding the Free Issue Fare Collection Equipment) for repair (where such part of the Edinburgh Tram Network is moveable) where such repair falls within the scope of the Maintenance Services.

52.21 As soon as practicable following the completion of the repair, the Infraco shall prepare and provide a report which summarises the causes of such incident or failure and providing recommendations where applicable to avoid the repetition of such occurrence. To the extent that the incident or failure was not attributable to a breach of this Agreement by the Infraco or a negligent act or omission of the Infraco or any Infraco Party, the Infraco shall be entitled to recover the costs of complying with Clause 52.20 in accordance with Clause 52.17

52.22 Where the most efficient manner of dealing with such failure would be for repairs to be effected at the site of the failure, where such repairs fall within the scope of the Maintenance Services, the Infraco shall have available competent resources to carry out such repairs as can safely be carried out at the site.

52.23 If the Infraco reasonably believes or becomes aware that there is or may be:

52.23.1 a defect or in the case of reporting or control systems, an excess of alarms and fault annunciation in a Part which has been fitted in the Edinburgh Tram Network (including a Tram excluding the Free Issue Fare Collection Equipment) whether or not as part of the Maintenance Services; or

52.23.2 any other defect in relation to the Edinburgh Tram Network (including a Tram);

which may prejudice the safe or reliable operation of the Edinburgh Tram Network, the Infraco shall immediately on becoming aware of such defect notify **tie** and the Operator of such defect and provide a proposal as to the most effective course of action by which such defect can be rectified where such rectification falls within the scope of the Infrastructure Maintenance Services. The cost of such rectification shall be allocated in accordance with Clauses 52.16 and 52.17.

Additional System Availability

52.24 In circumstances where **tie** requires any Additional Available Infrastructure or Additional Available Trams for its own use, including but not limited to the training of drivers and

extended hours of operation for special events, it shall give the Infraco at least one week's notice of its requirements.

The Infraco shall confirm whether it is able to make available to **tie** any Additional Available Infrastructure or Available Trams requested by **tie**. If the Infraco confirms (such confirmation not to be unreasonably withheld) that it is able to make available to **tie** any such Additional Available Infrastructure or Available Trams, the Infraco shall be entitled to payment on the basis set out in Appendix B of Schedule Part 7 (*Maintenance Contract Price Analysis*). Such Additional Available Infrastructure or Available Trams shall be disregarded in relation to any calculations under Schedule Part 6 (*Maintenance Payment Regime*) and **tie's** remedy in the event of any deficiency in or failure to provide Additional Available Infrastructure or Available Trams shall be to apply deductions to payments on the basis set out in Appendix B of Schedule Part 7 (*Maintenance Contract Price Analysis*).

Operations and Maintenance Manual

52.25 The Infraco shall maintain and keep up to date the operations and maintenance manual and as built drawings and Spare Parts list (the "**Operations and Maintenance Manual**"). The Infraco shall provide to **tie's** Representative an electronic copy of such manual and each successive update, free of charge, as soon as reasonably practicable after their production. The Infraco shall provide to **tie's** Representative draft integrated manuals of description and maintenance of all Edinburgh Tram Network components not less than 90 days before the part of the Edinburgh Tram Network into which they are incorporated commences public service. The Infraco shall keep such manuals up to date and provide to **tie's** Representative a copy of each successive update as soon as reasonably practicable after their production.

Control Room

52.26 The Infraco shall provide and maintain the facility for the communication of information, CCTV images and data from the Control Room to CEC's traffic and information centre, to facilitate:

52.26.1 information exchange;

52.26.2 the provision of public transport data;

52.26.3 the provision of real time passenger information;

52.26.4 road traffic monitoring;

52.26.5 incident detection and emergency diversions management;

52.26.6 co-ordination of traffic signals; and

52.26.7 co-ordination of variable messages to passenger information displays.

53. HAZARDOUS MATERIALS

- 53.1 The Infraco undertakes that it is and will remain during the term of this Agreement, or that any relevant Infraco Party is and will remain during the Term, appropriately qualified and experienced in and accredited for the purposes of carrying out work of the scope, type and complexity that is required in carrying out the Maintenance Services involving the handling of any Hazardous Materials incorporated in the Edinburgh Tram Network or any Part thereof and shall maintain an up to date register recording the location, volume, type, storage condition, and handling and disposal procedures for such Hazardous Materials.
- 53.2 The Infraco shall not use any Hazardous Materials in performing the Maintenance Services except where expressly permitted to do so by the Maintenance Specification, Law and Good Industry Practice, or otherwise with the express prior written consent of **tie**. If Hazardous Materials are used other than expressly in accordance with the Maintenance Specification, Law and Good Industry Practice, or with the prior written consent of **tie**, the Infraco shall ensure that all such Hazardous Materials used in the provision of the Maintenance Services are expressly identified in writing to **tie** and the Operator by reference to this Clause 53 (*Hazardous Materials*) with reference to the hazards attached to them and the procedures that the Infraco has for managing such hazards.
- 53.3 The Infraco shall ensure that all Maintenance Services performed under this Agreement which involve Hazardous Materials, including the removal, handling and disposal of those materials, are carried out in such a manner as to ensure compliance with all Law (including any advisory literature provided by the Health and Safety Commission or Executive). The Infraco shall inform **tie's** Representative of any Hazardous Materials, which do not form part of the Maintenance Services or which are encountered in the course of the Maintenance Services and shall submit its proposed method of operation and the precautions to be taken before commencing any work involving such Hazardous Materials. Such submission shall be a **tie** Change and the terms of Clause 80 (**tie** Changes) shall apply. If the Infraco proposes to handle or dispose of such Hazardous Materials, it shall comply with Law (including any advisory literature provided by the Health and Safety Commission or Executive) and any additional precautions specified by **tie's** Representative as to their handling and disposal.

- 53.4 The Infraco acknowledges that it is aware that various health hazards may be encountered in performing the Maintenance Services (which may not be immediately apparent as deliberate and malicious concealment of such hazards may take place). The Infraco shall take all reasonably practicable precautions for the protection of the Infraco Parties, the **tie** Parties and any other person who may be affected by the Maintenance Services.
- 53.5 To the extent **tie** or any **tie** Party stores or uses Hazardous Materials at such area of the Depot as is under the responsibility of the Infraco pursuant to the Depot Licence, **tie's** Representative shall give reasonable notice to the Infraco so that the appropriate entry may be made on the register maintained by the Infraco subject always to the Infraco Representative's ability to advise promptly that:
- 53.5.1 such storage or use is not appropriate on the grounds that it poses an unreasonable additional responsibility on Infraco, due to the intended use, nature or quantity of the Hazardous Materials in question; or
- 53.5.2 such storage or use does not relate to transport-related services of which the Infraco has experience
- in which event **tie** shall remove such Hazardous Materials and/or indemnify the Infraco from all costs arising from the presence of such Hazardous Materials at the Depot.

54. RECORDS AND COMPUTER SYSTEMS

- 54.1 All the Technical Records for any part installed, replaced, overhauled or inspected by the Infraco or an Infraco Party must be:
- 54.1.1 written up, maintained and kept up to date at all times by the Infraco in electronic or hard copy form in accordance with the requirements of the Maintenance Specification and/or the Employer's Requirements;
- 54.1.2 retained by the Infraco for the longer of:
- 54.1.2.1 the Term; or
- 54.1.2.2 6 years from the date on which the Maintenance Services to which such Technical Records relate are provided; and
- 54.1.3 copied to **tie** within 10 Business Days of a request by **tie** for such Technical Records.

- 54.2 **tie** will be entitled from time to time to inspect and audit such Technical Records following reasonable notice to the Infraco. When carrying out any inspection or audit under this Clause 54.2, **tie** shall use reasonable endeavours to minimise any disruption caused to the provision of the Maintenance Services by the Infraco or any Infraco Party.
- 54.3 Further, for each part of the Edinburgh Tram Network the following details shall be retained by the Infraco for not less than 6 years after completion of the Maintenance Services and such details provided to **tie** in accordance with the provisions of this Clause 54.3:
- 54.3.1 the change control register maintained pursuant to Clause 79.2; and
- 54.3.2 all other quality control activity records as agreed with **tie** from time to time.
- 54.4 The Technical Records will be written up and maintained by the Infraco in respect of all Maintenance Services in accordance with this Agreement and Good Industry Practice. Such Technical Records will, subject to Clause 54.5 be stored in IFS system or as otherwise agreed between the Parties.
- 54.5 Upon any request by **tie** for any Technical Record, or upon handover of the Technical Records pursuant to Clause 95.1, the Infraco shall provide such Technical Records in any suitable non-proprietary format as may be reasonably specified by **tie**.
- 54.6 The Infraco shall:
- 54.6.1 use all reasonable endeavours to ensure that the computer systems, equipment and other systems of the Infraco used by the Infraco in carrying out the Maintenance Services including the Asset Management System, any computer systems, equipment, other systems and parts supplied by the Infraco, are at all times free from disabling or destructive programs or devices including, without limitation, bugs, virus or logic bombs, Trojan horses and analogous macros, programs or sub-routines; and
- 54.6.2 ensure that appropriate security systems are implemented and maintained to protect the integrity and security of the Asset Management System and such computer systems, equipment and other systems from security and IT risks including, without limitation, unauthorised access (both by persons external to the Infraco and the Infraco's employees, agents and subcontractors).
- 54.7 In the event of a breach of Clause 54.6 , the Infraco shall conduct a full and complete review of its computer systems, equipment and other systems (including the security arrangements relating to such systems) to identify the source of such disabling or destructive program or

device and, at its own costs and with the prior written approval of the Infraco (such approval not to be unreasonably withheld or delayed) take such action as may be necessary to immediately remedy the breach and additionally to ensure that such breach does not re-occur.

55. SURVEYS OF THE EDINBURGH TRAM NETWORK AND AUDITS OF MAINTENANCE PROCEDURES

55.1 **tie** may carry out or procure surveys of the Edinburgh Tram Network in accordance with Clause 96 (*Surveys Prior to Expiry Date*) and **tie** may audit the Maintenance Procedures pursuant to Clause 104 (*Information and Audit Access*).

55.2 Where following any audit of Maintenance Procedures **tie** identifies non-conformances in the implementation of the Maintenance Procedures the Infraco shall take such steps as are agreed between the Parties to remedy such shortcomings.

55.3 When carrying out any audit under Clause 55.1, **tie** shall (or shall procure that any auditor shall) use reasonable endeavours to minimise any disruption to the provision of the Maintenance Services by the Infraco. Each Party shall bear their own cost of such audits, except where Clause 55.2 applies, when Infraco shall bear **tie's** reasonable and demonstrable costs.

56. SERVICE PERFORMANCE AND QUALITY MONITORING

56.1 The Infraco shall comply with the provisions of Schedule Part 6 (*Maintenance Payment Regime*).

56.2 In addition to the provisions set out in Schedule Part 6 (*Maintenance Payment Regime*), the Infraco shall send such representatives as **tie** may reasonably require to a performance meeting every Reporting Period (which will be convened on not less than 2 Business Days' notice by **tie**) and such other meetings as **tie** may reasonably require from time to time to discuss the performance of the Maintenance Services in accordance with the Agreement.

56.3 The Infraco shall submit a Service Quality Report to **tie** no later than 3 Business Days following each Reporting Period End Date. For the avoidance of doubt, **tie** shall not be obliged to process an invoice submitted by the Infraco in the absence of the Service Quality Report pertaining to the relevant Reporting Period. The Infraco shall be responsible for ensuring that the data contained in the Service Quality Report is generated automatically and, to the extent practicable, electronically.

- 56.4 In addition to the Service Quality Reports to be submitted by the Infraco pursuant to Clause 56.3 above, the Infraco shall prepare and submit to **tie** an Annual Service Report pursuant to Clause 73 (*Best Value*).
- 56.5 The Infraco shall monitor its compliance with this Agreement in respect of the Maintenance Services, and the Parties shall comply with the following provisions:
- 56.5.1 no later than 3 months before the Planned Service Commencement Date and on each anniversary thereafter, the Infraco shall provide to **tie's** Representative its proposed Self-Monitoring Plan for the following 12 months;
- 56.5.2 the Self-Monitoring Plan shall be designed to underpin **tie's** best value obligations and the Infraco shall have full regard to the requirements of Clause 73 (*Best Value*) when preparing its Self-Monitoring Plan;
- 56.5.3 no later than the date falling 20 Business Days after receipt by **tie's** Representative of such proposed Self-Monitoring Plan, **tie** shall notify the Infraco in writing as to whether or not it considers the Self-Monitoring Plan to be acceptable for the purposes of this Agreement; and
- 56.5.4 where **tie** considers the relevant Self-Monitoring Plan to be acceptable, then the Self-Monitoring Plan shall be implemented by the Infraco for the relevant 12 months; or
- 56.5.5 where **tie** does not consider the relevant Self-Monitoring Plan to be acceptable, then the Parties shall use all reasonable endeavours to reach agreement as to the contents of the Self-Monitoring Plan; and
- 56.5.6 until such time as the Self-Monitoring Plan has been accepted by **tie**, the previous year's Self-Monitoring Plan shall remain in effect;
- or, in default of such agreement, either Party may refer the matter for determination under the Dispute Resolution Procedure, and the Infraco shall implement the Self-Monitoring Plan as so agreed or determined.
- 56.6 The Infraco shall as soon as reasonably practicable provide **tie's** Representative with relevant particulars of failure to deliver the Maintenance Services. The Infraco shall co-operate with **tie** and provide such access as **tie** may reasonably require to enable **tie** at all reasonable times to observe, inspect and satisfy themselves (including by carrying out sample checks) as to the adequacy of the monitoring procedures implemented by the Infraco and the Infraco's compliance with this Agreement.

- 56.7 Subject to Clause 56.9, without prejudice to **tie's** other rights under this Agreement, if
- 56.7.1 at any time the Infraco has committed any material breach of its obligations under this Agreement; or
 - 56.7.2 following the issue of the Reliability Certificate, in any Reporting Period where Infraco's performance is below the standard required to achieve the Minimum Performance Payment,
- then **tie** may issue an Underperformance Warning Notice to the Infraco setting out the matter or matters giving rise to such notice and containing a reminder to the Infraco of the implications of such notice.
- 56.8 Following the service of an Under Performance Warning Notice in pursuant to Clause 56.7.2:
- 56.8.1 the Infraco shall within 10 Business Days of receipt of such Under Performance Warning Notice deliver to **tie** a plan setting out how the Infraco propose to remedy the issues which lead to the deductions leading to the service of such Under Performance Warning Notice and proposing a suitable timescale to remedy such issues (a "**Rectification Plan**");
 - 56.8.2 the Parties will use reasonable endeavours to agree the contents of the Rectification Plan within 10 Business Days of receipt by **tie**; and
 - 56.8.3 if the parties do not agree the Rectification Plan within 10 Business Days of receipt by **tie** either Party may refer the matter to the Dispute Resolution Procedure (provided that the Infraco may not refer or cause **tie** to refer the matter to the Dispute Resolution Procedure vexatiously to delay the agreement of a Rectification Plan).
- 56.9 **tie** shall not be entitled to serve:
- 56.9.1 more than one Under Performance Warning Notice in any Reporting Period;
 - 56.9.2 an Under Performance Warning Notice pursuant to Clause 56.7.2 in any two consecutive Reporting Periods; or
 - 56.9.3 a further Under Performance Warning Notice pursuant to 56.7.2 in respect of the same circumstances which led to the service of any previous Under Performance Warning Notice where the Infraco is using reasonable endeavours to comply with the terms of the Rectification Plan put in place to address the issues or circumstances which led to the service of a previous Under Performance Warning Notice

56.10 Without prejudice to **tie's** other rights under this Agreement, if the Infraco receives four or more Underperformance Warning Notices in any twelve (12) month period, **tie** may by notice to the Infraco increase the level of either **tie's** monitoring of the Infraco (including the employment by **tie** of additional performance monitoring officers), or (at **tie's** option) of the Infraco's monitoring of the Infraco's performance of its obligations under this Agreement, until such time as the Infraco shall have demonstrated to the reasonable satisfaction of **tie** that it will perform (and is capable of performing) its obligations under this Agreement, in which case the following provisions shall apply:

56.10.1 any such notice to the Infraco shall specify in reasonable detail the additional measures to be taken by **tie** or by the Infraco (as the case may be) in monitoring the performance of the Infraco;

56.10.2 if the Infraco (acting reasonably) objects to any of the specified measures on the grounds that they are excessive, it shall notify **tie** in writing, within 2 Business Days of the receipt of the notice, of the measures objected to (and of any changes necessary in order to prevent prejudice to the Infraco's performance of its obligations under this Agreement);

56.10.3 the measures to be taken by **tie** and the Infraco (as the case may be) shall be agreed between the Parties or, in the absence of agreement within 3 Business Days of **tie's** receipt of the Infraco's objection, be determined, at the referral of either Party, pursuant to the Dispute Resolution Procedure and on a basis which the relevant adjudicator considers reasonable having regard to the nature and seriousness of the breaches of this Agreement or circumstances leading to the issue of such Underperformance Warning Notices which have occurred, the likelihood of such breaches or circumstances recurring, the risks which would arise if such breaches or circumstances recurred, the level of culpability of the Infraco in relation to such breaches and circumstances and the actions being taken by the Infraco to prevent breaches of this Agreement or circumstances entitling **tie** to issue further Underperformance Warning Notices recurring; and

56.10.4 the Infraco shall bear its own costs and reimburse to **tie** on demand at all times from and against all reasonable costs and expenses incurred by or on behalf of **tie** in relation to such increased level of monitoring (including an appropriate sum in respect of general staff costs and overheads).

56.11 In the event that the Infraco Party responsible for any Underperformance Warning Notices is terminated, such Underperformance Warning Notices shall be automatically cancelled.

57. PERFORMANCE REVIEW

57.1 Following the end of each Performance Review Period, **tie** shall review and assess the performance of the Infraco on the basis set out in this Clause 57.

57.2 **tie** shall review the following:

57.2.1 the Infraco's historic performance under Schedule Part 6 (*Maintenance Payment Regime*);

57.2.2 whether the Infraco has complied with all of its obligations under this Agreement (and whether **tie** reasonably considers any breach(es) to have been both minor and infrequent); and

57.2.3 the Infraco's Maintenance Plan for the next Performance Review Period to jointly assess whether it is sufficiently robust to satisfy the Infraco, acting reasonably, that the Infraco will comply with its contractual obligations as stipulated in Clause 57.2.1 and 57.2.2 for the next Performance Review Period;

57.3 If any of the criteria set out at Clause 57.2 are not satisfied then **tie** may specify particular requirements in respect of those areas where the criteria set out at Clause 57.2 have not been satisfied, to be met by the Infraco by a specified date prior to the next Performance Review Date. If **tie** specifies such interim date then the provisions of this Clause 57 (*Performance Review*) will apply at the interim date, *mutatis mutandis*, as if that date was the original Performance Review Date (and as if the criteria set out at Clause 57.2 were the requirements specified by **tie** pursuant to this Clause 57.3).

58. TUPE AND HANDOVER

58.1 In this Clause 58 (*TUPE and Handover*) and Schedule Part 36 (*TUPE Information*) the following definitions shall apply:

"Infraco Employees" means any employee of the Infraco or Infraco Parties engaged in the performance of the Maintenance Services under this Agreement during the Termination Period;

"New Provider" means **tie** and/or any third party who takes over (or who the Infraco is notified will be taking over) the provision of some or all of the obligations of the Infraco under this Agreement;

"Relevant Employee" means any employee of the Infraco or an Infraco Party employed wholly or mainly in or assigned to the provision of the Maintenance Services under this Agreement as at the date of the Service Provision Change;

"Service Provision Change" means any termination, variation, amendment or other alteration of this Agreement which results in all or part of the Maintenance Services under this Agreement being provided by **tie** or by a third party;

"Termination Period" means either (i) the 12 month period ending on the Expiry Date or (ii) the period of any notice determining this Agreement prior to the Expiry Date;

"TUPE Employees" means any person whose contract of employment may be transferred to a successor contractor, operator or maintainer by virtue of the operation of Law (including the TUPE Regulations) or in respect of whom liabilities arising from the contract of employment or employment relationship may be transferred;

"TUPE Information" means the information in relation to the TUPE Employees specified in Schedule Part 36 (*TUPE Information*);

"the TUPE Regulations" means the Transfer of Undertakings (Protection of Employment) Regulations 2006.

58.2 NOT USED

58.3 The Infraco shall not, without the prior consent of **tie** (which shall not be unreasonably withheld or delayed), vary or purport or promise to vary, the terms or conditions (as amended from time to time) of employment of any Infraco Employee (including any promise to make any additional payment or provide any additional benefit) where such variation or addition takes effect in the Termination Period unless it is in the ordinary course of business.

58.4 NOT USED

58.5 Subject to Clause 58.6, the Infraco shall at the request of **tie** in the Termination Period provide the TUPE Information within 15 Business Days of such request and thereafter until termination or expiry of this Agreement update such information in accordance with the reasonable requests of **tie** subject to the Infraco's common law duties to their employees or under the Data Protection Act 1998. **tie** shall treat the TUPE Information as Confidential Information to which Clause 101 (*Confidential Information*) shall apply provided that **tie** shall only be permitted to use the TUPE Information for the purposes of conducting a tendering exercise for the appointment of a replacement service provider following a Service Provision

Change and shall only be entitled to disclose the TUPE Information to any tenderer pursuant to such exercise and subject to such tenderers accepting a confidentiality obligation in relation to such information equivalent to the obligations set out in Clause 101 (*Confidential Information*), mutatis mutandis.

- 58.6 The Infraco shall use its reasonable endeavours to ensure that it will be in a position to provide TUPE Information pursuant to Clause 58.5 in respect of the TUPE Employees who are not also Infraco Employees but, subject to the Infraco having used such reasonable endeavours, the Infraco's obligation to provide TUPE Information pursuant to Clause 58.5 in respect of such TUPE Employees shall be limited to the TUPE Information covering such TUPE Employees actually in the possession of or actually obtainable by the Infraco.

Establishment of hand-over procedure

- 58.7 During the Termination Period, the Infraco and **tie** both acting diligently and in good faith with a view to ensuring that there shall be no material deterioration or break in the provision of Maintenance Services, shall, at the cost of **tie**, establish appropriate handover procedures.

tie's obligations in relation to TUPE

- 58.8 **tie** shall within 20 Business Days of a request from the Infraco, provide the Infraco with such information as is requested by the Infraco in order to enable the Infraco to comply with its obligations under Regulation 13(2)(d) of the TUPE Regulations.

Continued technical support

- 58.9 For a period of six months after termination or expiry of this Agreement, the Infraco shall provide **tie** with such access as **tie** may reasonably require employees of Infraco having the appropriate knowledge and experience of the history of the Maintenance Services and associated technical matters for the following purposes:

58.9.1 general technical advice on subjects for which the Infraco was responsible pursuant to this Agreement; and

58.9.2 interpretation of maintenance history data, drawing modifications, regulations and the like.

tie shall reimburse the Infraco in respect of all reasonable and proper costs and expenses incurred by the Infraco in complying with this Clause 58 (*TUPE and Handover*)

Technical Records

- 58.10 Upon termination or expiry of this Agreement, the Infraco shall procure that **tie** is provided with an electronic copy of the Technical Records.

Deemed TUPE Transfer

- 58.11 **tie** and the Infraco acknowledge that in the event of a Service Provision Change, the TUPE Regulations may apply to such Service Provision Change. In the event that the TUPE Regulations do not apply to any Service Provision Change, the New Provider shall, with effect from the date of the Service Provision Change, offer employment to each Relevant Employee on like terms to the terms on which they would have become employed by the New Provider had the TUPE Regulations applied or, to the extent that it is not reasonably practicable to do so in respect of any such term, on terms which are not in such respect materially to the detriment of the Relevant Employee.
- 58.12 The New Provider shall treat the period of continuous service of each Relevant Employee or TUPE Employee with the Infraco or an Infraco Party up to the date of the Service Provision Change as continuous with such TUPE Employee's or Relevant Employee's service with the New Provider.

TUPE Transfer Indemnity

- 58.13 **tie** shall, or shall procure that any New Provider shall, indemnify the Infraco and any Infraco Party against any losses, costs, claims, demands, actions, fines, penalties, awards, liabilities and expenses (including reasonable legal expenses) incurred by the Infraco or any Infraco Party in connection with or as a result of:
- 58.13.1 any claim or demand by any TUPE Employee (whether in contract, delict, under statute, pursuant to Law or otherwise) arising directly or indirectly from any act, fault or omission of the New Provider in respect of any TUPE Employee on or after the date of termination of this Agreement or the ending of the provision in whole or in part of the obligations of the Infraco under this Agreement by the Infraco or any Infraco Party;
- 58.13.2 any failure by the New Provider to comply with its obligations under Regulation 13 of the TUPE Regulations;
- 58.13.3 any claim (including any individual entitlement of a TUPE Employee under or consequent on such claim) by any trade union or other body or person representing the

TUPE Employees arising from or connected with any failure by the New Provider to comply with any legal obligation to such trade union, body or person;

58.13.4 any change or proposed change in the terms and conditions of employment or working conditions of the TUPE Employees on or after their transfer to the New Provider, or to the terms and conditions of employment or working conditions of any person who would have been a TUPE Employee but for their resignation or decision to treat their employment as terminated under Regulation 4(9) of the Regulations on or before the Service Provision Change as a result of any such changes; and

58.13.5 the change of identity of employer occurring by virtue of the TUPE Regulations and/or this Agreement being significant and detrimental to any of the TUPE Employees, or to any person who would have been a TUPE Employee but for their resignation or decision to treat their employment as terminated under Regulation 4(9) of the Regulations as a result of the change in employer.

59. STEP-IN FOR HEALTH AND SAFETY AND ENVIRONMENTAL REASONS

59.1 The provisions of Clauses 59.1 to 59.5 (inclusive) shall apply if the Infraco is in breach of its obligations to provide the Infrastructure Maintenance Services under this Agreement, and **tie**, acting reasonably, considers action is required in connection with Infrastructure Maintenance Services because as a result of such breach (i) a serious risk exists to health or safety of persons or to the environment; or (ii) the safety of the general public is compromised.

59.2 If the circumstances set out in Clause 59 (*Step-In for Health and Safety and Environmental Reasons*) apply, **tie**, acting reasonably, may (without prejudice to its other rights under this Agreement) either:

59.2.1 if **tie** considers that there is sufficient time and that it is likely that the Infraco will be willing and able to provide assistance, require the Infraco by written notice to take such steps as **tie** consider necessary or expedient to mitigate or rectify such circumstances and the Infraco shall use its best endeavours to comply with **tie**'s requirements as soon as reasonably practicable; and/or

59.2.2 if **tie** considers there is not sufficient time, or that the Infraco is not likely to be willing and/or able to take the necessary steps, take such steps as are necessary to remove or reduce such risk (either themselves or by engaging others to take any such steps).

59.3 If the Infraco:

59.3.1 does not confirm within 5 Business Days of a notice served pursuant to Clause 59.2 (or such shorter period as is specified by **tie** in the notice where **tie** (acting reasonably) considers there to be an emergency), that it is willing to take such steps as are referred to in Clause 59.2; or

59.3.2 fails to take the steps notified to it by **tie** pursuant to Clause 59.2 within such time as **tie**, acting reasonably, shall think fit,

then (without prejudice to Clause 59.2.1) **tie**, acting reasonably, may itself take, or engage others to take, such steps as they consider appropriate.

59.4 Where **tie** considers it to be necessary or expedient to do so, the steps which **tie** may take pursuant to this Clause 59 (*Step-In for Health and Safety and Environmental Reasons*) shall include the partial or total suspension of the right and obligation of the Infraco to perform the Maintenance Services but only for so long as the circumstances referred to in Clause 59 (*Step-In for Health and Safety and Environmental Reasons*) subsist.

59.5 Any reasonable and demonstrable costs, losses, expenses or damages incurred by the Infraco in taking such steps as are required by **tie** pursuant to this Clause 59 (*Step-In for Health and Safety and Environmental Reasons*) shall be borne by the Infraco.

59.6 The Infraco shall reimburse **tie** for any reasonable and demonstrable costs and expenses incurred by **tie** in acting pursuant to this Clause 59 (*Step-In for Health and Safety and Environmental Reasons*) where such action is necessary by reason of the Infraco's failure to act pursuant to Clause 59.3 or its breach of this Agreement and **tie** shall be entitled to deduct any such amounts from any amount payable to the Infraco under the provisions of this Agreement.

PART 11 - PROGRAMME

60. PROGRAMME

60.1 The Infraco shall progress the Infraco Works with due expedition and in a timely and efficient manner without delay, to achieve timeous delivery and completion of the Infraco Works (or any part thereof) and its other obligations under this Agreement in accordance with the Programme. Notwithstanding the generality of the foregoing, the Infraco shall complete the Infraco Works in each Section so as to enable the Certificate of Sectional Completion in respect of each Section or Certificate of Service Commencement (as appropriate) to be issued

in accordance with Clauses 44 (*Notification of Sectional Completion of Sections A, B, C*) and 45 (*Notification of Service Commencement*) by the Planned Service Commencement Date or the relevant Planned Sectional Completion Date.

60.2 The Infraco shall update the Programme in accordance with the requirements of Schedule Part 2 (*Employer's Requirements*).

60.3 The Infraco shall submit to **tie's** Representative for his acceptance any change to the Programme showing the revised order or manner in which the Infraco proposes to carry out the Infraco Works.

60.4 **tie's** Representative shall within 5 Business Days after receipt of any revised programme from the Infraco:

60.4.1 accept the revised programme in writing; or

60.4.2 reject the revised programme in writing with reasons; or

60.4.3 request the Infraco to supply further information to clarify or substantiate the revised programme or to satisfy **tie's** Representative as to its reasonableness having regard to the Infraco's obligations under the Agreement.

Provided that if none of the above actions is taken within the said period of 10 Business Days, the Infraco shall issue a reminder to **tie** and if **tie** does not take any of the above actions within 5 Business Days of **tie's** receipt of such reminder, then **tie's** Representative shall be deemed to have accepted the revised programme as submitted.

60.5 The Infraco shall within 5 Business Days after receiving from **tie's** Representative any request under Clause 60.4.2 or within such further period as **tie's** Representative may allow, provide the further information requested, failing which the revised programme shall be deemed to be rejected.

60.6 Upon receipt of such further information, **tie's** Representative shall within a further 5 Business Days accept or reject the revised programme in accordance with Clauses 60.4 or 60.4.1. In the event that the revised programme is accepted, the revised programme shall form and become the Programme.

60.7 Should it appear to **tie's** Representative at any time that the actual progress of the Infraco Works does not conform with the Programme, **tie's** Representative shall be entitled to require the Infraco to produce a revised programme showing such modifications to the Programme as

may be necessary to ensure completion of the Infraco Works in each section by the relevant Planned Service Commencement Date. In such event the Infraco shall submit its revised programme within 10 Business Days or within such further period as **tie's** Representative may allow. Thereafter the provisions of Clauses 60.3 and 60.5 shall apply.

60.8 Acceptance by **tie's** Representative of the Infraco's programme in accordance with Clauses 60.3, 60.5 and 60.7 shall not relieve the Infraco of any of its duties or responsibilities under the Agreement.

60.9 The Infraco shall take all reasonable steps to mitigate the effects of any delay to the progress of the Infraco Works.

61. RATE OF PROGRESS AND ACCELERATION

Rate of Progress

61.1 If for any reason which does not entitle the Infraco to an extension of time, the rate of progress of the Infraco Works is at any time, in the reasonable opinion of **tie's** Representative, too slow to ensure substantial completion of any section by the Planned Sectional Completion Date for that Section, or any previously agreed revised time for completion agreed under Clause 61.2, **tie's** Representative shall notify the Infraco in writing and the Infraco shall thereupon take such steps as are necessary and to which **tie's** Representative may consent to expedite the progress so as substantially to complete the Section by the Planned Sectional Completion Date, such consent not to be unreasonably delayed or withheld. The Infraco shall not be entitled to any additional payment for taking such steps.

Acceleration

61.2 Where **tie** desires either:

61.2.1 a date for completion earlier than any Planned Sectional Completion Date current at the date of issue of the preliminary instruction under Clause 61.3; or

61.2.2 to have a Section or Sections completed by the relevant Planned Sectional Completion Date where, following delays or stoppage to programme for whatever reason, the Infraco Works would not be so completed in the absence of any acceleration or resequencing arrangements; or

61.2.3 to obviate the necessity for, or to order the cancellation of, or a reduction in the length of, any extension of time being fixed under Clause 64 (*Relief Events*) so that either the

Planned Service Commencement Date current at the date of preliminary instruction under Clause 61.3 is not extended or is not extended by the length of the extension of time that would otherwise have been given under Clause 64 (*Relief Events*);

tie's Representative may issue a preliminary instruction under Clause 61.3.

- 61.3 If **tie's** Representative issues a preliminary instruction to the Infraco to accelerate the carrying out or alter the sequence and timing of any work to be executed under the provisions of the Agreement, **tie's** Representative shall in such instruction set out the exact nature of the requirements of **tie** in regard to the Planned Service Commencement Date as referred to in Clause 61.2 for which the preliminary instruction has been issued.
- 61.4 If the Infraco makes a reasonable objection to such an instruction, the preliminary instruction shall either be withdrawn or so varied as to meet such objection and may then be re-issued by **tie's** Representative.
- 61.5 As soon as reasonably practicable after receipt of the preliminary instruction (or after receipt of a preliminary instruction re-issued under Clause 61.3) the Infraco shall inform **tie's** Representative in writing in respect of the proposed instruction:
- 61.5.1 of the amount of any additional cost to which the Infraco should be entitled as a result of compliance with the instruction when issued by **tie's** Representative subject to Clause 61.3; or
- 61.5.2 that it is not reasonably practicable to state such a sum and that the cost to **tie** of compliance by the Infraco will therefore have to be ascertained in accordance with Clause 80 (**tie** *Changes*); and
- 61.5.3 of the earlier date for completion which can become the Planned Service Commencement Date for all the purposes of the Agreement; or
- 61.5.4 of the extent to which an extension of time that would otherwise be fixed under Clause 64 (*Relief Events*) can be cancelled or reduced and the date for completion which as a result will be or become the Planned Service Commencement Date for all the purposes of the Agreement.
- 61.6 If on receipt of the information given to **tie's** Representative under Clause 61.4 **tie** wishes to pay the amount referred to in Clause 61.5.1 and to accept the new Planned Service Commencement Date stated by the Infraco pursuant to Clause 61.5.3, **tie** shall cause **tie's** Representative to issue an instruction:

- 61.6.1 confirming the details of the acceleration or alteration of sequence or timing required, and
- 61.6.2 fixing the new Planned Service Commencement Date and the amount to which Clause 61.5.1 refers shall be included as if it were a variation.
- 61.7 Following any instruction under Clause 61.6 the Infraco shall revise the Programme in accordance with the terms of Clause 60 (*Programme*).

Incentivisation Bonus

- 61.8 Within seven (7) days of the date programmed for completion of each Section in Schedule Part 15 and against the submission of a valid VAT invoice, **tie** shall pay the Infraco an incentivisation bonus with respect to the completion of each Section of the Infraco Works as follows:

- 61.8.1 Section A £1,200,000 (one million two hundred thousand)
- 61.8.2 Section B £1,200,000 (one million two hundred thousand)
- 61.8.3 Section C £1,200,000 (one million two hundred thousand)
- 61.8.4 Section D £1,200,000 (one million two hundred thousand)

except where Infraco has failed to achieve sectional completion by the Planned Sectional Completion Date and such failure is not due to a Compensation Event, Notified Departure, **tie** Change or Relief Event in which event such amounts will be paid within seven (7) days of issue by **tie** of the relevant Certificate of Sectional Completion.

62. LIQUIDATED AND ASCERTAINED DAMAGES

- 62.1 Liquidated and ascertained damages shall be recoverable by **tie** in respect of delay to Planned Sectional Completion Dates as follows:
- 62.1.1 if the Infraco fails to achieve completion of any of Section A, Section B, Section C or Section D by the Planned Sectional Completion Date for that Section, the Infraco shall pay to **tie** the sum prescribed in Clause 62.2 for that Section for every week (or pro-rated for each calendar day) which shall elapse between the Planned Sectional Completion Date and the actual Sectional Completion Date for that Section. The liquidated and ascertained damages in respect of Section A, Section B and Section C

shall be cumulative during any period in which there is delay to Planned Sectional Completion to two or more Sections.

62.1.2 liquidated and ascertained damages in respect of Section D shall only be payable in respect of a delay to achieving completion of Section D by the Planned Sectional Completion Date for Section D caused by events occurring after the Sectional Completion Date for Section C and during the carrying out of Section D.

62.2 The liquidated and ascertained damages payable by the Infraco (where the delay is attributable to Infraco solely or both Infraco and the Tram Supplier) attached to non completion of each Section are as follows:

62.2.1 Section A £20,000 per week;

62.2.2 Section B £23,000 per week;

62.2.3 Section C £195,000 per week; and

62.2.4 Section D £246,000 per week,

provided that Infraco shall not be liable for any liquidated and ascertained damages where the failure to complete any of Section A, Section B, Section C or Section D is caused solely by the failure of the Tram Supplier to achieve any Certificate of Tram Commissioning by the Agreed Tram Commissioning Date for that Tram as specified in the Tram Supply Agreement.

62.2A Subject to Clause 62.9.2, in the event that:

62.2A.1 the first Tram to be issued with a Certificate of Tram Commissioning is not issued with such certificate by the Agreed Tram Commissioning Date liquidated and ascertained damages shall be payable by Infraco at the rate of 1% of the Tram Price (as defined in the Tram Supply Agreement) for each period of seven days (with an apportionment on a time basis for each part period) by which the issue of such Certificate of Tram Commissioning is delayed after the Agreed Commissioning Date and until such a Certificate of Tram Commissioning is issued in respect of such Tram; and

62.2A.2 any other Tram to be issued with a Certificate of Tram Commissioning is not issued with such certificate by the Agreed Commissioning Date the Tram Supplier shall, in respect of each such Tram, liquidated and ascertained damages shall be payable by Infraco at the rate of 0.5% of the Tram Price (as defined in the Tram Supply

Agreement) for each period of seven days (with an apportionment on a time basis for each part period) by which the issue of such Certificate of Tram Commissioning is delayed after the Agreed Commissioning Date and until such a Certificate of Tram Commissioning is issued in respect of such Tram.

62.3 Subject to Clause 62.9, the total aggregated amount of any liquidated and ascertained damages payable by the Infraco to **tie** under this Clause 62 (*Liquidated and Ascertained Damages*) shall be limited to ten percent (10%) of the Construction Works Price and such cap shall exclude any liquidated and ascertained damages which are payable to **tie** under Clauses 62.2A and 62.6.

62.4 **tie** may:

62.4.1 deduct and retain the amount of any liquidated and ascertained damages becoming due under the provisions of Clause 62.1 from any sums due or which become due and payable to the Infraco; or

62.4.2 require the Infraco to pay such amount to **tie** forthwith.

If upon a subsequent or final review of the circumstances causing delay, **tie's** Representative grants a relevant extension or further extension of time in respect of the Planned Sectional Completion Date (in relation to Section A, Section B, Section C and Section D) or the Planned Service Commencement Date, **tie** shall no longer be entitled to apply liquidated and ascertained damages in respect of the period of such extension. Any sum in respect of such period which may already have been recovered under this Clause 62 (*Liquidated and Ascertained Damages*) shall be reimbursed forthwith to the Infraco. Interest shall be payable by **tie** on any amounts so reimbursed at a rate per annum equivalent to 2% above the base rate of The Royal Bank of Scotland plc current on the date upon which the liquidated and ascertained damages were actually paid by (by deduction or otherwise) the Infraco to **tie**, adjusted to reflect any changes to the rate during which the period over which the liquidated and ascertained damages were retained by **tie**.

62.5 If after liquidated and ascertained damages have become payable under Clause 62.1, **tie's** Representative orders a variation under Clause 80 (**tie** Changes) or any other situation outside the Infraco's control arises any of which in **tie's** Representative's opinion results in additional and further delay to that part of the Infraco Works:

62.5.1 **tie's** Representative shall so notify the Infraco and **tie** in writing; and

62.5.2 **tie's** further entitlement to liquidated and ascertained damages in respect of that part of the Infraco Works shall be suspended until **tie's** Representative notifies the Infraco and **tie** in writing that the additional and further delay has come to an end.

Such suspension shall not invalidate any entitlement to liquidated and ascertained damages which accrued before the period of additional and further delay started to run and, subject to any subsequent or final review of the circumstances causing delay, any monies already deducted from or paid by the Infraco as liquidated and ascertained damages under the provisions of this Clause 62 (*Liquidated and Ascertained Damages*) may be retained by **tie**.

Liquidated Damages for Weight

62.6 If a Tram exceeds the Maximum Tram Weight then the Infraco shall pay liquidated damages in respect of each such Tram of an amount calculated in accordance with said part 2 of Schedule Part 5 provided that if the amount that a Tram is overweight is equal to or more than an amount equal to five per cent (5%) of the Maximum Tram Weight, **tie** shall without prejudice to its other rights or remedies be entitled to reject the Tram.

General

62.7 The parties hereby acknowledge and confirm that the liquidated and ascertained damages payable pursuant to this Clause 62 (*Liquidated and Ascertained Damages*) at the rate and in respect of the circumstances set out in this Clause 62 (*Liquidated and Ascertained Damages*) represent a genuine pre-estimate of the loss that is anticipated to be suffered by **tie** consequent to a failure by the Infraco to comply with those obligations under this Agreement to which they relate. Neither party shall contend otherwise in any submission, claim or proceeding arising out of or in connection with this Agreement.

62.8 All sums payable by the Infraco to **tie** pursuant to this Clause 62 (*Liquidated and Ascertained Damages*) shall be paid as liquidated and ascertained damages for delay and not as a penalty. For the avoidance of doubt, the Infraco shall bear its own costs arising from delay caused by the Tram Supplier.

62.9 The recovery by **tie** of liquidated and ascertained damages under this Clause 62 (*Liquidated and Ascertained Damages*) shall not in any way relieve the Infraco from its obligation to complete the Infraco Works, nor from any of its other obligations or liabilities under the Agreement provided that

62.9.1 the liquidated and ascertained damages payable pursuant to this Clause 62.9 shall, subject to any rights to terminate pursuant to Clause 90 (*Termination on Infraco*

Default), be **tie's** sole and exclusive remedy and shall be in full and final satisfaction in respect of any claim arising from delay in achieving the Planned Sectional Completion Date for any of Section A, Section B, Section C and Section D;

62.9.2 the Infraco's liability in respect of liquidated damages for delay arising solely as a result of delay in delivering or commissioning of the Trams due to the acts or omissions of the Tram Supplier shall be limited to an aggregate amount of eleven percent (11%) of the Tram Price as defined in the Tram Supply Agreement.

62.10 In the event that at any time the amount representing liquidated damages, save in respect of liquidated damages for delay arising solely as a result of delay in delivering or commissioning of the Trams due to the acts or omissions of the Tram Supplier, exceeds the aggregate liability of the Infraco to **tie** for liquidated damages as described at Clause 62.3, whether paid or unpaid, **tie** may deliver to the Infraco a notice in writing requesting an increase in the Maximum Liquidated Damages ("**Liquidated Damages Cap Increment**"), which notification shall include **tie's** calculation of a proposed Liquidated Damages Cap Increment and indicate that failure to respond within 10 Business Days will constitute an Infraco Default entitling **tie** to terminate the Infraco Contract pursuant to Clause 62.11. The Infraco may respond in writing before the expiry of ten (10) Business Days from the date of such notification confirming its agreement to such Liquidated Damages Cap Increment and upon such agreement the Maximum Liquidated Damages shall be increased by the amount of the Liquidated Damages Cap Increment.

62.11 In the event that Infraco does not respond to **tie's** notification under Clause 62.10 within 10 Business Days of the date of the relevant notification or rejects **tie's** request, such lack of response or rejection shall constitute an Infraco Default and **tie** shall be entitled to issue a termination notice pursuant to Clause 90 (*Termination on Infraco Default*).

PART 12 - PROTESTOR ACTION, EXTENSIONS OF TIME AND COMPENSATION EVENTS

63. PROTESTOR ACTION

63.1 The Infraco shall use all reasonable endeavours as are necessary to protect:

63.1.1 the Edinburgh Tram Network as installed from protestor action during the period from the Commencement Date until the date of issue of the Certificate of Service Commencement; and

- 63.1.2 the Depot from protestor action during the period from the day after the date of issue of the Sectional Completion Certificate for Section A and the last day of the Term.
- 63.2 The Infraco shall be responsible for repairing, reinstating or making good any damage to the Infraco Works which is caused by or results from protestor action in accordance with Clauses 31 (at any time prior to the date of issue of the Certificate of Service Commencement) and pursuant to Clauses 52.16 and 52.17 (at any time following the date of issue of the Certificate of Service Commencement).
- 63.2.1 If the Edinburgh Tram Network or any part thereof is occupied by protestors at any time during the term of this Agreement, then the Infraco shall notify **tie** as soon as reasonably practicable of this occurrence.
- 63.2.2 **tie** shall procure that protestors are removed and may request the reasonable assistance of Infraco to remove protestors.
- 63.2.3 Where **tie** is given assistance in accordance with Clause 63.2.2 then, in respect of any protestor action, **tie** will indemnify Infraco in respect of any demonstrable costs, losses, liabilities, expenses and claims suffered by Infraco as a result of or in connection with the provision of such assistance.

64. RELIEF EVENTS

- 64.1 If and to the extent that a Relief Event is the direct cause of (i) a delay in achievement of the issue of a Certificate of Sectional Completion on or before the Planned Sectional Completion Date for a Section or a Certificate of Service Commencement on or before the Planned Service Commencement Date, or (ii) adversely effects Infraco's ability to perform any of its obligations under this Agreement (including its ability to perform the Maintenance Services), then the Infraco shall be entitled to apply for an extension of time or relief from performance of obligations. The Infraco's sole right to such extension of time or relief from performance of its obligations in connection with a Relief Event shall be as set out in this Clause 64 (*Relief Events*).
- 64.2 To obtain such extension of time or relief from performance, the Infraco must, as soon as practicable, and in any event within 20 Business Days after it first became aware that the Relief Event had caused or is likely to cause delay:
- 64.2.1 give to **tie** a notice of its claim for an extension of time or relief from performance and full details of the nature of the Relief Event, the date of occurrence and its likely duration;

64.2.2 include in any notice given under Clause 64.2.1 full details of the extension of time or relief claimed including:

64.2.2.1 the Infraco's estimate of the likely effect of such delay upon the Programme (if any) or the adverse effects on the performance of its obligations under this Agreement;

64.2.2.2 mitigation measures adopted and why unsuccessful; and

64.2.2.3 any acceleration or other measures which the Infraco could take to mitigate the effects of such delay or non-performance and, where applicable, an estimate of the costs thereof;

provided that where a Relief Event has a continuing effect or the Infraco is unable to determine whether the effect of the Relief Event will actually cause it not to be able to comply with its obligations under this Agreement, such that it is not practicable for the Infraco to submit full details in accordance with this Clause 64.2 then the Infraco shall instead submit to **tie**:

- (a) a statement to that effect with reasons, together with interim written particulars (including details of the likely consequences of the Relief Event on the Infraco's ability to comply with its obligations under this Agreement and an estimate of the likelihood and likely extent of the delay or non-performance); and
- (b) thereafter, further interim written particulars until the actual delay caused or non-performance (if any) is ascertainable, whereupon the Infraco shall as soon as reasonably practicable, submit to **tie** the items referred to in Clause 64.2.2.

64.2.3 demonstrate to the reasonable satisfaction of **tie** that:

64.2.3.1 Infraco and the Infraco Parties could not reasonably have avoided such occurrence or consequences by steps which they might reasonably be expected to have taken;

64.2.3.2 the Relief Event is the direct cause of the delay or non-performance; and

64.2.3.3 the Infraco is using reasonable endeavours to perform its obligations under this Agreement.

- 64.3 In the event that the Infraco has complied with its obligations under Clause 64.2, then (as applicable in the circumstances):
- 64.3.1 the Planned Service Commencement Date and/or the Planned Sectional Completion Dates shall be postponed by such time; and/or
- 64.3.2 Infraco shall be given relief from its obligations under this Agreement,
- as shall be reasonable for such a Relief Event, taking into account the likely effect of delay and on Infraco's ability to perform its obligations under this Agreement and where appropriate the Programme shall be revised by the Infraco in accordance with Clauses 60.2 to 60.5 (inclusive).
- 64.4 In the event that information required by Clause 64.2 is provided after the dates referred to in that Clause, then the Infraco will not be entitled to any relief in respect of or during the period for which the information is delayed.
- 64.5 The Infraco shall notify **tie** if at any time it receives or becomes aware of any further information relating to the Relief Event, giving details of that information to the extent that such information is new or renders information previously submitted materially inaccurate or misleading.
- 64.6 If the Parties cannot agree the extent of the extension of time or relief required or **tie** disagrees that a Relief Event has occurred (or as to its consequences) or that the Infraco is entitled to any extension of time or relief from the performance of its obligations, either Party may refer the matter for determination in accordance with the Dispute Resolution Procedure.
- 64.7 **tie** shall, in assessing any delay, extension of time or relief for the purpose of this Clause 64 (*Relief Events*):
- 64.7.1 not take into account any event or cause of delay which is caused by any negligence, default, breach of contract or breach of statutory duty of the Infraco or any Infraco Parties; and
- 64.7.2 take into account an event or cause of delay only if and to the extent that the Infraco establishes to the satisfaction of **tie** that the Infraco has used its reasonable endeavours to adjust the order and sequence in which the Infraco proposes to execute the Infraco Works in such a manner as to minimise the effects of the delay in, or if possible to avoid altogether any delay in, the progress of the Infraco Works.

- 64.8 The Infraco shall not be entitled to and shall be deemed to have irrevocably waived any entitlement to any extension of time in respect of any failure by the Infraco to:
- 64.8.1 identify any long lead time works and/or order any long lead time materials; or
 - 64.8.2 identify any enabling works which are required in order to commence any part of the Infraco Works; or
 - 64.8.3 subject to Clause 19 manage any required interface with CEC in so far as this forms part of the Infraco Works; or
 - 64.8.4 subject to Clause 19 manage the required interface with any Approval Body and/or third party where consent or approval for the Infraco Works is required at any stage of such works; or
 - 64.8.5 identify any instructions which are required from **tie** in order to progress the Infraco Works in accordance with the Programme, provided that following the occurrence of a Relief Event nothing in this Clause 64.8 shall prevent any long lead times, enabling works, required interfaces with CEC, any Approval Body and/or third party, or instructions which are required from **tie** from being taken into account when considering extensions of time in accordance with Clause 64.
- 64.9 If the Infraco Works are delayed in circumstances other than those entitling the Infraco to an extension of time as set out in this Clause 64 (*Relief Events*), the Infraco shall inform **tie** at the earliest opportunity and shall give an estimate of the likely effect upon the Programme. In such circumstances, the Infraco at its own expense shall take such acceleration measures as are necessary to achieve the requirements of the Programme.
- 64.10 Notwithstanding the occurrence of a Relief Event, the Infraco shall continue to carry out the Infraco Works unless otherwise agreed in connection with this Clause 64 (*Relief Events*).

65. COMPENSATION EVENTS

- 65.1 If and to the extent that a Compensation Event:
- 65.1.1 is the direct cause of a delay in achievement of the issue of a Certificate of Sectional Completion on or before the Planned Sectional Completion Date for a Section or the Certificate of Service Commencement on or before the Planned Service Commencement Date (as appropriate); and/or

65.1.2 directly and adversely affects Infraco's ability to perform any of its obligations under this Agreement (including its ability to perform the Maintenance Services); and/or

65.1.3 causes the Infraco to incur costs beyond such costs which were reasonably anticipated to be incurred by the Infraco but for the occurrence of the Compensation Event;

then the Infraco shall be entitled to apply for an extension of time and/or relief from the performance of its obligations, and/or claim for additional costs under this Agreement. The Infraco's sole right to an extension of time and/or relief from the performance of its obligations and/or to claim costs in connection with a Compensation Event shall be as set out in this Clause 65 (*Compensation Events*).

65.2 To obtain such extension of time and/or relief from performance and/or claim for such costs, the Infraco must, as soon as practicable, and in any event within 20 Business Days after it first became aware that the Compensation Event had caused or is likely to cause delay, adversely affect the performance of Infraco's obligations, or cause the Infraco to incur additional costs:

65.2.1 give to **tie** a notice of its claim for an extension of time and/or costs and relief from performance of its obligations and full details of the nature of the Compensation Event, the date of occurrence and its likely duration (a "**Compensation Event Notice**");

65.2.2 include in any notice given under Clause 65.2.1 full details of the extension of time and relief required and/or any costs claimed including:

65.2.2.1 the Infraco's estimate of the likely effect of such delay upon the Programme (if any) or the adverse effects on the performance of its obligations under this Agreement;

65.2.2.2 details of the costs or losses which are not Indirect Losses;

65.2.2.3 mitigation measures adopted and why unsuccessful; and

65.2.2.4 any acceleration or other measures which the Infraco could take to mitigate the effects of such delay or non-performance and, where applicable, an estimate of the costs thereof;

provided that where a Compensation Event has a continuing effect or the Infraco is unable to determine whether the effect of the Compensation Event will actually cause it not to be able to comply with its obligations under this Agreement, such that it is not

practicable for the Infraco to submit full details in accordance with this Clause 65.2 then the Infraco shall submit to **tie**:

- (a) a statement to that effect with reasons, together with interim written particulars of the items referred to at Clause 65.2.2 insofar as such items are available (including details of the likely consequences of the Compensation Event on the Infraco's ability to comply with its obligations under this Agreement and an estimate of the likelihood and likely extent of the delay or non-performance and the costs incurred); and
- (b) thereafter, further interim written particulars as set out in Clause 65.2.2(a) until the actual delay caused and costs incurred or non-performance (if any) are ascertainable, whereupon the Infraco shall as soon as reasonably practicable, submit to **tie** the items referred to in Clause 65.2.2; and

65.2.3 demonstrate to the reasonable satisfaction of **tie** that:

65.2.3.1 subject to Clause 65.12, Infraco and the Infraco Parties could not reasonably have avoided such occurrence or consequences by steps which they might reasonably be expected to have taken;

65.2.3.2 the Compensation Event is the direct cause of the delay, inability to perform and/or the additional costs; and

65.2.3.3 the Infraco is using reasonable endeavours to perform its obligations under this Agreement.

65.2A1 **tie** shall complete a review of the notification and submissions made by the Infraco pursuant to Clauses 65.2.1 and 65.2.2 and shall notify the Infraco within 20 Business Days of receipt (or such other period as the Parties acting reasonably may agree in the light of the complexity of the Compensation Event Notice and further information expected pursuant to Clause 62.2.2(b)):

65.2A1.1 its agreement or otherwise on whether a Compensation Event has occurred;

65.2A1.2 its agreement or otherwise regarding the extension of time, additional costs and other relief sought by the Infraco and where **tie** does not agree such matters, **tie's** assessment in relation to the Infraco's entitlement to extension of time, additional costs and relief;

- 65.2A1.3 what further information **tie** requires to enable evaluation (or its completion) of any element of the Infraco's Compensation Event Notice.
- 65.2A2 In the event that **tie** (acting reasonably) requires further information from Infraco pursuant to Clause 65.2A1.3 then Clauses 65.2A1.2 shall apply and **tie** shall complete its review of the further information and respond within 20 days of its receipt.
- 65.3 In the event that the Infraco has complied with its obligations under Clause 65.2.2, then (as applicable in the circumstances):
- 65.3.1 the Planned Service Commencement Date and/or the relevant Planned Sectional Completion Dates shall be postponed by such time; and/or
- 65.3.2 Infraco shall be given such relief from performance of its obligations under this Agreement
- as shall be reasonable for such a Compensation Event , taking into account the likely effect of delay and on Infraco's ability to perform its obligations under this Agreement and where appropriate the Programme shall be revised by the Infraco in accordance with Clauses 60.2 to 60.5; and/or
- 65.3.3 the Infraco shall be paid the amount of any direct and demonstrable additional cost as may be reasonable in the circumstances of the Compensation Event (as agreed by the Parties or determined pursuant to the Dispute Resolution Procedure) , such payment to be made through the operation of Clause 67 (*Application for Milestone Payment*) and in relation to that proportion of the amount to which the Infraco is entitled which relates to additional costs expended in earlier Reporting Periods, payment shall be included in the next Application for Milestone Payment following **tie's** assessment in relation to the Infraco's entitlement to extension of time, additional costs and relief pursuant to Clause 65.2A1.2;
- 65.4 In the event that information required by Clause 64.2 is provided after the dates referred to in that Clause, then the Infraco will not be entitled to any relief in respect of or during the period for which the information is delayed.
- 65.5 The Infraco shall notify **tie** if at any time it receives or becomes aware of any further information relating to the Compensation Event, giving details of that information to the extent that such information is new or renders information previously submitted materially inaccurate or misleading.

- 65.6 If, following **tie's** review and notification pursuant to Clauses 65.2A1 and 65.2A2, the Infraco disagrees with the notification that no Compensation Event has occurred, either Party may refer the matter for determination in accordance with the Dispute Resolution Procedure.
- 65.7 If, following **tie's** review and notification pursuant to Clauses 65.2A1 and 65.2A2, the Parties have not agreed the extent of the extension of time, relief or the additional costs assessed and notified by **tie** within 10 Business Days of notification by **tie** of its assessment that a Compensation Event has occurred, either Party may refer the matter for determination in accordance with the Dispute Resolution Procedure.
- 65.8 **tie** shall, in assessing any delay or extension of time or costs or relief for the purpose of this Clause 65 (*Compensation Events*)
- 65.8.1 not take into account any event or cause of delay or costs which is caused by any negligence, default of breach of contract or breach of statutory duty of the Infraco or any of the Infraco Parties; and;
- 65.8.2 take into account an event or cause of delay or costs only if and to the extent that the Infraco establishes to the satisfaction of **tie** that the Infraco has used its reasonable endeavours to adjust the order and sequence in which the Infraco proposes to execute the Infraco Works in such a manner as to minimise the effects of the delay in, or if possible to avoid altogether any delay in, the progress of the Infraco Works and mitigate the costs.
- 65.9 The Infraco shall not be entitled to and shall be deemed to have irrevocably waived any entitlement to any extension of time and/or additional costs in respect of any failure by the Infraco to:
- 65.10.1 identify any long lead time works and/or order any long lead time materials; or
- 65.10.2 identify any enabling works which are required in order to commence any part of the Infraco Works; or
- 65.10.3 subject to Clause 19 manage the required interface with CEC in so far as this forms part of the Infraco Works; or
- 65.10.4 subject to Clause 19 manage any required interface with any Approval Body and/or third party where consent or approval for the Infraco Works is required at any stage of such works; or

65.10.5 identify any instructions which are required from **tie** in order to progress the Infraco Works in accordance with the Programme,

provided that following the occurrence of a Compensation Event nothing in this Clause 65.10 shall prevent any long lead times, enabling works, required interfaces with CEC, any Approval Body and/or third party, or instructions which are required from **tie** from being taken into account when considering extensions of time and/or additional costs in accordance with Clause 65 (*Compensation Events*).

65.10 If the Infraco Works are delayed in circumstances other than those entitling the Infraco to an extension of time or relief as set out in this Clause 65 (*Compensation Events*), the Infraco shall inform **tie** at the earliest opportunity and shall give an estimate of the likely effect upon the Programme. In such circumstances, the Infraco at its own expense shall take such acceleration measures as are necessary to achieve the requirements of the Programme.

65.11 Notwithstanding the occurrence of a Compensation Event, the Infraco shall continue to carry out the Infraco Works unless otherwise agreed in connection with this Clause 65 (*Compensation Events*).

65.12 Where a claim is made under this Clause 65 as a result of the occurrence of a SDS Compensation Event:

65.12.1 Clause 65.2.3.1 shall not apply to steps which might reasonably be expected to have been taken by the SDS Provider;

65.12.2 if the SDS Compensation Event is Compensation Event (t) there shall be deducted from any additional costs which Infraco is entitled to recover pursuant to Clause 65.2 the amount of liquidated damages recoverable from the SDS Provider pursuant to Clause 27.7 of the SDS Agreement (as amended by the SDS Novation Agreement)

65.13 If the SDS Compensation Event is Compensation Event (u), there shall be deducted from any additional costs which Infraco is entitled to recover pursuant to Clause 65.2, the full amount recoverable by Infraco (that is to say up to ten million pounds (£10,000,000) for each and every event) pursuant to the SDS Agreement and specifically Clause 27 (as amended by the SDS Novation Agreement) as a result of the occurrence of such Compensation Event.

PART 13 - PAYMENT AND TAXATION

66. PAYMENT OF THE CONTRACT PRICE

- 66.1 Subject to the terms of this Agreement, **tie** shall pay the Contract Price to the Infraco for the carrying out and completion of the Infraco Works.
- 66.2 Any application for payments of sums due in respect of Construction Milestones, Critical Milestones and Tram Milestones and any payment to be made in respect of Construction Milestones, Critical Milestones and Tram Milestones shall be made in accordance with the procedure set out in Clause 67 (*Payment in Respect of Applications for Milestone Payments*).
- 66.3 Any application for payments of sums due in respect of the Maintenance Services and any payment to be made in respect of Maintenance Services shall be made in accordance with the procedure set out in Clause 68 (*Payment in Respect of Maintenance Services*).
- 66.4 Until the issue of the Certificate of Service Commencement, any application for payments of sums due in respect of Permitted Variations or other costs or expenses which have been expressly approved by **tie** and/or to which the Infraco is entitled in accordance with this Agreement shall be made in accordance with the procedure set out in Clause 67 (*Payment in Respect of Applications for Milestone Payments*).
- 66.5 Subject to Clause 66.6, after the issue of the Certificate of Service Commencement, any application for payments of sums due in respect of Permitted Variations or other costs or expenses which have been expressly approved by **tie** and/or to which the Infraco is entitled in accordance with this Agreement shall be made in accordance with the procedure set out in Clause 68 (*Payment in Respect of Maintenance Services*).
- 66.6 Promptly following the issue of the Certificate of Service Commencement, **tie** shall prepare and issue a statement of final account which the Parties, acting reasonably, shall use reasonable endeavours to agree within forty five days of its issue. If and to the extent that the Parties, fail to agree the statement of final account within 45 days, either Party will be entitled to refer the matter to the Dispute Resolution Procedure for determination. In the absence of manifest error, and subject to Infraco's right to apply for further payment in accordance with this Clause, the agreed statement of final account shall be conclusive and binding on the Parties as regards all amounts due and paid pursuant to this Agreement in connection with the design, construction, installation, testing, commissioning and maintenance of the Infraco Works up to the date of issue of the Certificate of Service Commencement. The Infraco shall not be entitled to apply for any further payment regarding Infraco Works completed prior to

the date of the Certificate of Service Commencement after the date which falls three months after agreement of the statement of final account, except to the extent such further payment relates directly to latent defects caused by a deficiency in design produced by the SDS Provider (subject to Infraco's rights and obligations in respect of such latent defects under this Agreement) or relates to payments which are the subject of formal dispute resolution process pursuant to Clause 97 (*Dispute Resolution Procedure*) commenced no later than six months from the date of issue of the statement of final account by **tie**.

67. PAYMENT IN RESPECT OF APPLICATIONS FOR MILESTONE PAYMENTS

Application for Milestone Payments

67.1 The Infraco shall submit each Application for Milestone Payment, and/or an application for payment for any other fees, costs and/or expenses in respect of Permitted Variations or other costs or expenses which have been expressly approved by **tie** and/or to which the Infraco is entitled in accordance with this Agreement which are being claimed by the Infraco for the previous Reporting Period, to **tie's** Representative within 3 Business Days following each Reporting Period End Date provided that:

67.1.1 save in the case where the **tie** Representative has not issued a Construction Milestone Completion Certificate or a Critical Milestone Completion Certificate pursuant to Clause 41 without notifying a reason for not doing so within 10 Business Days of the date on which it is established that the relevant Construction Milestone or Critical Milestone has been achieved pursuant to Clause 41.3, the Infraco shall not submit an Application for Milestone Payment claiming payment in respect of a Construction Milestone or Critical Milestone for which **tie's** Representative has not issued a Construction Milestone Completion Certificate or a Critical Milestone Completion Certificate;

67.1.2 subject to Clause 67.1.1, the Infraco may submit an Application for Milestone Payment even if **tie's** Representative has not issued a Milestone Completion Certificate in respect of every Milestone which has been identified in that Application for Milestone Payment; and

67.1.3 NOT USED

67.1.4 subject to Clause 67.1.1, the Infraco may include an application for payment in respect of Milestones or Critical Milestones identified in a previous Application for Milestone Payment.

- 67.2 Each Application for Milestone Payment shall include any amounts properly due to be paid to the SDS Provider pursuant to the SDS Agreement. For the avoidance of doubt, such Applications for Milestone Payments may also include any payments properly due under the SDS Agreement in respect of the deliverables developed by the SDS Provider pursuant to clauses 4.6 and 4.7 of the SDS Novation Agreement.
- 67.3 NOT USED
- 67.4 Each Application for Milestone Payment and/or an application for payment for any other fees, costs and/or expenses in respect of Permitted Variations or other costs or expenses which have been expressly approved by **tie** and/or to which the Infraco is entitled in accordance with this Agreement shall:
- 67.4.1 set out the Milestones and Critical Milestones progressed in that Reporting Period and the Milestone Payment due in respect of the same;
- 67.4.2 set out any other agreed adjustments pursuant to a Permitted Variation; and
- 67.4.3 any other sums due to or from the Infraco under and/or arising out of this Agreement in accordance with its terms,
- (together with reasonable supporting documentation establishing the basis of such sums being claimed).
- 67.5 **tie** shall procure that **tie's** Representative shall, subject to any clarifications as are in **tie's** opinion (acting properly and reasonably) necessary, certify by notice in writing (a "**Construction Interim Certificate**") to the Infraco that part of the sum claimed in the application for payment which is approved by **tie** and give reasons why any part of the sum claimed has not been certified and the value of the sums involved no later than 5 Business Days after the date on which application for payment was received by **tie**. If the Infraco fails to achieve the prescribed Environmental or Health and Safety Key Performance Indicators as set out in Schedule Part 40 (*Environmental and Health and Safety Key Performance Indicators*) in any Reporting Period, **tie** shall make a deduction of 1% (the "**EHS KPI Deduction**") from the value of the Construction Interim Certificate save where and to the extent that the Infraco demonstrates to **tie's** satisfaction that such failure to achieve the prescribed Environmental or Health and Safety Key Performance Indicators did not result from a deficiency in either the Construction Phase Health and Safety Plan or from a failure in its management, in accordance with Good Industry Practice, of health, safety, quality or environmental aspects of the Infraco Works. **tie** shall release the EHS KPI Deduction as soon

as the Infraco has satisfied **tie** that the Construction Phase Health and Safety Plan has been updated and that the cause or causes of the EHS KPI Deduction has or have been rectified.

67.6 The Infraco shall submit a valid VAT invoice to **tie** and payment will become due to the Infraco on receipt by **tie** of such valid VAT invoice (the "**Construction Payment Due Date**"). The final date for payment by **tie** to the Infraco of a valid VAT invoice shall be the date occurring 15 Business Days after the Construction Payment Due Date.

67.7 If the Infraco is late in submitting its application for payment to **tie** by more than 3 Business Days after the required timescales set out in Clause 67.1, payment in respect of any amount certified in a Construction Interim Certificate shall become due to the Infraco on the date of receipt of the relevant valid VAT invoice by **tie** in respect of the late application for payment, and the final date for payment by **tie** to the Infraco of such valid VAT invoice shall be the date occurring 15 Business Days after the first date of the Reporting Period following receipt of the valid VAT invoice.

67.8 NOT USED

67.9 The Infraco and **tie** acknowledge that:

67.9.1 a maximum of only one Application for Milestone Payment may be made under this Clause 67.9.1 in any Reporting Period; and

67.9.2 the amount to be specified for payment in any Construction Interim Certificate in respect of a Milestone or Critical Milestone shall not exceed the amount specified in Schedule Part 5 (*Pricing*) in relation to the achievement of the Milestone or Critical Milestone to which such Construction Interim Certificate relates.

Adjustment

67.10 Without prejudice to Clause 67.5, any Milestone Payments or Critical Milestone Payments set out in Schedule Part 5 (*Pricing*) shall not be adjusted except by the express written agreement of **tie** or where there has been a Permitted Variation.

67.11 NOT USED

67.12 NOT USED

67.13 NOT USED

Retention and Condition Precedent to Payment

- 67.14 If Infraco fails to procure a collateral warranty from a Key Sub-Contractor in accordance with Clause 28.7 (in circumstances where Clause 28.10 do not apply), **tie** shall be entitled to retain any payments due to be made by it to the Infraco in respect of work executed by such Key Sub-Contractor. This retention shall be released by **tie** upon the provision of such collateral warranty as requested by **tie**.
- 67.15 Following a request from **tie** in accordance with Clause 74.10, any payment to the Infraco shall (save as after mentioned) be conditional upon the Infraco having provided any collateral warranty requested by **tie** under Clause 74.7, provided that the inability to provide a collateral warranty pursuant to Clause 74.10 shall not be a reason for withholding payment if **tie** is satisfied that Infraco has used all reasonable endeavours to provide a collateral warranty as provided for in Clause 74.10.

68. PAYMENT IN RESPECT OF MAINTENANCE SERVICES

Maintenance Services Payment

- 68.1 Subject to the terms of this Agreement, in respect of the provision of the Maintenance Services, **tie** shall pay to the Infraco the Maintenance Services Payment calculated in accordance with Schedule Part 6 (*Maintenance Payment Regime*) together with any other fees, costs and/or expenses in respect of any repairs made pursuant to Clause 52 (*Maintenance*), adjustments pursuant to and Permitted Variations or any other sums due to the Infraco in terms of this Agreement.

Application for Payments

- 68.2 The Infraco shall submit each application for payment in respect of Maintenance Services or in respect of any other costs or expenses which have been expressly approved by **tie** and/or to which the Infraco is entitled in accordance with this Agreement for the previous Reporting Period, to **tie's** Representative within 3 Business Days following the Reporting Period End Date and following submission to **tie** of the Service Quality Report pursuant to Clause 56.3.
- 68.3 Each application for payment shall set out:
- 68.3.1 the Maintenance Services Payment claimed by the Infraco which has been calculated in accordance with Schedule Part 6 (*Maintenance Payment Regime*);

68.3.2 any repairs made pursuant to Clause 52 (*Maintenance*) including a breakdown of the costs;

68.3.3 any other agreed adjustments pursuant to a Permitted Variation; and

68.3.4 any other sums due to or from the Infraco under and/or arising out of this Agreement in accordance with its terms

(together with reasonable supporting documentation establishing the basis of such sums being claimed).

68.4 **tie** shall procure that **tie's** Representative shall, subject to any clarifications as are in **tie's** opinion (acting properly and reasonably) necessary, certify by notice in writing (a "**Maintenance Services Interim Certificate**") to the Infraco that part of the sum claimed in the application for payment which is approved by **tie** and give reasons why any part of the sum claimed has not been certified in the Maintenance Services Interim Certificate and the value of the sums involved no later than 5 Business Days after the date on which application for payment was received by **tie** in accordance with Clause 68.2.

68.5 The Infraco shall submit a valid VAT invoice to **tie** and payment will become due to the Infraco upon receipt by **tie** of such valid VAT invoice (the "**Maintenance Payment Due Date**"). The final date for payment by **tie** to the Infraco of a valid VAT invoice shall be the date occurring 15 Business Days after the Maintenance Payment Due Date.

68.6 If the Infraco is late in submitting its application for payment to **tie** by more than 3 Business Days after the required timescales set out in Clause 68.2, payment in respect of any amount certified in a Maintenance Services Interim Certificate shall become due to the Infraco on the date of receipt of the relevant valid VAT invoice by **tie** in respect of the late application for payment, and the final date for payment by **tie** to the Infraco of such valid VAT invoice shall be the date occurring 15 Business Days after the first date of the Reporting Period following receipt of the valid VAT invoice.

68.7 NOT USED.

Adjustment

68.8 Without prejudice to Clause 68.4, any Maintenance Services Payments shall not be adjusted except by the express written agreement of **tie** or where there has been a Permitted Variation.

68.9 NOT USED

68.10 NOT USED

68.11 NOT USED

Retention and Condition Precedent to Payment

68.12 If, Infraco fails to procure a collateral warranty from a Key Sub-Contractor in accordance with Clause 28.7 (in circumstances where Clause 28.10 do not apply), **tie** shall be entitled to retain any payments due to be made by it to the Infraco in respect of work executed by such Key Sub-Contractor. This retention shall be released by **tie** upon the provision of such collateral warranty as requested by **tie**.

68.13 Following a request from **tie** in accordance with Clause 74.10, any payment to the Infraco shall (save as after mentioned) be conditional upon the Infraco having provided any collateral warranty requested by **tie** under Clause 74.7, provided that the inability to provide a collateral warranty pursuant to Clause 74.10 shall not be a reason for withholding payment if **tie** is satisfied that Infraco has used all reasonable endeavours to provide a collateral warranty as provided for in Clause 74.7.

69. INTEREST ON LATE PAYMENTS AND SET-OFF

Interest on late payments

69.1 In the event of a failure by **tie** to make payment in accordance with Clause 67 (*Payment in Respect of Applications for Milestone Payments*) or Clause 68 (*Payment in Respect of Maintenance Services*), **tie** shall pay to the Infraco interest upon any payment not paid by the final date for payment at a rate per annum equivalent to 2 per cent (2%) above the base rate of The Royal Bank of Scotland plc current on the date upon which such payment first becomes overdue adjusted to reflect any changes to the rate during the period over which the payment remains overdue.

69.2 Pursuant to Clause 69.1 or otherwise in accordance with this Agreement, in the event that the Party to whom payment is due, suffers a demonstrable cost of currency exchange hedge as a result of an exchange rate fluctuation between the pound sterling and the Euro which is connected to late payments relating to the Tram Supply Agreement, then the Party due to make payment shall be liable for this amount to the Party to whom the payment is due.

Set-Off

69.3 Subject to Clause 69.4, **tie** may deduct any amount payable by the Infraco to **tie** (whether by way of damages or in respect of any loss or expense sustained by **tie** by reason of the Infraco's breach of this Agreement) from any other payment or payments due to be made to the Infraco by **tie** under this Agreement.

69.4 Any notice of intention to withhold payment shall be served by **tie** at least ten Business Days prior to the final date for payment calculated in accordance with Clause 67.6 or Clause 68.5 (as appropriate) and such notice shall state the sums being withheld and the detailed reason or detailed reasons for such withholding. Where an effective notice of intention to withhold payment is given, but on the matter being referred to the Dispute Resolution Procedure, it is decided that the whole or part of the amount should be paid, the decision shall be construed as requiring payment not later than:

69.4.1 7 days from the date of the decision; or

69.4.2 the date which, apart from the notice, would have been the final date for payment;

whichever is the later.

69.5 The Infraco shall be entitled to payment of interest as provided in Clause 69.1 in respect of the relevant part of any payments which have been withheld in accordance with Clause 69.3 but are subsequently determined as being payable by **tie** to the Infraco either by agreement between the Parties or a decision following a referral to the Dispute Resolution Procedure. The interest shall be calculated for the period between the date when the relevant part of the payment should have been paid but for the notice of intention to withhold payment and the date on which payment is made by **tie** in accordance with Clause 69.4.

69.6 The Infraco shall not be entitled to retain or set-off any amount owed to it by **tie** against any amount due to **tie** by it.

70. VALUE ADDED TAX

70.1 The Infraco shall be deemed to have allowed in its tender for the tax payable by it as a taxable person to the Commissioners of Customs and Excise being tax chargeable on any taxable supplies to **tie** which are to be made under the Agreement.

70.2 All certificates issued by **tie** or **tie's** Representative under Clauses 67.5 and 68.4 shall be net of Value Added Tax. In addition to the payments due under such certificates **tie** shall separately

identify and pay to the Infraco any Value Added Tax properly chargeable by the Infraco on the supply to **tie** of any goods and/or services by the Infraco under this Agreement.

- 70.3 If any dispute, difference or question arises between either **tie** or the Infraco and the Commissioners of Customs and Excise in relation to any tax chargeable or alleged to be chargeable in connection with this Agreement or the Infraco Works, each shall render to the other such support and assistance as may be necessary to resolve the dispute, difference or question.
- 70.4 Clause 97 (*Dispute Resolution Procedure*) shall not apply to any dispute, difference or question arising under this Clause 70 (*Value Added Tax*).
- 70.5 Where under this Agreement one Party is to reimburse or indemnify another Party in respect of any payment made or cost incurred by the other Party, the first Party shall also reimburse any VAT paid by the other Party in question which forms part of its payment made or cost incurred to the extent such VAT is not available for credit for the other Party in question (or for any person with whom the indemnified party is treated as a member of a group for VAT purposes) under sections 25 and 26 of the Value Added Tax Act 1994.

71. LABOUR TAX AND LANDFILL TAX FLUCTUATIONS

- 71.1 The rates and prices contained in Schedule Part 4 (*Pricing*) and the Contract Price Analysis shall be deemed to take account only of the levels and incidence in force on the Effective Date:
- 71.1.1 the taxes, levies, contributions, premiums or refunds (including national insurance contributions but excluding income tax and any levy payable under the Industrial Training Act 1982 or any statutory re-enactment or amendment thereof for the time being in force) which are by law payable by or to the Infraco or anyone carrying out any part of the Infraco Works under the instruction of the Infraco in respect of their workpeople engaged on the Infraco Works;
- 71.1.2 any landfill tax payable by the Infraco or anyone carrying out any part of the Infraco Works under the instruction of the Infraco pursuant to the Finance Act 1996 (sections 39-71 and Schedule 5) and the Landfill Tax Regulations 1996 or any statutory re-enactment or amendment thereof for the time being in force; and
- 71.1.3 any aggregate levy payable by the Infraco or anyone carrying out any part of the Infraco Works under the instruction of the Infraco pursuant to the Finance Act 2001 or any statutory re-enactment or amendment thereof for the time being in force;

and shall not take account of any level or incidence of the aforesaid matters foreseeable or known to take effect at some later date.

- 71.2 If after the Effective Date there shall occur any change in the level and/or incidence of any such taxes, levies, contributions, premiums or refunds, the Infraco shall so inform **tie's** Representative and the net increase or decrease shall be taken into account in arriving at the Contract Price. The Infraco shall supply the information necessary to support any consequent adjustment to the Contract Price. All certificates for payment issued after submission of such information shall take due account of the additions or deductions to which such information relates. If the Infraco fails to advise **tie** of any increase within 3 months, the Infraco shall lose its entitlement to claim for an adjustment to the Contract Price.

72. RETURNS OF LABOUR AND INFRACO'S EQUIPMENT

- 72.1 Save in relation to the Tram Supply Obligations, the Infraco shall, if required by **tie's** Representative, deliver to **tie's** Representative a return in such form and at such intervals as **tie's** Representative may reasonably prescribe showing in detail the numbers of the several classes of labour from time to time employed by the Infraco on the Site and such information respecting the Infraco's Equipment as **tie's** Representative may reasonably require. The Infraco shall procure that the Sub-Contractors observe the provisions of this Clause 72 (*Returns of Labour and Infraco's Equipment*).

73. BEST VALUE

- 73.1 The Infraco shall, throughout the Term and to the extent consistent with its obligations under the Agreement, make arrangements to secure continuous improvement in the way in which the Infraco Works are conducted having regard to the Project Vision and, a combination of economy, efficiency and effectiveness.
- 73.2 The Infraco agrees to undertake (or refrain from undertaking) such actions as **tie** shall reasonably request, and shall:
- 73.2.1 prepare and, support and assist **tie** (in compliance with Clause 104 (*Information and Audit Access*)) in preparing best value performance plans and conducting best value reviews in relation to the Infraco Works;
 - 73.2.2 comply with requests for information, data or other assistance made by **tie** in pursuance of its best value assessment; and

- 73.2.3 comply with all requests by **tie** to procure the attendance of specific officers or employees of the Infraco or Infraco Parties at any **tie** meetings at which the Infraco Works are to be discussed.
- 73.3 **tie** may undertake an annual customer satisfaction survey ("**tie Customer Satisfaction Survey**") in order to:
- 73.3.1 assess satisfaction among the public and passengers with the quality, efficiency and effectiveness of the Maintenance Services;
- 73.3.2 complement preparation of the Annual Service Report; and
- 73.3.3 monitor compliance by the Infraco with its obligations including its management of the Maintenance Services;
- and the Infraco shall provide reasonable assistance to enable **tie** to undertake the **tie Customer Satisfaction Survey**.
- 73.4 Without prejudice to any other provision in the Agreement (and no later than 2 Reporting Periods prior to the end of any year), the Infraco shall, at its own cost, provide a written report (the "**Annual Service Report**") which shall review the quality and performance of all Maintenance Services measured during the relevant period and show the key issues to be addressed going forward, including customer feedback, operational and maintenance issues and improvement proposals. The customer feedback shall include the results of any **tie Customer Satisfaction Survey** carried out pursuant to Clause 73.3 provided that such results have been supplied to the Infraco not less than 4 weeks prior to the date on which the Annual Service Report is to be submitted to **tie**. The Infraco shall upon written request promptly provide supporting information to verify and audit the information and other material contained in the Annual Service Report (other than the **tie Customer Satisfaction Survey**).
- 73.5 **tie** may make comments on and/or objections and specify omissions in the supporting information or the Annual Service Report and in such case shall provide the Infraco with written comments and/or objections within 30 Business Days of receipt. In the absence of such **tie** comments or objections, the supporting information (or the Annual Service Report) shall be deemed to have been accepted by **tie**.
- 73.6 The Infraco shall, within 30 Business Days of receipt of **tie** comments and/or objections under Clause 73.5, make revisions having regard to such comments and/or objections and resubmit the information and report to **tie**. If the information and reports cannot be agreed by the Parties then the matter will be determined in accordance with the Dispute Resolution Procedure.

- 73.7 If, in **tie's** reasonable opinion, the provision and performance of the Maintenance Services could be more effective, efficient and economic having regard to the Annual Service Report and the **tie** Customer Satisfaction Survey, then **tie** may serve a **tie** Notice of Change pursuant to Clause 80 (*tie Changes*) stating the desired nature and timing of the changes to the provision or performance of the Maintenance Services.
- 73.8 NOT USED
- 73.9 The preparation of best value performance plans will take into account the conclusions from the Annual Service Report and the **tie** Customer Satisfaction Surveys.

PART 14 - BOND, WARRANTIES, INSURANCES AND LIABILITIES

74. BOND, PARENT COMPANY COMPANY GUARANTEES AND COLLATERAL WARRANTIES

- 74.1 On the Effective Date, Infraco shall provide to **tie** a Performance Bond at the maximum amount of £23,000,000 substantially in the form of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) and issued by a surety with a credit rating by Standard & Poors of A- or higher (to be evidenced to **tie**).
- 74.2 On the date on which **tie** issues the Reliability Certificate, the Performance Bond shall be released by **tie**. In the event that the issue of the Reliability Certificate is not expected to be achieved by the date which is twelve (12) months after the currently programmed date of issue for the Reliability Certificate, no later than one month prior to its expiry date the Infraco shall arrange, upon written request by **tie**, for an extension to the validity of the Performance Bond for a period of no less than three months.
- 74.3 The Infraco shall provide to **tie** (issued by a surety with a credit rating by Standard and Poors of A- or higher (to be evidenced by **tie**) substantially in the form of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*), no later than:
- 74.3.1 the Effective Date, a Retention Bond in the amount of £2,000,000 (Two Million Pounds Sterling);
- 74.3.2 the date on which the Certificate of Sectional Completion for Section A is issued, a Retention Bond in the amount of £4,000,000 (Four Million Pounds Sterling);
- 74.3.3 the date on which a Certificate of Sectional Completion for Section B is issued, a Retention Bond in the amount of £6,000,000 (Six Million Pounds Sterling);

- 74.3.4 the date on which a Certificate of Sectional Completion for Section C is issued, a Retention Bond in the amount of £8,000,000 (Eight Million Pounds Sterling);
- 74.3.5 the date on which a Certificate of Sectional Completion for Section D is issued, a Retention Bond in the amount of £10,000,000 Million Pounds Sterling);
- 74.3.6 the date on which a Network Certificate is issued, a Retention Bond in the amount of £6,600,000 (Six Million, Six Hundred Thousand Pounds Sterling);
- 74.3.7 if the Reliability Certificate has not been issued on or before such date, the date which is three months prior to the date referred to at Clause 7.1 of the Retention Bond, a replacement Retention Bond on identical terms to that being replaced, but with an expiry date no earlier than three months after the date referred to in Clause 7.1 of the Retention Bond (the "**New Expiry Date**");
- 74.3.8 if the Reliability Certificate has not been issued on or before such date, the date which is three months prior to the New Expiry Date of any Retention Bond, a replacement Retention Bond on identical terms to that being replaced, but with an expiry date no earlier than three months after the New Expiry Date of the relevant Retention Bond (and such date shall also be deemed to be a New Expiry Date for the purposes of this Clause 74.3.8).
- 74.4 The Retention Bond shall only be released by **tie**, in accordance with its terms:
- 74.4.1 in the case of the Retention Bond provided in accordance with clause 74.3.1, when a Retention Bond is provided by the Infracore to **tie** in accordance with clause 74.3.2;
- 74.4.2 in the case of the Retention Bond provided in accordance with clause 74.3.2, when a Retention Bond is provided by the Infracore to **tie** in accordance with clause 74.3.3;
- 74.4.3 in the case of the Retention Bond provided in accordance with clause 74.3.3, when a Retention Bond is provided by the Infracore to **tie** in accordance with clause 74.3.4;
- 74.4.4 in the case of the Retention Bond provided in accordance with clause 74.3.4, when a Retention Bond is provided by the Infracore to **tie** in accordance with clause 74.3.5;
- 74.4.5 in the case of the Retention Bond provided in accordance with clause 74.3.5, when a Retention Bond is provided by the Infracore to **tie** in accordance with clause 74.3.6;
- 74.4.6 in the case of the Retention Bond provided in accordance with clause 74.3.6, on issue of a Reliability Certificate.

74.5 In the event that the credit rating of the sureties providing the Retention Bond or the Performance Bond then in force falls to BBB+ or a lower rating by Standard & Poors, **tie** shall be entitled to request the Infraco to provide a replacement for such Retention Bond or Performance Bond (as appropriate), on identical terms to the Retention Bond or Performance Bond (as appropriate) being replaced, but provided by a surety with a credit rating by Standard & Poors of A- or higher and notified to **tie**. If **tie** does not respond to such notification within 2 Business Days, the surety is deemed to be approved.

74.6 Should the Infraco fail to provide a:

74.6.1 Retention Bond pursuant to Clause 74.5; or

74.6.2 Retention Bond in accordance with any of clauses 74.3.2 to 74.3.8; or

74.6.3 Retention Bond in accordance with Clause 74.3.1; or

74.6.4 Performance Bond in accordance with Clause 74.1; or

74.6.5 an extension of validity of any Retention Bond as per Clauses 74.3.7 or 74.3.8

such failure shall be a breach of this Agreement entitling **tie**, in the case of Clause 74.6.1 and 74.6.2, to:

74.6.6 call on the Retention Bond in force at the time of such failure by issuing a Demand Notice (as defined in the relevant Retention Bond); and

74.6.7 withhold payments due to the Infraco from **tie** under this Agreement, up to an amount equal to that amount which would have been stipulated under the relevant Retention Bond had the Infraco complied with its obligations to provide a Retention Bond under Clause 74.5 or any of Clauses 74.3.2 to 74.3.8 (as the case may be). Any sums withheld by **tie** from the Infraco pursuant to this Clause 74.6.6 will be returned by **tie** to the Infraco within 5 Business Days following compliance in full by the Infraco with its obligation to provide a Retention Bond pursuant to Clause 74.5 or any of Clauses 74.3.2 to 74.3.8 (as the case may be).

74.7 Notwithstanding the terms of the Retention Bond, any amount **tie** is entitled to demand under the Retention Bond in respect of:

74.7.1 failure by Infraco to perform or observe any of its duties and/or obligations arising under or in connection with this Agreement; and/or

74.7.2 breach of any provision of this Agreement;

will be reduced by an amount equal to the aggregate of all sums by which the Maximum Performance Payment has been reduced pursuant to the provisions of Schedule Part 6 (*Maintenance Payment Regime*) in respect of the failure or breach to which the demand under the Retention Bond relates.

74.8 NOT USED

74.9 As a Condition Precedent, the Infraco shall procure the execution and delivery to **tie**, of parent company guarantees, in the form set out in part D of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) and, if there is a Change in Control, the Infraco shall, subject to Clause 4.4 of Part D of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) procure the provision of a substitute parent company guarantee or credit enhancement instrument satisfactory to **tie** within 7 Business Days of **tie's** request.

74.10 Within thirty days of any written request from **tie** (or such longer period as the Parties, acting reasonably, may agree), the Infraco shall execute a collateral warranty (in the form set out in Part E of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) or, in respect of the EAL Works, in the form set out in Appendix 8 to Schedule Part 44 (*EAL Works*)) or where such form is not acceptable, in a different form which is acceptable to both Parties (acting reasonably) provided that for the avoidance of doubt Infraco shall not in any circumstances be required to provide a collateral warranty with provisions relating to liability which is greater than that set out in Part E of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) in favour of CEC, TEL and Network Rail, in respect of carrying out the Infraco Works and in favour of EAL in respect of carrying out the EAL Works.

75. WARRANTIES

75.1 Each Infraco Member hereby separately represents, warrants and undertakes to **tie** that to the best of its knowledge, information and belief:

75.1.1 the Infraco Member, the Infraco Member's Infraco Parties or any of their respective representatives or Affiliates or professional advisers or employees or anyone acting on behalf of any of them have not committed any Prohibited Act;

75.1.2 all information which has been given by the Infraco Member, the Infraco Member's Infraco Parties or any of their respective representatives or Affiliates or advisers or employees or anyone acting on behalf of any of them to any member, officer,

employee or adviser of **tie** was, when given true, complete and accurate in all material respects and there is no fact or matter not disclosed in writing to **tie** which:

75.1.2.1 renders any such information untrue, inaccurate or misleading; or

75.1.2.2 might, if disclosed, adversely affect the decision of anyone considering whether or not to contract with the Infraco;

75.1.3 NOT USED

75.1.4 neither the Infraco Member nor the Infraco Member's parent company is involved in any dispute with HM Revenue and Customs, the BundesFinanzAmt or LandesFinanzant, the European Commission, the Office of Fair Trading, or any other fiscal or regulatory authority in any jurisdiction concerning any matter which could materially and adversely affect the business of the Infraco Member or its ability to perform or the Infraco Works in any way;

75.1.5 the Infraco Member does not use any processes and is not engaged in any activities which involve the misuse of any confidential or proprietary information belonging to any third party;

75.1.6 no claim is presently being assessed and no litigation, arbitration or proceeding is in progress or, to the best of the knowledge and belief of the Infraco Member pending or threatened, against the Infraco Member or any of its management or assets which might have an adverse effect on the ability of the Infraco Member or the Infraco to perform the obligations in this Agreement;

75.1.7 there has been no material adverse change to the financial condition of the Infraco Member or the Infraco Member's parent company guarantor since the latest audited accounts prior to the Effective Date including any matter resulting in a downgrade of the Infraco Member's or the Infraco Member's parent company guarantor's credit rating with any commercially acknowledged independent rating agency reporting the construction sector in the UK or the Federal Republic of Germany; and

75.1.8 the performance of the Infraco Works does not create any situation in which a conflict of interest arises for the Infraco Member.

75.2 Each Infraco Member hereby represents, warrants and undertakes to **tie** to the best of its knowledge and belief that the Infraco's provision of any Deliverables and the use by **tie** of any

of the Deliverables provided to it as part of the Infraco Works has not infringed and shall not infringe any third party's Intellectual Property Rights;

75.3 Each of the warranties, representations and undertakings given under Clauses 75.1.1 to 75.2 shall be construed as a separate and independent warranty, representation and undertaking and shall not be limited or restricted by reference to or inference from any other terms of this Agreement.

75.4 The Infraco Member affected shall immediately disclose in writing to **tie** any event or circumstance which may arise or become known to it after the Effective Date which is materially inconsistent with any of the warranties, representations or undertakings given under Clauses 75.1.1 to 75.2 or which has or is likely to have a material adverse effect on the Infraco Works.

75.5 Each Infraco Member hereby separately represents, warrants and undertakes to **tie** that it:

75.5.1 is duly incorporated under the laws of England and Wales and has the power to own its own assets and carry on its own business; and

75.5.2 has full power and authority (and does not require the consent, authority or licence of any third party) to enter into and perform this Agreement which constitutes a valid and binding obligation on the Infraco in accordance with its terms; and

75.5.3 will not, by performing its obligations under this Agreement, be in breach of any undertaking, agreement or legal obligation of any nature in respect of any third party or of any applicable Law so as to have a material adverse effect on its ability to discharge its obligations under this Agreement;

76. REQUIRED INSURANCES

Required Insurances

76.1 Each Infraco Member shall, at its own cost, procure that each of the Required Insurances is taken out and comes into effect on the relevant date specified in each "Period of Insurance" set out in Part 1 of Schedule Part 11 (*Required Insurances*) and shall maintain the Required Insurances in full force and effect until the relevant date specified in each "Period of Insurance" set out in Part 1 of Schedule Part 11 (*Required Insurances*), provided that each such Required Insurance is available in the EU insurance market at commercially reasonable rates and on commercially reasonable terms to contractors of the same status as at the Effective Date and discipline as the Infraco Members.

- 76.2 Each Infraco Member shall procure that all Required Insurances shall:
- 76.2.1 be maintained in accordance with Part 1 of Schedule Part 11 (*Required Insurances*);
and
- 76.2.2 be placed at all times with insurers authorised to carry out insurance business in the United Kingdom and confirmed in writing as acceptable by **tie** (such written acceptance not to be unreasonably withheld or delayed).
- 76.3 Neither Infraco Member shall make any material alteration to the terms of the Required Insurances (including material changes to the level of deductibles) without **tie's** prior approval (which approval shall not be unreasonably withheld). If any such material alteration to the Required Insurances is made, the Infraco shall complete the questionnaire set out in Part 3 of Schedule Part 11 (*Required Insurances*), duly endorsed by its insurance broker. If the insurer makes or attempts to make any material alteration or purports to withdraw cover, the Infraco Member shall promptly give notice of this to **tie**.
- 76.4 Each Infraco Member shall ensure that each of its insurance brokers gives **tie** as soon as reasonably practicable after any policy of Required Insurance is taken out, replaced or renewed, a letter of undertaking in the form set out in part 2 of Schedule Part 11 (*Required Insurances*).
- 76.5 Each Infraco Member shall provide satisfactory evidence to **tie** that the Required Insurances have been effected. Thereafter, each Infraco Member shall upon request produce to **tie** receipts for the payment of current insurance premiums or equivalent documentary evidence to confirm that such Required Insurances are being properly maintained, and on the anniversary of the Effective Date and on each subsequent anniversary thereof until the date of expiry or earlier termination, each Infraco Member shall complete an insurance questionnaire set out in part 3 of Schedule Part 11 (*Required Insurances*) in relation to the Required Insurances to be taken out by the Infraco and submit such completed questionnaire to **tie** as soon as reasonably practicable. If an Infraco Member defaults in insuring or continuing to maintain the Required Insurances, **tie** may insure against any risk in respect of which such default has occurred and recover any premiums from the Infraco as a debt immediately due and payable.
- 76.6 Each Infraco Member shall:
- 76.6.1 procure that the Required Insurances contain a waiver of subrogation against **tie**, any **tie** Party and the named insured parties as set out in part 1 of Schedule Part 11 (*Required Insurances*) save in respect of fraud or deliberate non-disclosure; and

- 76.6.2 where an Infraco Member is obliged to effect any Required Insurances, not bring any claim or action against **tie** (or any **tie** Party), in respect of any losses, damages, liabilities, costs, expenses and charges in circumstances where and to the extent that an Infraco Member could recover such losses, damages, costs, expenses and charges under such insurance, provided that, to avoid doubt, this Clause 76.6.2 shall not by itself prevent an Infraco Member from claiming against **tie** (or any **tie** Party) in respect of a breach of this Agreement by **tie** or any **tie** Party for any losses, damages, costs, expenses and charges arising from such breach not covered because of the level of deductibles under such insurance permitted by this Agreement or to the extent of such losses, damages, costs, expenses and charges exceeds the greater of the insurance placed or the minimum limit of indemnity required in respect of such insurance under part 1 of Schedule Part 11 (*Required Insurances*).
- 76.7 Neither Infraco Member shall take any action or fail to take any action or (insofar as it is reasonably within its power) permit or allow others to take or fail to take any action (in either case including failure to disclose any fact) as a result of which any of the Required Insurances may be rendered void, voidable, unenforceable, suspended or impaired in whole or in part or which may otherwise render any sum paid out under any relevant policy repayable in whole or in part.
- 76.8 The supply to **tie** of any insurance policy or insurance certificate or renewal certificate or other evidence of compliance with this Clause 76 (*Required Insurances*) shall not imply, or be taken as, acceptance by **tie** that:
- 76.8.1 the extent of insurance cover is sufficient and its terms are satisfactory; or
- 76.8.2 in respect of any interests or parties not insured or any risks not insured against, an acceptance by **tie** that the same were uninsurable.
- 76.9 Neither failure to comply nor full compliance with the provisions of this Clause 76 (*Required Insurances*) shall relieve the Infraco Members of their liabilities and obligations under this Agreement.
- 76.10 Each Infraco Member shall apply any proceeds of any policies of insurance maintained in accordance with part 1 of Schedule Part 11 (*Required Insurances*) in satisfaction of the claim, demand, proceeding or liability in respect of which such proceeds are payable (unless already paid direct to the third party or employee by the insurer).
- 76.11 Each Infraco Member undertakes with **tie** in relation to the Required Insurances:

76.11.1 to comply with all requirements of the insurers; and

76.11.2 to give notice to **tie** immediately upon the happening of any event which will adversely affect any policy of insurance effected in accordance with this Clause 76 (*Required Insurances*), including the downgrading of the credit rating to A- or lower by Standard & Poors of any party providing any of the Required Insurances.

76.12 Save in relation to the Tram Supply Agreement and/or the Tram Maintenance Agreement in which cases Clause 76.12.1 will apply, the Infraco Members shall immediately inform **tie** in writing if any of the Required Insurances cease to be maintained and/or cease to be available in the EU insurance market at commercially reasonable rates and on commercially reasonable terms to contractors of the same status as at the Effective Date, and discipline as the Infraco Members. In this event, the Parties shall meet to discuss the means by which any risks previously covered by the Required Insurances should be managed, mitigated or controlled. Any increased or additional premium required by insurers by reason of the Infraco's own claims record or other acts, omissions, matters or things particular to the Infraco Members shall be deemed to be within commercially reasonable rates and terms.

76.12.1 In relation to the Tram Supply Agreement and/or the Tram Maintenance Agreement, the Infraco shall immediately inform **tie** in writing if any of the Required Insurances cease to be maintained and/or cease to be available in the EU insurance market at commercially reasonable rates provided that if the Infraco is procuring that the Tram Supplier and/or the Tram Maintainer (as appropriate) is maintaining such insurance at such rates, **tie** shall undertake in writing to reimburse the Infraco in respect of half of the net cost of such insurance to the Tram Supplier and/or the Tram Maintainer (as appropriate) above commercially reasonable rates. If **tie** undertakes in writing to reimburse the Infraco in respect of half of the net cost of such insurance to the Tram Supplier and/or the Tram Maintainer (as appropriate) above commercially reasonable rates or, if the Infraco procures that the Tram Supplier or Tram Maintainer (as appropriate) effects such insurance at or above commercially reasonable rates, the Infraco shall reimburse **tie** in respect of what the net cost of such insurance to the Tram Supplier or Tram Maintainer (as appropriate) would have been at commercially reasonable rates and terms, and the cost of maintaining any such insurance at rates above commercially reasonable rates by the Tram Supplier or Tram Maintainer (as appropriate) or by the Infraco shall be borne in equal proportions by the Infraco and **tie**.

76.13 Save in relation to the Tram Supply Agreement and/or the Tram Maintenance Agreement in which cases Clause 76.12.1 will apply, each Infraco Member shall fully co-operate with any measures reasonably required by **tie**, including (without limitation) completing any proposals for insurance and associated documents or maintaining such insurance at rates above commercially reasonable rates provided that if the Infraco Members are maintaining such insurance at such rates, **tie** shall pay to the Infraco Members the sum which is half of the additional cost to Infraco Members of maintaining such insurance above commercially reasonable rates.

76.13.1 Infraco shall procure that the Tram Supplier and/or the Tram Maintainer shall, fully co-operate with any measures reasonably required by **tie**, including (without limitation) completing any proposals for insurance and associated documents or maintaining such insurance at rates above commercially reasonable rates if **tie** undertakes in writing to reimburse the Infraco in respect of the net cost of such insurance to the Tram Supplier and/or the Tram Maintainer (as appropriate) above commercially reasonable rates or, if the Infraco procures that the Tram Supplier or Tram Maintainer (as appropriate) effects such insurance at or above commercially reasonable rates, reimbursing the Infraco in respect of what the net cost of such insurance to the Tram Supplier or Tram Maintainer (as appropriate) would have been at commercially reasonable rates and terms.

OCIP Insurances

76.14 The Infraco acknowledges that **tie** has taken out the OCIP Insurances and agrees to comply with the requirements of the insurers with whom the OCIP Insurances are placed and Infraco acknowledges that it is on notice of the form and content of OCIP Insurances. The Infraco agrees that it will intimate to **tie** any act, occurrence or failure which may:

76.14.1 lead to any claim being made under the OCIP Insurances; or

76.14.2 render any of the OCIP Insurances void, voidable, unenforceable, suspended or impaired in whole or in part or which may otherwise render any sum paid out under any relevant policy repayable in whole or in part.

76.15 The Parties shall not take any action or fail to take any reasonable action or (insofar as it is reasonably within its power) permit or allow others to take or fail to take any action (including, in either case, failure to disclose any fact) as a result of which any of the OCIP Insurances may be rendered void, voidable, unenforceable, suspended or impaired in whole or

in part or which may otherwise render any sum paid out under any relevant policy repayable in whole or in part.

- 76.16 Subject to Clause 76.19A, the Infraco shall bear all excesses and deductibles payable in respect of claims made under the OCIP Insurances and the Additional Insurances where any claim arising is due solely to the breach of this Agreement by the Infraco or negligent act or negligent omission of the Infraco or any of the Infraco Parties.
- 76.17 Subject to Clause 76.19A **tie** shall bear all excesses and deductibles payable in respect of claims made under the OCIP Insurances and the Additional Insurances where any claim arising is due solely to the breach of this Agreement by **tie** or negligent act or negligent omission of **tie** and from the date of issue of the Certificate of Service Commencement **tie** shall bear all excesses and deductibles relating to claims under the OCIP and Additional Insurances where such claims do not fall under Clause 76.16. Where **tie** is responsible for such excess and deductibles, **tie** shall pay to the Infraco the amount of any such applicable excess or deductible claimed by the Infraco in accordance with Clause 67 (*Payment in Respect of Applications for Milestone Payments*) or Clause 68 (*Payment in Respect of Maintenance Services*), as appropriate.
- 76.18 Subject to Clause 76.19A, 76.19B and 76.19C **tie** and the Infraco shall be responsible (but only up to the date of the Certificate of Sectional Completion for each Section in respect of Infrastructure Maintenance Services) for bearing all excesses and deductibles payable in equal proportions in respect of claims made under the OCIP Insurances and the Additional Insurances where any claim arising does not fall under Clauses 76.16 or 76.17. **tie** shall pay to the Infraco the amount of any such applicable excess or deductible claimed by the Infraco in accordance with Clause 67 (*Payment in Respect of Applications for Milestone Payments*) or Clause 68 (*Payment in Respect of Maintenance Services*).
- 76.19 **tie** shall maintain at its own cost the OCIP Insurances in full force and effect during the Term. If **tie** fails to maintain or makes any material alteration to the terms (including the level of deductibles) of the OCIP Insurances (or equivalent insurances) at any time during the Term, **tie** shall be responsible for funding replacement or reinstatement of the Infraco Works to the extent that such failure or alteration prevents or reduces the available insurance proceeds which would have otherwise been recoverable through a claim on the OCIP Insurances so as to fund the reinstatement and Infraco shall be relieved of any obligations regarding reinstatement until **tie** provides such funding.

76.19A If **tie** alters the OCIP Insurances so that the level of deductibles is increased under such insurance, **tie** shall in respect of any claim pay for and be responsible for any difference in the excess or deductibles arising from such alteration irrespective of the cause of the claim.

76.19B Where any excesses or deductibles occur as a result of a claim arising due to the breaches or negligent acts or omissions of both Parties, the Parties shall bear such excesses and deductibles in such portions as shall be fair and equitable in all the circumstances, including the extent to which the Parties' breaches or negligent acts or omissions contributed to such claim.

76.19C **tie** shall be liable for payment of any deductible under the OCIP Insurance and the Additional Insurance where claims are made in respect of acts of vandalism whilst Trams are stationed in the Depot or where being used for testing other than whilst under responsibility of the Tram Supplier. Upon the issue of the relevant Tram Commissioning Certificate, **tie** shall be responsible for all deductibles in respect of each Tram and Tram Related Equipment save where the claim arises from the breach of this Agreement or by negligence of the Infraco.

Additional Insurance

76.20 **tie** may ask the Infraco to take out and maintain any annual insurance from time to time in the names of the parties reasonably requested by **tie** (the "**Additional Insurance**"). If Additional Insurance is required, the terms of this Clause 76 (*Required Insurances*) including the provisions which are stated to apply to the "Required Insurances" shall apply with any appropriate adjustment to be agreed between the Parties. The Infraco shall, subject to Clause 76.23, procure that any Additional Insurance shall:

76.20.1 (if **tie** so requires) contain a provision that **tie** and/or any other party reasonably requested by **tie** is named as a co-insured party;

76.20.2 provide that any Additional Insurance shall continue in effect and unaltered for the benefit of the insured parties for at least ninety days after written notice by registered mail of any cancellation (including non-renewal), change, modification or lapse for any reason;

76.20.3 contain a provision that requires the insurer to send copies of all notices of cancellation or alteration or suspension or any other notices given under or in relation to the policy to **tie** promptly upon receiving any notices of cancellation or alteration or suspension or any other notices;

- 76.20.4 contain a provision that a notice of a claim given to the insurer by one of the insured parties under the policy shall, in the absence of manifest error, be accepted by the insurer as valid notification of a claim in respect of the interests of all insured parties;
- 76.20.5 contain a provision to the effect (on the basis of non-vitiation/severability) that all the provisions of any Additional Insurance shall operate as if there were a separate policy in effect (save in respect of the sums insured, limits of liability and excesses/deductibles which shall be at the levels stated) for each named insured and that non-compliance with any policy term, condition or warranty and/or misrepresentation or non disclosure of material information by the Infraco or any other co-insured will not affect the rights and/or interests of any co-insured party under any policies effected as Additional Insurance; and
- 76.20.6 ensure that the Additional Insurances are primary, and shall not be brought into contribution with any other policy or policies effected by or on behalf of any of the insured parties,
- 76.21 The Infraco shall supply **tie** with copies of every policy document, insurance certificate and renewal certificate relating to any Additional Insurance (or such other evidence of insurances as may be reasonably required by **tie**) and documentary evidence to the effect that the Required Insurances (other than any Additional Insurance) have been taken out and are being maintained as soon as it is available but in any event no later than 7 days (in respect of certificates) and sixty days (in respect of policies) after the inception of the relevant policies, together with evidence of payment of the premiums and any periodic renewal certificates.
- 76.22 The Infraco shall inform **tie** in writing as soon as reasonably practicable after it receives a claim or becomes aware of the occurrence of any event that may give rise to a claim under any Required Insurance (if related to the Edinburgh Tram Network) or Additional Insurance and will ensure that **tie** is kept fully informed of subsequent action and developments concerning the claim; such written information shall not be required in relation to any claim of less than £50,000 (as Indexed). The Infraco shall take such steps as are necessary or appropriate to ensure that each Infraco Party, in respect of any event or claim of a like nature arising out of or relating to the operation or responsibility of that Infraco Party, or any event or claim of which they become aware, takes in relation to the Infraco like action to that which the Infraco is required to take under this Clause 76.22 in relation to **tie**, and shall inform **tie** promptly of information thus received from any Infraco Party.
- 76.23 At each anniversary of the Effective Date, the Infraco shall provide **tie** with a summary of all claims made under the Required Insurances, where such claims arise out of this Agreement.

Such summary shall include date, circumstances, status and amounts paid and outstanding on each claim.

- 76.24 Without prejudice to any other provision of this Agreement, the Infraco undertakes to the extent it has the right to do so under the relevant policy that it will not (and that each of the Infraco Parties to the extent each respectively has the right to do so under the relevant policy will not) settle any OCIP Insurance or Additional Insurance claim above £50,000 (as Indexed) without the prior written agreement of **tie** (such agreement not to be unreasonably withheld or delayed).
- 76.25 The Infraco shall promptly inform **tie** in writing if any of the Additional Insurances cease to be maintained and/or cease to be available in the EU insurance market at commercially reasonable rates and on commercially reasonable terms to contractors of the same status, as at the date of **tie's** request to Infraco that it takes out the Additional Insurance, and discipline as the Infraco. In this event, the Parties shall meet to discuss the means by which any risks previously covered by the Additional Insurances should be managed, mitigated or controlled and any agreement shall be a **tie** Change. Any increased or additional premium required by insurers by reason of the Infraco's own claims record or other acts, omissions, matters or things particular to the Infraco shall be deemed to be within commercially reasonable rates and terms.
- 76.26 Any request from **tie** that Infraco maintains Additional Insurance shall be a Mandatory **tie** Change. Nothing in this Clause 76 shall oblige Infraco to maintain Additional Insurances on terms which are not available in the EU insurance market.
- 76.27 All insurance proceeds received under OCIP Insurance in respect of physical damage shall be applied to repair, reinstate and replace each part or parts of the Infraco Works in respect of which the proceeds were received. Subject to Clause 76.29, if such proceeds are recovered by **tie**, **tie** shall pay to Infraco the monies recovered, within 5 Business Days of receipt of such monies from the Insurers
- 76.28 Where a claim is made or proceeds of insurance are received or are receivable by **tie** under any OCIP Insurance in respect of physical damage and in respect of a single event (or a series of related events) in an amount in excess of £100,000:
- 76.28.1 the Infraco shall deliver as soon as practicable and in any event within 15 Business Days after the making of the claim a plan prepared by the Infraco for the carrying out of the works necessary ("**Reinstatement Works**") to repair, reinstate or replace ("**Reinstatement Plan**") the Infraco Works which are the subject of the relevant claim

or claims in accordance with Clause 76.27. The Reinstatement Plan shall set out the proposed terms and timetable upon which the Reinstatement Works are to be effected, the final terms of which shall be subject to the prior written approval of **tie**, which approval shall not be unreasonably delayed;

76.28.2 provided that **tie** is satisfied that the Reinstatement Plan will enable the Infraco to comply with Clause 76.27 within a reasonable timescale:

76.28.2.1 the Reinstatement Plan will be adopted;

76.28.2.2 the Infraco shall enter into the contractual arrangement to effect the Reinstatement Works;

76.28.2.3 **tie** agrees and undertakes that, subject to compliance by the Infraco with its obligations under this Clause, and provided that the Infraco procures that the Reinstatement Works are carried out and completed in accordance with the contractual arrangements referred to in Clause 76.28.2.2, it shall not exercise any right which it might otherwise have to terminate this Agreement;

76.28.2.4 **tie** undertakes to use reasonable endeavours to assist the Infraco in the carrying out of the Reinstatement Plan; and

76.29 Where insurance proceeds are to be used, in accordance with this Agreement, to repair, reinstate or replace the Infraco Works, the Infraco shall carry out the work in accordance with the Employer's Requirements so that on completion of the work, the provisions of the Agreement are complied with, unless the Infraco is otherwise instructed pursuant to a **tie** Change in which case **tie** shall retain the insurance proceeds.

76.30 Where the proper and reasonable costs of carrying out Reinstatement Works exceed the insured amount under the OCIP Insurances **tie** shall pay such excess to Infraco in accordance with Clause 67 (Payment in respect of Application for Milestone Payments) or Clause 68 (Payments in respect of Maintenance Services).

77. INDEMNITY BY INFRACO, LIABILITY AND SOLE REMEDY

77.1 Subject to Clauses 77.2, 77.3, 77.7 and 77.8, the Infraco shall indemnify **tie**, CEC and their respective officers, agents and employees ("**Indemnified Parties**") from and against any and all claims, suits, losses, liabilities damages, penalties, fines, forfeitures, and the costs and expenses incident thereto (including without limitation any legal costs of defence) which any

of the Indemnified Parties may hereafter incur, become responsible for, or pay out as a result of:

77.1.1 any of the Infraco's or any Infraco Party's negligent or wilful acts, or negligent or wilful omissions in the performance of the Infraco Works; and/or

77.1.2 breach by Infraco of any term or provision of this Agreement including any Law.

Such claims, suits, losses, liabilities damages, penalties, fines, forfeitures, and the costs and expenses shall include such claims, suits, losses, liabilities damages, penalties, fines, forfeitures, and the costs and expenses in respect of:

- (a) death or injury to any person;
- (b) loss of or damage to any property (up to OCIP cover level);
- (c) loss of or damage to any part of the Infraco Works (up to OCIP cover level);
- (d) causing **tie** and/or CEC to be in breach of any Law; or
- (e) causing **tie** and/or CEC to be in breach of any of the DPOFA, the Tram Inspector Agreement, the Third Party Obligations and any other undertakings which have been given by **tie** and/or CEC to any third party and which have been notified to the Infraco in writing either (i) prior to the Effective Date; or (ii) at any time as a **tie** Change;
- (f) a breach by Infraco of its obligations under Clause 18 (Land Consent, Permanent Land and Temporary Sites);
- (g) causing **tie** and/or CEC to be in breach of any Land Consent relating to the Permanent Land or the Temporary Land; or
- (h) infringement or alleged infringement of a third party's Intellectual Property Rights; or

For the avoidance of doubt, Infraco shall not be liable to indemnify the Indemnified Parties in respect of any claim arising from or in connection with a third party agreement or undertaking the terms of which had not been notified to the Infraco in writing prior to the Effective Date.

77.2 The exception referred to in Clauses 24.5, 49.2 and 77.1, which is the responsibility of **tie**, is death of, or injury to, persons or loss of or damage to property resulting from any act, omission, neglect, or breach of statutory duty by the Indemnified Parties or other contractors (not being employed by the Infraco or any Infraco Party) or for or in respect of any claims,

suits, losses, liabilities, damages, penalties, fines, forfeitures, and the costs and expenses, demands, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto.

77.3 The Infraco's liability to indemnify the Indemnified Parties under Clause 77.1 shall be reduced in proportion to the extent that the act, omission, neglect, or breach of statutory duty of the Indemnified Party or other contractors (not being the Infraco or any Infraco Party) may have contributed to the said death, injury, loss or damage.

77.4 Subject to Clause 78 and to the extent such liability is not insured under OCIP, the Required Insurances or the Additional Insurances, **tie** shall indemnify the Infraco against claims which arise as an unavoidable consequence of the Infraco carrying out the Infraco Works pursuant to and in full compliance with this Agreement.

77.5 The Infraco shall not be relieved of any liability under Clause 77.1 by reason of:

77.5.1 any approvals, comments, instructions, consents, attendance at meetings relating to the Infraco Works or advice from **tie** or Network Rail; or

77.5.2 the fact that any act or thing may have been done by **tie** or Network Rail themselves on behalf of the Infraco and/or in accordance with any requirement stipulated by **tie** or Network Rail.

77.6 Nothing in this Agreement shall exclude or limit the liability:

77.6.1 of either Party for:

77.6.1.1 death or personal injury caused by that Party's negligence or the negligence of anyone for whom that Party is vicariously liable; or

77.6.1.2 fraud or fraudulent misrepresentation;

77.6.2 NOT USED

provided that nothing in this Clause 77.6 shall confer on either Party rights or remedies that they would not otherwise have.

77.7 Notwithstanding anything to the contrary contained in this Agreement and/or the Retention Bond and the Performance Bond, the liability of the Infraco under or in connection with this Agreement or as a consequence of termination of this Agreement whether in contract or delict, in negligence, for breach of statutory duty or otherwise (including, for the avoidance of

doubt, pursuant to any indemnity) shall (other than in respect of personal injury or death) when aggregated with:

- (i) payments (if any) made by the Guarantors (or either of them) to ~~tie~~ under the Parent Company Guarantees; and
- (ii) payments (if any) made to CEC, Network Rail, EAL and TEL under the collateral warranties or any other collateral warranty granted by Infracore in accordance with this Agreement,
- (iii) the total amount of deductions (stated as a positive amount) applied to the Maintenance Contract Price in accordance with Schedule Part 6 (*Maintenance Payment Regime*),

be limited to the Liability Cap provided always that the calculation of the quantum of such limitation

77.7.1 shall exclude the proceeds of the Retention Bond and the Performance Bond and any cash retention or proceeds of any bond provided pursuant to Clauses 96 ;and

77.7.2 shall exclude amounts paid to the Infracore under the OCIP Insurances, and/or any Additional Insurances;

77.7.3 does not relate to liabilities which are covered by the proceeds of the Required Insurances or would have been so covered had the Infracore complied with its obligations under this Agreement; and

77.7.4 does not relate to liabilities which would have been covered by the proceeds of the Required Insurances, the OCIP Insurances and/or any Additional Insurances but for the application of any deductible under such Required Insurances, the OCIP Insurances and/or any Additional Insurances.

77.8 Subject to Clause 77.6 and Clause 77.4 and save for payments expressly agreed as payable pursuant to Clause 88.8, neither Party shall be entitled to claim damages or loss (i) for breach of this Agreement (ii) in delict (including negligence), (iii) for breach of statutory duty or (iv) on any other basis whatsoever (including, for the avoidance of doubt pursuant to any indemnity) to the extent that such damages or loss claimed by that Party are for Indirect Losses suffered by that Party, any of the Indemnified Parties or an Infracore Party, as the case may be, provided that nothing in this Clause 77.8 shall affect either Party's liability to the other Party or to any of the Indemnified Parties, in respect of any claim, action, proceedings or

demand against such other Party or any of the Indemnified Parties by a third party in connection with any Indirect Losses suffered by that third party, save that the Infraco shall have no liability with regard to uninsured third party economic and consequential loss, except as provided specifically pursuant to Schedule Part 43 (*Reserve Account*). **tie** shall take responsibility for any claim made for uninsured third party economic and consequential loss against **tie** and the Indemnified Parties or made against the Infraco and the provisions of Schedule Part 43 (*Reserve Account*) shall apply.

- 77.9 The Infraco shall not be relieved or excused of any responsibility, liability or obligation under this Agreement by the appointment of any Infraco Party. The Infraco shall be responsible for the selection, performance, acts, defaults, omissions, breaches, delict and offences of any Infraco Party. All references in this Agreement to any act, default, omission, breach, delict or offence of the Infraco shall be construed to include any such act, default, omission, breach or delict of any Infraco Party.
- 77.10 The Parties acknowledge and agree that the only rights available to them to terminate this Agreement are those expressly set out in this Agreement and that neither Party shall be entitled to exercise a right to terminate or rescind or accept the repudiation of this Agreement under any other right whether arising in common law or statute or otherwise howsoever (other than for fraud or a fraudulent misrepresentation).
- 77.11 Both Parties acknowledge and agree that the express rights provided in this Agreement in relation to termination and the calculation and payment of amounts due following such termination are exclusive and are in place of (and not cumulative with) any other rights or remedies which might arise as a consequence of such termination or expiry. Each Party hereby waives all other rights and remedies arising from such termination, whether express or implied, arising by common law (including in delict), by statute or otherwise howsoever provided that nothing in this Clause 77.11 exclude the right of either Party to claim remedies expressly conferred on them by this Agreement.
- 77.12 Except in respect of usable material necessarily generated from the Permanent Land in the carrying out and completion of the Infraco Works or where otherwise stated in this Agreement the Infraco shall pay all tonnage and other royalties rent and other payments or compensation (if any) for getting stone sand, gravel, clay or other materials required for the Infraco Works.

Criminal Liability

- 77.13 Where the act or default of the Infraco or of any Infraco Parties, causes **tie** to commit an offence, the Infraco shall immediately take any measure necessary to ensure that that act or default, no longer causes **tie** to commit that offence.
- 77.14 Where **tie** reasonably suspects that such an act or default is about to take place and it reasonably believes that this will result in **tie** committing an offence, **tie** may issue an instruction to the Infraco to remedy the act or default forthwith and the Infraco shall comply with the said instruction.

Latent Defects Liability

- 77.15 Save in respect of any claims notified in writing to the Infraco by **tie** and in respect of which **tie** has invoked Clause 97 (*Dispute Resolution Procedure*) no later than 3 months after the expiry of the period of 12 years from the issue of the Reliability Certificate, the Parties agree that Infraco shall have no liability and no actions or proceedings shall be commenced against Infraco or either of the Infraco Members in respect of any latent defects in the Infraco Works after the period of 12 years from the issue of the Reliability Certificate.

78. CONDUCT OF CLAIMS

- 78.1 Subject always to the requirements of the Required Insurances, the OCIP Insurances and/or any Additional Insurance:
- 78.1.1 if **tie** receives any notice, demand, letter or other document concerning any claim from which it appears that **tie** is or may become entitled to indemnification under this Agreement ("**Claim**"), **tie** shall notify the Infraco as soon as reasonably practicable and shall supply a copy of the relevant Claim to the Infraco.
- 78.1.2 where it appears that **tie** is, or may become, entitled to indemnification from the Infraco in respect of the liability arising out of the act or omission which is the subject of the Claim, the Infraco shall take conduct of any defence, dispute, compromise or appeal of the Claim and of any incidental negotiations and shall be entitled to resist the Claim in the name of **tie** and **tie** will give the Infraco all reasonable co-operation, access and assistance for the purposes of considering and resisting such Claim.
- 78.2 In relation to any Claim subject to Clause 78.1.2:

- 78.2.1 the Infraco shall keep **tie** fully informed and consult with it about material elements of the conduct of the Claim;
- 78.2.2 the Infraco shall not bring the name of **tie** into disrepute; and
- 78.2.3 the Infraco shall not pay or settle such Claims without the prior written consent of **tie**, such consent not to be unreasonably withheld or delayed.
- 78.3 **tie** shall be free to take steps in the proceedings, pay or settle any Claim on such terms as it thinks fit (and without prejudice to its rights and remedies under this Agreement) if the Infraco fails to notify **tie** of its intention to conduct the relevant Claim within 20 Business Days of the notice from **tie** under Clause 78.1.1 above or the Infraco notifies **tie** that it does not intend to take conduct of the Claim.
- 78.4 NOT USED
- 78.5 If, in controlling and contesting any Claim, **tie** takes or fails to take any action in relation to such Claim which it might reasonably be expected to take or not take (as the case may be) which terminates or reduces any entitlement of the Infraco to recover any part of the Claim from any insurer under any of the Required Insurances, the OCIP Insurances and/or any Additional Insurance, the liability of the Infraco to indemnify **tie** in respect of such Claim shall be reduced by an amount equal to such part or, as the case may be, the amount of the reduction thereof (except in the case where **tie** could not reasonably have been expected to have known that the Infraco's entitlement could be so terminated or reduced).
- 78.6 If the Infraco pays to **tie** an amount in respect of an indemnity and **tie** subsequently recovers (whether by payment, discount, credit, saving, relief, other benefit or otherwise) a sum which is directly referable to the fact, matter, event or circumstances giving rise to the Claim, **tie** shall forthwith repay to the Infraco whichever is the lesser of:
- 78.6.1 an amount equal to the sum recovered (or the value of the saving or benefit obtained) less any out-of-pocket costs and expenses properly incurred by **tie** in recovering the same; and
- 78.6.2 the amount paid to **tie** by the Infraco in respect of the Claim under the relevant indemnity;
- provided that **tie** shall use reasonable endeavours to pursue such recovery and provided further that the Infraco shall be repaid only to the extent that the amount of such recovery aggregated

with any sum recovered from the Infraco exceeds any loss sustained by **tie** in respect of the Claim.

- 78.7 In the event that the Infraco is entitled to be indemnified by **tie** pursuant to Clause 77.4 in respect of a claim, the provisions of Clause 78.1, 78.2, 78.5 and 78.6 shall apply as if references to "**tie**" were references to "Infraco" and vice versa.

PART 15 - CHANGES

79. MANAGEMENT OF VARIATIONS

- 79.1 Any variations proposed to the Infraco Works shall be dealt with as follows:

79.1.1 **tie** Changes shall be dealt with in accordance with Clause 80 (*tie Changes*);

79.1.2 Infraco Changes shall be dealt with in accordance with Clause 81 (*Infraco Changes*);

79.1.3 Small Works Changes shall be dealt with in accordance with Clause 82 (*Small Works Changes*);

79.1.4 Accommodation Works Changes shall be dealt with in accordance with Clause 83 (*Accommodation Works Changes*);

79.1.5 Qualifying Changes in Law shall be dealt with in accordance Clause 84 (*Qualifying Changes in Law*);

79.1.6 Network Expansions shall be dealt with in accordance with Clause 86 (*Network Expansions*);

79.1.7 Labour tax and landfill tax fluctuations shall be dealt with in accordance with Clause 71 (*Labour Tax and Landfill Tax Fluctuations*); and

79.1.8 where applicable, Schedule Part 4 (*Pricing*).

- 79.2 The Infraco shall maintain a change control register which shall detail the status and give summary information on all withdrawn, pending and confirmed variations under this Agreement. The Infraco shall provide a copy of the change control register to **tie** and the Infraco shall provide updates of the change control register to **tie** every Reporting Period.

- 79.3 No variation ordered in accordance with this Agreement shall in any way vitiate or invalidate this Agreement.

80. TIE CHANGES

80.1 Unless expressly stated in this Agreement or as may otherwise be agreed by the Parties, **tie** Changes shall be dealt with in accordance with this Clause 80 (*tie Changes*). If **tie** requires a **tie** Change, it must serve a **tie** Notice of Change on the Infraco.

80.2 A **tie** Notice of Change shall:

80.2.1 set out the proposed **tie** Change in sufficient detail to enable the Infraco to calculate and provide the Estimate in accordance with Clause 80.4 below;

80.2.2 subject to Clause 80.3, require the Infraco to provide **tie** within 18 Business Days of receipt of the **tie** Notice of Change with an Estimate, and specify whether any competitive quotes are required and;

80.2.3 set out how **tie** wishes to pay (where relevant) for the proposed **tie** Change.

80.2.4 set out any changes which **tie** believe are required to the terms of this Agreement and/or the SDS Contract to give effect to the proposed **tie** Change

80.3 If, on receipt of the **tie** Notice of Change, the Infraco considers (acting reasonably) that the Estimate required is too complex to be completed and returned to **tie** within 18 Business Days, then the Infraco shall, within 5 Business Days (during the period prior to issue of the Reliability Certificate) and within 10 Business Days (at any time after issue of the Reliability Certificate) of receipt of such **tie** Notice of Change, deliver to **tie** a request for a reasonable extended period of time for return of the Estimate, such extended period to be agreed by the Parties, both acting reasonably.

80.4 As soon as reasonably practicable, and in any event within 18 Business Days after having received a **tie** Notice of Change (or such longer period as may have been agreed by the Parties, pursuant to Clause 80.3 or as required by Clause 80.11), the Infraco shall deliver to **tie** the Estimate. The Estimate shall include the opinion of the Infraco (acting reasonably) in all cases on:

80.4.1 whether relief from compliance with any of its obligations under this Agreement is required during or as a result of the implementation of the proposed **tie** Change;

80.4.2 any impact on the performance of the Infraco Works and the performance of the Edinburgh Tram Network;

80.4.3 any impact on the Programme and any requirement for an extension of time;

- 80.4.4 any Consents, Land Consents and/or Traffic Regulation Orders (and/ or any amendment or revision required to existing Consents, Land Consents and/ or Traffic Regulation Orders) which are required in order to implement or as a result of the implementation of the proposed **tie** Change and any update of the Consents Programme which will be required as a result;
 - 80.4.5 any new agreements with third parties which may be required to implement the **tie** Change;
 - 80.4.6 any amendment required to the Agreement or the Key Subcontracts as a result of the implementation of the proposed **tie** Change;
 - 80.4.7 the proposed method of delivery of the proposed **tie** Change;
 - 80.4.8 proposals to mitigate the impact of the proposed **tie** Change;
 - 80.4.9 confirmation of the changes to the terms of this Agreement and/or the SDS Contract proposed by **tie** and any further changes the terms of this Agreement and/or the SDS Contract necessary to give effect to the proposed **tie** Change; and
 - 80.4.10 any increase or decrease in any sums due to be paid to the Infraco under this Agreement (including the value of any Milestone Payments and the scheduling of such Milestone Payments) in order to implement, and as a direct consequence of implementation of, the **tie** Change, such increase or, decrease to be calculated in accordance with this Clause 80.
- 80.5 Where the **tie** Change, in the opinion of the Infraco acting reasonably, impacts the ability to deliver the Maintenance Services in accordance with Clause 52 (Maintenance) the Estimate delivered pursuant to Clause 80.4 shall include any net increase or decrease in:
- 80.5.1 in the case of demonstrable impact (taking into account any impact of previously implemented **tie** or Infraco Changes) on routine maintenance activity:
 - 80.5.1.1 the consequential change in labour resources and management time required for each affected maintenance element of the Infraco Works; and
 - 80.5.1.2 the consequential change in materials, plant and equipment required; or
 - 80.5.2 in the case of demonstrable impact (taking into account any impact of previously implemented **tie** or Infraco Changes) on renewals maintenance activity:

80.5.2.1 the scope of required renewals work or services and frequency of renewals;

80.5.2.2 the resulting change in labour resources and management time required for the renewal work; and

80.5.2.3 the resulting change in materials and plant and equipment (if any) used to effect the renewals.

80.6 The valuation of any **tie** Changes made in compliance with this Clause 80 (*tie Changes*) shall be carried out as follows:

80.6.1 by measurement and valuation at the rates and prices for similar work in Appendix F to Schedule Part 4 (*Pricing*) or Schedule Part 7 (*Maintenance Contract Price Analysis*) as the case may be in so far as such rates and prices apply;

80.6.2 if such rates and prices do not apply, by measurement and valuation at rates and prices deduced therefrom insofar as it is practical to do so;

80.6.3 if such rates and prices do not apply and it is not practicable to deduce rates and prices therefrom, by measurement and/or valuation at fair rates and prices in accordance with Appendix G Schedule Part 4 (*Pricing*) and Appendix F Schedule Part 7 (*Maintenance Contract Price Analysis*);

80.6.4 if the value of the **tie** Change cannot properly be ascertained by measurement and/or valuation, the value of the resources and labour employed thereon, as appropriate and in accordance with Appendix G to Schedule Part 4 (*Pricing*) and Appendix F to Schedule Part 7 (*Maintenance Contract Price Analysis*);

provided that where any **tie** Change would otherwise fall to be valued under Clauses 80.6.1 and 80.6.2 above, but the instruction therefor was issued at such a time or was of such content as to make it unreasonable for the alteration or addition to be so valued, the value of the **tie** Change shall be ascertained by measurement and/or valuation at fair rates and prices.

80.7 The Infraco shall include in the Estimate evidence demonstrating that:

80.7.1 the Infraco has used all reasonable endeavours to minimise (including by the use of competitive quotes where appropriate in the case of construction works and where reasonable in the circumstances that new or additional sub contractors are required to deliver the change in the case of Maintenance Services or where construction works

are undertaken during the maintenance phase) any increase in costs and to maximise any reduction of costs ;

80.7.2 the Infraco has, where required by **tie** and where appropriate and practicable, sought competitive quotes from persons other than the Infraco Parties in pursuance of its obligation under Clause 80.7.1 above;

80.7.3 the Infraco has investigated how to mitigate the impact of the **tie** Change; and

80.7.4 the proposed **tie** Change will, where relevant, be implemented in the most cost effective manner (taking into account the reasonable requirements of Infraco in relation to quality) including showing where reasonably practicable that when any expenditure is incurred, relevant Changes in Law that are reasonably foreseeable at the time of consideration of the specific **tie** Change and which relate to that **tie** Change have been taken into account by the Infraco.

80.8 If the Infraco does not intend to use its own resources to implement any proposed **tie** Change, it shall:

80.8.1 demonstrate that it is appropriate to subcontract the implementation of such **tie** Change; and

80.8.2 comply with Good Industry Practice with the objective of ensuring that it obtains best value for money when procuring any sub-contractor or Deliverable required in relation to the proposed **tie** Change.

80.9 As soon as reasonably practicable after **tie** receives the Estimate, the Parties shall discuss and agree the issues set out in the Estimate. From such discussions **tie** may modify the **tie** Notice of Change, In each case the Infraco shall subject to Clause 80.11, as soon as practicable, and in any event not more than 15 Business Days after receipt of such modification, notify **tie** of any consequential changes to the Estimate.

80.10 Subject to Clause 80.15, if the Parties cannot agree on the contents of the Estimate, then either Party may refer the Estimate for determination in accordance with the Dispute Resolution Procedure.

80.11 If a **tie** Change requires a change in respect of design work to be carried out by the SDS Provider under the SDS Contract or any other change to the SDS Contract, the cost of such change will be valued in accordance with the terms of the SDS Contract and Infraco shall be allowed such time to perform its obligations under this Clause 80 as may reasonably be

required to allow it to obtain information from the SDS Provider under the SDS Contract which Infraco may require in order to prepare an Estimate for such Change and any modifications thereto.

80.12 The Infraco shall not be obliged to implement any proposed **tie** Change where:

80.12.1 **tie** does not have the legal power or capacity to require the implementation of such proposed **tie** Change; or

80.12.2 NOT USED

80.12.3 implementation of such proposed **tie** Change would:

80.12.3.1 be contrary to Law;

80.12.3.2 not be technically feasible;

80.12.3.3 increase the risk of a non-compliance with this Agreement by the Infraco to the extent such risk is not capable of being addressed by relief from obligations given to the Infraco or by amendment to the terms of this Agreement;

80.12.3.4 be outwith the specific competence of the Infraco either in performing the activity required by the **tie** Change or in supervising an the Infraco Party to carry out the activity required by the **tie** Change;

80.12.3.5 where the **tie** Change is instructed after the completion of Section D, require Infraco to carry out work and/or services that are not transport infrastructure and maintenance related to be performed after completion of Section D; or

80.12.3.6 make the provision of the Maintenance Services by the Infraco financially unfeasible.

80.13 Subject to Clause 80.15, as soon as reasonably practicable after the contents of the Estimate have been agreed **tie** may:

80.13.1 issue a **tie** Change Order to Infraco,; or

80.13.2 except where the Estimate relates to a Mandatory **tie** Change, withdraw the **tie** Notice of Change, in which case Infraco shall be entitled to claim the reasonable additional

costs incurred by the Infraco in complying with this Clause 80 in relation to that **tie** Notice of Change including the cost of any abortive works where **tie** has instructed Infraco to commence works prior to the agreement of the Estimate.

Subject to Clause 80.15, for the avoidance of doubt, the Infraco shall not commence work in respect of a **tie** Change until instructed through receipt of a **tie** Change Order unless otherwise directed by **tie**.

- 80.14 Subject to Clause 80.15, if **tie** does not issue a **tie** Change Order in accordance with Clause 80.13.1, within 28 Business Days of the contents of the Estimate having been agreed or determined then the **tie** Notice of Change shall be deemed to have been withdrawn except where the Estimate relates to a Mandatory **tie** Change in which case **tie** will be deemed to have issued a **tie** Change Order.
- 80.15 Where an Estimate has been referred to the Dispute Resolution Procedure for determination, but it is deemed by **tie** (acting reasonably) that the proposed **tie** Change is urgent and/or has a potential significant impact on the Programme, subject to Infraco's right to refuse to carry out a **tie** Change under Clause 80.12 and save where such proposed **tie** Change includes work by the SDS Provider and where the valuation of such work is not agreed, **tie** may instruct Infraco to carry out the proposed **tie** Change prior to the determination or agreement of the Estimate by issuing a **tie** Change Order to that effect.
- 80.16 Where **tie** issues a **tie** Change Order under Clause 80.15, Infraco shall implement the **tie** Change, and prior to determination of the Estimate shall be entitled to claim Infraco's demonstrable costs in implementing the **tie** Change calculated in accordance with Clause 80.6.
- 80.17 As soon as reasonably practicable and in any event within 20 Business Days of issue of a **tie** Change Order, or such other period as the Parties may agree acting reasonably, Infraco shall update:-
- 80.17.1 the Programme in accordance with Clause 60;
- 80.17.2 Schedule Part 5 (*Milestone Payments*) in relation to Milestone Payments and/or Critical Milestone Payments in accordance with Clause 67.10;
- 80.17.3 the Maintenance Services Payments in accordance with Clause 68.8;
- 80.17.4 the Maintenance Services Performance Plan; and
- 80.17.5 any other previously accepted Deliverable

as may be required in accordance with the agreed Estimate or as may be required to implement the **tie** Change in accordance with this Agreement.

- 80.18 As soon as reasonably practicable and in any event within 20 Business Days of issue of a **tie** Change Order, or such other period as the Parties may agree acting reasonably, the Parties shall enter into any document to amend the terms and conditions of this Agreement as referred to in the agreed Estimate to which the **tie** Change Order relates.

Restrictions on Entitlements to Relief for tie Change

- 80.19 The Infraco shall not be entitled to any extension of time, payment or relief in respect of any **tie** Notice of Change affecting the construction of the Infraco Works or the delivery of the Maintenance Services if and to the extent that:

80.19.1 with regard to construction, it would be reasonable to expect Infraco to have prevented or materially reduced the requirement for such **tie** Change, given the information known to Infraco at the time; and

80.19.2 with regard to Infrastructure Maintenance Services, it would have been reasonable to expect the Infraco to have foreseen that a physical deficiency or defect in the Infraco Works would, despite continual planned maintenance, lead to the requirement for a **tie** Change which could have been prevented or materially reduced by earlier intervention by **tie** and Infraco has failed to report such deficiency or defect in the Infraco Works in a timely fashion to **tie**.

- 80.20 If, having received instructions from **tie** or **tie's** Representative, the Infraco consider that compliance with those instructions would amount to a **tie** Change, then the Infraco shall comply with the instruction and shall within 20 Business Days of any instructions being received, notify **tie** of the same, such notification to include an Estimate pursuant to Clauses 80.4 and 80.5. From the date of receipt by **tie** of such an Estimate, Clause 80.15 and 80.16 shall be deemed to apply *mutatis mutandis* to the work carried out by Infraco in complying with such instruction. If it is agreed by the Parties or determined pursuant to the Dispute Resolution Procedure that the instructions amount to a **tie** Change (either Party being entitled to refer the matter to the Dispute Resolution Procedure if the matter has not been agreed within 10 Business Days of the Estimate being received by **tie**) then the provisions of this Clause 80 (*tie* Changes) shall apply to such instructions.

- 80.21 Any failure by the Infraco to notify **tie** within 20 Business Days of instructions being received that it considers compliance with such instructions from **tie** or **tie's** Representative would

amount to a **tie** Change shall constitute an irrevocable acceptance by the Infraco that any compliance with **tie's** or **tie's** Representative's instructions shall not constitute a **tie** Change under this Agreement.

Third Party Agreements

80.22 If **tie** wishes Infraco to perform any of the obligations contained in any third party agreement which are not set out in part A of Schedule Part 13 (*Third Party Agreements*) or to be responsible for ensuring that neither **tie** or CEC will be put in breach of their obligations to third parties other than to the extent that it is responsible by virtue of the operation of Clause 18.17A **tie** shall serve a notice on the Infraco (a "**TPA Change Notice**") which notice shall comply with the requirements of Clause 80.2. Subject to Clause 80.25, the provisions of this Clause 80 shall apply *mutatis mutandis* to any TPA Change Notice served by **tie**.

80.23 Following service by **tie** of a TPA Change Notice, the Parties shall negotiate in good faith and acting reasonably to agree the adjustment to the Contract Price, if any, appropriate to compensate Infraco for the Infraco accepting any additional responsibility or risk arising from the TPA Change Notice to the extent not reflected adequately through application of Clause 80.5.

Notified Departures

80.24 Where pursuant to paragraph 3.5 of Schedule Part 4 (*Pricing*) or pursuant to Clause 14 (*tie Obligations*), **tie** is deemed to have issued a **tie** Notice of Change as a result of the occurrence of a Notified Departure, the provisions of this Clause 80 (*tie Changes*) other than Clause 80.19 shall apply.

81. INFRACO CHANGES

81.1 If the Infraco becomes aware of the need or desirability for a variation to the Infraco Works, (which does not fall within any of the other categories listed in Clause 79.1, save for Clause 79.1.2) the Infraco shall notify **tie** of the reasons for such variation and make proposals for the proposed variation in writing. **tie** shall be free to accept or reject any proposed variation as **tie** thinks fit, (other than where the Infraco Change is necessary for Infraco to comply with a Change in Law which is not a Qualifying Change in Law, in which case **tie** shall accept such proposal or such other proposal as **tie** may reasonable require which does not increase the costs to the Infraco of complying with the relevant Change in Law) and **tie** shall determine whether such proposal is dealt with in accordance with Clause 81.2 or Clause 81.3.

81.2 If **tie** wishes to proceed with a variation proposed by the Infraco, **tie** shall serve a **tie** Notice of Change on the Infraco and Clause 80 shall be adhered to by **tie** and the Infraco in respect thereof, provided that:

81.2.1 **tie** may require that there be a reduction to the Contract Price if such change will result in lower costs for the Infraco; or

81.2.2 in the event of an anticipated increase to the costs of the Infraco resulting from any change requested by the Infraco pursuant to Clause 81.1, there shall be no variation to the Contract Price unless otherwise agreed by the Parties.

81.3 If Infraco considers that a change could effect a saving of £20,000 (as Indexed) or more, the Infraco shall propose such change in accordance with Clause 81.1 and the Infraco's proposal shall be accompanied by a value engineering report which shall include:

81.3.1 a whole life cost analysis in respect of each element of (i) the Infraco Works affected by the proposed change and/or (ii) any additional works proposed to be carried out in order to effect the proposed change;

81.3.2 option appraisals and reasoned arguments to demonstrate why any particular systems, plant, equipment, materials and the like should be selected in preference to others for incorporation into the Infraco Works, taking into account the operational life of the Edinburgh Tram Network; or

81.3.3 the Infraco's proposals for the lump sum reduction to the Contract Price in respect of such proposal.

tie may accept such proposal at its absolute discretion and its decision in this respect shall be final and binding. If the proposed change is accepted, the reduction to the Contract Price that is anticipated as arising as a result of such change shall be shared between **tie** and the Infraco on a 50:50 basis and the Infraco's share shall be added to the Contract Price after the saving has been made.

81.4 As soon as reasonably practicable and in any event within 20 Business Days of issue of acceptance by **tie** of an Infraco Change or such other period as the Parties may agree acting reasonably, Infraco shall update:-

81.4.1 the Programme in accordance with Clause 60;

81.4.2 the Maintenance Services Performance Plan; and

81.4.3 any other previously accepted Deliverable

as may be required in accordance with the agreed Infraco Change or as may be required to implement the Infraco Change in accordance with this Agreement.

82. SMALL WORKS CHANGES

82.1 In the event that **tie** or **tie's** Representative, by notice in writing to the Infraco, requests the Infraco to carry out any Small Works, the Infraco shall calculate the cost of them as follows:

82.1.1 the labour element shall be calculated in accordance with Schedule Part 4 (*Pricing*) or, where such rates are not applicable, in accordance with the rates which are fair and reasonable having regard to the nature of the Small Works requested;

82.1.2 the materials element shall be charged at the cost (excluding VAT) of the materials to the Infraco (net of all discounts) plus the percentage uplift as indicated in Schedule Part 4 (*Pricing*); and

82.1.3 the plant element shall be calculated in accordance with Schedule Part 4 (*Pricing*) or, where such rates are not applicable, in accordance with the rates which are fair and reasonable having regard to the nature of the Small Works requested; and

82.1.4 the Sub-Contractor element shall be charged at the cost (excluding VAT) plus the percentage uplift as indicated in the Schedule Part 4 (*Pricing*)

and as soon as reasonably practicable and no later than 5 Business Days, the Infraco shall confirm by notice in writing to **tie** (the "**Small Works Cost Notice**") the amount of such cost and the basis for, and inputs to, such calculation.

82.2 **tie** shall not request the Infraco to carry out any Small Works, the execution of which would require input from the SDS Provider, the Tram Supplier or the Tram Maintainer.

82.3 The Infraco and **tie** or **tie's** Representative shall agree the timing of any Small Works so as to minimise any inconvenience to **tie**, the Infraco or disruption to the Programme. The Infraco shall take all reasonable steps to minimise the duration of any Small Works.

82.4 If, at any time within 5 Business Days following receipt by **tie** of a Small Works Cost Notice pursuant to Clause 82.1, **tie** notifies the Infraco in writing that **tie** or **tie's** Representative wishes the Infraco to proceed with the Small Works to which the Small Works Cost Notice relates, the Infraco shall carry out and complete such Small Works in accordance with the said Small Works Cost Notice and the relevant request pursuant to Clause 82.1 from **tie** in

accordance with any timing agreed pursuant to Clause 82.3 but otherwise as soon as reasonably practicable.

82.5 Infraco shall not be obliged to implement a Small Works Change in the circumstances where Clause 80.12 would have applied had the Small Works Change been a **tie** Change.

82.6 As soon as reasonably practicable and in any event within 20 Business Days of issue of a Small Works Change, or such other period as the Parties may agree acting reasonably, Infraco shall update:

82.6.1 the Programme in accordance with Clause 60;

82.6.2 Schedule Part 4 (*Pricing*) in relation to Milestone Payments and/or Critical Milestone Payments in accordance with Clause 67.10;

82.6.3 the Maintenance Services Payment in accordance with Clause 68.8;

82.6.4 the Maintenance Services Performance Plan; and

82.6.5 any other previously accepted Deliverable

to take account of the Small Works Change and implement it in accordance with this Agreement.

83. ACCOMMODATION WORK CHANGES

83.1 In the event that **tie** or **tie's** Representative, by notice in writing to the Infraco, requests the Infraco to carry out any Accommodation Works, the Infraco shall calculate the cost of them as follows:

83.1.1 the labour element shall be calculated in accordance with Schedule Part 4 (*Pricing*) or, where such rates are not applicable, in accordance with the rates which are fair and reasonable having regard to the nature of the Accommodation Works requested;

83.1.2 the materials element shall be charged at the cost (excluding VAT) of the materials to the Infraco plus the percentage uplift as indicated in Schedule Part 4 (*Pricing*); and

83.1.3 the plant shall be calculated in accordance with the Schedule Part 4 (*Pricing*) or, where such rates are not applicable, in accordance with the rates which are fair and reasonable having regard to the nature of the Accommodation Works requested; and

- 83.1.4 the Sub-Contractor element shall be charged at cost (excluding VAT) plus the percentage uplift as indicated in the Pricing Schedule
- and as soon as reasonably practicable and no later than 5 Business Days, the Infraco shall confirm by notice in writing to **tie** (the "**Accommodation Works Cost Notice**") the amount of such cost and the basis for, and inputs to, such calculation.
- 83.2 **tie** shall not require the Infraco to carry out any Accommodation Works the execution of which would require input from the SDS Provider. Any such instruction shall be given pursuant to Clause 80 (*tie Changes*).
- 83.3 The Infraco and **tie** or **tie's** Representative shall agree the timing of any Accommodation Works so as to minimise any inconvenience to **tie** and/or the Infraco and/or disruption to the Programme. The Infraco shall take all reasonable steps to minimise the duration of any Accommodation Works. For the avoidance of doubt, the timing of any agreed Accommodation Works shall not be treated as forming part of the Programme and a separate programme for the completion of such Accommodation Works shall be agreed between **tie** and the Infraco (both Parties acting reasonably). For the avoidance of doubt, if any Relief Event or Compensation Event occurs and has an impact on the progress of the Accommodation Works, then any extension of time or relief granted in accordance with Clause 64 (*Relief Events*) or Clause 65 (*Compensation Events*) shall be granted in respect of the programme for the completion of the Accommodation Works not the Programme.
- 83.4 If, at any time within 5 Business Days following receipt by **tie** of an Accommodation Works Cost Notice pursuant to Clause 83.1, **tie** notifies the Infraco in writing that **tie** or **tie's** Representative wishes the Infraco to proceed with the Accommodation Works to which the Accommodation Works Cost Notice relates, the Infraco shall subject to Clause 18 carry out and complete such Accommodation Works in accordance with the said Accommodation Works Cost Notice and the relevant request pursuant to Clause 83.1 from **tie** in accordance with the programme agreed pursuant to Clause 83.3 but otherwise as soon as reasonably practicable.
- 83.5 Infraco shall not be obliged to implement an Accommodation Works Change in the circumstances where Clause 80.12 would have applied had the Accommodation Works Change been a **tie** Change.
- 83.6 As soon as reasonably practicable and in any event within 20 Business Days of issue of a Accommodation Works Change, or such other period as the Parties may agree acting reasonably, Infraco shall update:

83.6.1 the Programme in accordance with Clause 60;

83.6.2 Schedule Part 5 (*Milestone Payments*) in relation to Milestone Payments and/or Critical Milestone Payments in accordance with Clause 67.10; and

83.6.3 any other previously accepted Deliverable

to take account of the Accommodation Works Change and implement it in accordance with this Agreement.

84. QUALIFYING CHANGES IN LAW

84.1 If a Qualifying Change in Law occurs or is to occur, then either Party may write to the other to express an opinion on its likely effects, giving details of its opinion of:

84.1.1 any necessary change in the Infraco Works;

84.1.2 whether any changes are required to the terms of this Agreement to deal with the Qualifying Change in Law; or

84.1.3 whether relief from compliance with any obligations under this Agreement is required as a result of the Qualifying Change in Law;

in each case giving in full detail the procedure for implementing the Qualifying Change in Law. Responsibility for any costs of such implementation shall be dealt with in accordance with Clauses 84.2 and 84.3 below.

84.2 As soon as reasonably practicable after receipt of any notice from either Party under Clause 84.1 above, the Parties shall discuss and agree the issues referred to in Clause 84.1 above and any ways in which the Infraco can mitigate the effect of the Qualifying Change in Law and the Infraco shall:

84.2.1 provide evidence to ~~tie~~ that the Infraco has used and will continue to use all reasonable endeavours (including where appropriate and practicable the use of competitive quotes) to minimise any increase in costs and maximise any reduction in costs;

84.2.2 demonstrate how the effects of the Qualifying Change in Law will be mitigated;

84.2.3 demonstrate that the relevant changes will be implemented in the most cost effective manner.

84.3 As soon as reasonably practicable after the issues referred to in Clause 84.2 have been agreed between the Parties or determined pursuant to the Dispute Resolution Procedure, **tie** shall give a **tie** Notice of Change on the basis that an extension of time will be granted to the Infracore to perform its obligations under this Agreement, to the extent that such performance is affected by the Qualifying Change in Law and that any effect on the cost to the Infracore of performing its obligations under this Agreement of any Qualifying Change in Law shall be borne by **tie** and the provisions of Clause 80 (*tie* Changes) shall apply except that the Infracore shall be obliged to implement and **tie** shall be obliged to instruct the change in all circumstances (except to the extent that such change is not necessary to implement the Qualifying Change in Law or where **tie** has instructed a **tie** Change in order to remove the requirement to comply with a Qualifying Change in Law). **tie** shall issue a **tie** Change Order once it has been agreed or determined pursuant to the Dispute Resolution Procedure. In assessing the value of any change, **tie** shall subject to Clause 84.4, pay the agreed or determined amount for each and every Qualifying Change in Law.

84.4 In accordance with Clause 84.3, payment shall be due from **tie** to the Infracore:

84.4.1 subject to Clauses 84.4.2, 84.4.3, 84.4.4 and 84.4.5, in respect of Qualifying Changes in Law the value of which when aggregated with the value of all previous Qualifying Changes in Law exceed a threshold of £150,000 in aggregate, the amount by which the value of such Qualifying Change in Law exceeds such threshold when aggregated with the value of all previous Qualifying Changes in Law;

84.4.2 where the threshold under Clause 84.4.1 has been exceeded, in respect of SDS Qualifying Changes in Law the value of which are above a threshold of £15,000 in respect of each and every event the amount by which the value of such Qualifying Change in Law exceeds such threshold;

84.4.3 where the threshold under Clause 84.4.1 has been exceeded, in respect of Tram Supply Qualifying Changes in Law the value of which are above a threshold of £30,000 in respect of each and every event the amount by which the value of such Qualifying Change in Law exceeds such threshold; and

84.4.4 in respect of Tram Maintenance Qualifying Changes in Law, for the first 5 years following the Service Commencement Date the value of which are above a threshold of £15,000 in respect of each and every event the amount by which the value of such Tram Maintenance Qualifying Change in Law exceeds such threshold up to an aggregate of £150,000 and thereafter any Tram Maintenance Qualifying Changes in Law will be dealt with as a Mandatory **tie** Change.

- 84.5 Except otherwise expressly provided in this Agreement, the Infraco shall be responsible for any increase in its costs and shall not be entitled to any relief from its obligations under this Agreement to the extent that the same is caused as a result of a General Change in Law at any time during the Term.
- 84.6 Where a General Change in Law raises a technical, design or performance issue that requires a revision of the delivery of the Tram Maintenance Services, the Infraco shall take all possible measures to ensure that the Edinburgh Tram Network is operating in accordance with the relevant Legislation, but will not be responsible for the cost and delivery implications of such General Change in Law beyond that for which the Tram Maintainer is responsible under the Tram Maintenance Agreement.
- 84.7 The Infraco shall be entitled to benchmark any costs and expenditure affected by a General Change in Law or likely to be affected by a forthcoming General Change in Law (the "**Benchmarking Exercise**") after the expiry of 3, 6 and 9 years following the Service Commencement Date.
- 84.8 The Benchmarking Exercise shall be undertaken by comparing the relevant elements of the costs and expenditure applicable to the Maintenance Services as set out in Schedule Part 7 (*Maintenance Contract Pricing Analysis*) prior to the affect of any General Change in Law (the "**Base Price**") with the actual or projected costs and expenditure applicable to the relevant elements of the Maintenance Services following such costs and expenditure being affected by any General Change in Law (the "**Adjusted Price**").
- 84.9 The Infraco shall provide the results of such Benchmarking Exercise to **tie** together with details of the extent to which the Adjusted Price differs from Base Price (the "**Benchmarking Information**").
- 84.10 **tie** shall agree or dispute the Benchmarking Information. **tie** may dispute the Benchmarking Information by notifying Infraco of the basis on which it disputes the Benchmark Information, including whether **tie** believes that there may be the need for a **tie** Change or other action under the Agreement to address the fact that the further provision of the Maintenance Services becoming not economically reasonable for **tie**. If notification is served by **tie**, the Parties shall use reasonable endeavours to resolve such dispute within 20 Business Days of receipt of notification by Infraco, failing which either Party will be entitled to refer the matter to the Dispute Resolution Procedure. In the event that **tie** does not agree or dispute the Benchmarking Information within 40 Business Days of receipt of the same from Infraco, **tie** shall be deemed to have agreed the Benchmarking Information.

- 84.11 Where the Benchmarking Information has been agreed or determined pursuant to Clause 84.10 and the Adjusted Price is higher than the Base Price then the relevant costs and expenditure applicable to the relevant elements of the Maintenance Service set out in Schedule Part 7 (*Maintenance Contract Pricing Analysis*) shall be increased by the amounts set out in the Benchmarking Information and such increase shall be a Mandatory **tie** Change.

85. PHASE 1B OPTION

- 85.1 Not later than 31 October 2008, the Infraco acknowledges that **tie** may, by providing the Infraco with a written notice, instruct that the Infraco prepare a proposal for the implementation of the Phase 1b Works on the basis of Schedule Part 37 (*Phase 1b Works*). If so instructed by **tie**, the Infraco shall carry out the Phase 1b Works and, subject to Clause 85.2, the provisions of this Agreement shall apply to the Phase 1b Works.
- 85.2 Any ambiguities or discrepancies in the Agreement which arise as a result of the notice to proceed in respect of the Phase 1b Works shall be resolved in accordance with Clause 4 (*Priority of Contract Documents*), and any necessary changes to the Agreement shall be agreed between the Infraco and **tie**.

86. NETWORK EXPANSIONS

- 86.1 **tie** and the Infraco shall keep opportunities for Network Expansion under review throughout the Term.
- 86.2 From time to time during the Term, **tie** may propose to the Infraco a Network Expansion for development. To the extent that **tie** requests assistance from the Infraco in relation to the development of such Network Expansion:
- 86.2.1 the Infraco shall provide such services during the development of that Network Expansion and shall carry out any required design and/or any construction works and/or carry out any required maintenance, and the provisions of this Agreement and the Employer's Requirements (where applicable), shall apply to the development of that Network Expansion and any design and/or works and/or carry out any required maintenance; and
- 86.2.2 the carrying out of such services and any design and/or works and/or maintenance carried out by the Infraco in respect of such services shall be a **tie** Change.

- 86.3 **tie** may withdraw its request for the Infraco to such services and design and/or works and/or maintenance, and **tie** may continue with the development of such Network Expansion, either by itself or in conjunction with third parties.
- 86.4 Whether or not **tie** requests the Infraco to provide services and/or design and/or works and/or maintenance in relation to a proposed Network Expansion:
- 86.4.1 the Infraco shall provide access to such information, documents and records as may be reasonably requested by **tie** or the **tie** Parties in relation to the development of the proposed Network Expansion; and
- 86.4.2 **tie** and the Infraco will negotiate in good faith in relation to agreeing any amendments to this Agreement that are necessary in respect of the Network Expansion.

PART 16 - SUSPENSION, TERMINATION, EXPIRY AND HANDBACK

87. SUSPENSION OF WORK

- 87.1 The Infraco shall on the written order of **tie's** Representative suspend the progress of the Infraco Works or any part thereof for such time or times and in such manner as **tie's** Representative may consider necessary and shall during such suspension properly protect and secure the Infraco Works so far as is necessary in the opinion of **tie's** Representative. Except to the extent that such suspension is necessary by reason of breach of this Agreement by the Infraco and such breach is of such nature that would not permit continued performance of the Infraco Works without risk to the health and safety of any person or risk of substantial damage to property then if compliance with **tie's** Representative's instructions under this Clause 87 (*Suspension of Work*) involves the Infraco in delay or extra cost (including costs incurred in properly protecting and securing the work), such instructions shall be a Compensation Event and Clause 65 (*Compensation Events*) shall apply.
- 87.2 If the progress of the Infraco Works or any part thereof is suspended on the written order of **tie's** Representative and if permission to resume work is not given by **tie's** Representative within a period of six months from the date of suspension then the Infraco may unless such suspension is otherwise provided for in the Agreement or continues to be necessary by reason of some default on the part of the Infraco serve a written notice on **tie's** Representative requiring permission within 20 Business Days from the receipt of such notice to proceed with the Infraco Works or that part thereof in regard to which progress is suspended. If within the said 20 Business Days **tie's** Representative does not grant such permission, the Infraco by a further written notice so served may (but is not bound to) elect to treat the suspension where it

affects part only of the works as a Mandatory **tie** Change deleting such works from the Infraco Works or where it affects the whole Infraco Works, as a result of which the Infraco cannot perform any material part of its obligations under this Agreement for a continuous period of 45 Business Days, as a **tie** Default.

87.3 Upon termination of this Agreement on the grounds of **tie** Default pursuant to Clause 87.1:

87.3.1 **tie** shall be under the same obligations with regard to payment as if termination on the grounds of **tie** Default had occurred in accordance with the provisions of Clause 88 (*Termination or Suspension for tie Default*); and

87.3.2 the Infraco shall comply with Clause 94 (*Effects of Termination or Expiry*) and Clause 95 (*Transition on Termination or Expiry*).

88. TERMINATION OR SUSPENSION FOR TIE DEFAULT

88.1 If a **tie** Default has occurred and the Infraco wishes to terminate this Agreement the Infraco may serve a termination notice on **tie** and such termination notice shall be in accordance with this Clause 88.

88.2 The Infraco shall specify in the termination notice the type of the **tie** Default which has occurred entitling the Infraco to terminate.

88.3 Provided the Infraco has complied with Clauses 88.1 and 88.2, this Agreement shall terminate on the day falling thirty Business Days after the date on which **tie** receives the termination notice, unless, in the case of a **tie** Default capable of rectification, **tie** rectifies the **tie** Default within thirty Business Days of receipt of the termination notice.

88.4 Subject to Clause 87.3, the Infraco shall not be entitled to, and shall not purport to, terminate this Agreement or accept any repudiation of this Agreement, except as expressly provided in this Clause 88 (*Termination or Suspension for tie Default*) or Clause 91 (*Termination by Reason of Force Majeure*).

88.5 Upon expiry of the thirty Business Days notice referred to in Clause 88.3 and notwithstanding the provisions of Clause 49 (*Non-Removal of Materials and Contractor's Equipment*) the Infraco shall with all reasonable despatch remove from the Site all Infraco's Equipment. In the event of any failure so to do **tie** shall have like powers to those contained in Clause 49.3 to dispose of any Infraco's Equipment.

- 88.6 No compensation shall be payable by **tie** to the Infraco for termination of this Agreement in terms of this Clause 88 (*Termination or Suspension for tie Default*) whether under contract, delict (including negligence), breach of (or compliance with) statutory duty, restitution or otherwise but without prejudice to payments due under Clause 88.8.
- 88.7 On termination of this Agreement in terms of this Clause 88 (*Termination or Suspension for tie Default*), the Infraco shall comply with Clause 94 (*Effects of Termination or Expiry*) and Clause 95 (*Transition on Termination or Expiry*).
- 88.8 Upon termination of this Agreement pursuant to Clause 88.3 and following receipt of a valid VAT invoice, **tie** shall pay the Infraco within 30 Business Days of receipt of such VAT invoice (in so far as such amounts or items have not already been covered by payments on account made to the Infraco) the value of all work carried out prior to the date of termination and in addition:
- 88.8.1 the amounts payable in respect of any preliminary items so far as the work or service comprised therein has been carried out or performed and a proper proportion of any such items which have been partially carried out or performed;
 - 88.8.2 the cost of materials or goods reasonably ordered for the Infraco Works which have been delivered to the Infraco or of which the Infraco is legally liable to accept delivery (such materials or goods becoming the property of **tie** upon such payment being made to the Infraco);
 - 88.8.3 the reasonable cost of removal under Clause 88.5;
 - 88.8.4 all other expenses properly, demonstrably and reasonably incurred by the Infraco arising from the termination of this Agreement including, without limitation, any amounts which the Infraco is required to pay to its subcontractors (including the Tram Supplier and the Tram Maintainer) in order to terminate any subcontracts relating to this Agreement (including the Tram Supply Agreement and the Tram Maintenance Agreement), provided such contracts have been entered into on reasonable commercial terms; and
 - 88.8.5
 - 88.8.5.1 in respect of any termination which occurs prior to the Service Commencement Date the loss of profit fixed at ten percent (10%) for civils and seventeen percent (17%) for track and systems calculated with reference to demobilisation costs; and

88.8.5.2 in respect of any termination which occurs after the Service Commencement Date a payment representing the amount to be paid to the Infraco for one Reporting Period in respect of full performance of the Infrastructure Maintenance Services as calculated in accordance with part A of Schedule Part 6 (*Maintenance Payment Regime*)

provided that:

- (i) the Infraco shall use all reasonable endeavours to minimise and mitigate any costs referred to in this Clause 88.8 and **tie** shall not be liable to pay the Infraco for such costs to the extent that the Infraco has failed to use all reasonable endeavours to minimise or mitigate such costs or to the extent that such costs have arisen out of the Infraco's breach of this Agreement or any negligent act or omission by the Infraco or any act or omission by the Infraco which is intended to disrupt, frustrate or delay due performance under Clauses 95 and 96. Any payment to be made under this Clause 88.8 shall be treated as a final account and payment shall be made by **tie** in accordance with Clause 67 (*Payment in respect of Applications for Milestone Payments*) or Clause 68 (*Payment in respect of Maintenance Services*) (as appropriate); and
- (ii) the Tram Supply Agreement and the Tram Maintenance Agreement shall be deemed to have been entered into on reasonable commercial terms.

88.9

88.9.1 If **tie** shall fail to pay the Infraco in full any amount properly due and payable under this Agreement by the final date for payment in accordance with the requirements of Clause 67 (*Payment in respect of Applications for Milestone Payments*) or Clause 68 (*Payment in respect of Maintenance Services*) (as appropriate) and no effective notice to withhold payment has been given by **tie** to the Infraco, the Infraco may, after giving **tie** ninety days' notice in writing of the same, stating the ground or grounds on which it is intended to suspend performance, suspend the performance of the Infraco Works until payment in full is made by **tie**.

88.9.2 Infraco shall be entitled to suspend performance of the Infraco Works in accordance with Clause 88.9.1 on 60 days notice where **tie** has failed to pay and CEC has failed to make payment of the relevant amount in accordance with the CEC Guarantee (for the avoidance of doubt such period of 60 days shall operate instead of the 90 day period in Clause 88.9.1).

89. VOLUNTARY TERMINATION BY TIE

89.1 Three years after the issue of the first Certificate of Service Commencement, **tie** may terminate this Agreement at any time and for whatever reason upon giving written notice to the Infraco that this Agreement shall terminate on the date falling six months after the date of service of such written notice.

89.2 Upon termination of the Infraco's employment pursuant to Clause 89.1,

89.2.1 **tie** shall be under the same obligations with regard to payment as if termination on the grounds of **tie** Default had occurred in accordance with the provisions of Clause 88 (*Termination or Suspension for tie Default*); and

89.2.2 the Infraco shall comply with Clause 94 (*Effects of Termination or Expiry*) and Clause 95 (*Transition on Termination or Expiry*).

90. TERMINATION ON INFRACO DEFAULT

90.1 In the event that an Infraco Default:

90.1.1 as stipulated pursuant to Infraco Default (c), (d), (e), (g) and (i) in Schedule Part 1 occurs then **tie** may after giving 7 Business Days notice in writing to the Infraco specifying the nature of the Infraco Default which has occurred, terminate this Agreement.

90.1.2 as stipulated pursuant to Infraco Default (a), (f), (g) (to the extent that the Underperformance Warning Notices have been issued pursuant to Clause 56.7.2) and (j) in Schedule Part 1 occurs **tie** may give notice in writing to the Infraco specifying the nature of the Infraco Default which has occurred (a "**Remediable Termination Notice**").

90.1.3 as stipulated pursuant to Infraco Default (b) in Schedule Part 1 occurs **tie** may give notice in writing to the Infraco specifying the nature of the Infraco Default which has occurred (an "**Insolvency Termination Notice**").

90.2 Following service of a Remediable Termination Notice by **tie** in accordance with Clause 90.1.2 the Infraco may submit a comprehensive rectification plan setting out how it intends to remedy the Infraco Default in respect of which the Remediable Termination Notice has been served to **tie** within 30 Business Days of the date of such notice (or such longer period as **tie** may agree to in its absolute discretion). **tie** shall consider such rectification plan and

determine, at **tie's** absolute discretion, within 10 Business Days of receipt whether the rectification plan is acceptable. If **tie** accepts the rectification plan, the Remediable Termination Notice shall no longer be effective and no further Remediable Termination Notice will be served by **tie** in respect of the relevant Infraco Default, provided that the Infraco complies in full with the terms of the rectification plan as accepted by **tie**. Any failure by Infraco to comply with the terms of such rectification plan shall entitle **tie** to terminate the Agreement on 5 Business Days written notice to the Infraco and there shall be no obligation on **tie** to consider any further rectification plan.

- 90.3 Following service of an Insolvency Termination Notice by **tie** in accordance with Clause 90.1.3 the Infraco Member not effected by the Insolvency Event may submit a comprehensive rectification plan setting out how it intends to continue to provide the Infraco Works without the other Infraco Member within 30 Business Days of the date of such notice (or such longer period as **tie** may agree to in its absolute discretion) **tie** shall consider such rectification plan and determine, acting reasonably, within 10 Business Days of receipt whether the rectification plan is acceptable.
- 90.4 If **tie** does not accept the rectification plan submitted by Infraco or Infraco does not (for any reason) submit a rectification plan within the 30 Business Day period (or such longer period as has been agreed by **tie**), **tie** may after giving 5 Business Days notice in writing to the Infraco terminate this Agreement.
- 90.5 For the avoidance of doubt, neither the submission of any rectification plan nor **tie's** consideration of it shall relieve the Infraco in any way from the due and proper performance of all of its obligations under this Agreement. Any expenditure or liability incurred by Infraco in preparing and submitting any rectification plan shall be to the account of the Infraco.
- 90.6 Following termination under this Clause 90, **tie** may enter upon the Infraco Works and any other parts of the Site and expel the Infraco therefrom without thereby avoiding the Agreement or releasing the Infraco from any of its obligations or liabilities under the Agreement.
- 90.7 Following termination in accordance with this Clause 90, where **tie** has entered upon the Infraco Works and any other parts of the Site as set out in Clause 90.1, **tie** may:
- 90.7.1 complete or carry out the Infraco Works itself; or
- 90.7.2 employ any other contractor to complete the Infraco Works.

and in the event of termination of this Agreement on the grounds of Infraco Default (b) may use for such completion any of the Infraco's Equipment, Temporary Works, goods and

materials on any part of the Site and shall continue to enjoy (i) its right to copy and use all drawings specifications and other documents made by or on behalf of the Infraco and (ii) all rights granted to **tie** pursuant to Clause 102 (*Copyright and Intellectual Property*)

90.8 In the event of termination of this Agreement on the grounds of Infraco Default (b):

90.8.1 **tie** may at any time sell any of the said Infraco Member's Equipment or Temporary Works and apply the proceeds of sale in or towards the satisfaction of any sums due or which may become due to it from the Infraco under the Agreement;

90.8.2 the Infraco agrees that an automatic assignation of all Key Subcontractor sub-contracts shall be effected by **tie** giving written notice of assignation to every Key Subcontractor as provided for in the relevant Key Subcontractor collateral warranty.

90.9 Where **tie** has entered upon the Infraco Works and any other parts of the Site, the Infraco shall, if so instructed by **tie's** Representative in writing within 7 days of such entry, use reasonable endeavours to assign to **tie** any agreement as soon as practicable which the Infraco may have entered into and which are, in **tie's** reasonable opinion, material to the completion of the Infraco Works for the supply of any goods or materials and/or for the carrying out of any work for the purposes of the Agreement.

90.10 The Infraco shall comply with Clause 94 (*Effects of Termination or Expiry*) and Clause 95 (*Transition on Termination or Expiry*).

90.11 No compensation shall be payable by **tie** to the Infraco for termination under this Clause 90 (*Termination on Infraco Default*) whether under contract, delict (including negligence), breach of (or compliance with) statutory duty, restitution or otherwise but without prejudice to payments due under Clause 90.15.

90.12 As soon as may be practicable after termination of this Agreement pursuant to Clause 90.1 the Parties shall agree as at the time of such termination:

90.12.1 the amount (if any) which has been reasonably earned and not yet paid pursuant to this Agreement by the Infraco in respect of work actually done by it under the Agreement;
and

90.12.2 the value of any unused or partially used goods and materials which are under the control of **tie** or CEC by reason of such termination and for which the Infraco has not yet been paid.

- 90.13 If **tie** enters upon the Infraco Works and any other parts of the Site and expels the Infraco in accordance with this Clause 90 (*Termination on Infraco Default*), **tie** shall not be liable to pay the Infraco any money under the Agreement (whether in respect of amounts certified by **tie's** Representative or otherwise) including any sums determined under Clause 90.11 unless or until **tie's** Representative certifies that an amount is due to the Infraco under Clause 90.15.
- 90.14 **tie's** Representative shall, within 6 months of completion of the works and services to be performed by the Infraco as part of the Infraco Works (excluding Maintenance Services) up to and including the Service Commencement Date and remaining to be completed at termination, certify:
- 90.14.1 the costs of completing the Infraco Works, not including any amount calculated as due to the Infraco pursuant to Clause 90.12, up to and including the Service Commencement Date in accordance with the terms of this Agreement (whether or not the Infraco Works are completed under a separate contract) and all other costs and expenses properly incurred by **tie**, less such sum as would have been due to the Infraco if the Infraco had completed the Infraco Works up to and including the Service Commencement Date together with any proceeds of sale under Clause 90.8; and
- 90.14.2 the amount **tie** will spend on the Maintenance Services (whether or not such services are provided under a separate contract) less the amount **tie** would have paid to the Infraco for the Maintenance Services over the Term.
- 90.15 Should the aggregate of the amount as certified by **tie's** Representative pursuant to Clauses 90.14.1 and 90.14.2 be:
- 90.15.1 a positive amount, and such amount is still a positive amount after subtraction of any amount calculated pursuant to Clause 90.12 then such amount shall be a debt due to **tie** from the Infraco payable within 30 Business Days.
- 90.15.2 a negative amount, and is still a negative amount after the addition of any amount calculated pursuant to Clause 90.12 then such amount shall be a debt due to the Infraco from **tie** payable within 30 Business Days.
- 90.16 If at any time prior to the completion of the Infraco Works any sum as calculated under Clauses 90.14.1 and 90.14.2 is a positive amount, **tie's** Representative may issue an interim certificate to that effect notwithstanding that the Infraco Works have not been completed.

- 90.17 Every certificate issued by **tie's** Representative pursuant to this Clause 90 (*Termination on Infraco Default*) shall be sent to the Infraco with such detailed explanation as may be necessary.
- 90.18 Subject to Clause 77.10 and Clause 77.11 the provisions of this Clause 90 (*Termination on Infraco Default*) are without prejudice to any other rights and remedies of **tie** including where **tie** is obliged to curtail the Infraco Works or suspend their performance for a period.
- 90.19 The Infraco shall notify **tie** as soon as practicable and in any event within 2 Business Days of any presentation of any petition for the purpose of winding up either Infraco Member or its parent company guarantor or for an administration order or the opening of an equivalent process under the Insolvency Act 1986, the EC Insolvency Regulation 1346/2000 or the Bundesinsolvenzgesetz of 5 October 1994 (as amended) in circumstances where Clause 75.1.6 would apply.

91. TERMINATION BY REASON OF FORCE MAJEURE

- 91.1 Neither Party shall be entitled to bring a claim for a breach of obligations under this Agreement by the other Party or incur any liability to the other Party for any losses or damages incurred by that other Party to the extent that a Force Majeure Event occurs and such Party is directly prevented from carrying out such obligations by that Force Majeure Event provided that such prohibition on bringing a claim and exclusion of liability shall not operate if and to the extent that:
- 91.1.1 the Affected Party could, by the exercise of reasonable foresight and diligence, have prevented or reduced the effect of the Force Majeure Event; and
- 91.1.2 the Affected Party could, whether before or after the occurrence of the Force Majeure Event, have reduced or eliminated the resulting breach of its obligations under this Agreement by taking reasonable steps.
- 91.2 On the occurrence of a Force Majeure Event, the Affected Party shall notify the other Party as soon as reasonably practicable, specifying details of the Force Majeure Event and providing evidence of its effect on the obligations of the Affected Party and any action proposed to remove or mitigate its effect.
- 91.3 The Parties shall enter into *bona fide* discussions with a view to alleviating the effects of such Force Majeure Event as soon as reasonably practicable, and if the terms or measures to remove the effect of the Force Majeure Event cannot be agreed on or before the date falling 12 months after the date of the commencement of the Force Majeure Event or by the end of such

longer period as the Parties may have agreed, or such Force Majeure Event is continuing or its consequence remains such that the Affected Party is unable to comply with all or a material part of its obligations under this Agreement for a period of more than 12 months after the date of the commencement of the Force Majeure Event or by the end of such longer period as the Parties may have agreed, either Party shall have the option to terminate this Agreement by written notice to the other.

- 91.4 The Parties shall at all times following the occurrence of a Force Majeure Event use all reasonable endeavours to prevent and mitigate the effects of any delay to the performance of the Infraco Works and the Infraco shall at all times during which a Force Majeure Event is subsisting take all steps in accordance with Good Industry Practice to overcome or minimise the consequences of the Force Majeure Event.
- 91.5 The Affected Party shall notify the other party as soon as reasonably practicable after the Force Majeure Event ceases or no longer causes the Affected Party to be unable to comply with its obligations under this Agreement. Following such notification, this Agreement shall continue to be performed on the terms existing immediately prior to the occurrence of the Force Majeure Event.
- 91.6 The effects of a Force Majeure Event shall be dealt with under Clause 64 (*Relief Events*).
- 91.7 No compensation shall be payable by **tie** to the Infraco for termination of this Agreement in terms of this Clause 91 (*Termination by Reason of Force Majeure*) whether under contract, delict (including negligence), breach of (or compliance with) statutory duty, restitution or otherwise but without prejudice to payments due under Clause 91.7.
- 91.8 Upon termination of the Infraco's employment pursuant to Clause 91.3,
- 91.8.1 **tie** shall be under the same obligations with regard to payment as if termination on the grounds of **tie** default had occurred in accordance with the provisions of Clause 88 (*Termination or Suspension for tie Default*); and
- 91.8.2 the Infraco shall comply with Clause 94 (*Effects of Termination or Expiry*) and Clause 95 (*Transition on Termination or Expiry*).

92. TERMINATION FOR CORRUPT GIFTS AND FRAUD

- 92.1 The Infraco or anyone employed by it or acting on its behalf (including any Infraco Party) shall not commit any Prohibited Act.

- 92.2 If the Infraco, or anyone employed by it or acting on its behalf (including any Infraco Parties), commits any Prohibited Act, then **tie** shall be entitled to act in accordance with this Clause 92 (*Termination for Corrupt Gifts and Fraud*).
- 92.3 If a Prohibited Act is committed by the Infraco or by an employee of the Infraco not acting independently of the Infraco, then **tie** may terminate this Agreement by giving notice to the Infraco.
- 92.4 If a Prohibited Act is committed by an employee of the Infraco acting independently of the Infraco, then **tie** may give notice to the Infraco of termination and this Agreement will terminate, unless within thirty days of receipt of such notice the Infraco terminates that employee's employment and (if necessary) procures the performance of the relevant part of the Infraco Works by another person.
- 92.5 If a Prohibited Act is committed by anyone acting on behalf of the Infraco (excluding employees of the Infraco but including any Infraco Party, and their employees) and not acting independently of the Infraco, then **tie** may give notice to the Infraco of termination and this Agreement shall terminate.
- 92.6 If a Prohibited Act is committed by anyone acting on behalf of the Infraco (excluding employees of the Infraco but including any Infraco Party and their employees) and acting independently of the Infraco, then **tie** may give notice to the Infraco of termination and this Agreement will terminate, unless within thirty days of receipt of such notice the Infraco terminates that party's employment and procures the performance of the relevant part of the Infraco Works by another person.
- 92.7 Any notice of termination under this Clause 92 (*Termination for Corrupt Gifts and Fraud*) shall specify:
- 92.7.1 the nature of the Prohibited Act;
- 92.7.2 the identity of the person whom **tie** believes has committed the Prohibited Act; and
- 92.7.3 the date on which this Agreement will terminate, in accordance with the applicable provision of this Clause 92 (*Termination for Corrupt Gifts and Fraud*) .
- 92.8 No compensation shall be payable by **tie** to the Infraco for termination of this Agreement in terms of this Clause 92 (*Termination for Corrupt Gifts and Fraud*) whether under contract, delict (including negligence), breach of (or compliance with) statutory duty, restitution or otherwise but without prejudice to payments due under Clause 92.9.

92.9 Upon termination of the Infraco's employment pursuant to this Clause 92 (*Termination for Corrupt Gifts and Fraud*);

92.9.1 **tie** shall be under the same obligations with regard to payment as if termination on the grounds of Infraco Default had occurred in accordance with the provisions of Clause 90 (*Termination on Infraco Default*); and

92.9.2 the Infraco shall comply with Clause 94 (*Effects of Termination or Expiry*) and Clause 95 (*Transition on Termination or Expiry*).

93. PERSISTENT BREACH

93.1 If at any time after the first Sectional Completion Date when the Infraco is performing Maintenance Services, whether or not in pursuance of Clause 52 (Maintenance), the same breach by the Infraco of any of its obligations under this Agreement (other than a breach for which **tie** has an express remedy under this Agreement) has occurred three or more times in any twelve month rolling period **tie** may serve a notice, which notice shall not be served vexatiously or in respect of a trivial breach ("**Persistent Breach Notice**") on the Infraco:

93.1.1 specifying that it is a Persistent Breach Notice;

93.1.2 giving reasonable details of the breach; and

93.1.3 stating that such breach is a breach which could reasonably be expected to cause detriment of **tie**, if it recurs frequently or continues, and may result in a termination of this Agreement.

93.2 If, following service of such a Persistent Breach Notice, the breach specified has continued or occurred a further twice after the date falling 30 days after the date of service of the Persistent Breach Notice and before the date falling 365 days after the date of service of such notice, then **tie** may serve another notice ("**Final Persistent Breach Notice**") on the Infraco:

93.2.1 specifying that it is a Final Persistent Breach Notice;

93.2.2 stating that the breach specified has been the subject of a prior Persistent Breach Notice within the period of 365 days prior to the date of service of the Final Persistent Breach Notice; and

93.2.3 stating that if such failure is not remedied within fifteen days or is remedied and occurs twice or more within the 180 day period after the date of service of the Final Persistent Breach Notice, this Agreement may be terminated with immediate effect.

- 93.3 Provided that for the purpose of this Clauses 93.1 and 93.2.3 respectively, a breach shall only be deemed to have:
- 93.3.1 occurred three or more times where it has occurred three or more times as a result of the same breach having been committed by (i) the same Infraco Party or (ii) any of Infraco, SDS Provider, Tram Supplier or Tram Maintainer.
- 93.3.2 occurred more than twice where it has occurred more than twice as a result of the same breach having been committed more than twice by (i) the same Infraco Party or (ii) any of Infraco, SDS Provider, Tram Supplier or Tram Maintainer.
- 93.4 Where following the service of a Persistent Breach Notice or Final Persistent Breach Notice as the case may be, the Infraco has terminated or procured the termination of the agreement regarding the party whose acts or omissions gave rise to the service of the Persistent Breach Notice or Final Persistent Breach Notice as the case may be, all Persistent Breach Notices or Final Persistent Breach Notices served under this Clause 93 shall be deemed to be cancelled for the purpose of this Clause 93 and Clause 90 but only in respect of the first three occasions on which the Infraco replaces a subcontractor following service of a Persistent Breach Notice or Final Persistent Breach Notice.

94. EFFECT OF TERMINATION OR EXPIRY

- 94.1 Subject to the provisions of Clauses 88 (*Termination or Suspension for **tie** Default*), 91 (*Termination by Reason of Force Majeure*) and Clause 94.3, the Infraco shall not have any other right or remedy against **tie** on termination of this Agreement.
- 94.2 Subject to any exercise by **tie** of its rights to perform, or to procure a third party to perform, the obligations of the Infraco and subject to the right of the Infraco to suspend pursuant to Clause 88.9, the Parties shall continue to perform their obligations under this Agreement, notwithstanding the giving of any notice of default or breach or termination notice, until the termination of this Agreement becomes effective.
- 94.3 Any termination or expiry of this Agreement shall not prejudice or affect the accrued rights or claims of either Party.
- 94.4 On expiry of this Agreement or any earlier termination of this Agreement for whatever reason, all Deliverables and any information provided by **tie** to the Infraco shall be returned to **tie**, save for any documents which are required to be retained by the Infraco as a matter of Law, in such event certified true copies of the relevant documents shall be provided.

- 94.5 This Agreement shall terminate automatically on the expiry of this Agreement unless it shall have been terminated earlier in accordance with the provisions of this Agreement. The Infraco shall not be entitled to any compensation on expiry of the Agreement.
- 94.6 Expiry or termination of the Agreement shall not affect each Party's respective obligations under, Clause 67 (*Payment in respect of Applications for Milestone Payments*), Clause 68 (*Payment in respect of Maintenance Services*), Clause 69 (*Interest on Late Payments and Set-Off*), Clause 76 (*Required Insurances*), Clause 77 (*Indemnity by Infraco, Liability and Sole Remedy*), Clause 88 (*Termination or Suspension for **tie** Default*), Clause 89 (*Voluntary Termination by **tie***), Clause 90 (*Termination on Infraco Default*), Clause 91 (*Termination by Reason of Force Majeure*), Clause 92 (*Termination for Corrupt Gifts and Fraud*), Clause 94 (*Effects of Termination or Expiry*), Clause 95 (*Transition on Termination or Expiry*), Clause 96 (*Surveys prior to Expiry Date*), Clause 97 (*Dispute Resolution Procedure*), Clause 101 (*Confidential Information*), Clause 102 (*Copyright and Intellectual Property*) and Clause 104 (*Information and Audit Access*) and those obligations shall continue in full force and effect.
- 94.7 Should the expiry of this Agreement result in an early termination of the Tram Maintenance Agreement or Tram Supply Agreement, **tie** shall make payment to the Infraco in respect of any payment the Infraco is obliged to make to the Tram Maintainer or Tram Supplier in accordance with the Tram Maintenance Agreement or Tram Supply Agreement (as appropriate).

95. TRANSITION ON TERMINATION OR EXPIRY

- 95.1 12 months before the Expiry Date and again, as updated, on the Expiry Date or upon termination, the Infraco shall provide to **tie** the following information ("**Handback Package**"):
- 95.1.1 (so far as Infraco is permitted) a list of all contracts, permits, licences, Consents or other documents which are material to the operation of the Edinburgh Tram Network or which have a value in excess of £50,000 or in the case of expiry or termination of the Tram Maintenance Agreement, £5,000, (as Indexed) showing (as appropriate) the contract account number, name, address and telephone number of the parties, contract price, value, term and notice period for termination or expiry date;
- 95.1.2 a list of all computer systems used for the maintenance of the Edinburgh Tram Network together with a description of the systems and all passwords where applicable;

- 95.1.3 the Technical Records and spare parts usage;
 - 95.1.4 a list of Assets forming part of the Edinburgh Tram Network with a value of more than £25,000 or in the case of expiry or termination of the Tram Maintenance Agreement, £2,500, (as Indexed) or which are otherwise key to the operation of the Edinburgh Tram Network;
 - 95.1.5 the names and addresses of all insurers providing the Required Insurances along with the applicable policy members and other references;
 - 95.1.6 a letter, in a form reasonably satisfactory to **tie**, authorising **tie** and its agents to request and to receive from the relevant insurers details of all claims paid or outstanding under the Required Insurances; and
 - 95.1.7 the TUPE Information.
- 95.2 **tie** shall not disclose the terms of the Handback Package to any third party, other than:
- 95.2.1 to the extent in the public domain, or as required by the Law or in the course of conducting, prosecuting or defending any Dispute, or following a Termination Notice in accordance with clauses 95.2.2 and 95.2.3; or
 - 95.2.2 for the purpose of seeking offers from third parties for the provision of any of the Tram Maintenance Services (subject to the provisions of Clause 102 (*Copyright and Intellectual Property*)) and/or the Infrastructure Maintenance Services or like services following the termination or expiry of this Agreement; or
 - 95.2.3 to a Successor Infraco or its sub-contractors for the purpose of ensuring or assisting with continuity of the Tram Maintenance Services and/or the Infrastructure Maintenance Services following termination or expiry of this Agreement provided that the Successor Infraco is required to comply with confidentiality obligations equivalent to those set out in Clause 101 (*Confidential Information*).
- 95.3 The Infraco shall maintain and manage the business of providing the Tram Maintenance Services (as far as is commercially reasonable) and the Infrastructure Maintenance Services with the intent that **tie** or any Successor Infraco would be able to take over that business and secure continuity of the Infrastructure Maintenance Services on a going concern basis at any time following a Termination Notice until the Termination Date becomes effective and/or the Tram Maintenance Services on a going concern basis at any time following a Termination

Notice until the Termination Date (as defined in the Tram Maintenance Agreement) becomes effective.

95.4 Accordingly, following the service of a Termination Notice or in the six month period preceding the expiry of this Agreement, the Infraco shall (and shall procure that the Infraco Parties shall):

95.4.1 take all reasonable steps and co-operate fully with **tie** and any Successor Infraco so that continuation of the Tram Maintenance Services and/or the Infrastructure Maintenance Services after such termination or expiry is achieved with the minimum disruption and so as to prevent or mitigate any inconvenience or risk to health or safety of any **tie** Parties and members of the public;

95.4.2 liaise with **tie** and any Successor Infraco and provide reasonable assistance and advice concerning the Tram Maintenance Services and/or Infrastructure Maintenance Services and their transfer to **tie** or to such Successor Infraco;

95.4.3 allow **tie** and any Successors Infraco access (at reasonable times and on reasonable notice) to each part of the Edinburgh Tram Network provided that such access shall not disrupt or interfere with the performance by Infraco or any Infraco Party of the Infraco Works and **tie** shall, and shall procure that any Successor Infraco shall, during any period when it or they have access to the Edinburgh Tram Network, comply with all Law applicable to working at those premises for the safety of persons and convenience of the public;

95.4.4 provide to **tie** and to any Successor Infraco such non-commercially sensitive information concerning the Edinburgh Tram Network and the Tram Maintenance Services and/or Infrastructure Maintenance Services which is reasonably required for the efficient transfer of responsibility for performance of the Tram Maintenance Services and/or Infrastructure Maintenance Services;

95.4.5 at the request of **tie** and/or the Successor Infraco, save where otherwise expressly provided for under this Agreement, provide the originals of such documentation within 14 Business Days of such termination or the Expiry Date and, so far as the Infraco is permitted use reasonable endeavours to, assign any sub-contracts, guarantees and/or warranties, on either the termination or expiry date save for in the case of termination for Infraco Default (b), in which event the Infraco agrees that an automatic assignation of all Key Subcontractor sub-contracts shall be effected by **tie**

giving written notice of assignment to every Key Subcontractor as provided for in the relevant Key Subcontractor collateral warranty;

95.4.6 allow, or procure that the Infraco Parties shall allow, **tie** and any Successor Infraco such access to any employees engaged by the Infraco or such Infraco Party in the provision of the Tram Maintenance Services and/or Infrastructure Maintenance Services as **tie** or such Successor Infraco shall reasonably require for the purpose of informing and consulting with such employees over the terms and conditions on which their employment will be transferred (to the extent this is the case) to **tie** or any Successor Infraco or sub-contractor engaged by the Successor Infraco; and

95.4.7 on request, make the Handback Package available to **tie** or any Successor Infraco.

95.5 The Infraco shall use reasonable endeavours to facilitate the transfer of responsibility for the Tram Maintenance Services and/or Infrastructure Maintenance Services to a Successor Infraco or to **tie**, as the case may be, and the Infraco shall take no action at any time which is calculated or intended to prejudice or frustrate or make more difficult such transfer. In particular, but without limitation to the generality of the foregoing, the Infraco shall, during the final twelve months of the Term (where this expires by effluxion of time) or during the period following service of a Termination Notice, and whilst the same remains outstanding:

95.5.1 without prejudice to Clause 52.12, not allow levels of stocks and Spare Parts, Special Tools and other spares to fall to the level which might reasonably be expected to prejudice the continuing efficient operation and maintenance of the Edinburgh Tram Network in accordance with Good Industry Practice; and

95.5.2 observe and perform the provisions of Clause 58 (*TUPE and Handover*).

95.6 As soon as reasonably practicable after service of a Termination Notice or at least 90 days prior to the Expiry Date, the Infraco shall, by notice in writing to **tie**, provide (or procure that the relevant Infraco Parties provide) to **tie** and any nominated Successor Infraco an inventory of all Spare Parts, Special Tools, other spares, consumables and other items used in the Maintenance Services which do not form part of the Edinburgh Tram Network and permit **tie** or any Successor Infraco to inspect and examine the same. The Infraco and **tie** shall seek to agree the price for the spares, consumables and other items transferred under this Clause 95.6 but in the event of failure to agree such a price the same shall be determined by reference to the Dispute Resolution Procedure. Following agreement or determination of a price the Infraco shall (or shall procure that the relevant Infraco Party which owns the same shall) with effect from the date of payment of such price transfer to **tie**, or as it may nominate in writing

to the Infraco, all such Spare Parts, Special Tools, and other spares, consumables and other items as may be specified by a notice in writing from **tie** to the Infraco (other than those consumed or used in the normal course of the Tram Maintenance Services and/or Infrastructure Maintenance Services prior to such transfer).

95.7 NOT USED

95.8 The Infraco shall, to the extent required by this Agreement, handover the Assets to CEC, **tie** or a Successor Infraco, such handover to be in a timely and orderly fashion so as to preserve the technical and commercial integrity and goodwill and value of the Edinburgh Tram Network and to enable an efficient handover of the Infraco Works and subject to Clause 95.6 and 95.9, shall not be entitled to any payment in respect of the handover or any relinquishment of licence to use the Assets or perform the Infraco Works.

95.9 **tie** may request to purchase any assets owned by the Infraco which have been used in the performance of the Infraco Works or used in relation to the Edinburgh Tram Network. If the Parties agree a fair market value for any such assets, **tie** shall pay the agreed sum to the Infraco and the Infraco shall deliver such assets to **tie** as soon as reasonably practicable.

96. SURVEYS PRIOR TO EXPIRY DATE

96.1 Without prejudice to Clause 55 (*Surveys of the Edinburgh Tram Network and Audits of Maintenance Procedures*) and Clause 95 (*Transition on Termination or Expiry*), at any time after the issue of the Reliability Certificate if **tie** reasonably believes that the Infraco is in breach of its obligations under Clause 52, **tie** shall be entitled to carry out or procure a survey from a professionally qualified, competent and skilled person experienced in carrying out surveys of a similar nature, scope and complexity to those being procured ("**Condition Survey**") of the Edinburgh Tram Network to assess to what extent it has been and is being maintained by the Infraco in accordance with this Agreement, and in particular under Clause 52 (*Maintenance*), Schedule Part 2 (*Employer's Requirements*), Schedule Part 21 (*Tram Maintenance Agreement*). Where such Condition Surveys will impact upon the Infrastructure Maintenance Services or require the assistance of the Infraco, such Condition Surveys shall be carried out no more frequently than once every quarter.

96.2 **tie** shall notify the Infraco in writing a minimum of 10 Business Days in advance of the date they wish to commence a Condition Survey (or elements of such survey). **tie** shall consider in good faith any reasonable written request by the Infraco for the relevant Condition Survey to be carried out on a different date or dates if such request is made at least 5 Business Days prior to the notified date and the Infraco (acting reasonably) is able to demonstrate that carrying out

the relevant Condition Survey on the notified date would materially prejudice the Infraco's ability to provide the Maintenance Services.

96.3 When carrying out a relevant Condition Survey, **tie** shall (or shall procure that the surveyor shall) use reasonable endeavours to minimise any disruption caused to the provision of the Maintenance Services by the Infraco. The Infraco shall afford **tie** and the surveyor (free of charge) any reasonable assistance required by **tie** and/or the surveyor during the carrying out of the relevant Condition Survey. Subject to Clause 96.4.2, the cost of a Condition Survey and of restoring any damage resulting from the carrying out of the Condition Survey shall be borne by **tie**.

96.4 If, in the reasonable opinion of **tie**, a Condition Survey shows that the Infraco has not complied with or is not complying with its obligations under Clause 52 (*Maintenance*) other than in respect of maintenance work scheduled in the Maintenance Plan:

96.4.1 the Parties shall meet to discuss the Condition Survey and agree the:

96.4.1.1 rectification and/or maintenance work required to bring the condition of the Edinburgh Tram Network to the standard it would have been in if the Infraco had complied or was complying with its obligations under this Agreement, in particular under Clause 52 (*Maintenance*) (the "**Required Condition**");

96.4.1.2 period within which the Infraco must carry out such rectification and/or maintenance work taking into account maintenance work scheduled in the Maintenance Plan other than where such work has been unreasonably deferred; and

96.4.1.3 the likely cost of carrying out such rectification and/or maintenance work,

provided that if the Parties cannot agree the Required Condition, the period within which such work should be carried out or the likely cost of carrying out such rectification and/or maintenance work either Party will be entitled to refer the matter for determination to the Dispute Resolution Procedure.

96.4.2 **tie** shall be entitled to recover the cost of the relevant Condition Survey from the Infraco as a debt where the Conditions Survey shows a material non-compliance with the Infraco's obligations under Clause 52 (*Maintenance*).

96.4.3 Where the cost of remedying any non-compliance as established pursuant to 96.4.1.3 is likely to exceed £50,000, **tie** shall be entitled to require that the Infraco shall provide

within 20 Business Days of a written request from **tie** either (at Infraco's option) a cash deposit or a bond (substantially in the form of part C of Schedule Part 8 equal the lesser of (i) the value of the rectification and/or maintenance works necessary to meet the Required Condition; and (ii) £1,000,000. In the event that, where required by **tie**, Infraco do not provide such bond or cash retention within 20 Business Days **tie** shall be entitled to exercise automatic withholding from payments to Infraco until such time as the monies withheld pursuant to this provision equal the lesser of (i) the value of the rectification and/or maintenance works necessary to meet the Required Condition; and (ii) £1,000,000. The proceeds of any bond, retention or cash deposit made pursuant to this Clause 96.4.3 shall not count towards the Liability Cap pursuant to Clause 77.7.

96.4.4 In the event that the value of the rectification and/or maintenance works as established pursuant to Clause 96.4.1.3 necessary to meet the Required Condition is likely to exceed £1,000,000 **tie** may request Infraco to extend the value of the bond or cash deposit put in place pursuant to Clause 96.4.3 beyond £1,000,000. Should Infraco refuse to increase the value of the bond or cash deposit pursuant to Clause 96.4.3 beyond £1,000,000, **tie** shall be entitled to treat such refusal as an Infraco Default.

96.5 The Infraco shall carry out such rectification and/or maintenance work as is necessary to meet the Required Condition within the period agreed pursuant to Clause 96.4.1.2 and any costs it incurs in carrying out such rectification and/or maintenance work shall be to its own expense.

96.6 Where it has been agreed between the Parties acting reasonably that the rectification and/or maintenance work necessary to meet the Required Condition has been carried out by the Infraco or **tie** then, as soon as practicable (and any event within 10 Business Days of the date on which all such work has been carried out) **tie** shall pay to the Infraco any credit balance remaining on the cash deposit or serve a notice on the Infraco confirming completion of the rectification or maintenance works and that any bond put in place pursuant to Clause 96.4.3 may be released.

96.7 If and to the extent that the Infraco fails to carry out the necessary rectification and/or maintenance work as is necessary to meet the Required Condition within the period agreed pursuant to Clause 96.4.1.2, **tie** shall be entitled to carry out or procure the carrying out of such rectification and/or maintenance work necessary to meet the Required Condition and may make withdrawals from the retention or deposit provided pursuant to Clause 96.4.3 or may call against the bond provided pursuant to Clause 96.4.3 to recover its reasonable and demonstrable costs in carrying out or procuring the carrying out of such works.

- 96.8 In the event that the value of the retention, deposit or bond is insufficient to cover **tie** carrying out or procuring the carrying out of such rectification and/or maintenance work necessary to meet the Return Condition, **tie** shall be entitled to recover such shortfall from the Infraco as a debt.

PART 17 - MISCELLANEOUS

97. DISPUTE RESOLUTION PROCEDURE

- 97.1 The Parties agree that any Dispute shall be dealt with in accordance with the provisions set out in Schedule Part 9 (*Dispute Resolution Procedure*).

98. ASSIGNATION, CHANGE IN LEGAL STATUS AND CHANGES IN CONTROL

- 98.1 Without prejudice to Clause 28 (*Sub-Letting and the Appointment of Sub-Contractors*), the Infraco shall not assign, novate or otherwise transfer the whole or any part of the Agreement without the prior written agreement of **tie** and CEC.

- 98.2 In addition to and without prejudice to Clause 11 (*Novation of the SDS Agreement to the Infraco*), Clause 12 (*Novation of the Tram Supply Agreement to the Infraco*) and Clause 13 (*Novation of the Tram Maintenance Agreement to the Infraco*) **tie** shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:

- 98.2.1 to the Scottish Ministers, CEC, or their statutory successors (enjoying full executive authority in their own right under public administrative law) in accordance with the Tram Legislation; or

- 98.2.2 NOT USED

- 98.2.3

- (a) to TEL;
- (b) or to any other person

in accordance with the Tram Legislation, and whose obligations under this Agreement are in both cases irrevocably guaranteed (in a form reasonably acceptable to the Infraco acting reasonably) by CEC or the Scottish Ministers; or

98.2.4 with the prior written consent of each Infraco Member, such consent shall be deemed not to be unreasonably withheld if the reason for withholding is an objection to the assignee from any of the Infraco's sureties pursuant to Clause 74.

99. NOT USED

100. SECURITY INTERESTS

100.1 The Infraco shall not create or agree to create any Security Interest over the Edinburgh Tram Network or part thereof or any Assets owned by **tie** or CEC or over this Agreement.

100.2 The Infraco shall not dispose of any right in respect of or interest in any Asset used in the Infraco Works or relating to the Edinburgh Tram Network if to do so would have a material adverse effect upon either the Edinburgh Tram Network, the rights in the Assets held by CEC, or the position of **tie** under this Agreement, whether or not this Agreement has terminated or expired provided always that restrictions in this Clause 100 (*Security Interests*) shall not apply in the case of:

100.2.1 disposals of redundant or obsolete Assets not required for the Edinburgh Tram Network provided that **tie** has procured CEC consent to such disposal, and CEC receives any proceeds associated with such disposal; or

100.2.2 disposals of property or assets where such property or assets are replaced by other property or assets comparable or superior as to type and function.

101. CONFIDENTIAL INFORMATION

101.1 Each Party:

101.1.1 shall treat all Confidential Information belonging to the other Party as confidential and safeguard it accordingly; and

101.1.2 shall not disclose any Confidential Information belonging to the other Party to any other person without the prior written consent of the other Party, except to such person and to such extent as may be necessary for the performance of this Agreement or except where disclosure is otherwise expressly permitted by the provisions of this Agreement.

101.2 Each Party shall take all necessary precautions to ensure that all Confidential Information obtained from the other Party under or in connection with the Agreement:

101.2.1 is given only to such of the staff, contractors, agents, subcontractors, consultants and professional advisors engaged by it in connection with this Agreement as is strictly necessary for the carrying out by that Party of its obligations under this Agreement; and

101.2.2 is treated as confidential and not disclosed (without prior approval) or used by any such staff, contractors, agents, subcontractors, consultants and professional advisors otherwise than for the purposes of this Agreement.

101.3 Where it is considered necessary in the opinion of the owner of the Confidential Information, the other Party shall ensure that its staff, contractors, agents, subcontractors, consultants and professional advisors sign a confidentiality undertaking before commencing work in connection with this Agreement.

101.4 Neither Party shall use any Confidential Information it receives from the other Party otherwise than for the purposes of this Agreement.

101.5 The provisions of Clauses 101.1 to 101.4 shall not apply to:

101.5.1 any information which is or becomes public knowledge (otherwise than by breach of this Clause 101 (*Confidential Information*));

101.5.2 any information which was in the possession of the receiving Party, without restriction as to its disclosure, before receiving it from the disclosing Party;

101.5.3 any information which is received from a third party who lawfully acquired it and who is under no obligation restricting its disclosure;

101.5.4 any information which is independently developed without access to the Confidential Information;

101.5.5 any disclosure pursuant to a statutory, legal or parliamentary obligation placed upon the Party making the disclosure, including any requirements for disclosure under FOISA, the Code, or the Environmental Information Regulations pursuant to Clauses 101.7 to 101.11 (inclusive);

101.5.6 NOT USED

101.5.7 any information which is required to be disclosed to that Party's insurers, financial advisers and/or legal advisers subject to Clauses 101.2 and 101.3;

101.5.8 any registration of information in respect of the Consents and any property registration required;

101.5.9 any disclosure of information by **tie** to TEL, CEC, any department, office or agency of the Scottish Executive, the Scottish Ministers, Transport Scotland, Partnerships UK Limited or the UK government where such Confidential Information is required to be disclosed by Law or where the disclosing Party, acting reasonably, needs to disclose such information in order to comply with the provisions of this Agreement;

101.5.10 NOT USED

101.5.11 any disclosure of Confidential Information obtained from the Infracore to any government department or any other local government authority or public authority equivalent in status to **tie** where such Confidential Information is required to be disclosed by Law or where the disclosing Party, acting reasonably, needs to disclose such information in order to comply with the provisions of this Agreement. All government departments or any other local government authority or public authority equivalent in status to **tie** receiving such Confidential Information shall be entitled to further disclose the Confidential Information to other government departments or any other local government authority or public authority equivalent in status to **tie** on the basis that the information is confidential and is not to be disclosed to a third party which is not part of any government department or any other local government authority or public authority equivalent in status to **tie** provided that in disclosing information under this Clause 101 (*Confidential Information*) **tie** discloses only the information which is necessary for the purpose concerned and requires that the information is treated in confidence and that a confidentiality undertaking is given where appropriate,

provided that in disclosing information under this Clause 101 (*Confidential Information*) **tie** discloses only the information which is necessary for the purpose concerned and requires that the information is treated in confidence and that a confidentiality undertaking is given where appropriate. **tie** shall be responsible to the Infracore for any abuse by the recipient in breach of such confidentiality obligation.

101.6 Nothing in this Clause 101 (*Confidential Information*) shall prevent either Party from using any techniques, ideas or know-how gained during the performance of this Agreement in the course of its normal business, to the extent that this does not result in a disclosure of Confidential Information or an infringement of Intellectual Property Rights including those rights expressed in Clause 102 (*Copyright and Intellectual Property*).

101.7 The Infraco acknowledges that **tie** is subject to the requirements of FOISA and the Environmental Information Regulations and shall assist and cooperate with **tie** (at **tie's** expense) to enable **tie** to comply with any Information disclosure requirements in relation to this Agreement. **tie** agrees that it shall comply with the terms of the Code in respect of the discharge of its obligations under FOISA.

101.8 The Infraco shall, and shall procure that the Infraco Parties shall:

101.8.1 transfer any Request for Information to **tie** as soon as practicable after receipt and in any event within 5 Business Days of receiving any Request for Information;

101.8.2 provide all reasonable assistance requested by **tie**, at **tie's** cost, in order to support **tie** and CEC with regard to any requirement from Scottish Ministers regarding their obligations pursuant to the Code;

101.8.3 provide all necessary assistance as reasonably requested by **tie** to enable **tie** to respond to a Request for Information relating to this Agreement within the time for compliance set out in section 10 of FOISA or regulation 5 of the Environmental Information Regulations.

101.9 **tie** shall be responsible for determining at its absolute discretion whether the Confidential Information and/or any other Information:

101.9.1 is exempt from disclosure in accordance with the provisions of the Code, FOISA or the Environmental Information Regulations; and

101.9.2 is to be disclosed in response to a Request for Information,

save that, where any Request for Information relates to Confidential Information disclosed by the Infraco under this Agreement, **tie** shall, where practicable, in advance of making any disclosure under FOISA or the Environmental Information Regulations notify the Infraco of such request and consult with the Infraco regarding all reasonable representations by the Infraco that such Confidential Information is exempt information.

101.10 In no event shall the Infraco respond directly to a Request for Information unless expressly authorised to do so by **tie**.

101.11 The Infraco acknowledges that **tie** may be obliged, pursuant to the Code, FOISA, or the Environmental Information Regulations to disclose Information:

101.11.1 without consulting with the Infraco; or

101.11.2 following consultation with the Infraco and having taken its views into account.

101.12 NOT USED

101.13 The Infraco acknowledges that any lists or schedules provided by it outlining Confidential Information are of indicative value only and that **tie** may nevertheless be obliged to disclose Confidential Information in accordance with Clause 101.7.

101.14 Any public relations material, press releases, public presentations or conference engagements in relation to this Agreement planned by the Infraco requires **tie's** prior written approval.

101.15 If a Party becomes required in circumstances contemplated by clauses 101.5.5, 101.5.9, 101.5.10 or 101.5.11 to disclose any Confidential Information, such Party shall give to the Party which owns such Confidential Information as much notice as is practical in the circumstances of such disclosure and shall co-operate with that other Party, having due regard to the other Party's views, and take such steps as the other Party may reasonably require in order to enable it to mitigate the effect of, or avoid the requirements for, any such disclosure.

102. COPYRIGHT AND INTELLECTUAL PROPERTY

102.1 All the Infraco IPR shall be owned by the Infraco and/or the Infraco Parties at all times.

102.2 The Infraco hereby:

102.2.1 assigns by way of future assignation to **tie** with full title guarantee the Project IPR which is created by it and used by the Infraco to carry out its obligations under this Agreement for all purposes for all of the residue of the term of such Intellectual Property Rights and all renewals or extensions thereof and together with all accrued causes of action in respect thereof, provided that **tie** shall grant a non-exclusive, perpetual, transferable and royalty-free licence in such Project IPR to the Infraco to use, have used and sublicense such Project IPR without any restriction.

102.2.2 grants to **tie** a non-exclusive perpetual irrevocable royalty free licence to use such Infraco IPR which is contained in the Deliverables as may be necessary for **tie** to use in relation to the Infraco Works and the Maintenance Services and any extension of the Edinburgh Tram Network and undertakes to procure for **tie** a licence on the same terms as above in respect of any Project IPR created by the Infraco Parties.

102.2.3 grants to **tie**, with the prior written consent of the Infraco such consent not to be unreasonably withheld, the right to grant non-exclusive non-assignable sub-licences to third parties for such periods of time as **tie** may reasonably require and otherwise on the same terms as the licence granted to **tie** pursuant to Clause 102.2.2 above, to use the Infraco IPR referred to in that clause (other than in relation to Third Party Software and commercially available software which is subject to the provisions of Clause 102.9) in so far as is necessary or desirable for such third party to use such Infraco IPR in relation to the Infraco Works for the Edinburgh Tram Network, the Maintenance Services and any extension of the Edinburgh Tram Network.

102.2.4 **tie** acknowledges that the rights in and title to Project IPR created by the Infraco Parties shall remain vested in those parties.

102.3 For the avoidance of doubt, the persons to whom **tie** may grant sub-licences pursuant to Clause 102.2.3 above shall include:

102.3.1 any **tie** Party;

102.3.2 CEC and TEL;

102.3.3 the Operator and any party other than the Operator providing support to **tie** in relation to the Infraco Works, the Maintenance Services and the Edinburgh Tram Network;

102.3.4 any Successor Infraco and any party providing maintenance in relation to the Infraco Works and the Edinburgh Tram Network; and

102.3.5 any permitted assignee or transferee under this Agreement.

102.4 **tie** shall not exercise any of the rights licensed to it pursuant to this Clause 102 to design, construct, manufacture or commission or procure the same:

102.4.1 unless and until **tie** and the Infraco cannot agree a price and/or delivery time in relation to a Spare Part or Special Tool; or

102.4.2 unless a notice pursuant to Clause 12.8 has been served by the Infraco; or

102.4.3 unless **tie** has served a Final Persistent Breach Notice caused by the Tram Supplier.

102.5 The copyright of this Agreement and any data or software supplied to the Infraco by **tie**, shall remain solely with **tie**.

- 102.6 The Infraco shall at any time and from time to time hereafter at the request of **tie**, execute all such documents and do all such further acts as may be required in order to vest the rights referred to in Clause 102.2.1 in **tie**.
- 102.7 The Infraco waives any and all moral rights held or to be held by the Infraco in the Deliverables (save in relation to Infraco IPR contained in them) and the Project IPR assigned to **tie**.
- 102.8 **tie** shall not be entitled to adapt, reverse engineer, decompile, disassemble and/or modify the Tram Software in whole or in part except:
- 102.8.1 as permitted by Law; or
- 102.8.2 to the extent that such action is legitimately required for the purposes of integrating the operation of the Tram Software with the operation of other software or systems used by **tie** or **tie** Parties in connection with the Edinburgh Tram Network.
- 102.9 To the extent that any of the Deliverables are generated by or maintained on a computer or similar system, the Infraco shall use reasonable endeavours to procure for the benefit of **tie**, at no charge or at the lowest reasonable fee, the grant of a licence or sub-licence for any relevant Third Party Software (other than any commercially available standard software) on the same terms as the Infraco Software is licensed to **tie**, to enable **tie** or its nominee to access and otherwise use (subject to the payment by **tie** of the relevant fee, if any) such Deliverables in connection with this Agreement. As an alternative, the Infraco may provide such Deliverables in a format which may be read by software generally available at reasonable prices in the market at the relevant time or in hard copy format. The Infraco shall obtain for **tie** the right to use commercially generally available (standard) software incorporated into or used in the Infraco Works and provided as Deliverables on the standard licence terms granted with such software.
- 102.10 The Infraco shall ensure the back-up and storage in safe custody of the Deliverables in accordance with Good Industry Practice, as agreed with **tie** in advance, such agreement not to be unreasonably withheld or delayed.
- 102.11 For the purposes of this Clause 102 (*Copyright and Intellectual Property*), "use" shall include the acts of copying, modifying, adapting or translating the material in question and/or incorporating them with other materials and the term "the right to use" shall be construed

accordingly. The Infraco shall not be liable or responsible for any modifications or adaptations made by **tie** or its licencees.

102.12 The provisions of this Clause 102 (*Copyright and Intellectual Property*) shall apply during the continuance of this Agreement and after its termination howsoever arising, and immediately following termination howsoever arising, the Infraco shall provide **tie** with:

102.12.1 a copy of the object code for the Third Party Software and the Infraco Software on media that is acceptable to **tie** (acting reasonably);

102.12.2 a copy of the source code for the Specially Written Software on media that is acceptable to **tie** (acting reasonably); and

102.12.3 a copy of all documentation, manuals and other technical information relating to the Third Party Software, the Specially Written Software and the Infraco Software that is reasonably required by **tie** to operate, manage and support the Third Party Software, the Specially Written Software and the Infraco Software.

102.13 The Infraco shall not publish any document or matter relating to the Infraco Works or this Agreement, either alone or in association with any other body or person, without the prior written consent of **tie**, which consent shall not be withheld unreasonably.

Software

102.14 In designing and creating Infraco Software forming part of the Deliverables, the Infraco shall ensure:

- (a) that orderly auditable records of the progress of the development of the Infraco Software from the functional requirements to the final code are maintained, and that regular verification and testing occurs at each stage of the design process;
- (b) that it shall produce, during the development of the Infraco Software comprehensive and accurate documentation including specifications, cause and effect charts and flowcharts are produced;
- (c) that the documentation, access rights, details of configuration software and the like produced in accordance with (a) above, is such as to enable an appropriately qualified independent auditor (who is not involved in the original design) to:
 - (i) relate the Infraco Software to the performance of the relevant equipment under normal and fault conditions;

- (ii) to verify its compliance with the functional requirements of that equipment;
- (iii) to operate and reconfigure the Software without the assistance of the Infraco;
and
- (d) that the Infraco Software is designed, developed and documented following an industry-recognised standard, using recognised quality control methods.

102.15 Subject to the terms of any Third Party Software Licences, the Infraco shall to a reasonable extent, create or provide:

- (a) coding and documentation, in machine readable form, of the final structure of the Infraco Software, and of the intermediate stages leading to it (i.e. source and object codes); and
- (b) where **tie** so instructs, usable copies of any ancillary computer programs used to generate the code (such as compilers) provided that **tie** meet the costs of any additional Third Party Software Licences.

102.16 Where the Infraco is required to provide Infraco Software as part of a Deliverable under this Agreement it shall, within thirty (30) days of acceptance of the Infraco Software by **tie** place, or shall procure the placement of, a copy of the source code of the Infraco Software in escrow with the NCC Group of Manchester Technology Centre, Oxford Road, Manchester ("**NCC**") or such other escrow agent as the Parties may agree. The Parties shall enter into NCC's standard escrow agreement (provided that, in the case of Third Party Software, the Infraco shall procure that the owner of such software enters into such escrow agreement) for a single licensee (or if no such agreement exists, the appropriate standard agreement as stipulated by NCC). The cost of such source code deposit (including all renewal costs) shall be payable by Infraco.

Technical Library

102.17 The Infraco shall;

- (a) as soon as reasonably practicable establish a secure, virtual electronic site for the storage of Deliverables other than the source code (the "**Technical Library**"). Such electronic site shall be capable of being accessed through a standard web browser. At **tie's** request, the Infraco will in addition also establish a physical site with paper copies of the Technical Library;

- (b) as and when Deliverables (other than the source code) are produced or updated from time to time:
 - (i) where such Deliverables are produced or updated by the Infraco, promptly ensure that a copy of those Deliverables or its updated version is placed in the Technical Library; and
 - (ii) where such Deliverables are produced or updated by any Subcontractor, as soon as reasonably practical ensure that a copy of those Deliverables or their updated version(s) are placed in the Technical Library;
- (c) establish an index, in a format approved by **tie**, of all Deliverables deposited in the Technical Library from time to time and update that index whenever any such Deliverables are deposited in the Technical Library;
- (d) deliver one copy of the index and each update established under clause 102.17(c) to **tie**; and
- (e) permit **tie** (or its nominee) to have access to the Technical Library from time to time during normal business hours, and following reasonable notice from **tie** (or its nominee) to the Infraco, for the purpose only of auditing its contents against the current index.

102.18 Within three Business Days of the earlier of the issue of the Reliability Certificate pursuant to Clause 47.4 or the termination of this Agreement, the Infraco shall hand over the Technical Library, and the secure access to it, to **tie** and the Infraco's obligations in relation to the further maintenance of the Technical Library shall cease. Should an audit of the contents of the Technical Library against the current index reveal that the index does not contain details of categories or types of Deliverables which should be contained within the Technical Library, **tie** may request and the Infraco grants access to **tie** to the Technical Library from time to time during business hours in order to audit the contents of the Technical Library to determine whether such categories and types of Deliverables are in fact contained within the Technical Library. Any such request shall be made with reasonable notice and shall indicate with reasonable clarity the Technical Information or the type of Deliverable which is required for review.

102.19 In relation to Tramco IPR and Tramco Project IPR, the provisions of Schedule Part 39 shall apply.

103. DATA PROTECTION

103.1 For the purpose of the following clauses, the term "**personal data**" shall have the meaning given to it in the Data Protection Act 1998.

103.2 The Infraco shall, in relation to any personal data relating to the performance of the Infraco Works in respect of which it is either the "data controller" or the "data processor" for the purposes of the Data Protection Act 1998, comply with the obligations of a "data controller" under the provisions of the seventh data protection principle as set out in Schedule 1 of that Act. In addition, the Infraco:

103.2.1 shall have at all material times (and shall use its reasonable endeavours to procure that all the Infraco Parties have or will have at all material times) the appropriate technical and organisational measures in place against unauthorised or unlawful processing of personal data and against accidental loss or destruction of, or damage to, personal data held or processed by it;

103.2.2 shall (and shall use its reasonable endeavours to procure that the Infraco Parties shall) take at all material times, all reasonable steps to ensure the integrity of any of its staff with access to personal data processed in connection with the Infraco Works;

103.2.3 shall act only on the instructions of **tie** in relation to the processing of any personal data in respect of which **tie** is the "data controller" for the purposes of that Act;

103.2.4 shall only obtain, hold, process, use, store and disclose such personal data as is necessary to perform its obligations under this Agreement; and

103.2.5 shall allow **tie** access to any relevant premises on reasonable notice to inspect its procedures referred to in Clause 103.2.1.

104. INFORMATION AND AUDIT ACCESS

104.1 The Infraco shall, in accordance with Good Industry Practice, keep and maintain:

104.1.1 all Deliverables;

104.1.2 all invoices, timesheets and expense claims for which the Infraco has sought or is seeking reimbursement under the provisions of this Agreement;

and shall keep the above items for at least six years following expiry or termination of this Agreement.

- 104.2 The items referred to in Clause 104.1 shall be kept in good order and in such form so as to be capable of audit (including by electronic means) by **tie's** Representative, **tie**, CEC, **tie's** auditors or CEC's auditors or any other third party. The Infraco shall make such records available for inspection by or on behalf of **tie's** Representative, **tie**, CEC, **tie's** auditors or CEC's auditors or any other third party at all reasonable times during normal working hours on not less than one Business Day's notice. Save where an Infraco Default has occurred and is continuing, the frequency of any audit or inspection pursuant to this Clause 104 shall be reasonable and **tie** shall, and shall procure that **tie's** Representative and any other agents or representatives shall, during any period when it or they have access to any premises of the Infraco or any Infraco Party, comply with all rules and regulations notified to **tie** applicable to working at those premises for the safety of persons and convenience of the public.
- 104.3 In addition to the requirements of Clause 104.1 and 104.2, the Infraco shall provide to **tie's** Representative, **tie**, CEC, **tie's** auditors, CEC's auditors or their successors, any other information, documents, records and the like in the possession of, or available to the Infraco (and to this end, the Infraco shall use all reasonable endeavours to procure that all such items in the possession of the Infraco Parties shall be available to it) as may be reasonably requested by **tie's** Representative, **tie**, CEC, **tie's** auditors or CEC's auditors for any purpose in connection with this Agreement and/or the Infraco Works.
- 104.4 The Infraco shall provide and shall procure that the Infraco Parties shall provide such assistance as **tie** may reasonably require from time to time, to enable **tie** and CEC to meet their obligations to provide reports and returns pursuant to Law, directions and guidance applicable to the passenger transport sector, and to carry out audits.
- 104.5 The Infraco shall comply, at its own cost, with any reasonable request by **tie** in respect of the recording, storage, keeping, disclosure, organisation, use, processing, dissemination, deletion or destruction of any records, data or information obtained by the Infraco as a result of carrying out the Infraco Works in so far as is in accordance with the HSQE System.
- 104.6 **tie** shall provide to the Infraco (subject to reasonable notice and relevant undertaking as to costs) such information within its possession or control with respect to the Edinburgh Tram Network as the Infraco may reasonably request to enable it to perform its obligations under this Agreement, provided that **tie** shall have no obligation to provide information with respect to which it is subject to an obligation of confidentiality (whether under any Law, at contract or otherwise).
- 104.7 The provisions of this Clause 104 (*Information and Audit Access*) shall apply during the continuance of this Agreement and after its expiry or termination howsoever arising.

105. HEALTH AND SAFETY, QUALITY ASSURANCE AND ENVIRONMENTAL MANAGEMENT SYSTEM

105.1 The Infraco shall operate:

105.1.1 a health and safety management system, the standard of which shall comply with OHSAS 18001 or HSG65;

105.1.2 a quality management system, the standard of which shall comply with BS EN ISO 9001:2000; and

105.1.3 an environmental management system, the standard of which shall comply with BS EN ISO 14001:2004;

which shall be known together as the "**HSQE System**".

105.2 The Infraco shall (and shall procure that the Infraco Parties) comply with the HSQE System and the Infraco shall develop appropriate management plans so as to ensure such compliance with the HSQE System.

105.3 If any Deliverable has not been prepared in accordance with the HSQE System, **tie's** Representative shall so inform the Infraco in writing giving reasons. If such non-compliance gives rise to a defect in the Infraco Works then the Infraco shall not be entitled to make any claim against **tie** for an extension of time or payment in respect of such defect.

105.4 Compliance with the HSQE System shall not relieve the Infraco from any of its other duties, obligations or liabilities under this Agreement.

105.5 The Infraco shall appoint (or shall procure the appointment of) an HSQE Manager as soon as reasonably practicable following the Effective Date. The identity of the HSQE Manager (and any replacement) shall be subject to the approval of **tie's** Representative (such approval not to be unreasonably withheld or delayed).

105.6 The HSQE Manager shall:

105.6.1 ensure the effective operation of the HSQE System described in this Clause 105 (*Health and Safety, Quality Assurance and Environmental System*);

105.6.2 audit the HSQE System at regular intervals and report the findings of such audit to **tie's** Representative;

105.6.3 review the HSQE System at intervals agreed with **tie's** Representative to ensure its continued suitability and effectiveness; and

105.6.4 liaise with **tie's** Representative on all matters relating to the HSQE System.

106. ENTIRE AGREEMENT

106.1 Except where expressly provided otherwise in this Agreement, this Agreement constitutes the entire agreement between the Parties in connection with its subject matter and supersedes all prior representations, communications, negotiations and understandings including the PB Agreement, Weisbaden Agreement and Rutland Square Agreement and the 9th May 2008 Agreement, concerning the subject matter of this Agreement.

106.2 Each of the Parties confirms to the other that it has neither been induced to enter into this Agreement in reliance on, nor has it made, any representation or warranty except those contained or referred to in this Agreement.

106.3 Any representations or warranties other than those contained or referred to in this Agreement are superseded and extinguished by this Agreement.

106.4 The Parties agree that the PB Agreement, Weisbaden Agreement and Rutland Square Agreement and the 9th May 2008 Agreement shall terminate forthwith on the Commencement Date and neither Party shall have any liability in respect thereof from the date of such termination.

106.5 Each Party irrevocably and unconditionally waives all rights and remedies which it might otherwise have had in relation to any representations or warranties other than those contained or referred to in this Agreement save in respect of any fraudulent misrepresentation.

107. FURTHER ASSURANCE

107.1 Each Party shall at the reasonable request and cost of the other (save where it is expressly provided that the cost of such act or execution shall be for that Party's account) do any act or execute any document that may be necessary to give full effect to this Agreement.

108. VARIATIONS TO BE IN WRITING

108.1 No variation or alteration of any of the provisions of this Agreement shall be effective unless it is in writing and signed by both Parties.

109. WAIVERS

- 109.1 Save where expressly stated, no failure or delay by either Party to exercise any right or remedy in connection with this Agreement will operate as a waiver of it or of any other right or remedy nor will any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.
- 109.2 The Parties agree that no waiver shall occur or be deemed to have occurred unless or until clear and unequivocal express waiver of a clearly identified default is contained in a written notice by the waiving Party to the other Party expressly for the purpose of effecting such waiver.
- 109.3 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by Law.

110. NO PARTNERSHIP OR AGENCY

- 110.1 Nothing in this Agreement shall be construed as creating a partnership between **tie** and the Infraco.
- 110.2 The Infraco shall not (and shall procure that the Infraco Parties shall not) act or purport to act as agent for **tie** in relation to any matter unless specifically authorised in writing under this Agreement by **tie**. The Infraco shall not be entitled to bind **tie** in any way or to create any liability or cause of action against **tie** and shall not hold itself out (and shall procure that no Infraco Party shall hold itself out) as having any such authority or power.

111. NOTICES

- 111.1 Any notice or notification required or authorised to be given under this Agreement by one Party to the other shall be:
- 111.1.1 in writing;
- 111.1.2 sent by one of the following methods:
- 111.1.2.1 pre-paid special or recorded delivery post or facsimile transmission addressed to the Party to which it is given at:

- (i) in the case of notices given to **tie**: **tie** Limited, Citypoint, 65 Haymarket Terrace, Edinburgh, EH12 5HD, fax number 0131 622 8301 for the attention of: Tram Project Director, or such other address or fax number in the United Kingdom as **tie** may notify the Infraco from time to time for that purpose; or
 - (ii) in the case of notices given to the Infraco: Bilfinger Berger - Siemens Consortium, Lochside House, 3 Lochside Way, Edinburgh Park, Edinburgh EH12 9DT, fax number 0131 452 2518, for the attention of Scott McFadzen, or such other address or fax number in the United Kingdom as the Infraco may notify **tie** from time to time for that purpose; or
- 111.1.2.2 facsimile transmission addressed to the **tie's** Representative or the Infraco's Representative (as appropriate) at a facsimile number notified to the giving Party by the receiving Party for the service of notices under this Agreement from time to time; or
- 111.1.2.3 personal delivery into the hands of:
- (i) in the case of notices given to **tie**, **tie's** Representative; or
 - (ii) in the case of notices given to the Infraco, the Infraco Representative;

111.1.3 be deemed duly served:

- 111.1.3.1 if sent by pre-paid special or recorded delivery post on proof of delivery; or
- 111.1.3.2 if sent via facsimile transmission or personal delivery, on the day of issue of the relevant fax confirmation receipt or such personal delivery (as appropriate), unless that day is not a Business Day or such delivery or transmission is made after 5:00pm on a Business Day in which case it shall be deemed duly served on the next Business Day thereafter.

112. INVALID TERMS

112.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable:

112.1.1 that term shall, to that extent, be deemed not to form part of this Agreement; and

112.1.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

112.2 Without prejudice to any other terms of this Agreement, the Parties shall promptly consult in good faith with a view to agreeing as soon as reasonably practicable one or more provisions in lieu of the invalid provision such as will, so far as is possible under any applicable Law, have the same commercial effect as the invalid provision would have had if it had not been unlawful, unenforceable or invalid.

113. THIRD PARTIES RIGHTS

113.1 It is expressly declared that no rights shall be conferred under this Agreement upon any person other than the Infraco, **tie** and, pursuant to Clause 9 (*Title*), Clause 77 (*Indemnity By Infraco, Liability and Sole Remedy*) and Clause 98(*Assignment, Change in Legal Status and Changes in Control*), CEC and, in the case of Clause 77, the Indemnified Parties (other than CEC and **tie**). There shall not be created by this Agreement a jus quaesitum tertio in favour of any party whatsoever save for CEC by virtue of Clause 9 (*Title*) and Clause 20.14. For the avoidance of doubt, any Indemnified Party who is an officer, agent or employee of **tie** or CEC shall only be entitled to assert this entitlement through **tie** or CEC.

114. CONSENT AND APPROVAL

114.1 The giving of any consent or approval by or on behalf of **tie** shall not in any way relieve the Infraco of any of its obligations under this Agreement or of its duty to ensure the correctness, accuracy or suitability of the matter or thing which is the subject of the consent or approval.

114.2 Failure by **tie** to disapprove or object to any matter or thing shall not prejudice its power subsequently to take action under this Agreement in connection therewith, save where such disapproval or objection is to be made pursuant to Clause 12.8, Clause 13.8, Clause 41 (*Completion of Construction Milestones and Critical Milestones*), Clause 64 (*Relief Events*), Clause 65 (*Compensation Events*), Clause 80 (**tie** *Changes*) or Clause 90 (*Termination for Infraco Default*).

115. DISCRIMINATION

115.1 The Infraco shall not (and the Infraco shall insert a clause to this effect in each contract with any Infraco Party) unlawfully discriminate within the meaning and scope of the provisions of the Equal Pay Act 1970, the Sex Discrimination Act 1975, the Race Relations Act 1976, the Disability Discrimination Act 1995, the Employment Equality (Sexual Orientation) Regulations 2003 and the Employment Equality (Religion or Belief) Regulations 2003.

116. DEROGATIONS

116.1 The Infraco shall not, without the prior written consent of **tie** (acting reasonably), apply for any exemption or derogation from or dispensation under any applicable Law which would otherwise apply to the Infraco Works and including, without limitation, any exemption order under Section 47(3) of the Disability Discrimination Act 1995 or dispensations under the provisions of Section 10 of the Railways and Other Passenger Transport Systems (Approval of Works, Plant and Equipment) Regulations 1994 or any provisions which may replace, modify or supersede such provisions.

117. APPLICABLE LAW

117.1 This Agreement, any document completed or to be a completed in accordance with its provisions and any matter arising from this Agreement or any such document shall be governed by and construed in accordance with Scots law.

117.2 Subject to Clause 97 (*Dispute Resolution Procedure*), the Parties hereby irrevocably submit to the exclusive jurisdiction of the Court of Session in relation to this Agreement, any such document and any such matter.

118. DUTY TO ACT REASONABLY

118.1 Wherever in this Agreement a Party is required to make any determination or to give any decisions, instructions, opinions or consents or to express satisfaction or approval or otherwise take any action, that Party shall act fairly and reasonably within the terms of this Agreement (save where this Agreement expressly states that **tie** is to have absolute discretion), and having regard to all the circumstances.

119. MITIGATION

119.1 In all cases where a Party seeks to establish or alleges a breach of this Agreement or a right to be indemnified or compensated or to be awarded costs in accordance with this Agreement, that Party shall be under a duty to take all reasonable measures to mitigate the loss which has occurred.

120. JOINT AND SEVERAL LIABILITY

120.1 Each Infraco Member enters into this Agreement on the basis of joint and several liability for the performance and discharge of all obligations, save for Clause 75 (*Warranties*) (but not including Clause 75.1.7), arising from or in connection with the Agreement.

121. NO DOUBLE RECOVERY

121.1 Neither Party to this Agreement shall:

121.1.1 be entitled to recover any amount from the other under this Agreement to the extent that it has previously recovered for the same loss or damage under the terms of this Agreement or otherwise; or

121.1.2 claim or purport to claim for the same loss or damage under more than one provision of this Agreement.

IN WITNESS WHEREOF these presents on this and the preceding 236 pages together with Schedule in Fourty Four parts (inclusive) which is annexed and signed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED** at Edinburgh on ~~15~~ ¹⁴ May 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

[Redacted Signature]

WILLIAM GALLAGHER

[Redacted Signature]

JAMES M^C EWAN

CITYPOINT, 65 HAYMARKET

TERRACE

EXECUTED for and on behalf of **BILFINGER BERGER UK LIMITED** at Edinburgh on ~~15~~ ¹⁴ May 2008 by:

Director

Full Name

Director

Full Name

[Redacted Signature]

James John Watson

[Redacted Signature]

GARY STEVE DARTON

EXECUTED for and on behalf of **SIEMENS**
PLC at Edinburgh on ¹³~~14~~ May 2008 by:

[Handwritten signature]



Authorised Signatory

Full Name

1. KOTH

Authorised Signatory



Full Name

MICHAEL FLYNN

**THIS IS SCHEDULE PART 1 REFERRED TO IN THE FOREGOING AGREEMENT
BETWEEN TIE AND THE INFRACO**

**SCHEDULE PART 1
DEFINITIONS AND INTERPRETATION**

1. Unless otherwise defined in this Agreement (including the recitals and the Schedules), save as the context otherwise requires, the following words and expressions shall have the meanings hereby ascribed to them:

"**Abortive Work**" means any work which cannot be used in relation to the Edinburgh Tram Network (but not including work occurring as part of the iterative process of design);

"**Access Permit**" has the meaning given in paragraph 3.4.1 of part A of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*);

"**Access Permit Form**" has the meaning given in paragraph 3.4.2 of part A of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*);

"**Accommodation Works**" means any works arising out of the compulsory purchase process (including the reinstatement of boundary walls, fences) or any other works **tie** are obliged to procure are carried out for third parties associated with the Edinburgh Tram Network

"**Accommodation Works Change**" means any Accommodation Works instructed by **tie** in accordance with Clause 83 (*Accommodation Works*) or which Infraco is required to carry out in accordance with Clause 18.17A.2;

"**Accommodation Works Notice**" has the meaning given in Clause 83 (*Accommodation Work Changes*);

"**Actual Milestone Date**" means the date on which a certificate in respect of a Milestone is issued in accordance with this Agreement;

"**Additional Available Infrastructure**" and "**Additional Available Tram**" means such level of additional availability which **tie** notifies to the Infraco pursuant to Clause 52.24 which is outwith the required Available Infrastructure and Available Tram and which is confirmed by the Infraco pursuant to Clause 52.24.

"**Additional Insurance**" has the meaning given in Clause 76.20;

"Affected Party" means a Party that is unable to comply with all or a material part of its obligations under this Agreement as a direct result of a Force Majeure Event;

"Affiliates" means, in relation to any person, any holding company or subsidiary of that person or any subsidiary of such holding company and "holding company" and "subsidiary" shall have the meaning given to them in section 736 of the Companies Act 1985 and its equivalent under the laws of the Federal Republic of Germany and the laws of Spain;

"Agreement" means Clauses 1 to 121 (inclusive) together with the Schedule in 44 Parts annexed thereto as may be amended from time to time in accordance with its terms;

"Annual Service Report" has the meaning given to it in Clause 73.4;

"Application for Milestone Payment" means the applications for payment from the Infraco to **tie** in respect of specific identified Milestones and specific identified Critical Milestones. Such applications for payment together with specific identified Milestones and Critical Milestones are set out for each Reporting Period in Schedule Part 5 (*Milestone Payments*);

"Approval Bodies" means any government agency or department, official or public statutory person, utilities, planning authorities, roads authorities, HMRI, HSE, Independent Competent Persons, BAA/EAL, Network Rail, SEPA, SNH, ORR, Historic Scotland, CAA and any other third parties who are to issue or provide Consents which may be required for the design, construction, installation, testing, commissioning, completion, opening, operation, maintenance, use or modification of the Edinburgh Tram Network;

"Assets" means all assets and rights to enable **tie**, CEC, TEL or their assignees or agents to own, operate, maintain and extend the Edinburgh Tram Network, including:

- (a) any materials and equipment forming part of the Edinburgh Tram Network;
- (b) any books and records (including the Operating and Maintenance Manual, health and safety manuals and other know how contained within the Project IPR and the Infraco IPR);and
- (c) any Trams, Spare Parts, Special Tools and other assets (together with any warranties in respect of assets being transferred);

but excluding any assets and rights in respect of which **tie** or CEC is full, legal and beneficial owner by virtue of Clause 9 (*Title*);

"Asset Management System" means the asset maintenance management and recording system described in Schedule Part 2 (*Employer's Requirements*);

"Asset Protection Agreement" means the agreement set out in Schedule Part 27 (*Asset Protection Agreement and Bridge Agreement*);

"Available Infrastructure" means that the Edinburgh Tram Network is fully functional each Operating Day from half an hour before the First Tram is scheduled to leave the Depot until half an hour after the Last Tram is scheduled to return to the Depot, compliant in all material respects with the Employer's Requirements save for any defects to the infrastructure of the Edinburgh Tram Network that will not affect the safety or quality of operation of the Edinburgh Tram Network or its compliance with the Disability Discrimination Act 1995 that has been advised to the Infraco and which does not constitute a restriction in the manner in which the Edinburgh Tram Network is to be operated;

"Available Tram" means a Tram that (i) fully complies with the Tram Maintenance Specification, save for Minor Defects (as defined in the Tram Maintenance Agreement), and (ii) is free from Material Defects (as defined in the Tram Maintenance Agreement);

"BAA" means BAA plc, a company incorporated under the Companies Act with registration number 1970855 and having its registered office at 130 Wilton Road, London, SW1V 1LQ which expression shall include its successors in title and assignees and any of its associated or subsidiary companies with interests at Edinburgh International Airport;

"Background Information" means all and any materials, documents, drawings, plans or other information in paper, electronic or any other form, relating in any way to this Agreement or the Tram Legislation (and the parliamentary process) and made available to the Infraco by **tie**, CEC and/or any of their respective members, officers, agents and/or advisers during the procurement competition relative to this Agreement or thereafter including the Ground Condition Information;

"Base Case RPIX" means RPIX as at 1 September 2007;

"BT" means British Telecommunications PLC, a company incorporated under the Companies Act with registered number 01800000 and having its registered office at 81 Newgate Street, London, EC1A 7AJ;

"Business Day" means any day other than a Saturday or Sunday, or a public holiday recognised by CEC;

"Building Fixing Agreement" means the agreement in the form set out in Schedule Part 33 (*Building Fixing Agreement*);

"CAA" means the Civil Aviation Authority;

"Cable and Wireless" means Cable and Wireless UK, a company incorporated under the Companies Act with registered number 01541957 and having its registered office at Lakeside House, Cain Road, Bracknell, Berkshire, RG12 1XL;

"Case for Safety" means all necessary documentation, information and other requirements for the issue of a safety certificate or a safety authorisation (as appropriate) by the Office of the Rail Regulation pursuant to the Railways and Other Guided Transport Systems (Safety) Regulations 2006;

"CDM Co-ordinator" has the meaning given in Clause 50.1;

"CDM Regulations" means the Construction (Design and Management) Regulations 2007 (SI 2007/320);

"CEC" means the City of Edinburgh Council;

"CEC Guarantee" means the guarantee granted by CEC in favour of Infraco of even date as the date of this Agreement;

"Certificate of Sectional Completion" means any certificate issued by **tie** in accordance with Clause 44.3;

"Certificate of Service Commencement" means the certificate issued by **tie** in accordance with Clause 45.3;

"Certificate of Tram Commissioning" means the certificate to be issued by the Tram Inspector in accordance with Clause 2.4.8 of Schedule Part 34 (*Tram Inspector Agreement*);

"Change in Control" means any sale or disposal of any legal, beneficial or equitable interest in share capital comprising at least 30% of either Infraco Member, the sale of its business and assets or the transfer or acquisition of the ability to direct its management and control;

"Change in Law" means the coming into effect after the 7 August 2007 or, in relation to the Tram Supply Obligations and Tram Maintenance Obligations only, the 14 September 2007 of:

- (a) Legislation, other than any Legislation which on the 7 August 2007 or, in relation to Legislation which affects the Tram Supply Obligations and Tram Maintenance Obligations only, the 14 September 2007 has been published:
 - (i) in a draft Bill as part of a Scottish Executive/Scottish Parliament or United Kingdom Government consultation paper;
 - (ii) in a Bill;
 - (iii) in draft subordinate Legislation within the meaning of section 21(1) of the Interpretation Act 1978; or
 - (iv) as a proposal in the Official Journal of the European Union.
- (b) any Guidance or any changes to Guidance; or
- (c) any applicable judgement of a relevant court of law which changes a binding precedent;
- (d) any new requirement for any statutory Consent other than statutory Consents the need for which had been published on 7 August 2007;

"Code of Construction Practice" or "CoCP" means the code of construction practice set out at part A of Schedule 3 (*Code of Maintenance Practice and Code of Construction Practice*);

"Code of Maintenance Practice" means the code of maintenance practice set out at part B of Schedule 3 (*Code of Maintenance Practice and Code of Construction Practice*);

"Code" means the Scottish Ministers' Code of Practice on the Discharge of Functions by Public Authorities under the Freedom of Information (Scotland) Act 2002 as the same may be amended, varied or replaced from time to time;

"Commencement Date" means the date the CP Certificate has been issued or, if there are no Conditions Precedent, the Effective Date;

"Compensation Event" means:

- (a) any breach by **tie**, the **tie** Representative or any **tie** Party of any of **tie's** obligations under this Agreement which adversely affects the performance of the Infraco Works;
- (b) the failure of **tie** to give possession or access as referred to in Clause 18 (*Land Consents, Permanent Land and Temporary Sites*) or the refusal of any landowner or

occupier to allow the Infraco to exercise the rights of possession or access granted in accordance with this Agreement;

- (c) the exercise by CEC of its discretion to temporarily stop up streets where the exercise of such discretion adversely affects the Infraco's performance of its obligations under this Agreement;
- (d) execution of any Utilities Works or MUDFA Works;
- (e) instructions by **tie's** Representative to which Clause 34.3 applies;
- (f) failure by **tie** to obtain any Land Consent pursuant to Clause 18 (*Land Consents, Permanent Land and Temporary Sites*) (to the extent this is **tie's** responsibility) or any **tie** Consent;
- (g) the discovery by the Infraco of unexploded ordnance, unidentified utility apparatus, adverse physical conditions, ground conditions, artificial obstructions and/or land which is contaminated in the circumstances described in Clause 22.5;
- (h) protestor action directed against **tie** or a **tie** Party or the Edinburgh Tram Network which, save in respect of Tram Supply Protestor Action, lasts (or the impact of which lasts) for more than 14 days provided such protestor action has not arisen as a result of or been caused by an Infraco breach of its obligations under this Agreement or otherwise by any actions or omissions of the Infraco or Infraco Parties unrelated to the Edinburgh Tram Network provided that for the avoidance of doubt such protestor action shall be a Compensation Event as from the fifteenth day of its duration;
- (i) Tram Supply Protestor Action which exceeds one day in duration;
- (j) any breach by Network Rail of the Asset Protection Agreement or the Network Rail Agreement;
- (k) the occurrence of any Operator Event;
- (l) any damage to the Edinburgh Tram Network caused by vandalism;
- (m) the malfunction or non-interoperability of free issue material pursuant to Clause 9.10;
- (n) a breach by **tie** or any **tie** Party of any of its obligations under the Depot Licence which adversely affects the performance of the Infraco Works or any exercise of **tie's**

rights of access which disrupts or interferes with the Infraco Works in terms of Clause 24.6;

- (o) **tie's** Representative's failure to attend the tests or to carry out the inspections (or rearranged inspections or tests) and the carrying out of such tests or inspections on the new dates notified by **tie's** Representative pursuant to Clause 41.1;
- (p) compliance with **tie's** Representative's instructions under Clause 87 (*Suspension of Work*) which involves the Infraco in delay or extra cost (including costs incurred in properly protecting and securing the Infraco Works);
- (q) any breach by the Tram Inspector of the Tram Inspector Agreement;
- (r) any other event which is expressly stated as a Compensation Event in terms of this Agreement;
- (s) the occurrence of a Relief Event which is the direct cause of the Infraco suffering delay of more than 3 months in delivering the Depot where such delay leads to a Compensation Event under the Tram Supply Agreement;
- (t) save as excluded by Clause 19.19, failure of the SDS Provider to achieve the release of Issued for Construction Drawings by the date identified in the Programme for the release of such Issued for Construction Drawings;
- (u) any material breach (as distinct from (t) above) by the SDS Provider of its obligations under the SDS Agreement or in delict in relation to the quality of the Deliverables under the SDS Agreement;
- (v) Operator instructions or actions as stated in Clause 17.35 requiring the addition of works or services not included in the scope of the Tram Supply Agreement and where the Tram Supplier claims reasonable, substantiated economic compensation for such works or services from the Infraco in accordance with Clause 49 (*Compensation Event*) of the Tram Supply Agreement;
- (w) in relation to the granting of Consents for building fixings, where the granting of such Consents is either refused or is delayed in accordance with Clause 20.12;
- (x) delay arising between the date **tie** is notified of a Notified Departure and the actual date on which **tie** issue a **tie** Change Order in respect of such Notified Departure;

"Conditions Precedent" means the execution by the Infraco of the Tram Supply Novation Agreement, the Tram Maintenance Novation Agreement and the SDS Novation Agreement and the provision of those instruments required to be provided on the Effective Date by Clause 74 (*Bond, Parent Company Company Guarantees and Collateral Warranties*) and the agreed form of German legal opinions in respect of each Parent Company Guarantee;

"Confidential Information" means any information which has been designated as confidential by either Party in writing or that ought to be considered as confidential (however it is conveyed or on whatever media it is stored) including information which relates to the business, affairs, properties, assets, trading practices, goods, services, developments, trade secrets, Intellectual Property Rights, know-how, personnel of either Party, all personal data and sensitive personal data within the meaning of the Data Protection Act 1998;

"Consents" means, without limitation, all permissions, consents, approvals, non objections, certificates, permits, licences, agreements, statutory agreements and authorisations, Planning Permissions, temporary traffic regulation orders, building control approvals, building warrants, Access Permits, Permits to Work and all other necessary consents and agreements whether required by Law or the Tram Legislation or under contract provided that, subject to Clause 18.17, **"Consents"** shall not include any Land Consents or Building Fixing Agreements;

"Consents Programme" means the programme for submitting elements of the Design for approval by the relevant Approval Bodies set out in Schedule Part 15 (*Programme*), showing the time assumed for the issue of the relevant Consent by the Approval Body, period allowed in Schedule Part 14 (*Design Review and Design Management Plan*) for **tie** review and the date of issue of the Issued for Construction Drawings for each element of the Design as such programme may be amended from time to time in accordance with this Agreement;

"Construction and Maintenance Stage Consent" means the Consents listed in Table B below and any further Consents required to enable the construction of a design which has been fully consented, but excluding **tie** Consents.

Table B

| Construction and Maintenance Stage Consents (indicative only) | | |
|--|--|--|
| | Temporary Discharge Consents | |
| | Hoarding Licences | |
| | Obtaining and maintaining Building Warrants and subsequent certification | |
| | Testing, commissioning and service commencement permissions and certificates; Temporary Works Consents; Consents pursuant to Clause 21.4 | |

"Construction Interim Certificate" means any certificate to be issued by **tie** in accordance with Clause 67.5;

"Construction Milestone" means any milestone (other than any Critical Milestone) which has been identified and defined as a construction milestone in of Schedule Part 5 (*Milestone Payments*);

"Construction Milestone Completion Certificate" means any certificate in respect of achievement of a Construction Milestone issued by **tie's** Representative in accordance with Clause 41.3;

"Construction Payment Due Date" has the meaning given to it in Clause 67.6;

"Construction Phase Health and Safety Plan" means the plan proposed by the Infracore in accordance with the requirements of the CDM Regulations;

"Construction Works Price" means the construction works price included in Schedule Part 4 (*Pricing*) as may be varied from time to time in accordance with this Agreement;

"Construction/Operational Panel" has the meaning given to it in paragraph 19.1 of Schedule Part 9 (*Dispute Resolution Procedure*); **"Contract Price"** means the Contract Price made up of the elements shown in Schedule Part 4 (*Price*) as may be varied from time to time in accordance with this Agreement;

"Contract Price Analysis" means the analysis set out in section 2.5 of Schedule Part 4 (*Price*);

"**Control Centre**" means the control centre for the Edinburgh Tram Network to be provided by the Infraco pursuant to this Agreement and operated by the Operator pursuant to the DPOFA;

"**CP Certificate**" means the certificate to be issued by **tie** in accordance with Clause 3.3, confirming that each of the Conditions Precedent, if any, have been waived or satisfied;

"**Critical Milestone**" means any milestone which has been identified and defined as "critical" in respect of an Application for Milestone Payment in Schedule Part 5 (*Milestone Payments*);

"**Critical Milestone Completion Certificate**" means any certificate in respect of achievement of a Critical Milestone issued by **tie's** Representative in accordance with Clause 41.3;

"**Critical Milestone Payment**" means the payment to be made against the achievement of a Critical Milestone for an amount set out in Schedule Part 5 (*Milestone Payments*);

"**CSCS**" means Construction Skills Certification Scheme;

"**Deliverables**" all documents, information, reports, diagrams, pricing schedules, records, method statements, risk assessments, manuals, schedules, databases, reinforcement details, photographs, formulae, plans, designs, specifications, drawings (including as-built drawings), details, calculations, analysis, operation and maintenance manuals, software, data, data configuration designs, tools and details, software protocols, source and object codes, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by Infraco (and/or any Infraco Party or any other third party) in relation to the Infraco Works required to deliver the Infraco Works;

"**Depot**" means the depot at Gogar comprising maintenance facilities, stabling facilities, sidings, operations, cleaning, the Control Centre, storage facilities and accommodation for operational and maintenance staff;

"**Depot Licence**" means the licence in the form set out in Schedule Part 32 (*Depot Licence*) as executed by the Infraco, the Operator and Tram Maintainer;

"**Design**" means the design of the Edinburgh Tram Network;

"**Design Manual**" means the design manual issued by CEC from time to time;

"**Design Stage Consents**" means the Consents (in respect of Design produced by SDS Provider or Infraco Design) listed in Table A below and any further consents that the SDS

Provider is responsible for obtaining under the SDS Agreement, save for Construction and Maintenance Stage Consents.

Table A

| Category | Type | Approval Body |
|-------------------------------|---|--|
| Railways and Aviation | HMRI | HMRI |
| | Network Rail | Network Rail |
| | EAL/BAA/Aviation Consents (including EAL Permissions) and EAL Works Data to the extent that the same are deliverables under the SDS Agreement | EAL/BAA/CAA/NATS |
| Planning | Listed Building Consent | CEC Planning Authority |
| | Prior Approval | CEC Planning Authority |
| | Planning Permission | CEC Planning Authority |
| | Conservation Area Consent | CEC Planning Authority |
| | Scheduled Monument Consent | Scottish Executive & Historic Scotland |
| | Advertisement Consent | CEC Planning Authority |
| Traffic Management | Road Technical Approvals relating to structures, lighting, traffic signals, road markings, safety and geometry and drainage | CEC Roads Authority |
| Environment Ecological | Badger Licence | Scottish Natural Heritage |
| | Otter holt/disturbance licence | Scottish Natural Heritage |
| | Bat Licence | Scottish Natural Heritage |
| | Appropriate Assessment | Competent Authority |
| Drainage CAR | CAR General Binding Rules | SEPA |
| | CAR Registration | SEPA |
| | CAR Licence | SEPA |
| | Water/Wastewater Connection | Scottish Water |
| Construction | Discharge Consents to the extent related to design of the permanent works | SEPA |
| | Technical Approval | CEC Bridges/CEC Roads |
| | Building Warrant | CEC Building Standards |
| Radio | OFCOM licence | OFCOM |
| Design Consultation | Third party Design Consultation | Third parties |
| Undertakings | Undertakings to Parliament | Parliament and third parties |
| Agreements | Third parties approvals/consents | Third parties |

"Designated Working Area" means any land, worksite or area of the public road which the Infraco occupies for the purposes of executing the Infraco Works;

"Discriminatory Change in Law" means a Change in Law, the terms of which apply expressly to:

- (a) the Edinburgh Tram Network; and/or
- (b) the Infraco, the Tram Supplier and/or the Tram Maintainer and not to other persons;

"Dispute" means any dispute, difference or unresolved claim between the Parties in connection with or arising from this Agreement;

"Dispute Resolution Procedure" means the procedure set out in Schedule Part 9 (*Dispute Resolution Procedure*);

"DPOFA" means the development, partnering and operating franchise agreement between **tie** and the Operator dated 14 May 2004 as amended by Minute of Variation dated 19 and 20 December 2007;

"DPOFA Change" has the meaning given in Clause 17 (*Interface with the Operator*);

"DPOFA Change Response" has the meaning given in Clause 17 (*Interface with the Operator*);

"DPOFA Infraco Event" means any breach (including any breach which results in an alteration to the Programme) by the Infraco of its obligations set out in this Agreement which (i) results in the Operator asserting any claim against **tie** for relief from the performance of its obligations, compensation or indemnification pursuant to the DPOFA; or (ii) results directly in a **tie** DPOFA Change;

"Drawdown Notice" has the meaning given in Schedule Part 44 (*EAL Works*);

"Drawings" means those plans and drawings contained in Schedule Part 31 (*Drawings*);

"EAL" means Edinburgh Airport Limited, a company incorporated under the Companies Acts with registered number SCO96623 and having its registered office at St Andrew's Drive, Glasgow Airport, Paisley, PA3 2SW;

"EAL Artefacts" has the meaning given to it in paragraph 21 of Appendix 5 Schedule Part 44 (*EAL Works*);

"EAL Lease" means the lease from EAL (as landlord) to CEC (as tenant) dated 20 and 25 February 2008 (as may be amended from time to time);

"EAL Licence" means the licence agreement between EAL and CEC dated 28 January 2008 and 25 February 2008, together with its schedule (as may be amended from time to time);

"EAL Permissions" means all:

- (a) permits, licences, consents, approvals, permissions, warrants, relaxations which are required by any applicable Law; and
- (b) any third party consents which require to be obtained,

for the carrying out of the EAL Works;

"EAL Works" has the meaning given in Schedule Part 44 (*EAL Works*);

"EAL Works Data" has the meaning given in Schedule Part 44 (*EAL Works*);

"Earthworks Outline" has the meaning ascribed to it in Schedule Part 4 (*Pricing*);

"Easynet" means Easynet Telecommunications Limited, a company incorporated under the Companies Act with registered number 02883980 and having its registered office at 44-46 Whitfield Street, London, W1T 2RJ;

"Edinburgh Tram Network" means the tramway which is to be designed, constructed and maintained in Edinburgh pursuant to this Agreement in Phase 1a (forming part of Line One and Line Two as described in the Tram Legislation) and, if the Phase 1b option set out in Clause 85 is exercised, Phase 1b, together with all associated works and facilities required pursuant to this Agreement including all civil engineering and track works, Trams, infrastructure, plant, machinery and equipment installed or used for the operation of such tramway;

"Effective Date" means the last date of execution of this Agreement;

"EHS KPI Deduction" has the meaning given in Clause 67.5;

"EIA" means environmental impact assessment;

"EMC" means electro magnetic current;

"Emergency Services" means Lothian and Borders Police, Lothian and Borders Fire Brigade, British Transport Police, Scottish Ambulance Services and HM Coastguard;

"Employer's Requirements" means the specification or specifications set out in Schedule Part 2 (*Employer's Requirements*) and any modification thereof or addition thereto as may be made from time to time in writing by **tie** or **tie's** Representative in accordance with this Agreement;

"Environmental Information Regulations" means the Environmental Information (Scotland) Regulations 2004, Scottish SI 2004/520;

"Environmental Statements" means the environmental statements supporting the Tram Legislation;

"Estimate" means the estimate to be provided by the Infraco pursuant to Clause 80 (*tie Change*);

"Euro Compliant" has the meaning given in Clause 9.10;

"Expiry Date" means (subject to **tie's** right to extend in accordance with Clause 2) the date falling 10 years from the issue of the Certificate of Service Commencement;

"Expiry Survey" has the meaning given in Clause 96.1;

"Extended Expiry Date" means the date falling 15 years from the issue of the Certificate of Service Commencement or such later date as may be agreed between the Parties in accordance with Clause 2.4;

"Final Persistent Breach Notice" means a notice served by **tie** pursuant to Clause 93.2;

"Financial Panel" has the meaning given to it in paragraph 19.1 of Schedule Part 9 (*Dispute Resolution Procedure*);

"First Party" has the meaning given in Clause 6.3;

"FOISA" means the Freedom of Information (Scotland) Act 2002 and any subordinate legislation made under that Act from time to time together with any guidance and/or codes of practice issued by the Scottish Information Commissioner in relation to such legislation;

"Force Majeure Event" means the occurrence after the Effective Date of:

- (a) war, civil war or armed conflict in the United Kingdom or the United Kingdom and Spain;

- (b) nuclear, chemical or biological contamination unless the source or cause of the contamination is the result of actions by the Infraco or any Infraco Party; or
- (c) pressure waves caused by devices travelling at supersonic speeds;
- (d) exceptionally adverse weather conditions affecting shipment or transportation of Trams.

"Forth Ports" means Forth Ports PLC a company incorporated under the Companies Acts with registered number SC134741 and having its registered office at 1 Prince of Wales Dock, Leith, Edinburgh, EH6 7DX;

"Free Issue Fare Collection Equipment" means all fare collection equipment issued to Infraco or an Infraco Party by **tie** or a **tie** Party;

"General Change in Law" means a Change in Law which is not a Qualifying Change in Law;

"Good Industry Practice" means using standards, practices, methods and procedures conforming to Law and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably be expected from a large, reputable, professionally qualified, competent and skilled organisation experienced in carrying out activities of a similar nature, scope and complexity to those comprised in the Infraco Works and seeking in good faith to comply with its contractual duties and all duties owed by it;

"Green Zone Working" means the term applied to those works carried out on Network Rail infrastructure while traffic is still operating and staff are protected by means other than look-out;

"Ground Condition Information" means the materials, documents, surveys, analysis, drawings, plans or other information in paper or electronic, relating in any way to the ground and physical conditions at the Site as set out in Part A Schedule Part 41 (*Ground Conditions and Utilities Information*);

"Guidance" means any applicable guidance, policy, direction or determination issued by any Approval Body with which **tie**, CEC, the Infraco and/or the Infraco Parties are bound to comply, and shall include the **tie** and CEC Policies (set out in Schedule Part 32 (*tie and CEC Policies*));

"Handback Package" means the information referred to in Clause 95 (*Transition on Termination or Expiry*), as updated by the Infraco from time to time in accordance with the provisions of Clause 95 (*Transition on Termination or Expiry*);

"Hazardous Materials" means any materials, Parts or systems generally known and accepted at the time of their use by the Infraco or any Infraco Party in performing the Maintenance Services to comprise or contain a toxic substance or other hazard to the safety or health of persons or safety of property;

"Health and Safety File" has the meaning given in Clause 50.1;

"Heritable Proprietor" means the heritable proprietor of a building, or where such building consists of a tenement or other flatted dwelling houses, the heritable proprietor of each flat or sub-unit;

"Historic Scotland" means an agency within the Scottish Executive Education Department which was established in April 1991 and having its principal office at Longmere House, Salisbury Place, Edinburgh, EH9 1SH;

"HMRI" means Her Majesty's Railway Inspectorate or its successor or equivalent regulatory body or person;

"HSE" means Health and Safety Executive;

"HSQE Manager" means the manager appointed in accordance with Clause 105.5;

"HSQE" has the meaning given in Clause 105.1;

"Indemnified Parties" has the meaning given to it in Clause 77.1;

"Independent Competent Person" means Mr. John Dolan or such other person appointed by **tie** to agree and oversee the implementation of all procedures and processes to comply with the provisions of the Railway and Other Guided Transport Systems (Safety) Regulations 2006 and to enable the testing, commissioning and operation of the ETN;

"Indexed" means in relation to an amount, the amount to be indexed multiplied by the value of RPIX at the Point of Indexation, divided by the Base Case RPIX;

"Indirect Losses" means any damage, cost, third party claim, expense or loss incurred by a Party to this Agreement or by any Infraco Parties or any of the Indemnified Parties as a consequence of a breach of this Agreement or a negligent act or omission which relates to

consequential or indirect loss or loss of profits or revenue, loss of use, loss of production or output, interruption or loss of business or business opportunity, loss of contract, loss of goodwill and whether or not the Party committing the breach knew, or ought to have known, that such indirect or consequential loss would be likely to be suffered as a consequence of such breach.

"Information" shall have the meaning given to it in Section 73 of FOISA;

"Infraco Change" means a change proposed by the Infraco in accordance with Clause 81.1 and approved by **tie** in accordance with Clause 80 (**tie Changes**) or Clause 81 (*Infraco Changes*);

"Infraco Default" means one of the following events:

- (a) a breach by the Infraco of any of its obligations under this Agreement which materially and adversely affects the carrying out and/or completion of the Infraco Works;
- (b) the occurrence of an Insolvency Event in relation to the Infraco or either of the Infraco Members;
- (c) the Infraco fails to commence the Infraco Works within 90 days of the Commencement Date or permanently abandons the Infraco Works (or a material part of them) at any time;
- (d) the Service Commencement Date or Sectional Completion Date (as appropriate) in respect of a Section is not achieved or is programmed to not be achieved (as set out in the Programme) on or before the date falling 12 months after the Planned Service Commencement Date or Planned Sectional Completion Date (as appropriate) except as a result of a Compensation Event, Relief Event, Force Majeure Event, **tie** Change, Accommodation Works Change, a Change in Law (where compliance with such Change in Law is the sole reason for the Infraco failure to achieve the relevant date) and any legitimate suspension of the Infraco Works by the Infraco pursuant to Clause 87 (*Suspension of Work*);
- (e) the Infraco does not confirm its agreement in writing to a Liquidated Damages Cap Increment in accordance with Clause 62.10;

- (f) a breach by the Infraco of its obligations to take out and maintain the Required Insurances which is not remedied by the Infraco within 10 days of written notice from **tie** to the Infraco specifying the relevant breach and requiring it to be remedied;
- (g) the issue of four or more Underperformance Warning Notices in any 12 month period;
- (h) NOT USED
- (i) the Infraco has reported a change in the legal status of the Infraco or a Change in Control of the Infraco which is materially prejudicial to carrying out and completing the Infraco Works; or
- (j) the Infraco has suspended the progress of the Infraco Works without due cause for 15 Business Days after receiving from **tie's** Representative a written notice to proceed.

"Infraco's Design" means any Design used by Infraco which SDS Provider is not responsible for producing pursuant to the SDS Agreement;

"Infraco's Equipment" means all plant, appliances or things of whatsoever nature required in or about the construction and completion of the Infraco Works but does not include materials or other things intended to form or forming part of the Infraco Works and does not include Assets;

"Infraco IPR" means:

- (a) all Intellectual Property Rights in the Deliverables (including Intellectual Property Rights in relation to the Infraco Software) which were already existing and owned by, or licensed to, the Infraco and/or the Infraco Parties prior to the Effective Date;
- (b) any modifications or developments of any of the Intellectual Property Rights referred to in paragraph (a) above which are generic in nature and not specific to the carrying out of the Infraco Works; and
- (c) all Intellectual Property Rights in tram signalling systems, communication systems, SCADA systems and system integration programmes, methodologies or software

in all cases excluding Tramco IPR.

"Infraco Party" means each and any of the Infraco Member's employees, directors, officers, agents, professional advisors, consultants and contractors and its or their sub-contractors (of any tier) including the Sub-Contractors and shall include its or their directors, officers and

employees as they are involved in relation to the Infraco Works and "**Infraco Parties**" shall be construed accordingly;

"**Infraco's Proposals**" means the Infraco's proposals for implementation of the Infraco Works included in Schedule Part 30 (*Infraco Proposals*) as amended from time to time in accordance with this Agreement;

"**Infraco's Representative**" shall have the meaning given to it in Clause 26.2;

"**Infraco Safety Management System**" has the meaning given in Clause 17.18.2.2;

"**Infraco's Site Rules**" means the site rules prepared by the Infraco which are relevant to the Infraco Works;

"**Infraco Software**" means programs, the Intellectual Property Rights in which are:

- (a) owned by the Infraco; and
- (b) used by the Infraco to carry out its obligations under this Agreement.

"**Infraco Works**" means, as the context requires, the EAL Works and all or any of the works to be constructed and completed and/or services to be provided and/or the plant, machinery and equipment to be supplied and installed by the Infraco and which are necessary to deliver the Edinburgh Tram Network and to subsequently maintain it, all in accordance with this Agreement and the Employer's Requirements.

"**Infrastructure Maintenance Services**" means the ongoing maintenance of the Edinburgh Tram Network (excluding the Trams), supply of spares, Special Tools and the provision of any associated services and other obligations incumbent on the Infraco as described in this Agreement;

"**Infrastructure Maintenance Services Payment**" means the payment to be made to the Infraco in respect of the performance of the Infrastructure Maintenance Services in accordance with this Agreement. This payment shall be based on the sums set out in Schedule Part 4 (*Pricing*) and the final amount to be paid in each Reporting Period to the Infraco shall be calculated in accordance with Clause 68 (*Payment in Respect of Maintenance Services*) and part A of Schedule Part 6 (*Maintenance Payment Regime*).

"**Infrastructure Maintenance Plan**" means the maintenance plan to be prepared by the Infraco in relation to the Infrastructure Maintenance Services;

"Initial Buildability Report" means the report to be prepared by the Infracore in accordance with Schedule Part 2 (*Employer's Requirements*);

"Insolvency Event" means any of the following events in relation to a Party:

- (a) the Party is unable to pay its debts as they fall due or is insolvent or admits (in writing) its inability to pay its debts as they fall due;
- (b) the Party suspends for a period of two months making payments on all or any class of its debts or a moratorium is declared by the Party in respect of its indebtedness;
- (c) the Party ceases business or announces an intention to do so;
- (d) the following are entered into:
 - (i) a voluntary arrangement (other than a solvent one) for a composition of debts of the Party;
 - (ii) a scheme of arrangement in respect of the Party pursuant to the Insolvency Act 1986 or the Companies Act 1985; or
 - (iii) a material composition or arrangement (other than a solvent one) with the Party's creditors;
- (e) either of the following:
 - (i) the winding-up of the Party (including passing a shareholders' resolution or the presentation of a petition by the Party for the purpose of winding up the Party); or
 - (ii) its administration (including where an application is made by the Party or petition is presented by the Infracore for, or any meeting of its directors or members resolves to make an application for, an administration order);
- (f) an order for the winding-up or administration of the Party is made;
- (g) any liquidator, judicial custodian, receiver, administrative receiver, administrator or the like is appointed in respect of any Party or any material part of the Party's assets;
- (h) possession is taken of, or any distress, execution or other process (other than on the dependence of inhibition) is levied or enforced upon, any material part of the property

(whether real or personal) of the Party by or on behalf of any creditor or encumbrancer of the Party; or

- (i) anything analogous to any of the events mentioned in paragraphs (a) to (h) above occurs in relation to the Party under the law of any relevant jurisdiction specifically the opening of insolvency proceedings pursuant to the EC Insolvency Regulation 1346/2000, the Insolvency Act 1986 or the Bundesinsolvenzgesetz of 5 October 1994 (as amended) or the equivalent under the laws of Spain;

"Insolvency Termination Notice" has the meaning given to it in Clause 90.1.3;

"Intellectual Property Rights" means any rights in or to any patent, design right, utility model, trade mark, brand name, service mark, trade name, business name, logo, invention (whether registered or unregistered), domain name, semi-conductor right, topography right, software designs and/or other materials, source code, copyright, moral right, know-how or rights in databases and any other rights in respect of any industrial or intellectual property, whether capable of being registered or not, including all rights to apply for any of the foregoing rights or for an extension, revival or renewal of any of the foregoing rights and any similar or analogous rights to any of the above, whether arising or granted under the law of Scotland or of any other jurisdictions;

"Internal Resolution Procedure" means the procedure described in paragraphs 9 and 10 of Schedule Part 9 (*Dispute Resolution Procedure*);

"IPR" means intellectual property rights;

"Issued for Construction Drawings" means those Deliverables necessary for the Infracore to commence construction of the relevant part of the Infracore Works and as shown on the Design Delivery Programme which have been fully approved by all Approval Bodies and in accordance with the Review Procedure;

"Key Personnel" means those staff identified as key personnel of the Infracore and/or any Infracore Parties in Schedule Part 12 (*Key Personnel*);

"Key Sub-Contractor" means any supplier or sub-contractor carrying out works falling within the categories set out in Schedule Part 38 (*Approved Suppliers and Sub-contractors (and Trades)*) as may be amended from time to time;

"Land Consents" means all licences to occupy land, wayleaves and any other licences, permissions, rights of access and related consents in respect of land required for the Infracore

Works including rights of access and related consents in respect of land to which the EAL Lease and EAL Licence apply and all related Drawdown Notices;

"Last Tram" means each of the timetabled Trams which are the last to operate in passenger service on each route in each direction prior to the Edinburgh Tram Network shutting down for the night;

"Late Tram" means either:

- (a) a Tram:
 - (i) that is in passenger carrying service; and
 - (ii) is arriving at Edinburgh Airport or departing from any other Monitoring Point; and
 - (iii) in the case of Edinburgh Airport its arrival, when compared to the Timetable, is more than 2 minutes (i.e. 120 seconds) late; or
 - (iv) its departure from any other Monitoring Point when compared to the Timetable is timed either more than 2 minutes (i.e. 120 seconds) late or more than 1 minute (i.e. 60 seconds) early; or
- (b) where there is no Tram running in service at a Monitoring Point, contrary to the Timetable;

"Law" means:

- (a) any applicable Legislation;
- (b) any applicable Guidance; and
- (c) any applicable judgment of a relevant court of law which is a binding precedent;

in each case in force in Scotland;

"Legal Panel" has the meaning given to it in paragraph 19.1 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Legislation" means any Act or instruments of the Scottish Parliament or the United Kingdom Parliament or subordinate legislation within the meaning of section 21(1) of the Interpretation

Act 1978, any exercise of the Royal Prerogative, and any enforceable community right within the meaning of section 2 of the European Communities Act 1972, and any bye-laws of any local or other statutory authority;

"Liability Cap" means:

- (i) Subject always to subparagraphs (ii) to (iv) below, in relation to:
 - (a) any claim brought or liability incurred by **tie** or the Indemnified Parties prior to the issue of the Reliability Certificate or within 6 months of the issue of the Reliability Certificate arising from or in connection with Infraco Works (other than Infrastructure Maintenance Services after the Service Commencement Date) carried out prior to the issue of the Reliability Certificate;
 - (b) latent defects and uncorrected Patent Defects;
 - (c) any third party claim made against **tie** or the Indemnified Parties for direct loss or damage made after the issue of the Reliability Certificate and arising from or in connection with latent defects;
 - (d) liabilities owed by the Infraco connected with liquidated damages outstanding from settlement of final account after Service Commencement;

twenty percent (20%) of the Construction Works Price (including, the value of any **tie** Changes arising from Clause 80 (*tie* Changes), Notified Departures, extensions to the Edinburgh Tram Network instructed through Clause 81 (*Infraco* Changes), Clause 85 (*Phase 1b*) or Clause 86 (*Network Expansions*) (the "**Construction Cap**"), subject to (A) in the case of any liability arising solely from the breach of contract or negligent acts or omissions of the SDS Provider, the SDS Liability Cap; and (B) in the case of any liability arising under (c) above, nine million pounds (£9,000,000);

- (ii) subject to sub-paragraphs (iii) and (iv), in respect of claims brought against or liabilities incurred by **tie** or the Indemnified Parties to which paragraph (i) above does not apply, an amount of three million, five hundred thousand pounds (£3,500,000) (in relation to Phase 1a), or the Maintenance Cap, whichever is lower;
- (iii) In relation to liability arising solely from any act or omission of the Tram Supplier, an amount when aggregated with all previous claims equal to twenty percent (20%) of the Aggregate Tram Price and (excluding the proceeds of all insurance, bonds and cash

securities) as defined in the Tram Supply Agreement, such liability to be treated as outside the Construction Cap;

- (iv) In relation to liability arising from any act or omission of the Tram Maintainer, an aggregate amount of eighteen and one half percent (18.5%) of the aggregate Maximum Performance Payment over the Term of and as defined in the Tram Maintenance Agreement and annually twenty two and one half percent (22.5%) of the aggregate Maximum Performance Payment as defined in the Tram Maintenance Agreement of the Tram Maintenance Services, (in the case of the aggregate cap only, excluding the proceeds of any insurance, bonds and cash securities) such liability to be treated as outside the Maintenance Cap;

"Maintenance Cap": means in relation to each year, the amount attributable to that year as calculated below:

- (a) the cap for the mobilisation period and the first three years following the Service Commencement Date shall be calculated as follows:

$$MC = \left(27 \left(\frac{MP + IMSP}{100} \right) \right)$$

where:

MP = the aggregate of payments made in respect of Mobilisation Milestones; and

IMSP = the Infrastructure Maintenance Service Payment to be made in respect of the first three full years following the final Service Commencement Date.

- (b) for the fourth year the cap shall be calculated as follows:

$$AMC_4 = MC + \left(27 \left(\frac{IMSP}{100} \right) \right)$$

where:

MC = the maintenance cap calculated pursuant to sub-paragraph (a) above; and

IMSP = the Infrastructure Maintenance Service Payment to be made in respect of the fourth year.

provided that AMC_4 shall not exceed THREE MILLION FIVE HUNDRED THOUSAND POUNDS (£3,500,000).

- (c) the cap for each subsequent year shall be calculated as follows:

$$AMC_n = AMC_{(n-1)} + \left(27 \left(\frac{IMSP}{100} \right) \right)$$

where:

n is the number of years following the Service Commencement Date

$AMC_{(n-1)}$ = the annual maintenance cap calculated for the immediately preceding year;
and

$IMSP$ = the Infrastructure Maintenance Service Payment to be made in respect of the year n .

provided that AMC_n shall not exceed THREE MILLION FIVE HUNDRED THOUSAND POUNDS (£3,500,000).

"Line One" means the tramway works as authorised by the Edinburgh Tram (Line One) Act 2006;

"Line Two" means the tramway works as authorised by the Edinburgh Train (Line Two) Act 2006;

"LLAU" means the limits of land to be temporarily acquired and used for the Edinburgh Tram Network;

"Local Code of Construction Practice" means a code of construction practice that is to be established by **the** in respect of a party whose private or commercial interests are affected by the execution of the construction, installation, re-installation or renewal of the Edinburgh Tram Network;

"LOD" means the limits of deviation for the Edinburgh Tram Network;

"Maintenance Contract Price" means the maintenance contract price in respect of the Infrastructure Maintenance Services and the Tram Maintenance Services included in Schedule Part 4 (*Price*) as may be varied from time to time in accordance with this Agreement;

"Maintenance Mobilisation Period" means the period ending on the Service Commencement Date;

"Maintenance Payment Due Date" has the meaning given to it in Clause 68.5;

"Maintenance Plan" means the Infrastructure Maintenance Plan and the Tram Maintenance Plan and/or the Tram Maintainer's proposals for implementation of the Infrastructure Maintenance Services or Tram Maintenance Services respectively;

"Maintenance Programme" means the programme for carrying out the Maintenance Services as developed by the Infraco and amended from time to time in accordance with this Agreement;

"Maintenance Services" means the Infrastructure Maintenance Services and the Tram Maintenance Services;

"Maintenance Services Interim Certificate" means any certificate to be issued by **tie** in accordance with Clause 68.4;

"Maintenance Services Payment" means the Infrastructure Maintenance Services Payment and/or the Tram Maintenance Services Payment;

"Maintenance Specification" means the specification or specifications in respect of Trams, infrastructure and equipment set out in Section 40 of Schedule Part 2 (*Employer's Requirements*) and any modification thereof or addition thereto as may from time to time be approved in writing in accordance with this Agreement;

"Mandatory tie Change" means any addition, modification, reduction or omission in respect of the Infraco Works instructed in accordance with Clause 80 (*tie Changes*) which this Agreement specifically states will be a Mandatory **tie** Change;

"Maximum Tram Weight" means the maximum weight of a tare Tram of 55.85 tonnes;

"Milestone" means a Construction Milestone, a Critical Milestone, a Mobilisation Milestone, a Tram Milestone and/or a Tram Maintenance Mobilisation Milestone;

"Milestone Completion Certificate" means a Construction Milestone Completion Certificate, a Critical Milestone Completion Certificate, Mobilisation Milestone Completion Certificate and/or Tram Milestone Completion Certificate;

"Milestone Payment" means the payment to be made against the achievement of a Milestone for an amount set out in Schedule Part 5 (*Milestone Payments*);

"Minimum Spare Parts Pool" means the minimum level of each Spare Part or Special Tool to be held in the Spare Parts Pool as specified in the Infraco's Proposals;

"Mobilisation and Advanced Works Agreement" means the agreement entered into between **tie** and Infraco on 21 December 2007;

"Mobilisation Milestone" means any milestone relative to the Infrastructure Maintenance Services which has been identified and defined as a mobilisation milestone in Schedule Part 5 (*Milestone Payments*);

"Mobilisation Milestone Completion Certificate" means any certificate in respect of achievement of a Mobilisation Milestone issued by **tie's** Representative in accordance with Clause 41.3;

"Mobilisation Period" means the period commencing on the Effective Date and ending on the Service Commencement Date;

"Monitoring Point" means the locations where the arrival or departure of Trams is recorded for the purpose of calculating Tram punctuality for the purpose of part A of Schedule Part 6 (*Maintenance Payment Regime*), being:

- (a) **Phase 1a:** for the purposes of monitoring arrival and departure: Edinburgh Airport;
- (b) **Phase 1a:** for the purposes of measuring departure only:
 - (i) Edinburgh Park Station;
 - (ii) Haymarket;
 - (iii) Foot of the Walk;
 - (iv) Leith (Newhaven or Ocean Terminal according to service); and
 - (v) Picardy Place;
- (c) **Phase 1b:** for the purposes of measuring departure only:
 - (a) Crewe Toll (northbound only); and
 - (b) Granton Square;

"Mobilisation Services" means the mobilisation services to be provided by the Infracore during the Mobilisation Period in accordance with this Agreement;

"MUDFA Contract" means the agreement dated 4 October 2006 and entered into between **tie** Limited and the MUDFA Contractor;

"MUDFA Contractor" means Alfred McAlpine Infrastructure Services Limited, a company incorporated under the Companies Act with registration number 00728599 and having its registered office at Kinnaird House, 1 Pall Mall East, London, SW1Y 5AZ, which expression shall include its permitted assignees or such other multi-utilities diversion framework agreement sub-contractor appointed by **tie** from time to time in relation to the Edinburgh Tram Network;

"MUDFA Works" means the works carried out by the MUDFA Contractor under its contract with **tie**;

"Network Certificate" means a certificate issued in accordance with Clause 47.3;

"Network Expansion" means any expansion of the Edinburgh tram Network beyond Phase 1a and Phase 1b;

"Network Rail" means Network Rail Infrastructure Limited, a Company incorporated under the Companies Act with registered number 2904587 and having its registered office at 40 Melton Street, London, NW1 2EE;

"Network Rail Agreement" means the protective provisions agreement entered into among **tie**, CEC and Network Rail and dated 17 and 21 June 2005;

"Notice of Adjudication" has the meaning given in paragraph 16 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Notification" has the meaning given in paragraph 10.1 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Notified Departure" has the meaning given in Schedule Part 4 (*Pricing*);

"NOx" means nitrogen oxides;

"NPV" means net present value;

"NR" means Network Rail;

"**NRSA**" shall have the meaning given in Clause 21 (*New Roads and Street Works Act 1991 and Utilities Division*);

"**NTL**" means NTL Limited, a company incorporated under the Companies Act with registered number 02586701 and having its registered office at 160 Grant Portland Street, London, W1W 5QA;

"**Ocean Terminal**" means Ocean Terminal Limited, a company incorporated under the Companies Act with registered number SC178696 and having its registered office at 1 Prince of Wales Dock, Leith, Edinburgh, EH6 7DX;

"**OCIP Insurances**" means the insurances taken out and maintained by **the** referred to in Clause 76 (*Required Insurances*) and set out in Schedule Part 11 (*Required Insurances*) which may be amended and notified (as required) to the Infraco from time to time;

"**OGC**" means the Office of Government Commerce, an independent office of the Treasury which was established in April 2001 and having its principal office at Rosebury Court, St. Andrew's Business Park, Norwich, Norfolk, NR7 0HS;

"**OLE**" means overhead line equipment;

"**On Street Construction Works Methodology**" means the document of that name contained in Schedule Part 15 (*Programme*);

"**Open Book Basis**" means the availability and disclosure (consistent with operation of Clause 104 (*Information and Audit Access*)) of a reasonable level of data and calculations used by the Infraco to create and justify costings and financial analysis presented to **the** which shall include any management costs and overheads of Infraco to the extent relevant, and capable of being identified as being attributable to such costings or financial analysis;

"**Operating Day**" means a 24 hour period starting from 3a.m. on each day when the Trams are timetabled to run;

"**Operations and Maintenance Manual**" means the manual to be prepared by the Infraco in accordance with Clause 52.25;

"**Operations Performance Specification**" means the specification included within Schedule Part 2 (*Employer's Requirements*);

"**Operator**" means Transdev Edinburgh Tram Limited, a company incorporated in Scotland under registered number SC267598 and having its registered office at Level 2, Saltire Court,

20 Castle Terrace, Edinburgh EH1 2ET, appointed by **tie** as operator under the DPOFA or its successor;

"Operator Event" means:

- (a) any delay by the Operator in the performance of its obligations or exercise of its rights pursuant to DPOFA or in responding to any request from the Infraco to assist in relation to unforeseen damage to or interference with the Transport Services or minor obstruction on the Edinburgh Tram Network caused by any third party in so far as forming part of the Operator's responsibilities under DPOFA;
- (b) any material failure or omission in the provision of the Project Development Services or the performance of the Project Operations by the Operator;
- (c) any damage to or deficiencies in the Infraco Works caused directly and predominantly by the Operator; or
- (d) any act or omission by the Operator which:
 - (i) prevents or interfere with the design, installation, integration, system acceptance, testing, commissioning, operation or maintenance of the Edinburgh Tram Network;
 - (ii) increases the Contract Price;
 - (iii) requires the Infraco to apply for a variation to the Infraco Works in accordance with Clause 81 (*Infraco Changes*); or
 - (iv) adversely impacts on the Infraco Works, the Maintenance Services, the Edinburgh Tram Network and/or whole life costs or handback obligations in terms of Clause 95 (*Transition on Termination or Expiry*).

"Operator Maintenance" means the maintenance of the Edinburgh Tram Network to be carried out by the Operator in accordance with the DPOFA;

"Operator Maintenance Plan" means the plan to be prepared by the Operator in relation to the performance of the Operator Maintenance and notified to the Parties from time to time;

"Operator Procedures" means those procedures in place to ensure the safe and efficient maintenance operation of the Edinburgh Tram Network, as agreed between the Parties from time to time and as contained in the Review Procedure;

"Operator's Case for Safety" means the case for safety that the Operator is required to maintain in respect of the operation of the Edinburgh Tram Network;

"ORR" means the Office of Rail Regulation, an independent statutory body established on 5 July 2004 under the Railways and Transport Safety Act 2003;

"Panels" has the meaning given to it in paragraph 19 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Part" means any component or furnishing or equipment intended to form part of the completed Edinburgh Tram Network furnished within or relating to the Edinburgh Tram Network whether or not the same is installed on the Edinburgh Tram Network (including any Tram);

"Party" means each and any of the parties to this Agreement and **"Parties"** shall be construed accordingly;

"Patent Defect" means any defect, deficiency, shrinkage or other fault due to design, goods, materials, workmanship or services not being in accordance with this Agreement and which are (i) apparent from or would be revealed by a non-intrusive inspection of the Infraco Works or (ii) obvious during their ordinary intended use as stipulated in the Employer's Requirements or Infraco Proposals;

"Patent Defect Notification Period" means 24 months from the Service Commencement Date;

"Patent Defects Rectification Certificate" means the certificate issued by **tie** upon the Infraco completing its obligations to rectify Patent Defects in accordance with the terms of the Agreement;

"Performance Bond" means the performance bond to be provided by the Infraco pursuant to Clause 74.1 which shall be substantially in the form set out in Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) issued by a surety approved by **tie** in advance in writing, such approval not to be unreasonably withheld or delayed;

"Performance Review Date" means the date 3, 8, and (if applicable) 13 years after the Service Commencement Date;

"Performance Review Period" means the period between each Performance Review Date (and the period between the Service Commencement Date and the first Performance Review Date);

"Permanent Land" means the land shown highlighted in blue on the plans and drawings set out in Schedule Part 31 (*Drawings*);

"Permits to Work" means the permits to work issued by **tie** in accordance with paragraph 3.5 of part A, and paragraph 3.4 of part B, of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*);

"Permitted Variation" means a **tie** Change, a Small Works Change, an Accommodation Works Change, an Infraco Change, a Mandatory **tie** Change and/or a Notified Departure which has been authorised to proceed in accordance with the provisions of this Agreement;

"Persistent Breach Notice" means a notice served by **tie** pursuant to Clause 93 (*Persistent Breach*);

"Phase 1a" means Edinburgh Airport to Newhaven (inclusive), together with the Depot at Gogar and the spur at Roseburn Junction;

"Phase 1b" means Roseburn Junction to Granton Square (inclusive);

"Phase 1b Works" means as the context requires, all or any of the works to be designed, constructed and completed and/or services to be provided and/or the plant, machinery and equipment to be supplied and installed by the Infraco in accordance with this Agreement and which are necessary to deliver Phase 1b, and to subsequently maintain Phase 1b all in accordance with the Employer's Requirements and this Agreement.

"Planned Sectional Completion Date" means each of the following programmed dates of sectional completion for the relevant Section in accordance with this Agreement of the Edinburgh Tram Network as may be amended from time to time in accordance with this Agreement:

- (a) Section A (Depot) - 25 March 2010;
- (b) Section B (Test Track) - 23 April 2010;
- (c) Section C (Testing and Commissioning) - 17 January 2011;

- (d) Section D - the date which falls 26 weeks after the issue of the Certificate of Section Completion in respect of Section C;

"Planned Service Commencement Date" means the date shown in the Programme as the Service Commencement Date as may be amended from time to time and in accordance with this Agreement;

"Planning Permission" means any planning permission, planning approval, approval of reserved matters, listed building consent, conservation areas consent and/or other consent or approval;

"Point of Indexation" shall be January each year to be applied annually as of 1st April each year;

"Position Paper" has the meaning given in paragraph 10.2 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Principal Contractor" has the meaning given to it in the CDM Regulations;

"Prior Approvals" means approvals from CEC planning officers to the appearance of any structures and apparatus (whether temporary or permanent) forming part of the Infracore Works;

"Programme" means the programme set out in Schedule Part 15 (*Programme*) as developed and extended from time to time in accordance with this Agreement which shall include, the Maintenance Programme, the Consents Programme and Design Delivery Programme but shall exclude any programme developed in respect of the completion of any Accommodation Works Changes;

"Prohibited Act" means:

- (a) offering, giving or agreeing to **tie**, the Scottish Executive, Transport Scotland, the Scottish Ministers, CEC or any **tie** Party or any other public body or any person owned or employed by any of them any gift or consideration of any kind as an inducement or reward:
- (i) for doing or not doing (or for having done or not having done) any act in relation to the obtaining or performance of this Agreement; or
- (ii) for showing or not showing favour or disfavour to any person in relation to this Agreement;

- (b) paying commission or agreeing to pay commission to any person in connection with the award of this Agreement;
- (c) committing any offence:
 - (i) under the Prevention of Corruption Acts 1889-1916 or section 68(2) of the Local Government (Scotland) Act 1973;
 - (ii) under any Law creating offences in respect of fraudulent acts; or
 - (iii) at common law in respect of fraudulent acts in relation to this Agreement or any other relevant agreement with **tie**, the Scottish Executive, Transport Scotland, the Scottish Ministers, CEC or any other public body; or
- (d) defrauding or attempting to defraud or conspiring to defraud **tie**, CEC, the Scottish Executive, Transport Scotland, the Scottish Ministers or any other public body;

Any references within this Agreement to any "**Prohibited Act**" shall include acts outwith the United Kingdom and the references within the definition "**Prohibited Act**" to UK legislation shall be deemed to be amended to refer to legislation in other jurisdictions outside of the United Kingdom;

"**Project Development Services**" means the services to be provided by the Operator to **tie** pursuant to and described in the DPOFA as may be amended from time to time;

"**Project IPR**" means any Intellectual Property Rights arising out of, used in or created to implement the Infraco Works and produce Deliverables (including the "Specially Written Software" any asset management system and/or Works programming system) and for the extension of any Edinburgh Tram Network in accordance with this Agreement, but excluding any Infraco IPR contained in the Deliverables and excluding any Tramco Project IPR;

"**Project Operations**" means the performance of:

- (a) the Transport Services on the Edinburgh Tram Network (including the operation of the Control Centre);
- (b) the Operator Maintenance of the Edinburgh Tram Network; and
- (c) all other obligations of the Operator under the DPOFA from time to time;

as may be varied from time to time;

"Project Safety Certification Committee" shall include representatives from **tie**, Transport Edinburgh Limited, CEC in its capacity as roads authority, the Infraco, the Operator, Lothian Buses, the SDS Provider, the Tram Supplier and the Tram Maintainer;

"Project Vision" has the meaning given in Recital F of this Agreement;

"Proposals" means, in relation to each section of OLE forming part of the Edinburgh Tram Network, the Infraco's proposals for the type of supporting infrastructure to be installed in relation thereto, together with any information or documentation which would be reasonably required by **tie** in order to properly evaluate such proposals;

"Qualifying Change in Law" means:

- (a) a Discriminatory Change in Law; and/or
- (b) a Specific Change in Law; and/or
- (c) a Change in Law that requires any modification, adjustment or addition to the Infraco Works (as installed) after the Planned Service Commencement Date;
- (d) any alteration or amendment to **tie** and CEC policies set out in Schedule Part 29 (*tie and CEC Policies*);

"Redevelopment Notice" has the meaning given in the Building Fixing Agreement;

"Red Zone Working" means the term applied to those works carried out on Network Rail infrastructure while traffic is still operating and staff are protected by look-out;

"Referral" has the meaning given in paragraph 27 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Referring Party" has the meaning given in paragraph 16 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Regulations" has the meaning given in Clause 50.1;

"Related Contract" has the meaning given in paragraph 55 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Related Dispute" has the meaning given in paragraph 55 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Reliability Certificate" means a certificate issued by **tie** in accordance with Clause 47.4;

"Relief Event" means unless any of the following events arise (directly or indirectly) as a result of any act or omission of the Infraco and/or an Infraco Party:

- (a) fire, explosion, lightning, tempest, flood (other than flood caused by bursting or overflowing of apparatus or pipes), earthquakes, or storm, ionising radiation, riot and civil commotion (which results in a Relief Event under the Tram Supply Agreement). For avoidance of doubt "flood" shall exclude flooding affecting any part of the Edinburgh Tram Network caused by weather or local conditions against which the Infraco, acting prudently and reasonably and in accordance with Good Industry Practice, should have protected the Edinburgh Tram Network;
- (b) failure by any Utility to carry out works or provide services which they would ordinarily provide, save to the extent such failure arises from an exercise of rights by such party pursuant to an agreement with the Infraco;
- (c) any accidental loss of or damage to a material part of the Infraco Works;
- (d) protestor action directed against:
 - (i) **tie** or a **tie** Party or the Edinburgh Tram Network which lasts (or the impact of which lasts) for less than 14 days provided such protestor action has not arisen as a result of or been caused by an Infraco breach of its obligations under this Agreement or otherwise by any actions or omissions of the Infraco or Infraco Parties unrelated to the Edinburgh Tram Network; or
 - (ii) a third party unconnected with the Edinburgh Tram Network;
- (e) any official or unofficial strike, lockout, go-slow or other industrial dispute generally:
 - (i) affecting the construction, civil engineering, in the United Kingdom in which a substantial number of the Infraco's employees participate; or
 - (ii) affecting the tram and/or tram manufacturing industry or a significant sector of it save where such events relate to the Tram Supplier's workforce or the workforce of any sub-contractor to the Tram Supplier, in which case they shall not qualify as a Relief Event;

- (f) orders or directions from **tie's** Representative in respect of the removal of unsatisfactory work or materials referred to in Clause 37.5, which are referable to Clause 64 (*Relief Events*);
- (g) the occurrence of a Force Majeure Event;
- (h) an act of terrorism; or
- (i) power failure or bursting or overflowing of apparatus or pipes except in each case where such failure, bursting or overflowing arises from the operations of the Infraco or from a failure of the Infraco's and/or an Infraco Party's plant or equipment and/or any part of the Edinburgh Tram Network itself.

"Remediable Termination Notice" has the meaning given in Clause 90.1.2;

"Repairs Notice" has the meaning given in the Building Fixing Agreement;

"Reporting Period" means a period of 28 days;

"Reporting Period End Date" means any of the dates set out in Schedule Part 35 (*Reporting Period End Dates*);

"Request for Information" shall have the meaning set out in FOISA and shall include any apparent request for information under FOISA, the Environmental Information Regulations or the Code;

"Required Insurances" means the insurances taken out and maintained by the Infraco Members set out in Schedule Part 11 (*Required Insurances*) as may be amended from time to time in accordance with this Agreement;

"Responding Party" has the meaning given to it in paragraph 17 of Schedule Part 9 (*Dispute Resolution Procedure*);

"Retention Bond" means a retention bond provided from time to time by the Infraco to **tie** pursuant to Clause 74 (*Bonds Parent Company Guarantees and Collateral Warranties*), and which shall be substantially in the form set out in Part B of Schedule Part 8 (*Bonds, Parent Company Guarantees and Collateral Warranties*) issued by a surety approved by **tie** in advance in writing, such approval not to be unreasonably withheld or delayed;

"Review Procedure" means the review procedure set out in Schedule Part 14 (*Design Review and Design Management Plan*);

"**RPIX**" means the general index of retail prices for all items excluding mortgage interest payments (Office of National Statistics: Series Identifier: CHMK) as published or any replacement thereof or, in the event such index ceases to exist, such other similar index as the Parties shall agree from time to time (or, if the Parties cannot so agree, as determined under the Dispute Resolution Procedure on the referral of either Party) provided that, if the basis of computation of such index shall have changed between the two relevant months, any official reconciliation between the two bases of computation published by a United Kingdom government department shall be binding on the Parties and, in the absence of such official reconciliation, such adjustment shall be made to the figure of such index for the second of those months to make it correspond as nearly as possible to the method of computation for the first of those months and such adjusted figure shall be considered for the purpose of this Agreement to the exclusion of the actual published figure;

"**Schedule of Rates**" means the rates specified in Schedule Part 4 (*Pricing*);

"**Schedules**" means the Schedule in 44 Parts annexed to the Agreement;

"**Scotland Gas Networks**" means Scotland Gas Networks PLC, a company incorporated under the Companies Act with registered number SC264065 and having its registered office at Inveralmond House, 200 Dunkeld Road, Perth, Perthshire, PH1 3AQ;

"**Scottish Environment Protection Agency**" or "**SEPA**" means a body established under the Environment Act 1995 and having its principal office at Erskine Court, Castle Business Park, Stirling, FK9 4TR;

"**Scottish Natural Heritage**" means a statutory agency whose remit is set out in sections 1, 2 and 3 of the Natural Heritage (Scotland) Act 1991 and having its principal office at 12 Hope Terrace, Edinburgh, EH9 5NP;

"**Scottish Power**" means SP Distribution Limited, a company incorporated under the Companies Act with registered number SC189125 and having its registered office at 1 Atlantic Quay, Glasgow, G2 8SP;

"**Scottish Water**" means Scottish Water Limited, a body established under the Water Industry (Scotland) Act 2002 and having its principal office at Castle House, 6 Castle Drive, Carnegie Campus, Dunfermline, Fife, KY11 8GG;

"**SDS Agreement**" means the agreement between the SDS Provider and ~~the~~ dated 19 September 2005 set out in Schedule Part 22 (*SDS Agreement*) as may be amended by the SDS

Novation Agreement entered into in accordance with Clause 11.1 or from time to time with the approval of **tie** in accordance with this Agreement;

"SDS Compensation Event" means Compensation Events (t) and (u);

"SDS Liability Cap" means an aggregate amount of ten million pounds (£10,000,000) for each and every event, save in relation to liability for pollution or contamination which is restricted to an aggregate cap of ten million pounds (£10,000,000);

"SDS Novation Agreement" means the agreement entered into by the Infracore and the SDS Provider on the same date as the Agreement and included as Schedule Part 23.

"SDS Provider" means Parsons Brinckerhoff Limited, a company incorporated under the Companies Act with registration number 02554514 and having its registered office at Amber Court, William Armstrong Drive, Newcastle Business Park, Newcastle Upon Tyne, NE4 7YQ which expression shall include its permitted assignees;

"SDS Provider Party" means any sub-consultant, supplier, sub-contractor, specialist and/or any other party appointed by the SDS Provider in accordance with the SDS Agreement to perform any part of the SDS Services;

"SDS Qualifying Change in Law" means a Qualifying Change in Law under the SDS Agreement;

"SDS Services" means those services to be provided by the SDS Provider in terms of the SDS Agreement and shall exclude any design provided to the MUDFA Contractor in respect of utilities diversions;

"Second Party" has the meaning given in Clause 6.3

"Section" means any of Section A, Section B, Section C or Section D, all as may be amended from time to time in accordance with this Agreement;

"Section A" means completion of the Depot (including energisation) and the first Tram delivered to the Site and assembled and the completion of all tests required by the Employer's Requirements in relation to that Section;

"Section B" means completion of the test track (including energisation), assumed as Depot to the airport, and five Trams delivered to the Site and assembled with the first Tram to have completed the Tram Type Test and the remaining Trams to have completed the Tram Commissioning Routine Tests, such tests as described in the Employer's Requirements and the

completion of all tests required by the Employer's Requirements in relation to that Section, including those System Acceptance Tests required to enable the commencement of Driver Training;

"**Section C**" means the carrying out and completion of Phase 1a to Newhaven (including energisation) and the spur or delta at Roseburn Junction and the completion of all tests required by the Employer's Requirements in relation to that Section, including those System Acceptance Tests that must be successfully completed prior to shadow running as provided for in the Employer's Requirements;

"**Section D**" means the completion of shadow running and commencement of revenue service approval obtained and the completion of all tests required by the Employer's Requirements in relation to that Section, including those System Acceptance Tests that must be successfully completed to enable Service Commencement;

"**Section E**" completion of Phase 1b;

"**Section F**" means the carrying out and completion of T1, T2 and T3 in respect of Phase 1b;

"**Sectional Completion Date**" means the date of issue of a Certificate of Sectional Completion for the relevant Section in accordance with this Agreement;

"**Security Interest**" means any mortgage, pledge, lien, hypothecation, security interest or other charge or encumbrance or any other agreement or arrangement having substantially the same economic effect and includes any Security as defined in section 248(b) of the Insolvency Act 1986;

"**Self-Monitoring Plan**" means a detailed plan produced by the Infraco pursuant to Clause 56 setting out how it proposes to monitor its compliance with the Employer's Requirements and its obligations under this Agreement in a way which will enable: (i) the Infraco to produce the Service Quality Reports; (ii) ~~tie~~ to satisfy itself as to the level of the Infraco's compliance with the Employer's Requirements and its obligations under this Agreement in all respects; and (iii) the Parties to perform their respective responsibilities pursuant to and as described in Clause 103 (*Best Value*);

"**Service Commencement Date**" means the date of issue of the Certificate of Service Commencement in accordance with this Agreement;

"Service Quality Report" means the report to be submitted by the Infraco pursuant to Clause 56 (*Service Performance and Quality Monitoring*) in a form developed and containing the information agreed by the Parties;

"Site" means the lands or places on, under, in, or through which the Infraco Works are to be constructed including the Permanent Land and the Temporary Sites, any other lands or places covered by the Land Consents and/or land provided by **tie** for the purposes of the Agreement or any additional land or facilities provided by the Infraco pursuant to Clause 18.19, together with such other places as may be designated in the Agreement or subsequently agreed by the Parties as forming part of the Site;

"Small Works" means any change to the Infraco Works or additional works of a similar nature to, or related to, the Infraco Works having an individual cost not exceeding £10,000 (as Indexed) or as otherwise agreed between the Parties from time to time save where such works require the involvement of either the SDS Provider, the Tram Supplier or the Tram Maintainer;

"Small Works Change" means any Small Works instructed in accordance with Clause 82 (*Small Works Changes*);

"Small Works Cost Notice" has the meaning given in Clause 82 (*Small Works Changes*);

"Snagging" has the meaning given in Clause 44.6;

"Snagging List" means the list issued by **tie** in accordance with Clause 44.6;

"Snagging Rectification Certificate" means a certificate issued under Clause 46 (*Snagging*);

"Spare Parts" means such components, parts, consumables, equipment and furnishings as may reasonably be required from time to time to comply with the Infraco's obligations in terms of Clause 52 (*Maintenance*);

"Spare Parts Pool" means the pool of Spare Parts and Special Tools owned by **tie** and to be maintained by the Infraco in accordance with Clause 52 (*Maintenance*);

"Special Tools" means the special tools, hand tools and test equipment required to carry out maintenance of the Edinburgh Tram Network, listed in the Infraco's Proposals as the same may be varied from time to time by written agreement of the parties (such agreement not to be unreasonably withheld or delayed);

"Specially Written Software" means programs which are written by or on behalf of the Infraco specifically to enable the Infraco to carry out its obligations under this Agreement;

"Specific Change in Law" means any Change in Law which specifically applies to the provision of works the same as or similar to the Infraco Works but excluding the making, amendment or revocation of any Traffic Regulation Order;

"Sub-Contractor" any sub-contractor, sub-consultant, supplier, specialist and/or other party appointed in accordance with Clause 28 (*Subletting and the Appointment of Sub-Contractors*), or otherwise approved by **tie**, and "Sub-Contract" is to be interpreted accordingly;

"Submitted Item" has the meaning given in paragraph 1.2 of Schedule Part 14 (*Review Procedure and Design Management Plan*);

"Successor Infraco" means any person or persons notified by **tie** to the Infraco as having been, or intended to be, appointed to complete any part of the Infraco Works and/or maintain any part of the Edinburgh Tram Network following termination or expiry of this Agreement;

"Systems Acceptance Tests" means the tests described in the Employer's Requirements including tests T1, T2, T3, T4 and/or T5, and the other testing and commissioning activities described in Schedule Part 2 (*Employer's Requirements*);

"Systems Availability Target" has the meaning given in Schedule Part 2 (*Employer's Requirements*);

"Technical Library" has the meaning given to it in Clause 102.17(a);

"Technical Records" means the technical records in respect of the Edinburgh Tram Network to be retained and updated in accordance with the Maintenance Specification and the Employer's Requirements;

"Telewest" means either or both of Telewest Limited and Telewest Communications;

"Telewest Communications" means Telewest Communications Group Limited, a company incorporated under the Companies Act with registered number 02514287 and having its registered office at 160 Great Portland Street, London, W1W 5QA;

"Telewest Limited" means Telewest Limited, a company incorporated under the Companies Act with registered number 03291383 and having its registered office at 160 Great Portland Street, London, W1W 5QA;

"Temporary Works" means all temporary works of every kind required in or about the construction and completion of the Infraco Works;

"Temporary Sites" means any of the sites shown highlighted in red on the plans set out in Schedule Part 31 (*Drawings*);

"Term" means the period from (and including) the Effective Date until (and including) the earlier of the Termination Date and the Expiry Date;

"Termination Date" means the date of early termination of this Agreement in accordance with Clauses 3 (*Conditions Precedent*), 88 (*Termination or Suspension for tie Default*), 89 (*Voluntary Termination by tie*), 90 (*Termination on Infraco Default*), 91 (*Termination by Reason of Force Majeure*), 92 (*Termination for Corrupt Gifts and Fraud*) or 93 (*Persistent Breach*);

"Termination Notice" means a notice to terminate this Agreement served by either Party in accordance with the terms of this Agreement;

"T1" means the post commissioning test described in section 23 of Schedule Part 2 (*Employer's Requirements*);

"T2" means performance test 1 described in section 23 of Schedule Part 2 (*Employer's Requirements*);

"T3" means the pre-operations test described in section 23 of Schedule Part 2 (*Employer's Requirements*);

"T4" means the network performance test described in section 23 of Schedule Part 2 (*Employer's Requirements*);

"T5" means the network reliability test described in section 23 of Schedule Part 2 (*Employer's Requirements*);

"Test Track" means that portion of the Infraco Works that will be utilised by the Infraco to test run Trams and systems and to train drivers and other staff;

"Third Party Obligations" means the obligations which Infraco is obliged to comply with under Clauses 18.17A and B and set out in Schedule Part 13 (*Third Party Agreements*) as that Schedule Part 13 may be amended from time to time as a result of a **tie** Change;

"Third Party Software" means programs, the Intellectual Property Rights in which are:

- (a) owned by a third party; and
- (b) used by the Infraco to carry out its obligations under this Agreement;

"Thus" means means Thus PLC, a company incorporated under the Companies Act with registered number SC 192666 and having its registered office at 1-2 Berkeley Square, 99 Berkeley Street, Glasgow, G3 7HR;

"tie and CEC Policies" means the policies included in Schedule Part 29 (*tie and CEC Policies*);

"tie Change" means any addition, modification, reduction or omission in respect of the Infraco Works instructed in accordance with Clause 80 (*tie Changes*) or any other event which this agreement specifically states will be a **tie Change** but which shall not include any Small Works Change or any Accommodation Works Change;

"tie Change Order" means the written confirmation issued by **tie** to proceed with a **tie Change** on the basis of an Estimate (as modified, if required);

"tie Consents" means securing the Traffic Regulation Orders and Temporary Traffic Regulation Orders in accordance with Clause 19.1 together with such other Consents that relate to the statutory authority to implement the Edinburgh Tram Network, but excluding all Design Stage Consents.

"tie Customer Satisfaction Survey" means the customer satisfaction survey produced annually (or with such other frequency as may be agreed between the Infraco and **tie**) in accordance with Clause 73.3;

"tie Default" means one of the following events:

- (a) the failure of **tie** for more than 30 days following the final date for payment to pay to the Infraco an amount in excess of £250,000 which has been certified for payment pursuant to Clause 67.5 or Clause 68.4 except where **tie** has exercised contractual rights of set-off or retention as provided for in this Agreement, including pursuant to Clauses 37.2, 38.2, 38.3, 44.5, 45.5, 67.14, 67.15, 68.12, 68.13, 69.4, 96.4.3 or Schedule Part 43;
- (b) a breach by **tie** of any of its material obligations under this Agreement which substantially frustrates or renders it impossible for the Infraco to perform any material

part of its obligations under this Agreement for a continuous period of 45 Business Days;

- (c) an Insolvency Event in relation to **tie**;
- (d) breach by **tie** of Clause 98; or
- (e) Change in Law which makes completion of or carrying out of a material part of the Infraco Works either impossible or illegal

"tie DPOFA Change" means a change proposed by **tie** in accordance with the DPOFA;

"tie's Drug and Alcohol Policy" means the policy included in Schedule Part 29 (*tie and CEC Policies*);

"tie Notice of Change" means a notice service by **tie** pursuant to Clause 80 (*tie Changes*), setting out the matters referred to in Clause 80;

"tie Obligations" means the obligations which **tie** is required to perform under this Agreement which are set out in Schedule Part 26;

"tie Party" means any advisers appointed by **tie** and/or any of **tie's** employees, agents, contractors and sub-contractors and its or their directors, officers and employees (but excluding the Infraco and/or any Infraco Party);

"tie's Representative" means the person or persons appointed by **tie** from time to time and notified to the Infraco;

"Timetable" means the timetable which is developed in accordance with Schedule Part 2 (*Employer's Requirements*) as may be amended from time to time;

"TOC" means (passenger) train operating company;

"Traffic Regulation Orders" means the traffic regulation orders required for the operation and maintenance of the Edinburgh Tram Network;

"Tram Commissioning Routine Tests" means together the site commissioning tests and the system integration tests to be carried out on the System and on each Tram as set out in section 23 of Schedule 2 (*Employer's Requirements*);

"Tramco IPR" means the Tram Supplier IPR as such term is defined in the Tram Supply Agreement and the Tram Maintainer IPR as such term is defined in the Tram Maintenance Agreement;

"Tramco Project IPR" means all Intellectual Property Rights created in the performance of the Tram Supplier's obligations pursuant to the Tram Supply Agreement and the Tram Maintainer's obligations pursuant to the Tram Maintenance Agreement relating to aesthetic and ergonomic detailed design and which are specific in nature to the performance of the Tram Supplier's obligations pursuant to the Tram Supply Agreement and the Tram Maintainer's obligations pursuant to the Tram Maintenance Agreement;

"Trams" means all or any of the tram vehicles for the Edinburgh Tram Network to be provided under the Tram Supply Agreement and maintained under the Tram Maintenance Agreement;

"Tramstop" means the places (including termini) at which fare paying passengers are permitted to board and/or leave Trams;

"Tram Inspector" means the person specified as such in the Tram Inspector Agreement;

"Tram Inspector Agreement" means the agreement between the Tram Inspector, **tie** and the Infraco for the inspection and certification of Trams which shall be substantially in the form set out in Schedule Part 34 (*Tram Inspector Agreement*);

"Tram Legislation" means the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006, which received Royal Assent on 8 May 2006 and 27 April 2006 respectively and which confer on CEC all requisite authorities and statutory powers to procure the construction, operation and maintenance of the Edinburgh Tram Network;

"Tram Maintenance Commencement Date" shall have the meaning given to it pursuant to the Tram Maintenance Agreement;

"Tram Maintainer" means the party appointed to carry out the Tram Maintenance Services in accordance with the Tram Maintenance Agreement;

"Tram Maintenance Agreement" means the agreement awarded to the Tram Maintainer in respect of the Tram Maintenance Services set out in Schedule Part 19 (*Tram Maintenance Agreement*) as may be amended from time to time with the approval of **tie** in accordance with this Agreement;

"Tram Maintenance Plan" means the maintenance plan to be prepared by the Tram Maintainer in accordance with the Tram Maintenance Agreement;

"Tram Maintenance Qualifying Change in Law" means a Qualifying Change in Law pursuant to the Tram Maintenance Agreement;

"Tram Maintenance Services" means the ongoing maintenance of the Trams, supply of consumable spares for the Trams, the provision of any associated services and other obligations incumbent on the Tram Maintainer (excluding the Tram Supply Obligations) as described in the Tram Maintenance Agreement;

"Tram Maintenance Services Payment" means the payment to be made to the Infracore in respect of the performance of the Tram Maintenance Services in accordance with this Agreement. This payment shall be based on the sums set out in Schedule Part 4 (*Price*) and the final amount to be paid in each Reporting Period to the Infracore shall be calculated in accordance with Clause 68 (*Payment in Respect of Maintenance Services*) and part B of Schedule Part 6 (*Maintenance Payment Regime*).

"Tram Milestone" means any milestone which has been identified and defined as a "tram milestone" in Schedule Part 5 (*Milestone Payments*);

"Tram Milestone Completion Certificate" means a certificate to be issued in respect of a milestone completed by the Tram Supplier;

"Tram Related Equipment" means the Spare Parts and Special Tools (which are required specifically in relation to the Trams) and the documentation, specifications, instructions, catalogues, spare parts list, training and maintenance manuals and log books and Tram Software listed in Part 2 of Schedule Part 2 (*Employer's Requirements*);

"Tram Requirements Specification" means Section 24 of Schedule Part 2 (*Employer's Requirements*);

"Tram Software" means the executable object code version of software relating to equipment installed on the Trams, which is supplied in machine readable form and already loaded upon the relevant piece of equipment or computer system to which it relates, including for the avoidance of doubt all software embedded in a hardware device which is installed on the Trams;

"Tram Supplier" means the party appointed by **the** to carry out the Tram Supply Obligations in accordance with the Tram Supply Agreement;

"Tram Supply Advance Works Agreement" means the agreement entered into between **tie** and the Tram Supplier on 18 December 2007;

"Tram Supply Agreement" means the agreement awarded by to the Tram Supplier in respect of the Tram Supply Obligations set out in Schedule Part 16 (*Tram Supply Agreement*) as may be amended from time to time with the approval of **tie** in accordance with this Agreement;

"Tram Supply Protestor Action" means any action occurring in Edinburgh or whilst undertaking the delivery of trams within Scotland, directed against **tie** or a **tie** Party or the Edinburgh Tram Network which affects the performance of the Tram Supplier's obligations under the Tram Supply Agreement and has not arisen as a result of or been caused by the Tram Supplier's breach of its obligations under the Tram Supply Agreement or otherwise by any action or omission of the Tram Supplier unrelated to the Edinburgh Tram Network;

"Tram Supply Qualifying Change in Law" means a Qualifying Change in Law pursuant to the Tram Supply Agreement;

"Tram Supply Obligations" means the design, manufacture and supply of the Trams, and supply of documentation, capital spares, special tools and any associated equipment, the provision of services and other obligations incumbent on the Tram Supplier (excluding the Tram Maintenance Services) as described in the Tram Supply Agreement;

"Tram Type Test" means any of the Type Tests as defined in Schedule Part 16 (*Tram Supply Agreement*);

"Transport Edinburgh Limited" or **"TEL"** means Transport Edinburgh Limited a company incorporated under the Companies Act with registered number SC269639 and having its registered office at 55 Annandale Street, Edinburgh, EH7 4AZ;

"Transport Scotland" means an agency within the Scottish Executive Enterprise, Transport and Lifelong Learning Department which was established in January 2006 and having its principal office at Buchanan House, 58 Port Dundas Road, Glasgow, H4 0HF;

"Transport Services" means the public passenger transport services to be provided by the Operator on the Edinburgh Tram Network (or any part thereof) in accordance with the DPOFA;

"TTROs" means temporary traffic regulation orders;

"TUPE Information" has the meaning given in Clause 58.1

"**TVM**" means ticket vending machine (automatic or manual);

"**Underperformance Warning Notice**" means a notice issued to the Infraco by **tie** pursuant to Clause 56.7.2;

"**UTC**" means urban traffic control;

"**Utilities**" means BT, Easynet, NTL, Scottish Water, Scotland Gas Networks, Cable and Wireless, Forth Ports, Ocean Terminal, Scottish Power, Telewest and Thus and their successors, permitted assignees and transferees and "**Utility**" shall be construed accordingly;

"**Utilities Information**" means the data, information, plans, drawings, surveys, reports, renewals programmes, estimates, technical schedules contained in part B of Schedule Part 41 (*Ground Conditions and Utilities Information*) which relate to the existence, location, type, extent, use and serviceability of any utility apparatus or equipment;

"**Utilities Works**" means any works carried out, or to be carried out, by the Utilities or any other public utility company under contract with **tie** relative to the MUDFA Works;

"**Works Breakdown Structure**" or "**WBS**" means the works breakdown structure set out in Schedule Part 2 (*Employer's Requirements*);

"**Work Site**" means any work site within any part of the Infraco Works; and

"**Work Site Completion Certificate**" has the meaning given in paragraph 3.7.1 of part A of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*).

"**9th May 2008 Agreement**" means the agreement of that date signed by **tie** Limited and both Infraco Members;

2. Unless the context requires otherwise:

2.1 words importing gender include masculine, feminine and neuter;

2.2 the singular includes the plural, and vice versa;

2.3 a reference to any Clause, Sub-Clause or Schedule is, except where it is expressly stated to the contrary, a reference to such Clause, Sub-Clause or Schedule to this Agreement;

- 2.4 a reference in any Schedule to any part, paragraph or sub-paragraph is, except where it is expressly stated to the contrary, a reference to such part, paragraph or sub-paragraph of that Schedule (as the case may be);
- 2.5 any reference to this Agreement or to any other document shall include any variation, amendment, or supplement to this Agreement or such other document as expressly permitted under the terms of this Agreement;
- 2.6 any reference to any enactment, draft enactment, order, regulation or other similar instrument (including any EU instrument) (whether specifically named or not) shall be construed as a reference to the enactment, order, regulation or instrument as amended, replaced, consolidated or re-enacted and shall include any orders, consents, regulations, legally binding codes of practice or subordinate legislation (within the meaning of section 21(1) of the Interpretation Act 1978) made thereunder;
- 2.7 a reference to a person includes individuals, firms, partnerships, bodies corporate, joint ventures, government departments and any organisation capable of suing or being sued and references to any of the same include the others and their successors and assignees and transferees;
- 2.8 the *ejusdem generis* rule does not apply and the meaning of general words is not to be restricted by any particular examples preceding or following those general words;
- 2.9 a reference to a time of day is a reference to the time in Scotland;
- 2.10 subject to the restrictions imposed by this Agreement on subcontracting, an obligation to do something includes an obligation to procure it to be done;
- 2.11 an obligation not to do something includes an obligation not to wilfully allow it to be done;
- 2.12 the word "**including**" means "**including without limitation**";
- 2.13 a reference to "**consent**" shall mean consent in writing;
- 2.14 the headings, contents lists and marginal notes in the Agreement shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the Agreement;
- 2.15 The word "**cost**" and words "**direct cost**" or any phrase analogous thereto when used in the Agreement shall include all expenditure properly incurred or to be incurred

whether on or off the Site including overheads, finance and other charges properly allocatable thereto;

- 2.16 communications which under the Agreement are required to be "in writing" may be handwritten, typewritten or printed and sent by hand, post, email, facsimile or other means resulting in a permanent record;
- 2.17 any reference to any Deliverable or course of action being reviewed, approved, agreed, consented to or otherwise processed in accordance with this Agreement, means that the provisions of Schedule Part 14 (*Review Procedure and Design Management Plan*) shall apply except where otherwise agreed in writing by **tie**; and
- 2.18 references to "traffic management" and "Temporary Traffic Regulation Orders" (TTROs) shall be deemed to include the requirements of EAL, Forth Ports and any other third party relating to road closures and procedures.

3. Where a Party comprises two or more persons:

- 3.1 any obligations on the part of that party contained or implied in this Agreement are deemed to be joint and several obligations on the part of those persons; and
- 3.2 references to that party include references to each and any of those persons.

4. The language of this Agreement is English. All 'as built' drawings, system integration documentation and technical data, operating and maintenance instructions and manuals, warranty documentation, Spare Parts information, identification labels, programmes and other written and printed matter required in respect of the Infracore Works and the subsequent operation and maintenance of the Edinburgh Tram Network which are to be provided by the Infracore in accordance with this Agreement, shall be in English.



**THIS IS SCHEDULE PART 2 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 2

EMPLOYER'S REQUIREMENTS

Erratum to Version 4

| Erratum | Date | Comments |
|---------|----------|---|
| 001 | 24/04/08 | Page 48: Section 2.15: The footnote "Damian has already instructed this change." – is to be ignored. |
| 002 | 24/04/08 | Page 90: Section 7: The footnote "The word maximum would allow no channels to be provided and still be compliant! Two channels ok as a minimum." – is to be ignored. |
| 003 | 24/04/08 | Page 147: Section 10.1.5: The reference in the last sentence to Schedule 32 is incorrect. It should read "The Noise and Vibration Policy is included in Schedule Part 29 (<i>tie and C'EC' Policies</i>)". |
| 004 | 24/04/08 | Page 174: Section 12.9 - The reference to Schedule 45 should refer to Schedule Part 40. |
| 005 | 24/04/08 | Page 209: Section 17.1: Last paragraph The reference to Section 32 should read Schedule Part 29. After Project Safety and Quality Interface Document add (40-91-PLA-002). |
| 006 | 24/04/08 | Page 273: Section 23.16.6 - Schedule 7 - Performance Regime is incorrect. This should now refer to Schedule Part 6. |
| 007 | 24/04/08 | Page 609: Section 40.1.2 – Final paragraph Performance payment regime – The reference to Schedule 7. This should now refer to Schedule Part 6. |
| 008 | 24/04/08 | Page 634: Section 40.2.4 Last line Reference to Clause 52 of Infracore should read as Clause 52.20.1. |
| 009 | 24/04/08 | Page 635: Section 40.2.4 Table 93 Fault Category 3 "Equal Service elements in Schedule 7" should read "Equal Service elements in Schedule Part 6". |
| 010 | 24/04/08 | Page 645: Section 40.2.8 Last set of bullet points at bottom of page Reference to Schedule 7 Performance Measurement System should read as Schedule Part 6. |
| 011 | 05/05/08 | Page 40 Section 2.8 Table 2 reformatted to show entire contents (see attached) |
| 012 | 05/05/08 | Page 41 Section 2.8 Table 3 reformatted to show entire contents (see attached) |
| 013 | 05/05/08 | Page 42 Section 2.8 Table 4 reformatted to show entire contents (see attached) |
| 014 | 05/05/08 | Page 431 Section 29.14 Table 83 see updated version (see attached) |
| 015 | 05/05/08 | Page 610 Section 4.2.2 Table 89 see updated version (see attached) |
| 016 | 05/05/08 | Page 50 Section 2.16(b) 4 th bullet - delete "Leith" and replace with "Ocean Terminal or Newhaven according to service" |
| 017 | 05/05/08 | Page 147 Section 10.1.7 - delete "Section 68 of the Edinburgh Tram Line Act 2006" and replace with "Section 63C of the Edinburgh Tram Line Act 2006" |
| 018 | 05/05/08 | Page 169 Section 12.8 Update reference to ISO 10005-1995 to ISO 10005-2005 |
| 019 | 05/05/08 | Page 260 Section 23.13.3 - delete "Network" from section heading |
| 020 | 05/05/08 | Page 264 Section 23.14.3 - delete "Network" from section heading |
| 021 | 05/05/08 | Page 266 Section 23.15.3 - delete "Network" from section heading |
| 022 | 05/05/08 | Page 318 Section 24.5 Change reference to Schedule 22 of the Tram Supply Agreement to Schedule 23 of the Tram Supply Agreement |
| 023 | 05/05/08 | Page 318 Section 24.6 3 rd paragraph should read "The Trams shall have a key suiting system that provides a logical hierarchy of access to cleaners, inspectors, drivers and maintenance staff. It shall not be part of the general suite but tram specific as detailed in Section 22.2.1 of these Employer's Requirements." |

| Erratum | Date | Comments |
|---------|----------|--|
| 024 | 05/05/08 | Page 622 Section 40.2.2 Table 92 Structures SO3 and SO4 - delete "(if CEC own it)" from the comments column |
| 025 | 05/05/08 | Page 625 Section 40.2.2 Table 92 Structures S20 to S31 - insert "the Operator is responsible for cleaning and graffiti removal" to the comments column |
| 026 | 05/05/08 | Page 627 Section 40.2.2 Table 92 Retaining Walls W03 to W19 - insert "the Operator is responsible for cleaning and graffiti removal" to the comments column |
| 027 | 05/05/08 | Page 632 Section 40.2.4 Final paragraph headed " Further Maintenance Activities " - delete bullet "removal of graffiti" and bullet "cleaning" |
| 028 | 05/05/08 | Page 644 Section 40.2.8 Under heading "Reporting Period Review", 4 th bullet relating to maintenance report, sub-bullets 1 and 2 - delete "including cleaning" |
| 029 | 05/05/08 | Page 646 Section 40.2.10 3 rd paragraph - delete "operational phase" and replace with "Term" |
| 030 | 05/05/08 | Page 652 Section 40.2.19 - delete section and insert "Not used" |
| 031 | 05/05/08 | Page 652 Section 40.2.20 - delete bullets 1 to 4, and 6 |
| 032 | 05/05/08 | Page 662 Section 40.3.9 1 st paragraph - delete "will be established in detail during the tender process" and replace with "in the Tram Maintenance Agreement" |
| 033 | 05/05/08 | Page 665 Section 40.4.1 9 th paragraph 3 rd sentence - replace with "The Edinburgh Tram Network design shall be selected such that all equipment/systems used in the design shall continue to be available for the design life specified and that the Infraco shall give tie a minimum of 12 months notice where any supplier intends to cease supply of any component. The Infraco shall recommend a strategy for managing such obsolescence and effect replacement of such components where these fail." |
| 034 | 05/05/08 | Page 672 Section 40.5.2 6 th bullet - amend to read "evidence of product whole life cycle experience to date in other service use" |
| 035 | 05/05/08 | Appendix 1 – ET Brand Guidelines as referred to in Section 5 (see attached) |
| 036 | 13/05/08 | Page 182 Section 12.12 - Add new sentence to paragraph 3 "The temporary traffic diversion modelling and assessment required to support the Infraco's Traffic Management Plan (TMP) and Work Site Strategy Plan (WSSP) shall be provided by tie (via traffic management consultants) during the Construction Works" |
| 037 | 13/05/08 | 40.2.1 - 3 rd sentence, delete "Pre-operational Period" and insert "Sectional Completion" |
| 038 | 13/05/08 | Table 90 - Roads, Defect Repairs, Tram Stops - insert "cleaning, graffiti and waste removal by CEC" in the comments column. |
| 039 | 13/05/08 | Table 90 - Signals, Tram Detection Loops - insert "2 hours (22:01-06:00)" in the minimum response time column. |
| 040 | 13/05/08 | Table 91 - Defect Reporting, Tram Stops - insert "cleaning, graffiti and waste removal shall be carried out by the Operator" in the comments column. |
| 041 | 13/05/08 | Table 91 - Removal of Obstructions on Tramway and Platform - insert "2 hours (22:01-06:00)" in the minimum response time column. |
| 042 | 13/05/08 | Table 94 - Pest Control - delete "cleaning of bird's droppings and" from the tie specific requirements box. |

Employer's Requirements

Erratum 011

Table 2 (Page 40 Section 2.8)

| Network / Phasing Service frequency commencing at: | | Monday - Friday (trams per hour) | | | | | |
|--|---------------------------|----------------------------------|-------|-------|-------|----------------|--------------------|
| | | first tram 06:00 | 06:45 | 07:00 | 07:20 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6 ^a | 0 |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | 6 | 0 |
| 1a | Haymarket to Newhaven | 0 | 0 | 6 | 6 | 0 | 0 |
| 1a | Newhaven to Haymarket | 0 | 0 | 0 | 6 | 0 | 0 |

| | | | | | | | |
|----|---------------------------|---|---|--|--|----------------|---|
| 1b | Airport to Ocean Terminal | 0 | 6 | | | 6 ^a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | | 6 | 0 |
| 1b | Granton to Newhaven | 0 | 6 | | | 6 ^b | 0 |
| 1b | Newhaven to Granton | 6 | 6 | | | 6 ^c | 0 |

| Network / Phasing Service frequency commencing at: | | Saturday (trams per hour) | | | | | |
|--|---------------------------|---------------------------|-------|-------|-------|----------------|--------------------|
| | | first tram 06:00 | 06:45 | 07:30 | 07:50 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6 ^a | 0 |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | 6 | 0 |
| 1a | Haymarket to Newhaven | 0 | 0 | 6 | 6 | 0 | 0 |
| 1a | Newhaven to Haymarket | 0 | 0 | 0 | 6 | 0 | 0 |

| | | | | | | | |
|----|---------------------------|---|---|--|--|----------------|---|
| 1b | Airport to Ocean Terminal | 0 | 6 | | | 6 ^a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | | 6 | 0 |
| 1b | Granton to Newhaven | 0 | 6 | | | 6 ^b | 0 |
| 1b | Newhaven to Granton | 6 | 6 | | | 6 ^c | 0 |

| Network / Phasing Service frequency commencing at: | | Sunday (trams per hour) | | | | | |
|--|---------------------------|-------------------------|-------|-------|-------|----------------|--------------------|
| | | first tram 07:00 | 07:45 | 08:00 | 08:20 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6 ^a | 0 |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | 6 | 0 |
| 1a | Haymarket to Newhaven | 0 | 0 | 6 | 6 | 0 | 0 |
| 1a | Newhaven to Haymarket | 0 | 0 | 0 | 6 | 0 | 0 |

| | | | | | | | |
|----|---------------------------|---|---|--|--|----------------|---|
| 1b | Airport to Ocean Terminal | 0 | 6 | | | 6 ^a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | | 6 | 0 |
| 1b | Granton to Newhaven | 0 | 6 | | | 6 ^b | 0 |
| 1b | Newhaven to Granton | 6 | 6 | | | 6 ^c | 0 |

Notes:^a from approx : 23:15 Trams run from the Airport - City Centre only^b from approx : 23:15 Trams run from Granton - City Centre only^c from approx : 23:15 Trams run from Newhaven -

Haymarket continuing in service on TL2 to Gyle

Employer's Requirements

Erratum 012

Table 3 (Page 41 Section 2.8)

8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario

| Networking (Phasing) and Service Frequency commencing at: | | 06:00 | 06:45 | 07:00 | 07:20 | 07:45 | 09:45 | 15:45 | 19:00 | 19:45 | 23:15 |
|---|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 a | Airport to Ocean Terminal | 0 | 6 | 8 | 8 | 8 | 6 | 6 | 8 | 6 | 6a |
| 1 a | Ocean Terminal to Airport | 6 | 6 | 8 | 8 | 8 | 6 | 6 | 8 | 6 | 6 |
| 1 a | Haymarket to Newhaven | 0 | | 6 | 8 | 8 | 6 | 6 | 8 | 6 | 6 |
| 1 a | Newhaven to Haymarket | 0 | | 0 | 6 | 8 | 6 | 6 | 8d | 6 | 6 |
| 1 b | Airport to Ocean Terminal | 0 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 | 6a |
| 1 b | Ocean Terminal to Airport | 6 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 | 6 |
| 1 b | Granton to Haymarket | 0 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 | 6b |
| 1 b | Haymarket to Granton | 6 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 | 6c |

| Networking (Phasing) and Service Frequency commencing at: | | Saturday (trams per hour) | | | | | | | | |
|---|---------------------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|--------------|
| | | first tram | | | | | | | | last tram |
| | | 06:00 | 06:45 | 07:30 | 07:50 | 08:15 | 18:30 | 18:50 | 19:15 | 23:15 |
| 1 a | Airport to Ocean Terminal | 0 | 6 | 6 | 8 | | 8 | 8 | 6 | 6a |
| 1 a | Ocean Terminal to Airport | 6 | 6 | 6 | 8 | | 8 | 8 | 6 | 6 |
| 1 a | Haymarket to Newhaven | 0 | | 6 | 8 | | 8 | 8 | 6 | 6 |
| 1 a | Newhaven to Haymarket | 0 | | 0 | 6 | | 8 | 8d | 6 | 6 |
| 1 b | Airport to Ocean Terminal | 0 | 6 | 6 | 8 | 8 | 8 | | 6 | 6a |
| 1 b | Ocean Terminal to Airport | 6 | 6 | 6 | 8 | 8 | 8 | | 6 | 6 |
| 1 b | Granton to Haymarket | 0 | 6 | 6 | 8 | 8 | 8 | | 6 | 6b |
| 1 b | Haymarket to Granton | 6 | 6 | 6 | 6 | 8 | 8 | | 6 | 6c |

Networking
(Phasing)
and Service
Frequency
commencing at:

| Sunday (trams per hour) | | | | | | | | | |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|
| first tram | | | | | | | | | last tram |
| 07:00 | 07:45 | 07:50 | 08:00 | 08:45 | 18:00 | 18:20 | 18:45 | 23:15 | 23:59 |

| | | | | | | | | | | | |
|--------|---------------------------------|---|---|---|---|--|---|----|--|----|---|
| 1 a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | | 6 | 6 | | 6a | 0 |
| 1 a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | | 6 | 6 | | 6 | 0 |
| 1 a | Haymarket to Newhaven | 0 | | 6 | 6 | | 6 | 6 | | | 0 |
| 1 a | Newhaven to Haymarket | 0 | | 0 | 6 | | 6 | 6d | | | 0 |

| | | | | | | | | | | | |
|--------|---------------------------------|---|---|--|---|---|---|--|---|----|---|
| 1 b | Airport to Ocean Terminal | 0 | 6 | | 6 | 6 | 6 | | 6 | 6a | 0 |
| 1 b | Ocean Terminal to Airport | 6 | 6 | | 6 | 6 | 6 | | 6 | 6 | 0 |
| 1 b | Granton to Haymarket | 0 | 6 | | 6 | 6 | 6 | | 6 | 6b | 0 |
| 1 b | Haymarket to Granton | 6 | 6 | | 6 | 6 | 6 | | 6 | 6c | 0 |

- Notes:**
- a) from approx 23:15 trams run from Airport - St Andrew Sq only
 - b) from approx 23:15 trams run from Granton - St Andrew Sq only
 - c) from approx 23:15 Granton trams run from Newhaven - Haymarket continuing in service on to Gyle
 - d) from approx 19:20 (18:50 Saturdays and 18:20 Sundays) Haymarket trams running from Newhaven - Haymarket continue in service to Gyle

Note: The numbers in individual cells give the service frequency starting from the time at the top of the relevant column.

Employer's Requirements

Erratum 013

Table 4 (Page 42 Section 2.8)

| Phase | Service Frequency commencing at: | Saturday (trams per hour) | | | | | |
|-------|-------------------------------------|---------------------------|---|---|---|----|--------------|
| | | First tram 06:00 | | | | | Last tram |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6a | 0 |
| 1a | <u>Ocean Terminal to Airport</u> | 6 | 6 | 6 | 6 | 6 | 0 |
| 1a | <u>Haymarket to Newhaven</u> | 0 | 0 | 6 | 6 | 0 | 0 |
| 1a | <u>Newhaven to Haymarket</u> | 0 | 0 | 0 | 6 | 0 | 0 |
| 1b | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6a | 0 |
| 1b | <u>Ocean Terminal to Airport</u> | 6 | 6 | 6 | 6 | 6 | 0 |
| 1b | <u>Granton to Newhaven</u> | 0 | 6 | 6 | 6 | 6b | 0 |
| 1b | <u>Newhaven to Granton</u> | 6 | 6 | 6 | 6 | 6c | 0 |

Employer's Requirements

Erratum 014

Table 83 (Page 431 Section 29.14)

Table 83 - Depot Plant and Equipment to be Provided (updated 020508)

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|-------------------------|--|---|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| 1 | | Cleaning Equipment | | | | | | | | | | |
| | 1.1 | Tram Cleaning Equipment | Equipment for cleaning of tram interiors | 110V Industrial vacuum cleaning equipment, ≥ 2kW power Equipment to allow removal Floor polishing equipment | P | Generally used in stabling areas However can be used throughout the Depot | T | O | O | O | O | 6 |
| | 1.2 | Tram pressure washer | Industrial washer for general tram cleaning within the Depot including bogie washing | Self powered Hot water/steam - self heating Pressure variable up to ≥200 bar Flow rate ≥12 l/min Lance and hose ≥10m Detergents compatible with Tram external finishes | M | Throughout Depot | T | T | T | T | T | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-------------------------|---|---|---------------------------|----------------|----------|------|------------|-------------------|---------|----------|
| | 1.3 | Infraco pressure washer | Removal Removal of fly posters General cleaning | Features as per Tram pressure washer Mobile towable bowser with capacity for up to one shift of cleaning Infraco to ensure interchangeability with tram pressure washer Readily transportable on back of road-rail and other road vehicles | M | Across the ETN | | | | | | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--------------------|---|--|---------------------------|-------------------------|----------|------|------------|-------------------|---------|----------|
| | 1.4 | Tram Washing Plant | Fixed plant for cleaning of Tram exterior | Unidirectional >15 tph continuously Minimised water consumption, maximised water recirculation controllable and monitored from Control Centre via SCADA system Self contained Pre-wet One pair application brushes Automatic end wash Two pair water wash brushes Dryer Operates from -5°C ambient external temperature within shelter Final details TBD with tram supplier ≥70% water recycling | F | Alongside main workshop | I | O | O | O | O | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--------------------------------|----------------|---|---------------------------|----------------|----------|------|------------|-------------------|---------|----------|
| | | | | Backflow prevention devices shall be installed. Treatment of wastewater to meet appropriate standards prior to connecting to site drainage system shall be provided. | | | | | | | | |
| | 1.5 | Rail Groove Cleaning Equipment | P-way cleaning | Vacuum equipment to remove detritus/debris from grooved track including drain boxes and points Able to clean drains and gullies employing water jets Transportable on road/rail vehicle, lifted with crane or fork lift truck | M | Across the ETN | I | I | I | I | I | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|---------------------|---|--|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| | | | | Self powered for full shift Easy collection/disposal of detritus/debris | | | | | | | | |
| | 1.6 | Parts washer | Infrastructure/Tram component cleaning & degreasing in dirty workshop | Able to wash components ≤100kg, ≤750mm diameter | F | Within dirty workshop | I | I/T | I | I | User | 1 |
| | 1.7 | Floor scrubber | Depot floor cleaning | Industrial vacuum/brush scrubber equipment Compatible with floor finishes | M | Within Depot building | T | T | T | T | T | 1 |
| | | | | | | | | | | | | |
| 2 | | Mechanical Handling | | | | | | | | | | |
| | 2.1 | Shunter | Manoeuvring Trams within workshop | Battery powered Road/rail capability Capable of towing/propelling single Trams Speed up to 3 km/h Local and remote control | M | Throughout Depot tracks Road capability to move between tracks on | T | O/T | #T | O | User | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-----------------------------------|--|--|---------------------------|------------------|----------|------|------------|-------------------|---------|----------|
| | | | | Charging facilities Coupler at each end | | hardstandin g | | | | | | |
| | 2.2 | Tram lifting system and stands | Lifting Trams to allow routine maintenance and removal of bogie(s) | Fixed underfloor system providing flush floor when not in use. Ability to lift fully functional, unladen tram. Synchronised lift from single control panel. Ability to stop and lock lift at any vertical positionInterlocking to protect Tram in event of system/component failure. Manually positioned stands to be provided Interlocking with OLE if required. | F | Main workshop | I | T | T | T | T | 1 set |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-----------------------------------|--|--|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | 2.3 | Fixed high level access platforms | To allow access to all equipment mounted on Tram roof | Capable of providing access to all roof mounted equipment on tram Decking to prevent tools or small components falling through Handrails and toeboards to prevent personnel/material falling Access/egress gates interlocked with OLE End protection | F | Main workshop | I | T | I | T | T | 2 sets |
| | 2.4 | Overhead crane | Bridge type crane spanning 2 roads within the workshop to allow all material within main workshop to be transported up to and including size/weight of motor bogie | ≥6.3 tonne capacity Vertical clearance <960 mm from hook (fully raised) to top of crane Traverses below OLE Interlocked with OLE Remote control using hand held device | F | Main workshop | I | T/I | T | T | User | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--------------------------------|--|--|---------------------------|-------------------------|----------|------|------------|-------------------|---------|----------|
| | | | | Multi-speed facility - lift, traverse and travel Long and cross travel to cover all areas over the two roads | | | | | | | | |
| | 2.5 | Mobile crane | Facilitate removal of miscellaneous equipment including bogie components within the dirty workshop | ≥2t capacity Powered operation | M | Throughout workshops | T | T/I | T | T | User | 1 |
| | 2.6 | Bogie workstands | To allow dismantled bogies to be maintained | Allows bogie to be manoeuvred along the stub track in the dirty workshop Wheel locks Capable of supporting both trailer and motor bogie | M | Dirty workshop | T | T | T | T | T | 1 |
| | 2.7 | Other tram equipment stands | Various stands to allow items of equipment to be stored and readily maintained when dismounted from the Tram | Infraco to propose depending on tram design Expected to include stands for doors, | M | Throughout Depot | T | T | T | T | T | |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-------------------------|--|--|---------------------------|--|----------|------|--------------|-------------------|----------|-------------|
| | | | | windows, body panels etc... | | | | | | | | |
| | 2.8 | Accommodation bogies | To allow Trams to be moved within workshop once bogies have been removed or the Tram has been split at any articulation | Allows Tram to be manoeuvred throughout the depot once any combination of bogies has been replaced Allows entire tram to be manoeuvred throughout the depot once any articulation has been split | M | Throughout Depot | T | T | T | T | T | |
| | 2.9 | Fork lift truck | Lifting and transporting miscellaneous equipment | Battery powered Charging facilities Road wheels >3 t lifting capacity Drum handling equipment Crane arm Capable of accessing | M | Throughout the Depot but limited to hard standing areas when outside | T & I | T/I | T & /I | T & I | Us er | 1 plus 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|---------------|---|--|---------------------------|--|----------|------|------------|-------------------|---------|------------------------|
| | | | | all shelving and racking in stores- Infraco to demonstrate | | | | | | | | |
| | 2.10 | Pallet truck | Lifting & Transporting equipment particularly in stores | Manually manoeuvred, hydraulic lifting the Infraco to propose requirements. Infraco to provide integrated solution | M | Throughout the Depot but limited to hard standing areas when outside | I | T/I | T/I | T | User | The Infraco to propose |
| | 2.11 | Hand trolleys | Transporting tools and spares | Unpowered the Infraco to propose requirements. Infraco to provide integrated solution | M | Throughout the Depot but limited to hard standing areas when outside | I | T/I | T/I | T | User | The Infraco to propose |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|-------------------------------------|--|--|---------------------------|------------------------------|----------|------|------------|-------------------|---------|------------------------|
| | 2.12 | Infraco lifting slings | General slings for lifting infrastructure heavy components on system and in Depot building | Infraco to propose. Stand for storage | P | Use on system infrastructure | I | I | I | I | I | The Infraco to propose |
| | 2.13 | Tram lifting slings | Specific lifting gear to allow all equipment to be removed and replaced. | Raised hook on overhead crane can be no more than 5390 mm ARL the Infraco to propose Stand for storage | M | Use in Depot building only | T | T | T | T | T | Tramco to propose |
| | 2.14 | Windscreen/window removal equipment | For use in replacing tram windscreens and side windows | Mobile stand capable to being used to access both windscreen and side windows Electrically powered vacuum beam with suckers adapted to windscreen design Audio/visual alarm in the event of suction loss | M | Use in Depot building only | T | T | T | T | T | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|------|-----------------------------|---|---|---------------------------|--|----------|------|------------|-------------------|---------|------------------------|
| | 2.15 | Re-railing equipment | For use in re-railing trams out on the System | Variety of jacks/beams/slides to be proposed by the Infraco Airbags Slew locking devices Capable of being readily transported on the road/rail vehicle | M | Used any where on system including Tramstops | T | T | T | T | T | 1 set |
| | 2.15 | Stop boards | To indicate the presence of equipment/personnel/trams on the tracks | The Infraco to propose requirements. Infraco to develop integrated solution | P | Throughout System | I | T/I | I | T/I | User | ≥20 |
| 3 | | Workshop & Stores Furniture | | | | | | | | | | |
| | 3.1 | Shelving and racking | Storage of spares and other material | Heavy duty The Infraco to propose requirements. The Infraco to develop integrated solution | F | Stores | I | T/I | I | T/I | User | The Infraco to propose |
| | 3.2 | Tram staging | for Tram inspections/repairs | The Infraco to propose any | M | Used within Depot | T | T | T | T | T | The Infraco to propose |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-----------------|--|---|---------------------------|-------------------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | additional staging required | | building | | | | | | |
| | 3.3 | General staging | For infrastructure inspections/repairs | The Infraco to propose any additional staging required | M | Across Edinburgh Tram Network | I | I | I | I | I | The Infraco to propose |
| | 3.4 | Shelving | Storage of minor items/documents | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |
| | 3.5 | Workbenches | Equipment maintenance | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |
| | 3.6 | Cupboards | Storage of minor items/documents | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |
| | 3.7 | COSHH cupboard | Storage of COSHH items | The Infraco to propose requirements. The | F | Dirty workshop | I | T/I | I | T/I | user | The Infraco to propose |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|--|--|--|---------------------------|----------------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | Infraco to develop integrated solution | | | | | | | | |
| | 3.8 | Workshop stools | Personnel comfort when working | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | T/I | T/I | User | The Infraco to propose |
| 4 | | Fixed Plant | | | | | | | | | | |
| | 4.1 | Air conditioning maintenance equipment | Specialist tools for filling/emptying refrigerant | The Infraco to propose | F | Anywhere in Depot building | T/I | T/I | T/I | T/I | T/I | The Infraco to propose |
| | 4.2 | Tyre replacement equipment | Specialist tools for tyre splitting/removal/balancing /bearing replacement | The Infraco to propose | F | Dirty workshop | T | T | T | T | T | 1 |
| | 4.3 | Underfloor wheel lathe | In-situ reprofiling of Tram tyres | Capable of producing a range of wheel profiles. Tolerances to be agreed between the Infraco Swarf conveyed to skip for removal by means of forklift truck capable of turning all wheels on one Tram within | F | Within Depot building. | I | T | T | T | T | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-------------|-------------------------------------|--|---------------------------|--------------------|----------|------|------------|-------------------|---------|----------|
| | | | | eight hour shift | | | | | | | | |
| | 4.4 | Sand Plant | Refilling of Tram sanding equipment | <p>Minimum silo capacity 30 tonnes</p> <p>Capable of receiving sand delivery directly from road vehicle</p> <p>Allows Tram driver to fill an empty tram within 5 minutes</p> <p>Rate of fill to be sustainable for 30 minutes. In no circumstances shall the interval between the filling of two Trams exceed 10 minutes</p> <p>The physical condition of the sand shall not deteriorate when stored</p> <p>Sand deliveries to a</p> | F | Dedicated facility | T | O | O | O | IT | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|---------------|--|--|---------------------------|------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | Tram shall stop automatically when the tram sand box is full Sand filling nozzles to be compatible with the sand filling inlets on the trams Signal interlocking to inhibit the movement of a tram if the sand filling nozzles are not returned to their correct storage position. | | | | | | | | |
| | 4.5 | Machine tools | General machine tools required for maintenance | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Dirty workshop | I | T/I | T/I | T/I | User | The Infraco to propose |
| | 4.6 | Paint booth | Respraying of removable Tram panels | For use with water based paints integrated compressor | F | Outside workshop | T | T/I | T/I | T | User | 1 |
| | 4.7 | Pantograph | to calibrates and align | The Infraco to | F | Throughout | T | T | T | T | T | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|------------------------------|---|--|---------------------------|----------------------|----------|----------|------------|-------------------|---------|---|
| | | maintenance & load test jig | tram pantograph off Tram roof | propose | | workshops | | | | | | |
| | 4.8 | Suspension setting equipment | To allow suspension to be set/shimmed without using tram lift | The Infraco to propose | M | Throughout workshops | T | T | T | T | T | 1 |
| | 4.9 | Diesel generator | Back up power source | Capable of connection to the depot LV switchboard and other plant requiring an external energy source. Capable of providing at least three day continuous operation. | M | Across network | * | I, T & O | I* | I | | *To be rented by the Operator if and when required. |
| 5 | | Hand & Mobile Tools | | | | | | | | | | |
| | 5.1 | Infrastructure tools | Hand tools | The Infraco to propose | P | Across ETN | I | I | I | I | I | The Infraco to propose |
| | 5.2 | Tram tools | Hand tools | The Infraco to propose | P | Across ETN | T | T | T | T | T | Tramco to propose |
| 6 | | Welding Shop Equipment | | | | | | | | | | |
| | 6.1 | Ferrous welding equipment | General infrastructure repairs | The Infraco to propose requirements. Infraco | F | Dirty workshop | I | T/I | I | T/I | User | The Infraco to propose |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|------------------------------------|---|--|---------------------------|------------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | to develop integrated solution | | | | | | | | |
| | 6.2 | Aluminium welding equipment | Specialist Tram and Tram shelter repairs | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Dirty workshop | I | T/I | I | T/I | User | The Infraco to propose |
| 7 | | Battery Shop Equipment | | | | | | | | | | |
| | 7.1 | Tram battery charger | To recharge Tram Batteries | The Infraco to propose | P | Battery room | T | T | T | T | T | The Infraco to propose |
| | 7.2 | Infrastructure battery chargers | To recharge various batteries used in power supply, control and comms equipment | The Infraco to propose and develop solution compatible with tram battery charger | P | Battery room | I | T | T | T | T | The Infraco to propose |
| 8 | | Instrumentation and Test Equipment | | | | | | | | | | |
| | 8.1 | Tram test equipment | To allow testing of measurement and testing of tram equipment | The Infraco to propose. Note any overlap with "Special Tools" to be highlighted. As a minimum, proposal to | M/P | The Infraco to propose | T | T | T | T | T | The Infraco to propose |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|---|--|---|---------------------------|------------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | include; headlight tester, tools to allow event recorder to be downloaded and interrogated, tools to allow CCTV systems to be downloaded and interrogated, tools to allow PA and PID announcements to be re-configured. | | | | | | | | |
| | 8.2 | Infrastructure and Fixed systems test equipment | To allow measurement and testing of infrastructure and fixed systems | The Infraco to propose. Note any overlap with "Special Tools" to be highlighted as a minimum, proposal to include; OLE height and stagger gauge, stray current data loggers, noise measurement equipment, ride measurement equipment, point | M/P | The Infraco to propose | I | I | I | I | I | The Infraco to propose |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|----|-----|--|---|--|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | setting detection equipment, ≥3 sets of live line testing equipment | | | | | | | | |
| 9 | | Infrastructure Maintenance Equipment | | | | | | | | | | |
| | 9.1 | Portable P&C grinders | To dress points and crossings | The Infraco to propose | M | On Site | | | | | | 1 set |
| | 9.2 | Track welding equipment | to build up profiles/replace sections of track | The Infraco to propose | M | On Site | | | | | | 1 set |
| | 9.3 | Portable tamping equipment | To build up track ballast to realign track | The Infraco to propose | M | On Site | | | | | | 1 set |
| | 9.3 | Portable lighting equipment | To illuminate work/collision sites | The Infraco to propose | M | On Site | | | | | | 1 set |
| | 9.4 | Portable generators | To power site tools/lights | The Infraco to propose | P | On Site | | | | | | 2 |
| | 9.5 | Track measuring Equipment | To allow track line and levels to be measured | The Infraco to propose | P | On site | | | | | | 1 set |
| 10 | | Road Vehicles | | | | | | | | | | |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|---------------------|--|---|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| | 10.1 | Road - rail vehicle | To move about the system carrying mobile equipment and personnel | <p>Able to operate on UK roads</p> <p>Able to operate on all parts of the ETN</p> <p>To be equipped with demountable ≥ 2 man-basket to enable OLE inspection throughout the ETN</p> <p>Capable of towing a tram including ability to apply tram brakes from cab of road-rail vehicle</p> <p>Capable of having snow plough attached in both road and rail mode</p> <p>Crane with capacity $\geq 6t$ and a reach (reduced capacity) of at least 4m.</p> <p>Able to transport other equipment items as set out elsewhere in</p> | M | Mobile throughout ETN and road network | | | | | | 1 |

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|---------------------|--|---|---------------------------|-------------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | <p>this list</p> <p>Able to transport ≥3 personnel in cab</p> <p>Payload capability ≥10t</p> <p>This will make it a requirement that the driver has a LGV driving license.</p> <p>Powered winch with ≥8t pulling capacity</p> | | | | | | | | |
| | 10.2 | Other road vehicles | Miscellaneous vehicles to be proposed by Infraco | The Infraco to propose | M | Throughout road network | I | I | I | I | I | The infraco to propose |
| | 10.3 | Road/rail trailer | Trailer with large man lift for OLE inspection/repairs | Capable of being towed to site by road/rail vehicle or truck | M | Throughout road network | I | I | I | I | I | 1 |

Employer's Requirements

Erratum 015

Table 89 (Page 610 Section 4.2.2)

Table 89 – Infrastructure and Equipment Responsibilities Allocation Matrix
(updated 020508)

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|--------------------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Tram Stop Structure | | | | | | | | | | | | | | | | |
| Platform surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Platform Inclined Approach | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Canopy | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Inside surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| External surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Internal Roof surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| External Roof surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Integral Lighting | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Internal seating | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Stop Furnishings | | | | | | | | | | | | | | | | |
| Stop Name Signage | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Static Information Signage | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Guard Rails/Barriers (as applicable) | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Lighting Columns | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Lighting Lanterns | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Litter Bins | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| External seating | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Platform Edge White Line | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Advertising Signage | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Stop Equipment | | | | | | | | | | | | | | | | |
| CCTV Cameras | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Public Address | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| | | | | | | | | | | | | | | | | |
|--|--|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| Loudspeakers | | | | | | | | | | | | | | | | |
| Hearing Loops | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Passenger Information Displays | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Passenger Alarm/Help points | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Ticket Vending Machines (maintained & serviced by TEL) | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Drainage (Interface defined in Table 93) | | N/A | N/A | N/A | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trackside Equipments | | | | | | | | | | | | | | | | |
| Stop Equipment Cabinets | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Stop Equipment Cabinet Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Traction Isolator Cabinets | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Traction Isolator Cabinet Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Point Control Cabinets | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Point Control Cabinet Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Point Heater Cabinets, Point Heaters & Controls | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Road Junction Cabinets | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| Road Junction Cabinet Equipment | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| Point Machines (including Manual Control) | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Contact Wire & Supports | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Poles | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Pole mounted Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Wall Fixings | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Wall fixed Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Signal Heads (Roadside) | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| | | | | | | | | | | | | | | | | |
|--|--|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| Tram Signal Posts (Trackside) | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Signals Posts | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Detector Loops | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Lighting on OLE Masts | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trackside cable ducts | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trackside cables | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Cable drawpits | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Structures (Bridges, Retaining Walls etc) | | | | | | | | | | | | | | | | |
| Over Bridges See Table 95 for split | | N/A | N/A | N/A | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Under bridges See Table 95 for split | | N/A | N/A | N/A | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Retaining walls | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Misc Structures | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Swept Path | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Swept Path Markings | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Track | | | | | | | | | | | | | | | | |
| Trackwork | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Points & Crossings | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Track Drainage | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Field' Stray Current Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Stations | | | | | | | | | | | | | | | | |
| Sub Station Buildings | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Station Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Station Compounds | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Station Parking Facilities | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Stray Current Monitoring Points | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Stray Current Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Earthing Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trams | | | | | | | | | | | | | | | | |
| Free issue' tram mounted equipments | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trams | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| | | | | | | | | | | | | | | | | |
|----------------------------|--|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| Tram saloon & Drivers cabs | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Radio | | | | | | | | | | | | | | | | |
| Portable radios | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Radio Base stations | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Landscaping | | | | | | | | | | | | | | | | |
| Soft landscaping | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Hard Landscaping | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| Floor | Room No. | Description | User Competence Assessor | Used by | | | Cleaned by | | | Maintained by | | | Access Controlled by | | |
|-------|----------|-------------|--------------------------|---------|-----------------|----------|------------|-----------------|----------|---------------|-----------------|----------|----------------------|-----------------|----------|
| | | | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev |

Stores, Workshops and Maintenance Area

| | | | | | | | | | | | | | | | |
|--------------------|--|---------------------------------|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| Ground Floor Level | | Stores Office Centrally located | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| | | Heavy Store (Infraco) | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Heavy store (Tramco) | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Visitors Entrance Hall | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| | | Workshop Cleaners Room | n.a | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| | | Light Store (Infraco) | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Light Store (Tramco) | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Infrastructure Workshop | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Dirty Workshop / Machine Shop | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Clean Workshop (Infraco) | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Clean workshop (Tramco) | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Lobby | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Male Toilets | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Male Showers | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Female Toilets | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Female Showers | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Staff Corridor | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | | Infrastructure Admin | n.a | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Maintenance (Tramco) Admin | n.a | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | First Aid | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| | | Switchroom | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Infrastructure Manager | n.a | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Maintenance (Tramco) Manager | n.a | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Store Room (Cleaners?) | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | | Staff Entrance Hall | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| | | Drying Room | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| | | Tram Batteries | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Equipment Room | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | UPS Room | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |

| Floor | Room No. | Description | User Competence Assessor | Used by | | | Cleaned by | | | Maintained by | | | Access Controlled by | | |
|---|----------|-------------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|----------|---------------|-----------------|----------|----------------------|-----------------|----------|
| | | | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev |
| | | Compressor Room - Air tools | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Tram Maintenance Area | | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Maintenance Area Transit Zone | | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Inspection Pits | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| First Floor office accommodation | | | n.a | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Furnishings - Used, Cleaned, Maintained and Controlled as appropriate | | | | | | | | | | | | | | | |
| Chairs, Desks, Tables, Filing cabinets etc | | As Appropriate | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kitchen and Catering Equipment | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Reception Desk & Furnishings | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Control Room Furnishings | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ |
| Lockers, Coat Rails etc | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Training Room furnishings (Projector, Screen etc) | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| External | | | | | | | | | | | | | | | |
| Depot Yard | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ |
| Depot Stabling Area | | | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ |
| Electrical Sub Station | | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ |
| Power Energy Building (Electric, Gas etc) | | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ |
| Depot Car Park | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ |

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|-------------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Miscellaneous | | | | | | | | | | | | | | | | |
| Communication & Control links | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| LEGEND | |
|--------|-----------------|
| ✓ | Responsible |
| ✗ | Not Responsible |

Employer's Requirements

Erratum 035

Appendix 1 – ET Brand Guidelines



Transport Edinburgh

t i e

USB00000033_0043

BRAND GUIDELINES

JANUARY 2008

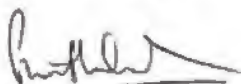
**Edinburgh
Trams**

| | |
|----|---|
| 02 | Forward |
| 03 | Section 1 The Edinburgh Trams Identity |
| | Introduction |
| | Glossary |
| | Colour Glossary |
| | Typography |
| | Logo usage |
| | Exclusion zone |
| | Colours |
| 13 | Section 2 Communications |
| | Stationery |
| | Marketing |
| | Passenger information |
| | Web site |
| | Pictograms |
| 20 | Section 3 The Tram |
| | External design |
| | Interior design |
| 22 | Section 4 Infrastructure |
| | Tram stops |
| | Signs |
| | Colours |
| 25 | Section 5 Uniforms |
| 27 | Section 6 Contacts |

Welcome to the Edinburgh Trams brand.

The Edinburgh Trams brand plays a crucial part in our communications with our customers and in creating a strong, memorable and recognisable image for the system. The brand has been specifically developed to sit alongside Lothian Buses as part of a co-ordinated presentation of public transport in Edinburgh. For the strategy to succeed it is vital that all those involved in the delivery and service of the system adhere to the guidelines contained in this manual. This will ensure that the Edinburgh Trams brand remains coherent and consistent. It is a well known fact that a well managed and consistently implemented brand helps inspire public confidence and trust. By working within these guidelines you will help contribute to that process.

Phil Wheeler

A handwritten signature in black ink, appearing to read "Phil Wheeler".

Convener, Transport, Infrastructure and Environment
City of Edinburgh Council

A handwritten signature in black ink, appearing to read "Willie Gallaher".

Willie Gallaher
Chairman tie

A handwritten signature in black ink, appearing to read "David Mackay".

David Mackay
Chairman TEL

Introduction

The elements and architecture of the Edinburgh Trams brand draw heavily from the Lothian Buses identity. This is to reinforce the strategy that has been adopted to create a genuinely integrated public transport system for Edinburgh.

Colours, typography and graphics are consistent between the two modes and are immediately recognisable as 'family members'.

The contents of this manual define how the branding must be implemented if the integrity of the visual relationship between the two modes is to be maintained.

In essence the branding is clean, simple and easy to understand - precisely the values the tram service provides.



Glossary

The key terms used in this document are as follows:

The Mark

A combination of the harlequins, the logotype and the red block.



The Logotype

The text of Edinburgh Trams set in Swiss 72 I BT. The logotype is used with the harlequins and the block in fixed relationships to form marks.

**Edinburgh
Trams**

The Exclusion Zone

The minimum area around marks or logotypes that must be kept free of other graphic elements. This is to ensure that they are reproduced clearly and legibly without interference from other visual devices.



Guide to using the Mark

This page describes how the mark and the red block should be used.

Some simple rules are:

1. Never extend the red block unless the extended width of the red block to the left is more than 2 times the width of the mark and the extensions bleed off the page or media as illustrated by the header above. The extension to the right edge of the media should be half the width of the mark.
2. The red block should never be reduced in height when part of the mark alone but can be extended in height when the width is extended subject to rule 1.
3. The height should only be extended if the block is to bleed off the page or media.



Colour Glossary

To assist those who are involved in reproducing the Edinburgh Trams identity we have described here the primary specifications for print, screen and paint.

Print

PMS

This is short for the Pantone Matching System. This system is used to specify proprietary 'spot' colours. Spot colours are individually mixed for printing.

The letter 'C' after the colour number shows a colour's appearance on coated paper stock. The letter 'U' after the number shows a colour's appearance on uncoated paper stock.

CMYK

These initials represent the colours used in the four colour printing process: Cyan, Magenta, Yellow and Black (Kohl). Different combinations and percentages of these four colours are used to make matches to the 'spot' colours.

Screen

RGB

This is short for Red, Green, Blue the primary colours of light. RGB is used for reproduction on screens and electronic display systems.

Web

To make colours that can be reproduced on internet and intranet sites, Web safe colours should be specified. Web safe colours provide a greater degree of consistency than RGB colours when there is no control over the equipment used to view the site.

Paint

NCS

This is short for Natural Color System. NCS provides a wide range of colour specifications applicable to paints and other materials.

Other systems such as RAL and British Standard BS4800 have a limited number of Edinburgh Trams colour matches. Approval needs to be sought before using these systems.

Typography

We have two fonts: Humanist 521 BT for general use and Swiss 721 BT which is only used to create the Logotype.

Only Roman, Bold and Light versions of Humanist 521 should be used with italic versions as appropriate.

Roman **Aa**

Bold Aa

Light **Aa**

Humanist 521 BT

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

**ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890**

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

Mark usage

The mark shown here is the only acceptable version to be used.

No other colours should be used and the mark should never be stretched or the proportions altered in any way.



Mark usage

When using a single colour mark the version on the right shows how to reverse out of white while the version on the left demonstrates reversing from black or another colour.



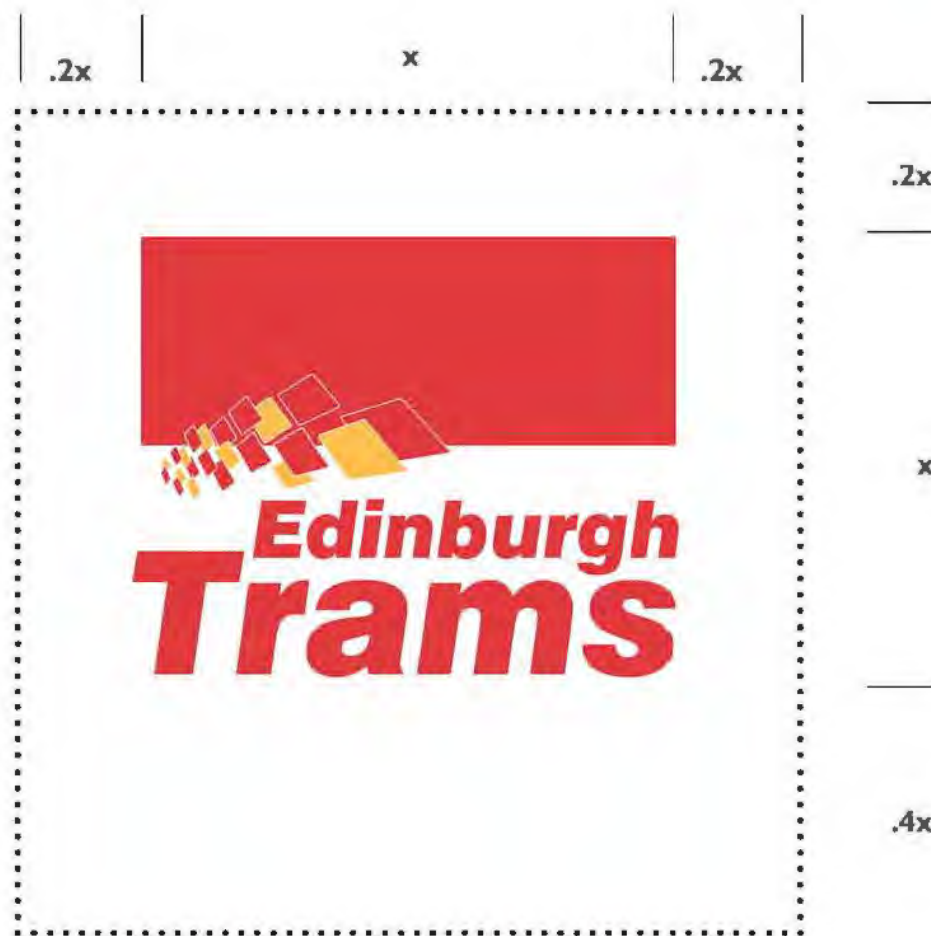
Mark usage

Another option when using a single colour mark, for example when positioned over an image as illustrated here, is to use a transparent mark.



Exclusion Zone

The dotted line indicates the zone into which no other graphic devices should be placed.



Colours

Three core colours make up the brand palette:

Red

Gold

Madder

In certain circumstances gold metallic ink in the form of PMS 873 can be used.

Print



PMS 186



PMS 124



PMS 188



C 0%
M 100%
Y 81%
K 4%



C 0%
M 28%
Y 100%
K 6%



C 0%
M 97%
Y 100%
K 50%

Screen



R 227
G 25
B 55



R 238
G 178
B 17



R 139
G 15
B 4

Web



R 227
G 25
B 55



R 238
G 178
B 17



R 139
G 15
B 4

Stationery

Letterheads should follow the layout and formatting shown here. Guidance on fonts is provided in the typography section.



Stationery

Business cards follow the same format as the letterhead.



Marketing

The examples we show here illustrate the basic image and values the Edinburgh Tram brand should convey:

Clean

Simple

Easily understood



Passenger information

Again information should follow the 3 basic rules:

Clean

Simple

Easily understood



The image shows a sample of a passenger information notice. It has a red header bar with a white circle containing a lowercase 'i' and the word 'Information' in white. The Edinburgh Trams logo is in the top right corner. The main text is in black on a white background. It starts with the date '13th November' in red. The first paragraph says 'Delays expected due to necessary maintenance works.' The second paragraph says 'Edinburgh Trams apologise for any inconvenience caused.' The third paragraph says 'Thank you'.

i Information

13th November

Delays expected due to necessary maintenance works.

Edinburgh Trams apologise for any inconvenience caused.

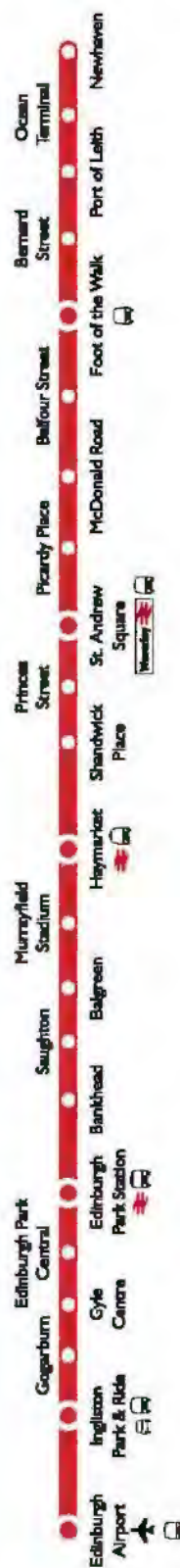
Thank you

Passenger information

Route map

Key

- Main interchanges ●
- Airport ✈
- Rail 🚂
- Bus 🚌
- Park & Ride 🚗🚌



Web site

The web site should share the same layout and 'feel' as its sister site for Lothian Buses.

Consistency in navigation and layout help to reinforce the integrated transport concept.



Pictograms

1 2 3 4 5 6 7 8 9



Informational pictograms



Statutory pictograms



Directional pictograms



Space Bar Sample of Space Bar position

External design

Reinforcing the strategy of creating a visually integrated public transport system for Edinburgh, the tram livery draws from the Lothian Bus livery. Some modifications have been made in order to satisfy the Rail Vehicle Accessibility Regulations (RVAR) such as the red door colour that provides the required contrast of the doors from the tram body.

Colours follow the Brand palette with the exception of the 'gold' where, on the livery only, a gold vinyl is to be used as on Lothian Buses and not by using the specifications in this document.

Four designated advertising zones have been identified to control the revenue generating advertising presence that the business plan requires. Two trams have been allocated for 'all over' advertising and they will be subject to a strict, separate, design protocol.



Interior

As with the exterior the tram interior will use some of the same colours and finishes to be found on the buses. These will have to be adapted to ensure compliance with RVAR as there are strict technical guidelines on issues such as colour contrast based on Light Reflection Factors which affects all the visible surfaces within the vehicle. Compliance with RVAR is a legal requirement and the end result will be determined in consultation with the DfT Mobility Unit.

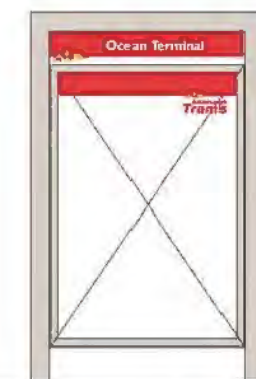
The image opposite is an early iteration of the proposed tram interior and will be developed through the process described above.



Tram stops

The finishes of the tram stop elements are generally of a neutral colouration. The introduction of the Edinburgh Trams' key red as a highlight colour should therefore be used sparingly and appropriately as indicated here. The red has been introduced as an integral, functioning part of the shelter structure and serves to carry the high level stop sign. Elsewhere the red is introduced as signage or through information points.

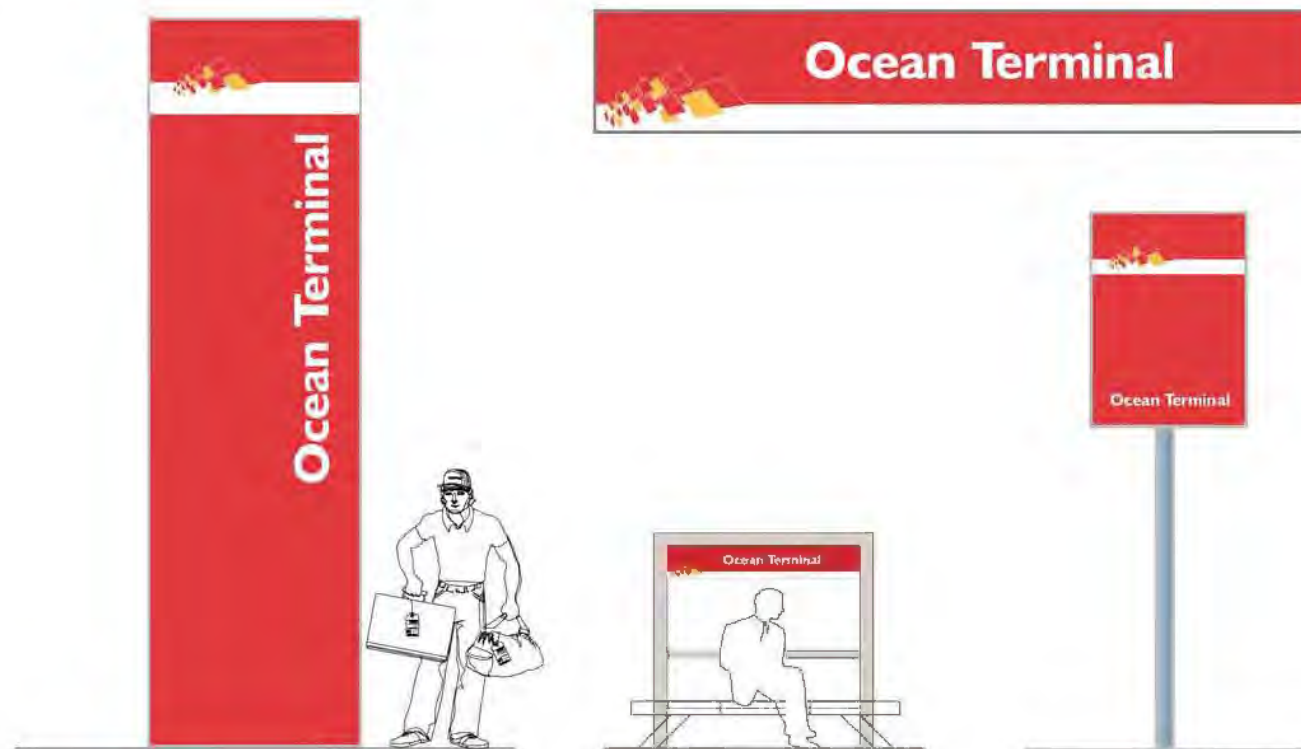
Subtle use of the harlequins can be made on such areas as glazing manifestation as illustrated here. A further example of using the branding in a functional, rather than superficial, way.



Signage

The signage concept has been conceived to create strong, highly visible and legible points of reference and information.

As part of the tramstop elements they follow the principle of introducing the Edinburgh Trams key red in a controlled, functional manner whilst reinforcing the identity and aiding recognition.



Colours

The red, madder and gold are freely available in a variety of finishes such as paint and powder coating by using the RAL specification here.



Uniforms

To assist those who are involved in procuring the staff uniforms the following images are intended as a simple guide to make sure the image conveyed through the uniforms is consistent with other areas of the brand's application.

By keeping the uniforms neutral the key red can then be introduced as a detail. As with other elements of the system the red should be used sparingly as shown here.



Name badges

Name badges follow the guidelines established for communications.



Contacts

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Document Management Sheet – Employer's Requirements

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| 3.6 | Version updated to include: 1) Legal alignment changes agreed on meeting at Tuesday 11.03.08 2) Technical adjustments by RK and AS 3) CEC changes that resulted from their review 4) Revised s26 | 14/03/08 | 14/03/08 | | |
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| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 1 |



Edinburgh Tram Network
Employer's Requirements

Edition: v4.0 April 2008

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 2 |



Edinburgh Tram Network - Employer's Requirements

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| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 3 |

Table of Contents

| | | |
|-------|--|----|
| 1 | Introduction | 22 |
| 1.1 | Summary of Overall Scope | 22 |
| 1.2 | Infraco Works | 23 |
| 1.3 | Phase 1a Scope Statement Regarding Inclusion for the Phase 1b Option | 26 |
| 2 | Operations and Performance | 28 |
| 2.1 | Scope | 28 |
| 2.2 | Network Description and Principles | 28 |
| 2.3 | Specific Operations and Performance Requirements | 33 |
| 2.4 | Tramstop Location and Types | 33 |
| 2.5 | Expansion (including Line 3) | 34 |
| 2.6 | Depot Locations | 35 |
| 2.7 | Service Patterns, Operating Hours and Frequencies | 36 |
| 2.8 | Operating Hours and Frequencies | 38 |
| 2.9 | Service Frequencies and Expansion | 44 |
| 2.10 | Special Working and Degraded Operation | 44 |
| 2.11 | Journey Time and Runtime | 46 |
| 2.12 | Journey Time and Runtime | 47 |
| 2.13 | Operational Allowances and Rules for Timetabling | 48 |
| 2.14 | Miscellaneous Operational Requirements | 48 |
| 2.15 | Comfort Break Facilities | 48 |
| 2.16 | Performance and Reliability | 50 |
| 2.17 | Network and Service Pattern | 52 |
| 2.18 | Layovers | 52 |
| 2.19 | Calculation of Minimum Round Trip Times | 52 |
| 2.20 | Summary to Establish Fleet Size | 56 |
| 2.21 | Tram Fleet Kilometre Usage | 58 |
| 3 | General | 59 |
| 3.1 | Definitions | 59 |
| 3.2 | Infraco Services | 64 |
| 3.3 | General | 64 |
| 3.4 | Management and Technical Services | 64 |
| 3.5 | Summary of Deliverables | 64 |
| 3.6 | Design | 68 |
| 3.6.1 | General Obligations | 68 |
| 3.6.2 | Design Approach | 68 |
| 3.6.3 | Transport Modelling | 69 |
| 3.6.4 | Environmental | 70 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-----------------|---------|-----------|------------|-------|
| PRO-INFACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 4 |

| | | |
|---------|---|-----|
| 3.7 | Construction-related Deliverables (Schedule 3 Requirements) | 74 |
| 3.8 | Construction Advice and Buildability | 75 |
| 3.9 | Site Support Facilities for tie | 76 |
| 3.9.1 | Fittings and Furnishings | 77 |
| 3.9.2 | Services | 80 |
| 3.9.3 | Equipment | 80 |
| 3.9.4 | Site Vehicles | 81 |
| 3.10 | Spare Parts, Tools and Test Equipment | 81 |
| 3.11 | Documentation | 81 |
| 3.12 | Training | 82 |
| 4 | Use of Industry Standard Equipment | 83 |
| 5 | System Identity and Branding | 84 |
| 6 | Design Life | 85 |
| 7 | Extensibility | 87 |
| 8 | Standards | 92 |
| 8.1 | Principles | 92 |
| 8.2 | Hierarchy of Precedence | 93 |
| 8.3 | The Infraco's Responsibilities | 94 |
| 8.3.1 | Applicable Standards | 95 |
| 9 | Geotechnical | 143 |
| 10 | Environment | 144 |
| 10.1 | Environmental Considerations | 144 |
| 10.1.1 | General | 144 |
| 10.1.2 | Freedom of Access to Environmental Information | 145 |
| 10.1.3 | Relevant Legislation, Regulations and Guidance | 146 |
| 10.1.4 | Code of Construction Practice | 146 |
| 10.1.5 | tie's Noise and Vibration Policy | 147 |
| 10.1.6 | The Tram Design Manual and Urban Design Briefs | 147 |
| 10.1.7 | Landscape and Habitat Management Plan | 147 |
| 10.1.8 | Badger Mitigation Plan | 148 |
| 10.1.9 | Protected Species Plan | 148 |
| 10.1.10 | Archaeological Requirements | 148 |
| 10.1.11 | Landscape Design | 148 |
| 10.2 | Ecological Design | 149 |
| 10.3 | Construction of Ecological Measures | 151 |
| 10.3.1 | General | 151 |
| 10.3.2 | Site Supervision of Landscape and Ecological Works | 151 |
| 10.3.3 | Landscape Works | 151 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 5 |

| | | |
|---------|---|-----|
| 10.3.4 | Completion of the Planting Works and Completion of the Landscape and Ecological Aftercare Work..... | 152 |
| 10.3.5 | Construction Environmental Management Plan (CEMP) | 152 |
| 11 | Surveys | 154 |
| 12 | Project Management Processes | 156 |
| 12.1 | Communication – General..... | 156 |
| 12.1.1 | Meetings | 156 |
| 12.1.2 | Progress Reporting..... | 158 |
| 12.1.3 | Progress Photos | 160 |
| 12.1.4 | Site Meeting Report..... | 161 |
| 12.1.5 | Topic Register | 161 |
| 12.1.6 | Work Breakdown Structure | 161 |
| 12.2 | Programme Management | 161 |
| 12.3 | Time Chainage | 164 |
| 12.4 | Planning and Other Consents..... | 164 |
| 12.5 | Project Management Plan..... | 165 |
| 12.5.1 | General | 165 |
| 12.5.2 | Resource and Competence | 165 |
| 12.5.3 | Documentation | 165 |
| 12.5.4 | Regulations | 166 |
| 12.5.5 | Procedures..... | 166 |
| 12.5.6 | Proposals on reporting and controlling design information requirements | 166 |
| 12.5.7 | Interface Plans | 166 |
| 12.5.8 | Design..... | 166 |
| 12.6 | Construction Management Plan | 167 |
| 12.6.1 | Mobilisation..... | 167 |
| 12.6.2 | Plant..... | 167 |
| 12.6.3 | Sub-Contractors | 167 |
| 12.6.4 | Method Statements | 167 |
| 12.6.5 | Avoidance of Disruption | 167 |
| 12.7 | Network Rail Interface Plan | 168 |
| 12.8 | Quality Management | 169 |
| 12.8.1 | Document Standards and Control..... | 170 |
| 12.9 | Infraco Performance Measurement | 174 |
| 12.10 | Cost Management and Reporting..... | 175 |
| 12.11 | Risk Management | 177 |
| 12.11.1 | Project Objectives | 177 |
| 12.11.2 | Risk Deliverables | 178 |
| 12.12 | Traffic Management / Temporary Traffic Regulation Orders (TTROs)..... | 182 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 6 |

| | | |
|---------|---|-----|
| 12.13 | Stakeholder Management..... | 186 |
| 12.13.1 | General | 186 |
| 12.13.2 | Design..... | 186 |
| 12.13.3 | Liaison and Public Information..... | 186 |
| 12.13.4 | Information Centre | 189 |
| 12.13.5 | Website..... | 189 |
| 12.13.6 | Weekly Newsletter..... | 190 |
| 12.13.7 | tie Monthly Newsletter | 190 |
| 12.13.8 | Customer Contact Centre | 191 |
| 12.13.9 | Communication Log..... | 191 |
| 13 | Permits / Approvals | 194 |
| 13.1 | Method Statements | 194 |
| 13.2 | Existing Structures Which May Affect Progress and relationship with Third Parties | 194 |
| 13.3 | Network Rail..... | 195 |
| 14 | Human Factors..... | 196 |
| 15 | Reliability, Availability and Maintainability | 198 |
| 15.1 | Reliability and Availability | 198 |
| 15.2 | Traction Power System..... | 199 |
| 15.3 | Supervisory and Communications Systems..... | 200 |
| 15.4 | Maintainability | 205 |
| 15.5 | Supportability | 205 |
| 16 | Electromagnetic Compatibility | 206 |
| 16.1 | EMC Directive | 206 |
| 16.2 | Essential Protection Requirements..... | 206 |
| 17 | Health, Safety, Quality and Environment | 207 |
| 17.1 | Quality Management | 207 |
| 17.2 | Health & Safety | 208 |
| 17.2.1 | Safety Management Plan..... | 208 |
| 17.2.2 | Occupational Health & Safety Management System | 209 |
| 17.2.3 | Project Health & Safety Plan and Health & Safety File | 209 |
| 17.2.4 | Interface with tie's Safety Systems | 209 |
| 17.2.5 | System Safety Management Plan (SSMP) | 210 |
| 17.2.6 | The Railways and Other Guided Transport Systems (Safety) Regulations 2006 | 210 |
| 17.2.7 | Health and Safety Management | 211 |
| 17.3 | Environmental Management | 214 |
| 17.3.1 | Environmental Management System | 214 |
| 17.3.2 | Environmental and Sustainability Action Plan..... | 214 |
| 17.3.3 | Construction Environmental Management Plan (CEMP) | 215 |
| 17.3.4 | Requirement of Site Specific EMPs..... | 216 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 7 |

| | | |
|--------|---|-----|
| 17.3.5 | Permits to Work | 218 |
| 18 | Cabling and Ducting..... | 219 |
| 18.1 | Cabling | 219 |
| 18.2 | Ducts..... | 220 |
| 18.3 | Duct Chambers and Draw pits | 222 |
| 18.4 | Cable separation | 222 |
| 18.5 | Other requirements | 223 |
| 19 | Cabinets | 224 |
| 20 | NOT USED | 226 |
| 21 | Utilities / MUDFA..... | 227 |
| 22 | Locks and Key Suiting | 242 |
| 22.1 | General | 242 |
| 22.2 | Key Suiting System..... | 242 |
| 22.2.1 | Tram..... | 243 |
| 22.2.2 | Substations and Power..... | 243 |
| 22.2.3 | Depot and buildings | 243 |
| 22.2.4 | Signalling and Communication Equipment..... | 244 |
| 23 | Testing and Commissioning..... | 245 |
| 23.1 | Systems Acceptance | 245 |
| 23.1.1 | Scope..... | 245 |
| 23.1.2 | General Description and Principles | 245 |
| 23.2 | Test Planning | 250 |
| 23.3 | Pre-Systems Acceptance Testing (before starting the systems acceptance process) | 250 |
| 23.4 | Factory Acceptance Tests (FAT) | 251 |
| 23.4.1 | Overview..... | 251 |
| 23.4.2 | Pass Criteria | 252 |
| 23.5 | Site Tests..... | 252 |
| 23.5.1 | Overview..... | 252 |
| 23.6 | Sub-system Integration Tests (SIT)..... | 253 |
| 23.6.1 | Overview..... | 253 |
| 23.6.2 | Pass Criteria | 254 |
| 23.7 | System Commissioning and Integration Tests (SCT) | 254 |
| 23.7.1 | Overview..... | 254 |
| 23.7.2 | Pass Criteria | 254 |
| 23.8 | System Acceptance Activities and System Acceptance Tests | 255 |
| 23.9 | Operations and Maintenance Staff Training..... | 255 |
| 23.10 | Shadow Running..... | 256 |
| 23.11 | Final System Acceptance Tests in the Operations and Maintenance Phase..... | 256 |
| 23.12 | Emergency Exercises | 257 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 8 |

| | | |
|---------|--|-----|
| 23.13 | Post Commissioning Test Specification – T1 | 257 |
| 23.13.1 | Overview of Post Commissioning Test..... | 259 |
| 23.13.2 | Test Objectives | 259 |
| 23.13.3 | Network Performance Test Description..... | 260 |
| 23.13.4 | Features..... | 261 |
| 23.13.5 | Pass Criteria | 262 |
| 23.13.6 | Monitoring and Reporting of Test Performance | 262 |
| 23.14 | Performance Test 1 Specification – T2 | 262 |
| 23.14.1 | Overview..... | 262 |
| 23.14.2 | Test Objectives | 262 |
| 23.14.3 | Network Performance Test Description..... | 264 |
| 23.14.4 | Features..... | 264 |
| 23.14.5 | Pass Criteria | 265 |
| 23.14.6 | Monitoring and Reporting of Test Performance | 265 |
| 23.15 | Pre-Operations Test Specification – T3 | 266 |
| 23.15.1 | Overview..... | 266 |
| 23.15.2 | Test Objectives | 266 |
| 23.15.3 | Network Performance Test Description..... | 266 |
| 23.15.4 | Features..... | 267 |
| 23.15.5 | Pass Criteria | 269 |
| 23.15.6 | Part 1 and 2 Pass Criteria | 269 |
| 23.15.7 | Part 3 and 4 Pass Criteria | 269 |
| 23.15.8 | Consents | 270 |
| 23.15.9 | Monitoring and Reporting of Test Performance | 270 |
| 23.16 | Network Performance Test Specification – T4 | 270 |
| 23.16.1 | Overview..... | 270 |
| 23.16.2 | Pass Criteria | 271 |
| 23.16.3 | Special Demonstrations | 271 |
| 23.16.4 | Substation and UPS Demonstrations | 271 |
| 23.16.5 | Tram Change Over | 271 |
| 23.16.6 | Monitoring and Reporting of Test Performance | 273 |
| 23.16.7 | Network Performance Test Timetable..... | 274 |
| 23.17 | Network Reliability Test Specification – T5..... | 274 |
| 23.17.1 | Overview..... | 274 |
| 23.17.2 | Sub-Systems Subject to Network Reliability Test and Reliability targets..... | 275 |
| 23.17.3 | NOT USED | 276 |
| 23.17.4 | Assumptions and Exclusions | 276 |
| 23.17.5 | Monitoring & Reporting of Test Performance | 278 |
| 23.17.6 | Audit Procedures | 278 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 9 |

| | | |
|---------|--|-----|
| 23.17.7 | Services in Connection with the Operator..... | 278 |
| 23.18 | Tram Testing and Commissioning | 289 |
| 23.18.1 | Document Scope | 289 |
| 23.18.2 | General Requirements | 289 |
| 23.18.3 | Test Plan..... | 289 |
| 23.18.4 | Tram Test Categories..... | 290 |
| 23.18.5 | Test Certificates | 291 |
| 23.19 | Factory Acceptance Tests (FAT) | 291 |
| 23.20 | Delivery Acceptance Tests (DAT) | 302 |
| 23.20.1 | Site Commissioning Tests | 302 |
| 23.20.2 | Re-Testing | 306 |
| 23.20.3 | Testing Support | 306 |
| 23.21 | System Integration Tests (SIT)..... | 311 |
| 23.21.1 | System Acceptance Testing..... | 315 |
| 24 | Trams | 316 |
| 24.1 | Scope..... | 316 |
| 24.2 | General Technical Specification | 316 |
| 24.3 | Wheel / Rail Interface | 317 |
| 24.4 | Tramway Path | 317 |
| 24.5 | Supervisory, Control & Communications Systems..... | 318 |
| 24.6 | Depot Facilities | 318 |
| 24.7 | Electro-Magnetic Compatibility | 319 |
| 24.8 | Climate and Environment | 319 |
| 24.9 | Interface Management | 319 |
| 24.10 | Systems Assurance | 319 |
| 24.11 | Noise and Vibration..... | 320 |
| 24.12 | Specific Technical Requirements | 320 |
| 24.13 | Driver's Cab | 323 |
| 24.14 | Tram Controls | 325 |
| 24.15 | Rear View Equipment..... | 327 |
| 24.16 | Interior | 328 |
| 24.17 | Bogies..... | 333 |
| 24.18 | Re-Railing..... | 335 |
| 24.19 | Propulsion Equipment | 335 |
| 24.20 | Braking Equipment | 336 |
| 24.21 | Run Time | 337 |
| 24.22 | High-Voltage Equipment..... | 339 |
| 24.23 | Auxiliary Power Supply Systems | 339 |
| 24.24 | Faults and Diagnostic System | 340 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 10 |



Edinburgh Tram Network - Employer's Requirements

Table of Contents – Sections

| | | |
|---------|---|-----|
| 24.25 | Sanding System | 341 |
| 24.26 | Passenger Doors | 342 |
| 24.27 | Communication and Monitoring Systems (CCTV) | 345 |
| 24.28 | Event Recorder | 346 |
| 24.29 | Public Address System | 347 |
| 24.30 | Passenger Information System | 348 |
| 24.31 | Passenger and Inspector Alarm System | 349 |
| 24.32 | Hauling or Propelling a Defective Tram | 351 |
| 24.33 | Exterior Details and Livery | 352 |
| 24.34 | Roof-Mounted Equipment | 353 |
| 24.35 | Pantograph | 354 |
| 25 | Tramstops | 356 |
| 25.1 | General | 356 |
| 25.2 | Tramstop Definition | 357 |
| 25.3 | Tramstop Requirements | 359 |
| 25.3.1 | General | 359 |
| 25.3.2 | Platform Surface | 360 |
| 25.3.3 | Tramstop Furniture and Equipment | 360 |
| 25.4 | Description of Tramstop and Street Furniture | 361 |
| 25.4.1 | General | 361 |
| 25.4.2 | Shelters and Canopied Waiting Areas | 362 |
| 25.4.3 | Tramstop Lighting Columns | 363 |
| 25.4.4 | Tramstop Name Signs | 364 |
| 25.4.5 | Advertising / Information Signs and Displays | 364 |
| 25.4.6 | Litter Bins | 365 |
| 25.4.7 | Public Address | 365 |
| 25.4.8 | Tramstop CCTV | 366 |
| 25.4.9 | Passenger Help Points and Passenger Emergency Help Points | 366 |
| 25.4.10 | Guardrails, Handrails and Cycle Racks | 366 |
| 25.4.11 | Seating | 367 |
| 25.4.12 | Ticket Vending Machines (TVMs) | 367 |
| 25.5 | Electrical (LV) and Communication Facilities | 367 |
| 25.6 | Layover Facilities | 368 |
| 26 | Track | 369 |
| 26.1 | Track Layout | 369 |
| 26.2 | Components | 369 |
| 26.3 | General Requirements | 370 |
| 26.4 | DKE, Structure Gauge and Clearances | 372 |
| 26.5 | Trackforms | 372 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 11 |

| | | |
|---------|---|-----|
| 26.6 | Specific Technical Requirements | 373 |
| 26.7 | The Wheel / Rail Interface | 373 |
| 26.8 | Drainage | 374 |
| 26.9 | Technical Requirements for Points and Crossings | 374 |
| 26.10 | Technical Requirements for Point Operation | 375 |
| 26.10.1 | Point Machines and Mechanisms in General | 375 |
| 26.10.2 | Specific Requirements for Motorised Point Machines | 377 |
| 26.10.3 | Specific Requirements for Sprung Point Mechanisms | 378 |
| 26.10.4 | Specific Requirements for Bistable (flip-flop) Point Mechanisms | 378 |
| 26.10.5 | Specific Requirements for Hand-Operated Point Mechanisms (Point Levers) | 379 |
| 26.11 | Technical Requirements for Point Control and Indication | 379 |
| 26.11.1 | Detection | 379 |
| 26.11.2 | Control | 380 |
| 26.11.3 | Indication | 381 |
| 26.11.4 | Control Cabinet | 382 |
| 26.12 | Indication of Hand Operated Point Mechanisms (Point Levers) | 383 |
| 26.13 | Technical Requirements for Points Heating | 383 |
| 26.14 | Tolerances | 384 |
| 27 | Roads and Utilities | 396 |
| 27.1 | General | 396 |
| 27.2 | System-Wide Requirements | 398 |
| 27.3 | General Requirements | 398 |
| 27.4 | Stray Current | 398 |
| 27.5 | Roads | 399 |
| 27.5.1 | General | 399 |
| 27.5.2 | Roads Design | 399 |
| 27.5.3 | Road User Safety Audit | 402 |
| 27.5.4 | Cycleways | 402 |
| 27.6 | Drainage Including Track Drainage | 403 |
| 27.7 | Road Signs, Traffic Signals and Urban Traffic Control | 404 |
| 27.8 | Road Lighting and Road Furniture | 404 |
| 27.9 | Utilities | 405 |
| 27.10 | OLE Poles | 405 |
| 28 | Structures | 406 |
| 28.1 | General | 406 |
| 28.2 | Structures List | 406 |
| 28.3 | Proposed Structural Form | 409 |
| 28.4 | Listed Structures | 410 |
| 28.5 | Vibration and Noise | 410 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 12 |

| | | |
|---------|--|-----|
| 28.6 | Bearings and Movement Joints | 410 |
| 28.7 | Design Life | 410 |
| 28.8 | Design Standards | 410 |
| 28.9 | Structure Loading | 411 |
| 28.10 | Rail Break | 411 |
| 28.11 | Clearances | 411 |
| 28.12 | Finishes | 412 |
| 28.13 | Protection | 412 |
| 28.14 | Infrastructure Maintainability | 412 |
| 28.15 | Provision for Inspection and Maintenance | 413 |
| 28.16 | Bearings | 413 |
| 28.17 | Expansion Joints | 413 |
| 28.18 | Earthing and Bonding | 413 |
| 28.19 | Protection against Stray Current | 413 |
| 28.20 | Third Party Relationships | 414 |
| 28.20.1 | Road Closure and Traffic Management | 414 |
| 28.20.2 | Other Interested Parties | 415 |
| 28.20.3 | Landscaping and Boundary Treatment | 415 |
| 29 | Depot | 417 |
| 29.1 | Scope | 417 |
| 29.2 | Depot, Buildings and Associated External Works | 417 |
| 29.3 | The Site | 417 |
| 29.4 | Staff Halt | 417 |
| 29.5 | Drainage | 417 |
| 29.6 | Access | 418 |
| 29.7 | Utilities | 418 |
| 29.8 | Depot Site Layout | 418 |
| 29.9 | Depot Building | 421 |
| 29.10 | Schedule of Staff Numbers | 422 |
| 29.11 | Accommodation (First floor) | 426 |
| 29.12 | Workshop General Requirements | 428 |
| 29.13 | Accommodation on Ground Floor | 428 |
| 29.13.1 | General Facilities | 428 |
| 29.13.2 | Facilities | 429 |
| 29.13.3 | Tram Maintainer Specific Facilities | 429 |
| 29.13.4 | Infrastructure Maintainer Specific Facilities | 430 |
| 29.14 | Provisional Schedule of the Plant and Equipment | 431 |
| 29.15 | Overhead Line Equipment | 463 |
| 29.16 | Depot Substation Buildings and Associated External Works | 463 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 13 |

| | | |
|---------|---|-----|
| 29.17 | Depot Systems | 464 |
| 29.17.1 | Electrical Supplies | 464 |
| 29.17.2 | Specific Sub-System Technical Requirements | 466 |
| 29.17.3 | Workshop Doors | 468 |
| 29.17.4 | Hazardous Material Storage | 469 |
| 29.18 | Equipment Room..... | 469 |
| 29.18.1 | Fire Alarms / Fire Extinguishing System | 469 |
| 29.18.2 | Heating and Ventilation | 469 |
| 29.18.3 | Lighting | 470 |
| 29.18.4 | Cable / Conduit Entry | 470 |
| 29.18.5 | Architectural Requirements | 470 |
| 29.18.6 | Security Requirements | 471 |
| 29.18.7 | Equipment Room Furniture | 471 |
| 29.19 | Mechanical and Public Health..... | 471 |
| 29.19.1 | General | 471 |
| 29.19.2 | Water..... | 472 |
| 29.19.3 | Air Conditioning | 472 |
| 29.19.4 | Ventilation | 472 |
| 29.19.5 | Drainage Pad | 472 |
| 29.19.6 | Mechanical Systems | 473 |
| 30 | Traction Power..... | 474 |
| 30.1 | General Requirements | 474 |
| 30.2 | Traction Substations..... | 475 |
| 30.2.1 | General | 475 |
| 30.2.2 | Russell Road Track Paralleling Hut (applicable to Phase 1b only)..... | 476 |
| 30.2.3 | Gogar Depot Substation | 476 |
| 30.3 | System Protection Settings..... | 477 |
| 30.4 | Power System Design Principles | 477 |
| 30.5 | Scottish Power Interface (DNO)..... | 479 |
| 30.6 | Multicore and Control Cabling | 480 |
| 30.7 | Transformer Rectifiers..... | 480 |
| 30.7.1 | General Arrangement..... | 480 |
| 30.7.2 | Rating | 481 |
| 30.7.3 | Voltage Regulation | 481 |
| 30.7.4 | Voltage Ratio & Connections | 481 |
| 30.7.5 | Voltage & Phase Tapping | 481 |
| 30.7.6 | Transformer Cores | 482 |
| 30.7.7 | Performance Under External Short Circuit..... | 483 |
| 30.7.8 | Losses | 483 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 14 |

| | | |
|---------|---|-----|
| 30.7.9 | HV Cable Terminations | 483 |
| 30.7.10 | Diodes..... | 483 |
| 30.7.11 | Surge Protection | 483 |
| 30.7.12 | Temperature Rise | 484 |
| 30.7.13 | Protective Services | 484 |
| 30.7.14 | Instrumentation | 484 |
| 30.7.15 | Negative Isolation..... | 485 |
| 30.8 | A.C. HV Switchgear..... | 485 |
| 30.9 | D.C. Traction Supply Switchgear..... | 485 |
| 30.9.1 | General | 485 |
| 30.9.2 | Busbars | 486 |
| 30.9.3 | System Voltage and Fault Level | 487 |
| 30.9.4 | Temperature Rise | 487 |
| 30.9.5 | Circuit Breaker Isolation | 487 |
| 30.9.6 | Circuit Breakers..... | 489 |
| 30.9.7 | Interlocks..... | 490 |
| 30.9.8 | Protection Devices | 490 |
| 30.9.9 | Control and Instrumentation | 491 |
| 30.9.10 | Overhead Line Emergency Trip | 492 |
| 30.9.11 | Circuit and Busbar Earthing..... | 493 |
| 30.9.12 | Isolator Motorised Operation | 493 |
| 30.9.13 | Bypass Isolator Over-current Feature..... | 494 |
| 30.10 | Batteries and Chargers..... | 494 |
| 30.10.1 | Scope and System Voltage | 494 |
| 30.10.2 | Batteries | 495 |
| 30.10.3 | Battery Duties | 495 |
| 30.10.4 | Battery Accommodation | 495 |
| 30.10.5 | Battery Chargers | 495 |
| 30.10.6 | Alarm Devices..... | 496 |
| 30.10.7 | Instrumentation | 496 |
| 30.10.8 | Battery Distribution Board | 496 |
| 30.11 | Earthing, Bonding, Surge Protection & Ancillary Equipment | 497 |
| 30.11.1 | Earthing Systems | 497 |
| 30.11.2 | Traction Negative Busbar System..... | 498 |
| 30.11.3 | Surge Diverters..... | 498 |
| 30.11.4 | Substation Ancillary Equipment..... | 499 |
| 30.12 | Cables & Accessories | 499 |
| 30.12.1 | General | 499 |
| 30.12.2 | Types of Cables | 500 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 15 |

| | | |
|---------|---|-----|
| 30.12.3 | 11kV A.C. Cable | 500 |
| 30.12.4 | Traction Supply Cables | 500 |
| 30.12.5 | Low Voltage Supply and Multicore Control Cables | 501 |
| 31 | Overhead Line Equipment | 503 |
| 31.1 | Scope | 503 |
| 31.2 | General Requirements | 503 |
| 31.3 | Equipment Overview | 503 |
| 31.4 | Electrical Power Characteristics | 503 |
| 31.5 | Environmental Considerations | 504 |
| 31.5.1 | Ice Loading | 504 |
| 31.5.2 | Pollution | 504 |
| 31.6 | Material for Equipment | 504 |
| 31.7 | Pole and Cantilever Tube Deflection Criteria | 504 |
| 31.8 | Mechanical and Electrical Clearances | 505 |
| 31.9 | Contact Wire Gradient and Geometry | 505 |
| 31.9.1 | Contact Wire Height | 505 |
| 31.10 | Structural Integrity | 505 |
| 31.11 | Electromagnetic Compatibility | 506 |
| 31.12 | Dynamic Performance | 506 |
| 31.13 | Design Life | 506 |
| 31.14 | Auto-Tensioned Equipment Types | 506 |
| 31.14.1 | Form of Equipment | 506 |
| 31.14.2 | Conductors and Tensioning Devices | 506 |
| 31.14.3 | Tension Lengths | 507 |
| 31.14.4 | Span Length | 507 |
| 31.14.5 | Parallel Feeders | 507 |
| 31.15 | Fixed Termination Equipment Types | 507 |
| 31.15.1 | Form of Equipment | 507 |
| 31.15.2 | Reduced Conductor Tension System | 508 |
| 31.16 | Depot Equipment Type | 508 |
| 31.16.1 | Equipment Support and Registration | 508 |
| 31.17 | Overhead Line Equipment Poles and Equipment Enhancement | 509 |
| 31.17.1 | Combined OLE / Lighting Poles | 509 |
| 31.17.2 | Anchor Bolts, Foundations and Ties | 510 |
| 31.17.3 | Foundations | 510 |
| 31.17.4 | Fixing to Masonry and Concrete Structures | 510 |
| 31.18 | Safe Working On The System | 510 |
| 31.19 | Switching and Sectioning Requirements | 511 |
| 31.19.1 | Sectioning | 511 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 16 |

| | | |
|---------|---|-----|
| 31.19.2 | Isolation Facilities | 511 |
| 31.20 | Isolator Enclosures | 511 |
| 31.20.1 | Paint Finish | 512 |
| 31.20.2 | Labelling | 512 |
| 31.20.3 | Isolators | 512 |
| 31.21 | Power Feeder, Reinforcing and Bonding Cables | 513 |
| 31.21.1 | Feeder Cables | 513 |
| 31.21.2 | Track to Traction Substation (TSS) Negative Return Cables | 515 |
| 31.21.3 | Rail to Rail and Track to Track Traction Cross Bonds | 515 |
| 31.21.4 | Running Rail Continuity Cables | 515 |
| 31.21.5 | General Requirements for Cables | 516 |
| 31.21.6 | Cable Ducts | 516 |
| 31.21.7 | Installation of Cables | 517 |
| 31.21.8 | Surge Diverters | 517 |
| 31.21.9 | Bonding | 517 |
| 32 | Stray Current | 518 |
| 33 | Low Voltage Architecture | 519 |
| 34 | Earthing and Bonding | 521 |
| 35 | Supervisory Control and Communications Systems | 522 |
| 35.1 | Scope | 522 |
| 35.2 | Specific Technical Requirements | 522 |
| 35.3 | Tram Position and Detection System | 523 |
| 35.3.1 | Overview | 523 |
| 35.3.2 | Technical Requirements | 525 |
| 35.3.3 | Tram-Borne Equipment | 527 |
| 35.4 | Passenger Information Display System (PIDS) | 527 |
| 35.4.1 | Overview | 527 |
| 35.5 | Telephone Network | 530 |
| 35.5.1 | Overview | 530 |
| 35.5.2 | Technical Requirements | 531 |
| 35.6 | Public Address System | 532 |
| 35.6.1 | Overview | 532 |
| 35.6.2 | Technical Requirements | 533 |
| 35.7 | Operational Radio System (ORS) | 534 |
| 35.7.1 | Overview | 534 |
| 35.7.2 | General Requirements | 535 |
| 35.7.3 | Short Codes | 536 |
| 35.7.4 | Physical Considerations | 537 |
| 35.7.5 | Radio Maintainers' Workstation | 538 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 17 |

| | | |
|----------|--|-----|
| 35.7.6 | Road Vehicle Mobile Radio Equipment..... | 538 |
| 35.7.7 | Hand-Held Mobile Radio Equipment | 539 |
| 35.7.8 | Tram borne Radio Equipment..... | 540 |
| 35.7.9 | Tram-Borne Interfaces | 541 |
| 35.8 | Passenger Help / Passenger Emergency Help Points..... | 541 |
| 35.8.1 | Overview..... | 541 |
| 35.8.2 | Technical Requirements | 542 |
| 35.9 | Closed Circuit Television | 542 |
| 35.9.1 | Overview..... | 542 |
| 35.9.2 | Technical Requirements..... | 543 |
| 35.10 | Supervisory Control and Data Acquisition | 545 |
| 35.10.1 | Overview..... | 545 |
| 35.10.2 | General Requirements | 546 |
| 35.10.3 | Traction Power SCADA..... | 547 |
| 35.10.4 | Tramstop SCADA | 549 |
| 35.10.5 | Trackside SCADA..... | 550 |
| 35.10.6 | Fare Collection SCADA..... | 551 |
| 35.11 | Operational Data Network | 551 |
| 35.11.1 | Overview..... | 551 |
| 35.11.2 | Location of Nodes | 554 |
| 35.11.3 | General Requirements | 556 |
| 35.12 | Considerations applying to all Communications Subsystems | 557 |
| 35.12.1 | Electrical Connections..... | 557 |
| 35.12.2 | Cabinets | 557 |
| 35.12.3 | Alarming of Faults..... | 558 |
| 35.13 | Control Centre | 558 |
| 35.13.1 | Control Centre - Overview | 558 |
| 35.13.2 | Workstation Capabilities | 560 |
| 35.13.3 | Control Centre Philosophy..... | 570 |
| 35.13.4 | Emergency Telephone Lines..... | 572 |
| 35.13.5 | Local Area Network..... | 573 |
| 35.13.6 | Control Centre Time Display | 574 |
| 35.13.7 | Safety Requirements..... | 574 |
| 35.13.8 | Electrical Requirements | 574 |
| 35.13.9 | Logging | 575 |
| 35.13.10 | Central Data Recording..... | 576 |
| 35.13.11 | Printers | 577 |
| 35.13.12 | Control Centre Furniture..... | 577 |
| 35.13.13 | Spare Capacity / System Expansion..... | 578 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 18 |

| | | |
|----------|--|-----|
| 35.14 | Equipment Room..... | 578 |
| 35.14.1 | Overview..... | 578 |
| 35.14.2 | Maintainer's Positions | 579 |
| 35.14.3 | Security and Access Control | 579 |
| 35.14.4 | Layout..... | 580 |
| 35.14.5 | Equipment Housings and Mounting..... | 580 |
| 35.14.6 | Diagnostic, Maintenance or Offline Mode Indications | 580 |
| 35.14.7 | Equipment Power Supplies | 580 |
| 35.14.8 | Storage | 581 |
| 35.14.9 | Spare Capacity / System Expansion | 581 |
| 35.14.10 | Master Clock and System Clocks | 582 |
| 35.14.11 | Performance Monitoring System | 582 |
| 35.14.12 | Monitor Matrix Display Driver..... | 583 |
| 35.14.13 | Central Data Recording..... | 583 |
| 35.14.14 | Voice Recording | 584 |
| 35.14.15 | Equipment Room Maintainer Desks | 586 |
| 35.14.16 | Equipment Room Local Area Network Requirements | 587 |
| 35.14.17 | Other Systems | 587 |
| 36 | Integrated Fare Collection | 588 |
| 36.1 | Scope..... | 588 |
| 36.2 | Procurement | 588 |
| 36.3 | General Technical Specification | 588 |
| 36.4 | Integrated Fare Collection | 588 |
| 36.5 | Ticket Vending Machines and Validators | 589 |
| 36.5.1 | General | 589 |
| 36.5.2 | Docking Stations for Hand-Held Ticket Machines | 589 |
| 36.5.3 | Equipment Interfaces | 590 |
| 37 | System Integration | 591 |
| 37.1 | Introduction..... | 591 |
| 37.2 | Definitions | 591 |
| 37.3 | Principle | 592 |
| 37.4 | Inter-contract Integration, Integration of third party and free issue equipment..... | 592 |
| 37.5 | Formal Roles to be undertaken by the Infraco..... | 592 |
| 37.5.1 | System Design Authority..... | 592 |
| 37.5.2 | System Integrator..... | 593 |
| 38 | Location Specific Requirements | 595 |
| 39 | Project Programme..... | 597 |
| 39.1 | Introduction..... | 597 |
| 39.2 | Key Dates | 597 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 19 |

| | | |
|---------|---|-----|
| 39.3 | Basis for Programme | 599 |
| 39.4 | Third Party Agreements..... | 600 |
| 39.5 | P3e Activity Code Dictionary (Mandatory Codes) | 601 |
| 40 | Maintenance | 606 |
| 40.1 | Scope..... | 606 |
| 40.1.1 | General | 606 |
| 40.1.2 | Overall Objectives | 607 |
| 40.2 | Infrastructure Maintenance Requirements | 609 |
| 40.2.1 | Purpose | 609 |
| 40.2.2 | Scope..... | 609 |
| 40.2.3 | Maintenance Approach | 631 |
| 40.2.4 | Maintenance Strategy | 632 |
| 40.2.5 | Organisation, Training and Competency..... | 639 |
| 40.2.6 | Quality, Health, Safety and Environmental | 640 |
| 40.2.7 | Liaison with tie and Other Parties on Maintenance Related Issues | 643 |
| 40.2.8 | Reporting..... | 644 |
| 40.2.9 | Infrastructure Maintenance Plan - Overview | 646 |
| 40.2.10 | Development of the Plan | 646 |
| 40.2.11 | Tools..... | 647 |
| 40.2.12 | Availability and Warranty | 647 |
| 40.2.13 | Asset Management System..... | 648 |
| 40.2.14 | Work Instructions..... | 648 |
| 40.2.15 | Minimum Spare Parts Holdings | 649 |
| 40.2.16 | Maintenance Records | 649 |
| 40.2.17 | Indicative Scope | 650 |
| 40.2.18 | Cleaning Maintenance Plan..... | 651 |
| 40.2.19 | Track and Infrastructure Cleaning..... | 652 |
| 40.2.20 | Depot Building and Yard, Offices and Car Park..... | 652 |
| 40.2.21 | Cleaning Records..... | 653 |
| 40.3 | Tram Maintenance Strategy | 653 |
| 40.3.1 | Purpose | 653 |
| 40.3.2 | Scope..... | 653 |
| 40.3.3 | Organisation, Training, and Competency..... | 657 |
| 40.3.4 | Quality, Health, Safety, & Environment..... | 657 |
| 40.3.5 | Liaison with Promoter & Other Parties on Maintenance Related Issues | 658 |
| 40.3.6 | Tram Servicing and Maintenance Plan | 659 |
| 40.3.7 | Maintenance Plan Overview..... | 659 |
| 40.3.8 | Maintenance Strategy | 659 |
| 40.3.9 | Availability and Warranty | 662 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 20 |

| | | |
|---------|---|-----|
| 40.3.10 | Technical Management..... | 663 |
| 40.3.11 | Work Instructions | 663 |
| 40.3.12 | Minimum Spare Parts Holdings | 664 |
| 40.3.13 | Cleaning Maintenance Plan..... | 665 |
| 40.4 | Maintainability, Maintenance and Spares | 665 |
| 40.4.1 | General | 665 |
| 40.4.2 | Structures and Civil Engineering | 667 |
| 40.4.3 | Track | 667 |
| 40.4.4 | Training | 667 |
| 40.4.5 | Infrastructure and Trams..... | 668 |
| 40.4.6 | Maintenance Training | 670 |
| 40.4.7 | Operational Training | 671 |
| 40.5 | Information Procedures, Records and Manuals | 671 |
| 40.5.1 | General | 671 |
| 40.5.2 | Information..... | 672 |
| 40.5.3 | Operation and Maintenance Manuals Information..... | 672 |
| 40.5.4 | Asset Register | 676 |
| 40.5.5 | Provisional List of Operating Procedures and Standards..... | 677 |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 21 |



1 Introduction

1.1 Summary of Overall Scope

The Infraco shall be fully responsible for the works and services described in these Employer's Requirements and in the Agreement:

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 22 |

1.2 Infraco Works

Summary Scope of Infraco Works

Detailed requirements associated with the infrastructure and equipment for the Infraco Works are described within other Sections of these Employer's Requirements and the Agreement.

The scope defined within this section is limited to a summary of the principal elements of the Infraco Works:

- the supply of Trams in accordance with the Tram Supply Agreement;
- the provision of maintenance as defined in the Tram Maintenance Agreement and Section 40 (Maintenance) of these Employers Requirements;
- the provision of Trackwork - A total of approximately 18.8km and 5.5km (for phases 1a and 1b, respectively) of track kilometres, on street and off street trackform;
- the provision of Tramstops - A total of 22 Tramstops and 1 staff only Tramstop for Phase 1a, and 9 Tramstops for Phase 1b, together with associated infrastructure;
- the provision of Tramstop furniture, systems and equipment;
- the provision of interchange facilities as provided in the design information;
- the provision of points and crossings including point machines, their power supplies, point heating and the control thereof, detection and indication;
- the provision of traffic / tram signals;
- the provision of Tram detection system;
- the provision of all 11kv, 400volt and 230 volt power supplies;
- the provision of traction substations and d.c. traction distribution;
- the provision of OLE (Including all trackside isolators);

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 23 |

- the provision of supervisory control, and communication systems and sub-systems including all field, Tram (free issue for installation by Tram Supplier) network and central control and interface equipment;
- Develop and manage an EMC strategy that includes appropriate immunisation of all Third Party neighbouring systems including Network Rail.
- Accept delivery of fixed and portable Ticket Vending Machines from tie and then undertake the installation of such machines and the provision of the necessary supporting infrastructure (including power supplies, communication links and foundations). The maintenance of these machines is not within the scope of the Infraco;
- Provision of the Depot containing:
 - A depot building containing a maintenance workshop and associated workshops, offices, stores and equipment;
 - The Control Centre (First Floor) and associated equipment room (Ground Floor);
 - The Edinburgh Tram Network administration offices;
 - A depot yard and stabling area;
 - A traction power substation;
 - A building services transformer and associated works;
 - All necessary services and utility connections;
 - A boiler house;
 - Hard-standing for a diesel alternator; and
 - The Depot access road.
- Provision of Tram associated road works;
- Provision of traffic management;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 24 |

- Provision of road furnishings;
- Provision of bridges, structures and retaining walls, including the necessary services and facilities e.g. lighting, drainage, fencing and guardrails, earthing and bonding etc.;
- Civil works including earthworks (inclusive of contamination removal, demolition, Site clearance, excavation, bridges and structures, all necessary temporary works and drainage;
- Demolition/modification of certain buildings as identified in the design phase.
- Relocating the War Memorial at Haymarket Junction (the Infraco shall be required to obtain confirmation from tie prior to such re-location that tie is satisfied that all relevant Consents have been obtained by the Infraco;
- Landscaping including, hard landscaping, soft landscaping, boundary treatments;
- Provision of lighting;
- Provision of signage;
- Provision of fencing;
- The provision of all temporary works and installations (to allow construction of the Edinburgh Tram Network and achievement of delivery of the Edinburgh Tram Network into service) including the provision of connections to appropriate power supplies.
- to carry out and/or manage to completion the design of the Edinburgh Tram Network, including the management coordination, and specification and implementation of the necessary works for the modification of the Urban Traffic Control System;
- to procure and install all materials and equipment, required for the complete operating Edinburgh Tram Network, as summarised and as further detailed within these Employer's Requirements;
- to supply documentation as defined within these Employer's Requirements, including design documentation, as-built documentation, statutory information, as-built information, maintenance documentation and training documentation;
- to energise the Edinburgh Tram Network including liaison with and management of all interested and affected parties;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 25 |

- to provide access and support for driver training;
- to provide comprehensive management and technical and maintenance services and Deliverables to ensure that all of the above is delivered in full compliance with these Employer's Requirements.

1.3 Phase 1a Scope Statement Regarding Inclusion for the Phase 1b Option

Phase 1a shall meet these Employer's Requirements and provide full functionality as a standalone tram network. The scope for Phase 1a shall include the following elements in order to facilitate the addition of Phase 1b as an option instructed later under this Agreement.

1. The structure, earthworks and necessary works at Roseburn Junction shall include all sub-structure, structures, earthworks, ductwork, drainage and fitting out to bottom of rail fixing, including the provision for the OLE spur connection for Phase 1b from Phase 1a and OLE supports, for the delta connection of Phase 1b with Phase 1a. The structure, earthworks and works shall extend as a minimum such that the subsequent construction of Phase 2b does not interfere with the operation of Phase 2a except to the extent allowed by the possessions detailed below.
2. Plain line shall be installed along the Phase 1a route through the Roseburn Junction, however the Infraco shall ensure that the design and construction shall provide for the turnouts to be installed in a maximum of one 54 hour possession of the Phase 1a inbound and outbound tracks between Murrayfield and the Western end of Haymarket Yards turnback. Traction power supply sectioning shall allow the turnback of service trams throughout the possession. In addition, up to 28 normal night-time possessions shall be available for preparatory works and commissioning works.
3. The central supervisory, control and communications systems provided by the Infraco for Phase 1a shall have sufficient capacity and functionality to accommodate the incorporation of Phase 1b. This shall include all software, firmware, databases with the same control and indication functionality as for Phase 1a. All central control system hardware shall be provided to allow the connection of the Phase 1b infrastructure by means of cable connection alone.
4. The central supervisory, control and communications systems shall be designed and configured such that the commissioning of Phase 1b infrastructure shall be possible without material impact on the passenger services operating on Phase 1a or the operational Control Centre prior to assimilation of Phase 1b with Phase 1a.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 26 |



5. Documentation, drawings, manuals, spare parts and training shall be provided for Phase 1a on a standalone basis, but shall be in the form that is expandable to accommodate Phase 1b as and when constructed..

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 27 |

2 Operations and Performance

2.1 Scope

The scope of this Section of the Employer's Requirements defines the Operations & Performance requirements applicable to the Edinburgh Tram Network (ETN) which the Infraco must comply with.

2.2 Network Description and Principles

The Edinburgh Tram Network will operate as a 'line-of-sight' tramway, with tramway signalling provided at road junctions and at tramway junctions where appropriate. A fleet of Trams will serve the ETN providing level boarding with low level platforms located along the routes.



Figure 1

For ease of reference, a diagram of the Edinburgh Tramway Network is shown in Figure 1 above.

The route in the city from Newhaven to Haymarket (approximately half of Phase 1a) and from West Granton Access to Granton Square (approximately a third of Phase 1b) runs mainly on-street with varying degrees of segregation. The Roseburn corridor (approximately two thirds of Phase 1b) is a segregated off-street alignment, shared with a combined footpath and cycleway. Most of the route between Haymarket and the Airport (the remaining half of Phase 1a) is segregated from road traffic.

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 28 |

The whole ETN will consist of double track.

The Depot, located at Gogar, will provide maintenance and stabling facilities for the entire fleet of Trams operating on the ETN. It will also contain the administration and management offices, including an operations and Control Centre, from where the ETN will be managed and maintained.

Transport Services shall be operated in accordance to a timetable, as agreed between the Operator and tie, to achieve reliable and consistent operation at the required tram frequencies.

Throughout these Employer's Requirements reference is made to three timetables that shall be progressively introduced in response to patronage demand growth. These are intended to allow for reliability growth and Operator familiarisation with the Edinburgh Tram Network. The following definitions shall apply:

- **Operational Timetable**

A timetable developed by tie, which provides Trams at a frequency of twelve Trams per hour in each direction on the common section between Haymarket and Ocean Terminal. Six Trams per hour in each direction are operated on the sections between Haymarket and the Airport and between Ocean Terminal and Newhaven. For Phase 1b, Trams at a frequency of six trams per hour in each direction on the section between Haymarket and Granton square shall be operated. The Operational Timetable shall be in effect from the Service Commencement Date for a minimum of one year.

- **AM and PM Peak Enhanced Timetable:**

A timetable developed by tie, which provides Trams during the AM and PM peaks at a frequency of sixteen Trams per hour in each direction on the common section between Haymarket and Ocean Terminal. For Phase 1b providing Trams at a frequency of eight trams per hour in each direction on the section between Haymarket and Granton square for the AM and PM peak times only, reverting to the Operational Timetable during the inter peak period. The AM and PM Peak Enhanced Timetable shall be introduced no earlier than one year after the Service Commencement Date and shall be operated for a minimum of six months.

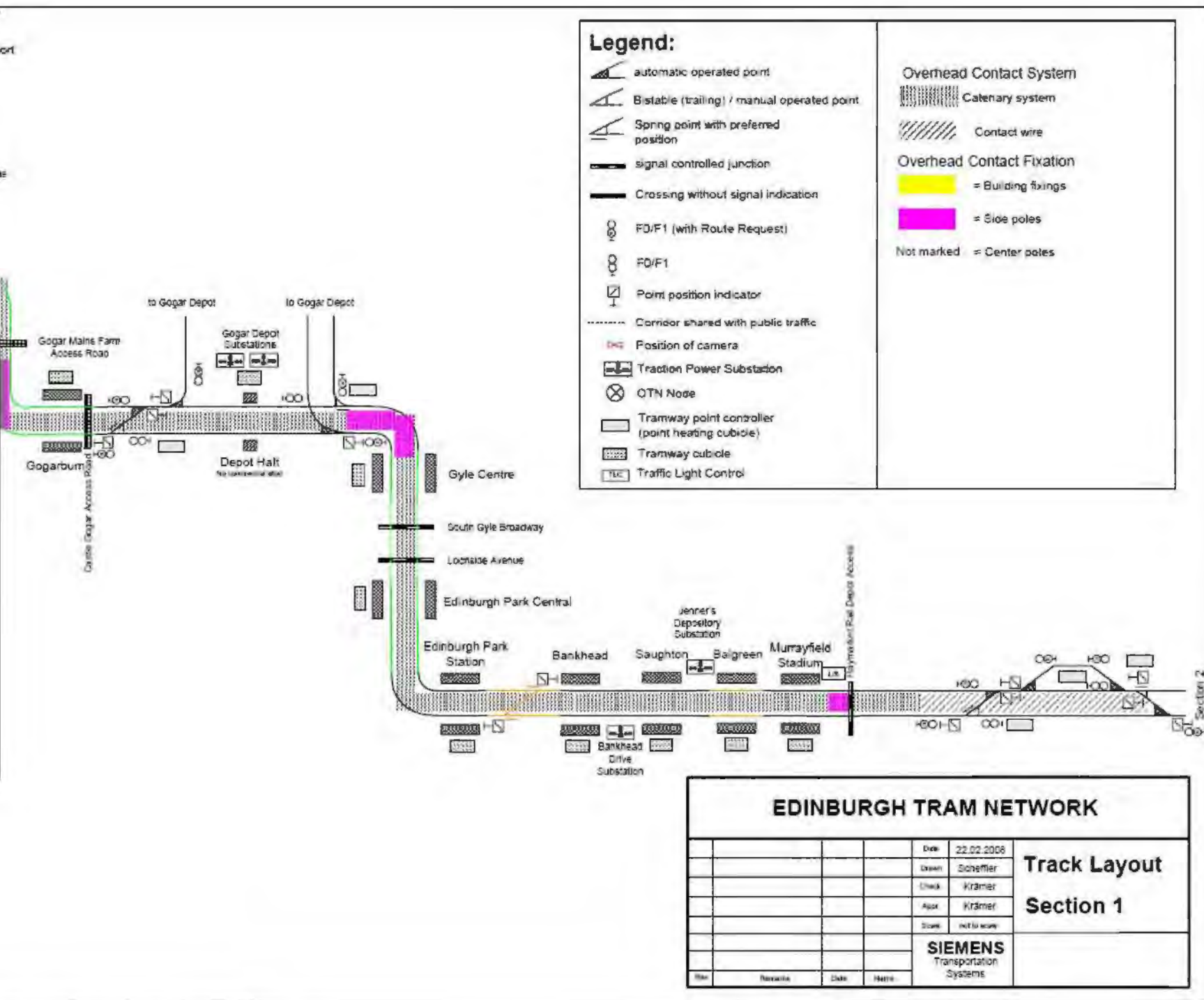
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 29 |

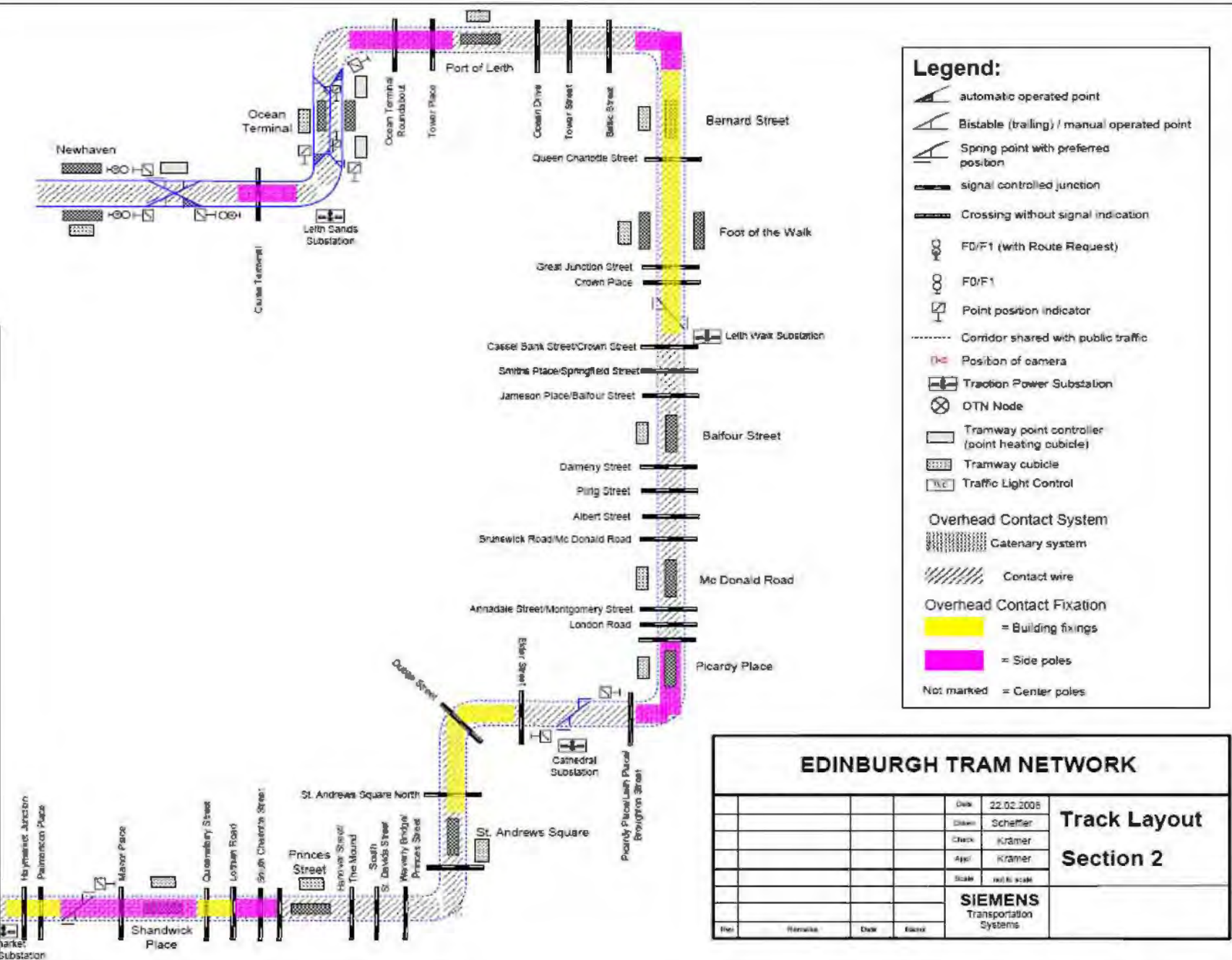


▪ **Enhanced Timetable:**

A timetable developed by tie, which provides Trams at a frequency of sixteen Trams per hour in each direction on the common section between Haymarket and Ocean Terminal. For Phase 1b providing Trams at a frequency of eight Trams per hour in each direction on the section between Haymarket and Granton square. The Enhanced Timetable shall be introduced no earlier than two years after the Service Commencement Date.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 30 |





Phases 1a and 1b Network Diagram

2.3 Specific Operations and Performance Requirements

2.4 Tramstop Location and Types

The Tramstop location and types are detailed in the following table. The acronyms given are provisional.

| ID | Tramstop | Platform Style |
|-----|-------------------------|------------------|
| | PHASE 1a | |
| AIR | Edinburgh Airport | 1 Centre |
| IPR | Ingliston Park and Ride | 2 Side |
| GBN | Gogarburn | 2 Side |
| DEH | Depot Halt (Staff Only) | 2 Side |
| GYL | Gyle Centre | 2 Side |
| EDP | Edinburgh Park Central | 2 Side |
| EPS | Edinburgh Park Station | 2 Side |
| BNK | Bankhead | 2 Side |
| SGT | Saughton | 2 Side |
| BAL | Balgreen | 2 Side |
| MUS | Murrayfield Stadium | 2 Side |
| HAY | Haymarket | 2 Side |
| SHP | Shandwick Place | 1 Centre |
| PST | Princes Street | 1 Centre |
| SAS | St Andrew Square | 1 Centre |
| PPL | Picardy Place | 1 centre |
| MDR | McDonald Road | 1 Centre |
| BFS | Balfour Street | 1 Centre |
| FOW | Foot of the Walk | 2 Side |
| BER | Bernard Street | 1 Centre |
| POL | Port of Leith | 1 Centre |
| OCT | Ocean Terminal | 1 Centre, 1 Side |
| NEW | Newhaven | 2 Side |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 33 |

| | PHASE 1b | |
|-----|----------------------------------|----------|
| GRT | Granton | 1 Centre |
| SSQ | Saltire Square | 2 Side |
| CPK | Caroline Park | 2 Side |
| WPN | West Pilton | 2 Side |
| CTL | Crewe Toll (for Western General) | 2 Side |
| TEL | Telford Road | 2 Side |
| CRA | Craighleith | 2 Side |
| RAV | Ravelston | 2 Side |
| ROS | Roseburn | 2 Side |

Table 1 – Edinburgh Tram Phases 1a and 1b Network Tramstop Location and Details

2.5 Expansion (including Line 3)

The Infraco shall ensure that the ETN shall be designed to permit expansion to include the following elements:

- Phased implementation of the ETN and associated fleet increases (including the implementation of the Phase 1b Option);
- Addition of Phase 2 of the ETN (as shown in Figure 1), including provision of Lower Granton Road stop, to close the loop along the sea front between Newhaven and Granton Square using the powers in the Edinburgh Tram (Line One) Act 2006;
- Addition of Phase 3 of the ETN (as shown in Figure 1), including associated stops at Ingliston West, Ratho Bridge and Newbridge South, from Ingliston Park and Ride to Newbridge using the powers in the Edinburgh Tram (Line Two) Act 2006;
- Addition of Line Three (From the junction of Princes Street/South St. Andrew Street to Royal Infirmary);

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 34 |

Extensions to the ETN set out above are not currently covered by these Employer's Requirements. However, the ETN must be designed in such a way as not to impede this future expansion.

For the avoidance of doubt, the following are covered by these Employer's Requirements.

- Future frequency increases beyond the enhanced service frequency of 8 & 8 tph;
- Increased operating hours beyond the scheduled last Tram of 23:59 and before the scheduled first Tram at 06:00;
- Associated impacts of increased staff numbers from 361 initially anticipated up to a maximum of 403 e.g. accommodation at the Depot.

2.6 Depot Locations

The Edinburgh Tram Network Depot is located at Gogar and shall be capable of providing capacity for the stabling of 27 trams of 44m in length, clear of fouling points in the stabling area.

The Depot shall be capable of future expansion to provide the capacity required for the identified future service frequencies and/or the requirements for Line Three, such that the Depot can be extended to stable 36 Trams of 44m in length, clear of fouling points in the stabling area.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 35 |

2.7 Service Patterns, Operating Hours and Frequencies

The ETN shall support a daily service, all year round. The proposed initial service patterns, operating hours and frequencies are as follows:

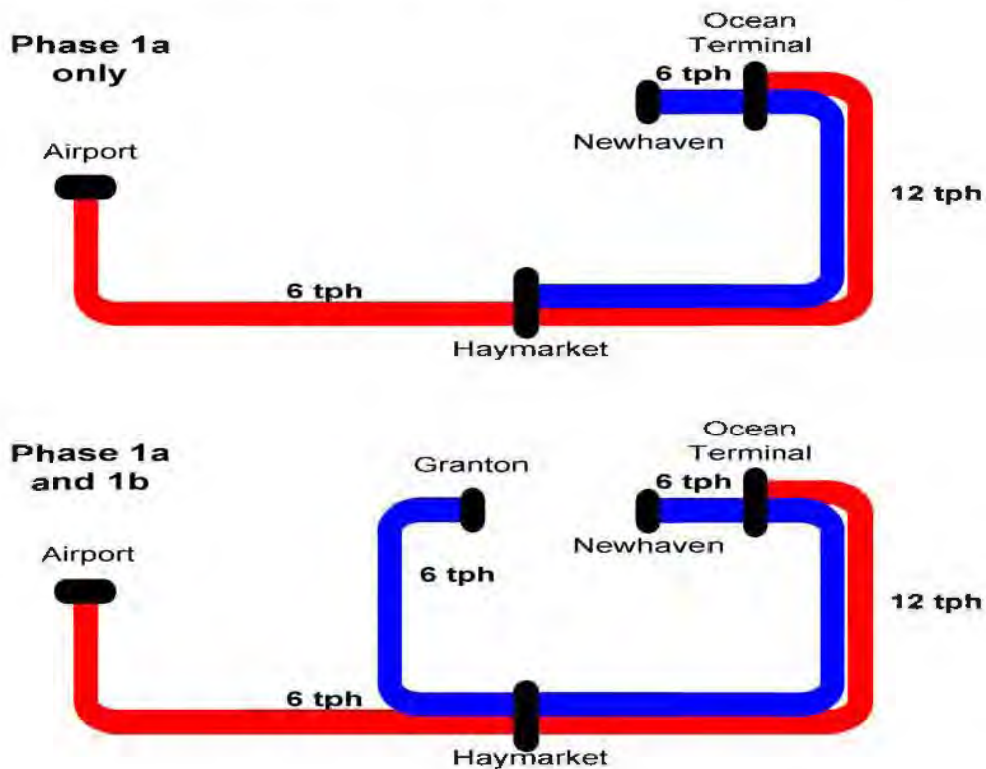


Figure 4 - Service Patterns for the Operational Timetable 6 & 6 Tram per hour scenario

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 36 |

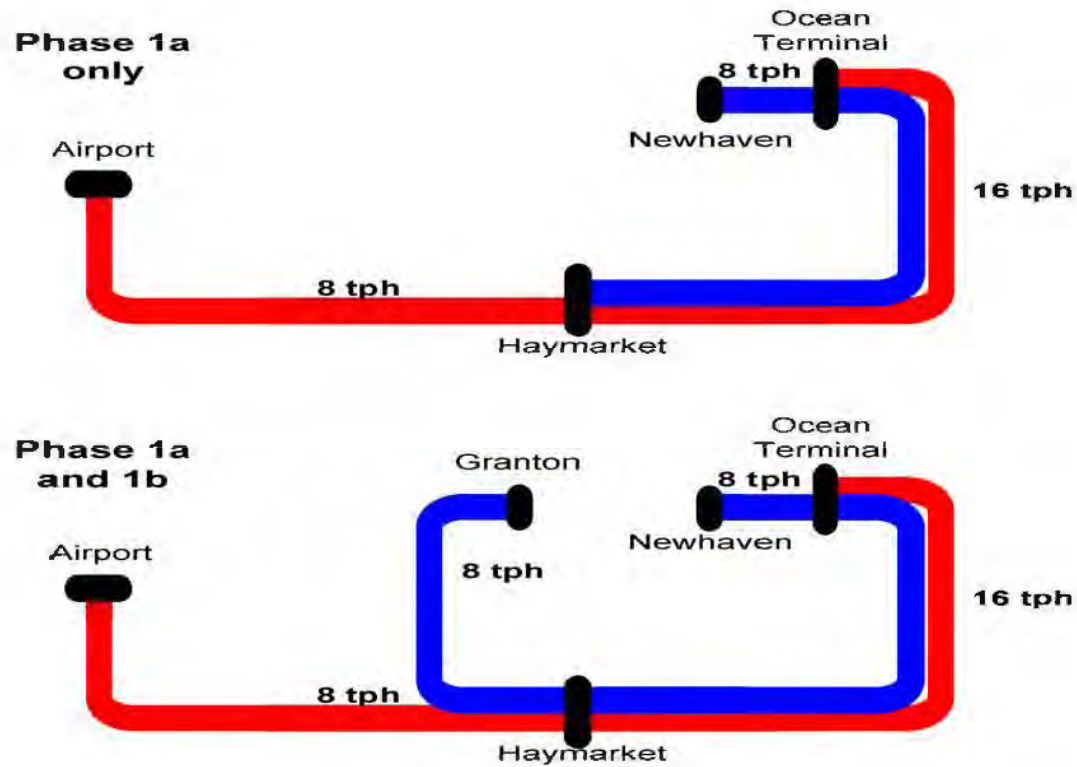


Figure 5 - Peak Service Patterns for the Enhanced AM & PM Peaks Timetable and the Enhanced Timetable 8 & 8 Tram per hour scenario

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 37 |

2.8 Operating Hours and Frequencies

The first and last Tram services and frequencies for 6 & 6 Tram per hour scenario are shown in Figure 4 - service patterns for the Operational Timetable 6 & 6 Tram per hour scenario and for 8 & 8 Tram per hour scenario in Figure 5.

These scenarios are based upon the following assumptions and conditions:

- The two balanced services combine to give a total of 12 or 16 Trams per hour per direction on the common section between Ocean Terminal and Haymarket are required during the daytime to replace withdrawn bus services (and therefore demand and capacity) on Leith Walk;
- For the purposes of ramping up/down service Short workings between Edinburgh Airport (Phase 1a) / Granton Square (Phase 1a & Phase 1b) or Haymarket (Phase 1a only) and St. Andrew Square are based on terminating Trams at St. Andrew Square. The location of the turnback is at York Place;
- Edinburgh Airport service Tram frequency is ramped up/down from Ocean Terminal. Granton Square (Phase 1a & Phase 1b) or Haymarket (Phase 1a only) service Tram frequency is ramped up/down from Newhaven;
- Trams going into service between Gogar Depot and Ocean Terminal/Newhaven will run "in service" from the Gyle (first tram Gyle to Ocean Terminal approx. 05:15 Monday to Saturday inclusive);
- Haymarket (Phase 1a only) or Granton Square (Phase 1a & Phase 1b) service Trams going out of service running between Newhaven and Gogar Depot will run "in service" as far as the Gyle;
- St. Andrew Square curtailed Trams going out of service running between St. Andrew Square and Gogar Depot will run "in service" as far as the Gyle;
- Edinburgh Airport service Trams going out of service will run "in service" from Ocean Terminal to Edinburgh Airport with a short "dead run" from Edinburgh Airport to Gogar Depot;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 38 |



- The period of time between the last Tram returning to the depot at night and the first Tram leaving the Depot in the morning Monday to Saturday inclusive is anticipated to be 4hrs 30 min, although this may be subject to amendment. Work requiring possessions will have to be agreed with the Operator. Subject to agreed possessions, work may be allowed on the Edinburgh Tram Network infrastructure for 3 hours and 45 minutes, depending on location, each night and allowing time for the implementation and withdrawal of isolations and/or possessions; and
- The provision of Transport Services is based on the requirement to always have a Tram present at the Airport Tramstop.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 39 |

Edinburgh Tram Network – Employer's Requirements

Section 2 – Operations & Performance

Table 2 – First and Last Tram Times for the 6 & 6 Tram per Hour Operational Timetable

| | | | | | | |
|----|---------------------------|---|---|--|----------------|---|
| 1b | Airport to Ocean Terminal | 0 | 6 | | 6 ^a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | 6 | 0 |
| 1b | Granton to Newhaven | 0 | 6 | | 6 ^b | 0 |
| 1b | Newhaven to Granton | 6 | 6 | | 6 ^c | 0 |

Note: The numbers in individual cells give the service frequency starting from the time at the top of the relevant column.

| | | Sunday (trams per hour) | | | | | |
|-------------------|---------------------------|----------------------------------|-------|-------|-------|----------------|--------------------|
| Network / Phasing | | Service frequency commencing at: | | | | | |
| | | first tram 07:00 | 07:45 | 08:00 | 08:20 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6 ^a | 0 |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | 6 | 0 |
| 1a | Haymarket to Newhaven | 0 | 0 | 6 | 6 | 0 | 0 |
| 1a | Newhaven to Haymarket | 0 | 0 | 0 | 6 | 0 | 0 |
| 1b | Airport to Ocean Terminal | 0 | 6 | | | 6 ^a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | | 6 | 0 |
| 1b | Granton to Newhaven | 0 | 6 | | | 6 ^b | 0 |
| 1b | Newhaven to Granton | 6 | 6 | | | 6 ^c | 0 |

Notes:

^a from approx 223:15 Trams run from the Airport - City Centre only

^b from approx 223:15 Trams run from Granton - City Centre only

^c from approx 223:15 Trams run from Newhaven - Haymarket continuing in service on TL2 to Gyle

First and last Tram services and frequencies for 6 & 6 tram per hour Operational Timetable

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 40 |

Edinburgh Tram Network – Employer's Requirements

Section 2 – Operations & Performance

Table 3 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario

| Networking (Phasing) and Service Frequency commencing at: | | 06:00 | 06:45 | 07:00 | 07:20 | 07:45 | 09:45 | 15:45 | 19:00 | 19:45 |
|---|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 a | Airport to Ocean Terminal | 0 | 6 | 8 | 8 | 8 | 6 | 6 | 8 | 6 |
| 1 a | <u>Ocean Terminal to Airport</u> | 6 | 6 | 8 | 8 | 8 | 6 | 6 | 8 | 6 |
| 1 a | <u>Haymarket to Newhaven</u> | 0 | | 6 | 8 | 8 | 6 | 6 | 8 | 6 |
| 1 a | <u>Newhaven to Haymarket</u> | 0 | | 0 | 6 | 8 | 6 | 6 | 8d | 6 |
| 1 b | Airport to Ocean Terminal | 0 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 |
| 1 b | <u>Ocean Terminal to Airport</u> | 6 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 |
| 1 b | <u>Granton to Haymarket</u> | 0 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 |
| 1 b | <u>Haymarket to Granton</u> | 6 | 6 | 8 | | 8 | 6 | 6 | 8 | 6 |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 41 |

Edinburgh Tram Network – Employer's Requirements

Section 2 – Operations & Performance

Table 4 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario

| Phase | Service Frequency commencing at: | Saturday (trams per hour) | | | | |
|-------|----------------------------------|---------------------------|---|---|---|----|
| | | First tram 06:00 | | | | |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6a |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | 6 |
| 1a | Haymarket to Newhaven | 0 | 0 | 6 | 6 | 0 |
| 1a | Newhaven to Haymarket | 0 | 0 | 0 | 6 | 0 |
| 1b | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | 6a |
| 1b | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | 6 |
| 1b | Granton to Newhaven | 0 | 6 | 6 | 6 | 6b |
| 1b | Newhaven to Granton | 6 | 6 | 6 | 6 | 6c |

Table 5 - First and Last Tram Times for the Enhanced AM & PM Peak Timetable

| Networking (Phasing) and Service Frequency commencing at: | | Sunday (trams per hour) | | | | | | | | | |
|---|---------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------|
| | | first tram 07:00 | 07:45 | 07:50 | 08:00 | 08:45 | 19:00 | 19:20 | 19:45 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | | 6 | 6 | | 6a | 0 |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | | 6 | 6 | | 6 | 0 |
| 1a | Haymarket to Newhaven | 0 | | 6 | 6 | | 6 | 6 | | | 0 |
| 1a | Newhaven to Haymarket | 0 | | 6 | 6 | | 6 | 6 | | | 0 |
| 1b | Airport to Ocean Terminal | 0 | 6 | | 6 | 6 | 6 | | 6 | 6a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | 6 | 6 | 6 | | 6 | 6 | 0 |
| 1b | Granton to Haymarket | 0 | 6 | | 6 | 6 | 6 | | 6 | 6b | 0 |
| 1b | Haymarket to Granton | 6 | 6 | | 6 | 6 | 6 | | 6 | 6 | 0 |

Notes:

- a) from approx. 23:15 Trams run from Airport – St Andrew Sq. only.
- b) from approx. 23:15 Trams run from Granton – St Andrew Sq. only.
- c) from approx. 23:15 Granton Trams run from Newhaven – Haymarket continuing in service on to Gyle.
- d) from approx. 19:20 (18:00 Saturday and 18:20 Sundays) Haymarket Trams running from Newhaven – Haymarket continue in service to Gyle.

The numbers in individual cells give the service frequency starting from the time at the top of the relevant column.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 42 |

Edinburgh Tram Network – Employer's Requirements

Section 2 – Operations & Performance

Table 6 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced Timetable

| Network (phasing) and service frequency commencing at: | | Monday - Friday (trams per hour) | | | | | | | | | |
|--|---------------------------|----------------------------------|-------|-------|-------|-------|-------|----------------|-------|----------------|-----------------|
| | | 06:00 | 06:45 | 07:00 | 07:20 | 07:45 | 19:00 | 19:20 | 19:45 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 8 | 8 | 8 | | 8 | 8 | | 8 ^a | 0 |
| 1a | Ocean Terminal to Airport | 8 | 8 | 8 | 8 | | 8 | 8 | | 8 | 0 |
| 1a | Haymarket to Newhaven | 0 | | 8 | 8 | | 8 | 8 | | | 0 |
| 1a | Newhaven to Haymarket | 0 | | 0 | 8 | | 8 | 8 ^d | | | 0 |
| | | | | | | | | | | | |
| 1b | Airport to Ocean Terminal | 0 | 8 | 8 | | 8 | 8 | | 8 | 8 ^a | 0 |
| 1b | Ocean Terminal to Airport | 8 | 8 | 8 | | 8 | 8 | | 8 | 8 | 0 |
| 1b | Granton to Newhaven | 0 | 4 | 4 | | 8 | 8 | | 4 | 4 ^b | 0 |
| 1b | Newhaven to Granton | 4 | 4 | 8 | | 8 | 4 | | 4 | 4 ^c | 0 |
| | | | | | | | | | | | |
| Network (phasing) and service frequency commencing at: | | Saturday (trams per hour) | | | | | | | | | |
| | | first tram 06:00 | 06:45 | 07:30 | 07:50 | 08:15 | 18:30 | 18:50 | 19:15 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 8 | 8 | 8 | | 8 | 8 | | 8 ^a | 0 |
| 1a | Ocean Terminal to Airport | 8 | 8 | 8 | 8 | | 8 | 8 | | 8 | 0 |
| 1a | Haymarket to Newhaven | 0 | | 8 | 8 | | 8 | 8 | | | 0 |
| 1a | Newhaven to Haymarket | 0 | | 0 | 8 | | 8 | 8 ^d | | | 0 |
| 1b | Airport to Ocean Terminal | 0 | 8 | 8 | | 8 | 8 | | 8 | 8 ^a | 0 |
| 1b | Ocean Terminal to Airport | 8 | 8 | 8 | | 8 | 8 | | 8 | 8 | 0 |
| 1b | Granton to Newhaven | 0 | 4 | 4 | | 8 | 8 | | 4 | 4 ^b | 0 |
| 1b | Newhaven to Granton | 4 | 4 | 8 | | 8 | 4 | | 4 | 4 ^c | 0 |
| | | | | | | | | | | | |
| Network (phasing) and service frequency commencing at: | | Sunday (trams per hour) | | | | | | | | | |
| | | first tram 07:00 | 07:45 | 07:50 | 08:00 | 08:45 | 18:00 | 18:20 | 18:45 | 23:15 | last tram 23:59 |
| 1a | Airport to Ocean Terminal | 0 | 6 | 6 | 6 | | 6 | 6 | | 6 ^a | 0 |
| 1a | Ocean Terminal to Airport | 6 | 6 | 6 | 6 | | 6 | 6 | | 6 | 0 |
| 1a | Haymarket to Newhaven | 0 | | 6 | 6 | | 6 | 6 | | | 0 |
| 1a | Newhaven to Haymarket | 0 | | 0 | 6 | | 6 | 6 ^d | | | 0 |
| 1b | Airport to Ocean Terminal | 0 | 6 | | 6 | 6 | 6 | | 6 | 6 ^a | 0 |
| 1b | Ocean Terminal to Airport | 6 | 6 | | 6 | 6 | 6 | | 6 | 6 | 0 |
| 1b | Granton to Newhaven | 0 | 6 | | 6 | 6 | 6 | | 6 | 6 ^b | 0 |
| 1b | Newhaven to Granton | 6 | 6 | | 6 | 6 | 6 | | 6 | 6 ^c | 0 |

Note: The numbers in individual cells give the service frequency starting from the time at the top of the relevant column.

Notes:

^a from approx 23:15 trams run from Airport - St Andrew Sq only

^b from approx 23:15 trams run from Granton - St Andrew Sq only

^c from approx 23:15 Granton trams run from Newhaven - Haymarket continuing in service on to Gyle

^d from approx 19:20 (18:50 Saturdays and 18:20 Sundays) Haymarket trams running from Newhaven - Haymarket continue in service to Gyle

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 43 |

2.9 Service Frequencies and Expansion

The design of the ETN shall support the Operational Timetable and Enhanced Timetable service frequencies set out in Table 2 – First and Last Tram Times for the 6 & 6 Tram per Hour Operational Timetable, Table 3 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario and Table 4 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario. In addition to this, the ETN shall operate the same service pattern as set out in Table 4 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario above, but with the Trams per hour increased by 50% throughout without upgrade or loss of performance for up to a maximum of 2 hours between Ocean Terminal and Picardy Place, and indefinitely between Picardy Place and the Airport.

The service patterns for the ETN are defined as the Operational Timetable (as shown in Table 2 – First and Last Tram Times for the 6 & 6 Tram per Hour Operational Timetable), the AM and PM Peak Enhanced Timetable (as shown in Table 3 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario) and the Enhanced Timetable (as shown in Table 4 - First and Last Tram Times for the 8 & 8 Tram per Hour Enhanced AM & PM Peak Scenario).

A simulation indicating the power consumption of the ETN service patterns as defined above and considering the braking energy regenerated by the Tram shall be performed during design phase.

2.10 Special Working and Degraded Operation

Special working is required at certain times of the year, as detailed in Table 8 - Reconfiguration of Service due to the Closure of Princes Street to allow for the short workings on the network routes, when sections of the ETN shall be closed to allow for example Hogmanay, the Edinburgh Festival and other special events and festivals.

The design of the ETN shall allow services to be turned back at the locations detailed in Table 7 - Turnback Locations. The precise chainages where turnbacks are to be installed is shown on the alignment drawings.

| ID | Location |
|-----|-------------------------------|
| | PHASE 1a |
| EPS | Edinburgh Park Station |
| HAY | Haymarket Yards |
| SHP | Shandwick Place |
| PPL | Picardy Place |
| FOW | Foot of the Walk (Leith Walk) |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 44 |

| | |
|-----|----------------|
| OCT | Ocean Terminal |
| | PHASE 1b |
| CTL | Crewe Toll |

Table 7 - Turnback Locations

Note that Trams may also be turned back at Gogar Depot, and the facility to allow this shall be provided by the Infraco.

The individual services will be reconfigured to operate using the turn-back facility nearest to the affected area. An example is the requirement to close Princes Street for Hogmanay. In this situation the services shall be reconfigured as detailed in Table 8 - Reconfiguration of Service due to the Closure of Princes Street.

| Service alteration for Closure of Princes Street | | | |
|--|----------------------------|--------------|---|
| Original Route of Service | Affected Area | Trams / Hour | Revision |
| Between Airport and Ocean Terminal | Princes St. section closed | 6 or 8 | Services run between Airport and Shandwick Place. No service runs between Shandwick Place and Picardy Place. Services run between Picardy Place and Newhaven |
| Between Haymarket and Newhaven (Phase 1a only) | Princes St. section closed | 6 or 8 | No service runs between Haymarket and Picardy Place ^a . Services run between Picardy Place and Newhaven |
| Between Granton Square and Newhaven (Phase 1b) | Princes St. section closed | 6 or 8 | Services run between Granton Square and Shandwick Place. No service runs between Shandwick Place and Picardy Place. Services run between Picardy Place and Newhaven |

a – Assumption that no services will run the short leg Haymarket to Shandwick Place when Princes Street is closed.

Table 8 - Reconfiguration of Service due to the Closure of Princes Street

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 45 |

2.11 Journey Time and Runtime

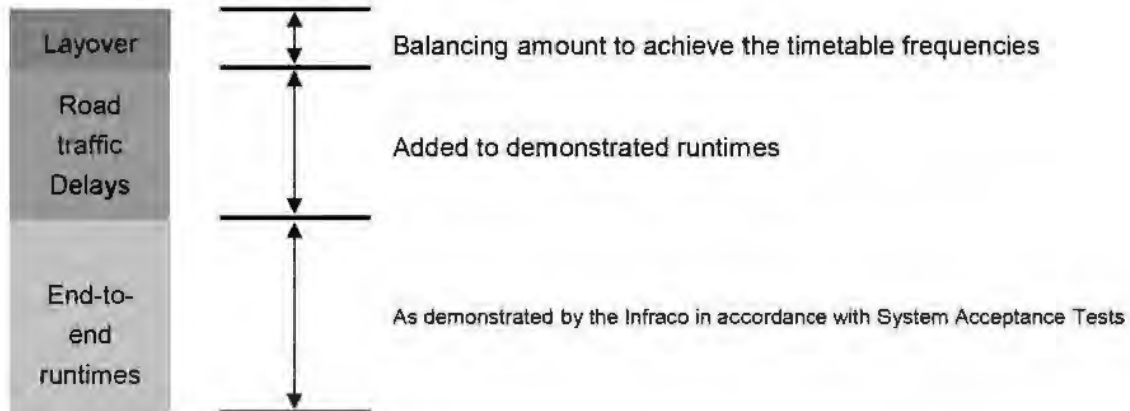


Figure 6 - Maximum Journey Times

The required maximum journey times for the Edinburgh Tram Network, quoted as operational journey time including dwell times of 25 seconds at each Tramstop, as defined during Preliminary design shall be as follows:

Phase 1a

| | | |
|---------------------------|--|----------------|
| Airport to Ocean Terminal | in either direction including 25 secs dwells at Tramstops | 42mins 18 secs |
|---------------------------|--|----------------|

Phase 1b

| | | |
|------------------------|--|----------------|
| Granton Sq to Newhaven | in either direction including 25 secs dwells at Tramstops | 39mins 26 secs |
|------------------------|--|----------------|

For the avoidance of doubt these are end to end journey times and the Infraco shall demonstrate during System Acceptance Tests defined in Section 23.18 (Testing and Commissioning) of these Employer's Requirements the trip times which can be achieved by the Trams running on the ETN infrastructure as developed and adjusted from the above base line in accordance with Section 2.12. These do not include layover time at the turnback stops as shall be agreed between the Operator and tie in order to develop the Operational Timetable.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 46 |

2.12 Journey Time and Runtime

The Infraco shall continue to develop and refine the runtime model as the design progresses and, at a frequency of no less than every three months or upon tie's request, provide updated reports demonstrating that the maximum run times can be achieved. The Infraco shall also prepare a model of the electricity consumption linked to the run time model and shall use reasonable endeavours to optimise the system design and construction to minimise electricity usage.

Reference should be made to the Runtime Simulation Stage 3 Report (ref: ULE90130-SW-REP-00238-V3) for vehicle performance characteristics and actual driver operations.

The operational and modelling assumptions that shall be used in all modelling of runtime and operational timetables are set out in Table 9 - Operational and Modelling Assumptions.

| Item | Value | Notes |
|-----------------------------|--|---|
| Door Performance | 12 seconds | Defined as the time for the doors to open and close including DDA requirements and passenger and driver reaction times. |
| Boarding and Alighting Time | 13 seconds | Defined as the time between the doors being fully open and the sounding of the door closing tone. |
| Dwell Times | 25 seconds a constant in modelling and during end to end journey time tests, to be refined for the purposes of the timetables to be Tramstop specific | Average dwell, made up of the door performance time and the boarding and alighting time |
| Loading | AW2 all seated 4 pass/m2 standing | |
| Gradient | +/- 8% Max. Note: This value is the maximum allowable gradient for track design. | Gradient data for the complete ETN has been developed in the design phase This identified major gradients at St. Andrew Square and the line alongside Gogar Depot |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 47 |

2.13 Operational Allowances and Rules for Timetabling

An operational allowance will be added to the end to end runtimes demonstrated through testing to meet those quoted in this section to ensure a robust Operational Timetable is constructed.

| Requirement | Allowance |
|------------------------------------|--|
| Operational Journey time allowance | Newhaven to Haymarket = 1.5 minutes Ocean Terminal to Airport = 1.5 minutes Newhaven to Granton Square = 45 secs (Phase 1b only) |
| Layover | 4 minute minimum or 10% of timetabled runtime, whichever is the greater taken at the terminus for each end to end trip with the exception of the Airport Tramstop where a Tram is required to always be present. Crew change-over locations to be determined as the Operational Timetable is refined. |

Table 10 - Operational Runtime Allowances

2.14 Miscellaneous Operational Requirements

2.15 Comfort Break Facilities

Facilities shall be available for driver comfort breaks at the nominated layover locations detailed in Table 11 - Layover Facilities

| Location | Comments |
|-------------------|-----------------------------------|
| Edinburgh Airport | Crew Change Facility ¹ |
| Ocean Terminal | Normal Terminus |
| Granton Square | Normal Terminus |
| Haymarket | Crew Change Facility |

Table 11 - Layover Facilities

¹ Damian has already instructed this change.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 48 |



At these locations access shall be provided to a suitable toilet with hand washing facilities.

Crew Change Facility

A crew changing facility shall be provided adjacent to the Haymarket Tramstop. This facility shall provide tram crew with access to a toilet with hand washing facilities, a drinking water supply, suitable heating, power, lighting, drainage and connection to the telephone network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 49 |

2.16 Performance and Reliability

The design and construction of the ETN shall be demonstrated by RAMS analysis to enable the individual systems availability targets stated in these Employer's Requirements to be met. It shall enable an overall tram punctuality for System technical causes of at least 99% in accordance with the calculation of the Punctuality Service Element contained in Schedule 6 of the Agreement.

As measured on a 28 day basis at the following monitoring points along the route at least 99% of the Trams shall be no earlier than one minute and no greater than two minutes late, caused by technical failure, compared to the scheduled headway.

Monitoring points

a) Phase 1a: for the purposes of monitoring arrival and departure headways between Trams:

- Edinburgh Airport.

b) Phase 1a: for the purposes of measuring departure headways between Trams only:

- Edinburgh Park Station;
- Haymarket;
- Foot of the Walk;
- Leith; and
- Picardy Place.

c) Phase 1b: for the purposes of measuring departure headways between Trams only:

- Crewe Toll (northbound only); and
- Granton Square.

The performance mechanism for Infraco is contained within this Agreement. The design of the ETN shall be such that it allows the ETN to operate safely and effectively in all modes.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 50 |



Edinburgh Tram Network - Employer's Requirements

Section 2 – Operations and Performance

Normal Mode being that used to establish the operational timetable. Degraded Mode being restricted operation due to failures or disruption on the tramway or the adjacent highway network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 51 |

2.17 Network and Service Pattern

See table 2 – Service Patterns for the Operational Timetable 6 & 6 Tram per hour scenario and table 5 – Peak Service Patterns for the Enhanced AM & PM Peaks Timetable and table 6 – the Enhanced Timetable 8 & 8 Tram per hour scenario] for further information; for daily service patterns; and note that trams are to be co-ordinated between OCT and HAY to give an even headway pattern in both directions.

2.18 Layovers

The Operational Timetable and the Enhanced Timetable developed by the Operator and the Infraco's Proposals shall allow for the following:

- An operational Tram can always be present at the Airport Tramstop;
- Additional layovers to be added to the minimum values to deliver the required headways where appropriate. This additional layover maybe apportioned along the route; and
- The minimum layover requirements are as set out in these Employer's Requirements and these shall be apportioned at the terminus Tramstops only.

Allowance for perturbations that are not road traffic delays:

- These shall be apportioned along the route, as can be seen in Figure 6 - Maximum Journey Times.

2.19 Calculation of Minimum Round Trip Times

In this section, the minimum round trip times for each of the service options are calculated. The calculations add up the elements that are required to establish the round trip times, and the source of each element is stated.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 52 |

Table 12 - Ocean Terminal – Edinburgh Airport Service (Phase 1a and Phase 1b)

OCT – AIR

| | |
|----------|--|
| 00:42:18 | OCT - AIR (includes dwell time) ^a |
| 00:04:52 | AM junction delay (OCT - HAY) ^b |
| 00:01:30 | additional delay between HAY - AIR ^c |
| 00:00:10 | 10 seconds on each leg for crossover at terminal Tramstop ^d |
| 00:48:50 | Total |

AIR – OCT

| | |
|----------|--|
| 00:41:59 | AIR - OCT (includes dwell time) ^a |
| 00:06:01 | AM junction delay (HAY - OCT) ^b |
| 00:01:30 | additional minutes of junction delay between AIR - HAY ^c |
| 00:00:10 | 10 seconds on each leg for crossover at terminal Tramstop ^d |
| 00:49:40 | Total |

Layovers

| | |
|----------|---|
| 00:04:55 | Minimum layover at OCT end for Airport service ^e |
| 00:10:00 | Minimum layover at AIR end for Airport service ^f |
| 00:07:30 | Minimum layover at AIR end for Airport service ^f |
| 00:14:55 | Total min layover for 6 & 6 tram per hour scenario |
| 00:12:25 | Total min layover for 8 & 8 tram per hour scenario |
| 01:53:25 | Minimum round trip time for 6 & 6 tram per hour scenario |
| 01:50:55 | Minimum round trip time for 8 & 8 tram per hour scenario |

Notes:

- ^a Data from 'Edinburgh Tram Network Stage 3 Runtime Simulation Report' (Doc Ref: ULE90130-SW-REP-00238 v2).
- ^b Data from 'Mott Macdonald Report - Traffic Interface Report' (Doc Ref: 0003048//REVC/241103). AM Junction delays between Haymarket and Leith Walk have been used as greater than PM delays.
- ^c of additional junction delay between Haymarket and Edinburgh Airport.
- ^d Estimate of additional time to move through the crossover at the terminus / turnback
- ^e Layover calculated from Table 17 – Number of Trams needed for each service (based on 8 & 8 Trams per hour scenario)
- ^f Based on Headway of 10 or 7.5 minutes, from the requirement for Airport layover in Section 32.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 53 |

Table 13 - Newhaven – Granton Square Service, (Phase 1b only)

NEW – GRT

| | |
|----------|---|
| 00:02:49 | NEW – OCT (includes 25s dwell time) ^a |
| 00:36:28 | OCT – GRT (includes dwell time) ^a |
| 00:04:52 | AM junction delay (NEW - HAY) ^b |
| 00:00:45 | additional delay between HAY - GRT ^c |
| 00:00:10 | 10s on each leg for crossover at terminal Tramstop ^d |
| 00:45:04 | Total |

GRT – NEW

| | |
|----------|---|
| 00:37:00 | GRT - OCT (includes dwell time) ^a |
| 00:02:26 | OCT - NEW (includes 25s dwell time) ^a |
| 00:06:01 | AM junction delay (NEW - HAY) ^b |
| 00:00:45 | additional delay between NEW - HAY ^c |
| 00:00:10 | 10s on each leg for crossover at terminal Tramstop ^d |
| 00:43:56 | Total |
| 00:04:15 | Minimum layover at NEW end for Granton service ^e |
| 00:04:07 | Minimum layover at GRT end for Granton service ^e |
| 00:08:22 | Total min layover |
| 01:37:22 | Minimum round trip time |

Notes:

- ^a Data from 'Edinburgh Tram Network Stage 3 Runtime Simulation Report' (Doc Ref: ULE90130-SW-REP-00238v2).
- ^b Data from 'Mott Macdonald Report - Traffic Interface Report' (Doc Ref: 0003048//REVC/241103)(AM Junction delays between Haymarket and Leith Walk have been used as greater than PM delays)
- ^c Transdev estimate of additional junction delay between Haymarket and Granton Square.
- ^d Transdev estimate of additional time to move through the crossover at the terminus / turnback
- ^e Layover calculated from Table 17 – Number of Trams needed for each service (based on 8 & 8 Trams per hour scenario).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 54 |

Table 14 - Newhaven – Haymarket Service (Phase 1a only)

NEW - HAY

| | |
|----------|---|
| 00:02:49 | NEW - OCT (includes 25 seconds dwell time) ^a |
| 00:18:58 | OCT - HAY (includes dwell time) ^a |
| 00:04:52 | AM junction delay (NEW - HAY) ^b |
| 00:01:30 | Additional delay between NEW - HAY |
| 00:00:10 | 10 seconds on each leg for crossover at turnback ^c |
| 00:00:54 | Additional movement from HAY to turnback ^e |
| 00:29:13 | Total |

HAY - NEW

| | |
|----------|---|
| 00:19:11 | HAY - OCT (includes dwell time) ^a |
| 00:02:51 | OCT - NEW (includes 25 seconds dwell time) ^a |
| 00:06:01 | AM junction delay (HAY - NEW) ^b |
| 00:01:30 | Additional delay between HAY- NEW |
| | 10 seconds on each leg for crossover at terminal |
| 00:00:10 | Tramstop ^c |
| 00:00:54 | Additional movement from turnback to HAY ^e |
| 00:29:07 | Total |
| 00:04:00 | Minimum layover at NEW end for Haymarket service ^d |
| 00:04:00 | Minimum layover at HAY end for Haymarket service ^d |
| 00:08:00 | Total min layover |
| 01:06:20 | Minimum round trip time |

Notes:

- ^a Data from 'Edinburgh Tram Network Stage 3 Runtime Simulation Report' (Doc Ref: ULE90130-SW-REP-00238v2).
- ^b Data from 'Mott Macdonald Report - Traffic Interface Report' (Doc Ref: 0003048//REVC/241103). AM Junction delays between Haymarket and Leith Walk have been used as greater than PM delays.
- ^c Transdev estimate of additional time to move through the crossover at the terminus / turnback
- ^d Layover calculated from Table 17 – Number of Trams needed for each service (based on 8 & 8 Trams per hour scenario)
- ^e Transdev estimate of runtime between HAY and Haymarket Turnback (20kph over 300m = 5.6m/s over 300m = 54 seconds)

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 55 |

2.20 Summary to Establish Fleet Size

The minimum round trip times determined in Section 2.19 above are used in Tables 15 to 18 to determine the tram Peak Vehicle Requirement (PVR) and fleet size for Phase 1a & Phase 1b:

| | OCT - AIR service | NER - HAY service | NER - GRS service |
|---|----------------------|----------------------|----------------------|
| Service used on Phase | 1a and 1b | 1a only | 1b only |
| Headway (min:sec) | 10:00 | 10:00 | 10:00 |
| Trams per hour | 6 | 6 | 6 |
| Minimum round trip time (hr:min:sec) | 01:53:25 | 01:06:20 | 01:38:52 |
| Actual round trip time needed to provide required headways and minimum layover (hr:min:sec) | 02:00:00 | 01:10:00 | 01:40:00 |
| Total additional layover to achieve headways (min:sec) | 06:35 | 03:40 | 01:08 |
| Peak number of trams | 12 | 7 | 10 |

Table 15 - Number of Trams needed for each service (based on 6 & 6 Trams per hour scenario)

| Network Option | 1a | 1a and 1b |
|-------------------------------------|----|-----------|
| PVR | 19 | 22 |
| Standby/maintenance/repair/training | 3 | 3 |
| Total tram fleet required | 22 | 25 |

Table 16 - Number of Trams needed for each Phase (based on 6 & 6 Trams per hour scenario)

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 56 |

| | OCT - AIR service | NEW - HAY service | NEW - GRT service |
|---|----------------------|----------------------|----------------------|
| Service used on Phase | 1a and 1b | 1a only | 1b only |
| Headway (min:sec) | 07:30 | 07:30 | 07:30 |
| Trams per hour | 8 | 8 | 8 |
| Minimum round trip time (hr:min:sec) | 01:50:55 | 01:06:20 | 01:37:22 |
| Actual round trip time needed to provide required headways & minimum layover (hr:min:sec) | 01:52:30 | 01:07:30 | 01:37:30 |
| Total additional layover to achieve headways (min:sec) | 01:35 | 01:10 | 0:08 |
| Peak number of trams | 15 | 9 | 13 |

Table 17 - Number of Trams needed for each service (based on 8 & 8 Trams per hour scenario)

| Network Option | 1a | 1a and 1b |
|-------------------------------------|----|-----------|
| PVR | 24 | 28 |
| Standby/maintenance/repair/training | 3 | 3 |
| Total tram fleet required | 27 | 31 |

Table 18 - Number of Trams needed for each Phase (based on 8 & 8 Trams per hour scenario)

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 57 |

2.21 Tram Fleet Kilometre Usage

The journey times and fleet sizes calculated above can be used to derive an approximate annual fleet and per Tram kilometre run of:

INITIAL OPERATING TIMETABLE

| 6tph | Daily | Days | Km | 6tph | Daily | Days | Km |
|-------------------------------|-------|------|---------|-------------------|-------|------|---------|
| Weekdays | 5531 | 261 | 1443591 | Weekdays | 7103 | 261 | 1853883 |
| Saturdays | 5363 | 52 | 278876 | Saturdays | 6950 | 52 | 361400 |
| Sundays | 5318 | 52 | 276536 | Sundays | 6815 | 52 | 354380 |
| Total | | | 1999003 | Total | | | 2569663 |
| Per Tram 27 trams | | | | Per Tram 27 trams | | | |
| | | | 74037 | | | | 95173 |
| ENHANCED AM & PM PEAK SERVICE | | | | | | | |
| 8tph | Daily | Days | Km | 8tph | Daily | Days | Km |
| Weekdays | 6217 | 261 | 1622596 | Weekdays | 7840 | 261 | 2046240 |
| Saturdays | 5363 | 52 | 320150 | Saturdays | 6950 | 52 | 361400 |
| Sundays | 5318 | 52 | 276536 | Sundays | 6815 | 52 | 354380 |
| Total | | | 2219282 | Total | | | 2762020 |
| Per Tram 27 trams | | | 82196 | Per Tram 31 trams | | | 89097 |
| FLAT DAYTIME PEAK SERVICE | | | | | | | |
| 8tph | Daily | Days | Km | 8tph | Daily | Days | Km |
| Weekdays | 7436 | 261 | 1940796 | Weekdays | 9347 | 261 | 2439567 |
| Saturdays | 7292 | 52 | 379184 | Saturdays | 9224 | 52 | 479648 |
| Sundays | 5318 | 52 | 276536 | Sundays | 6815 | 52 | 354380 |
| Total | | | 2596516 | Total | | | 3273595 |
| Per Tram 27 trams | | | 96167 | Per Tram 31 trams | | | 105600 |

3 General

3.1 Definitions

In these Employer's Requirements, Schedule 1 (Definitions and Interpretation) and the following definitions shall apply:

Table 19 - Definitions

| Term | Definition |
|---------------------|--|
| Act | An Act of Parliament or the Scottish Parliament following consideration and approval of a Bill |
| AFC | Automatic Fare Collection (see also TVM) |
| AIP | Approval in Principle for structures |
| ALARP | As low as reasonably practicable |
| Approval | (see Consent); also an approval of detail by an authority where consent is deemed to be granted by with prior conditions. |
| AutoCAD | Proprietary software used for engineering design |
| AW0 – AW5 | Standard loading conditions for Tram Vehicles defined at Section 22.2.3 |
| BRB | British Railways Board |
| BS | British Standard |
| CAA | Civil Aviation Authority |
| Case for Safety | All necessary documentation, information and other requirements pursuant to the Railways and Other Guided Transport Systems (Safety) Regulations 2006; |
| CAR | Corrective Action Report |
| CCTV | Closed Circuit Television |
| CIBSE | Chartered Institute of Building Services Engineers |
| CMS | Central Management System |
| COCP | Code of Construction Practice |
| COMP | Code of Maintenance Practice |
| Communications Plan | The Plan to be developed in accordance with the Employer's Requirements |
| COSHH | Control of Substances Hazardous to Health Regulations 1998 |
| DAT | Delivery Acceptance Test |
| DCCB | Direct Current Circuit Breaker |
| DDA | Disability Discrimination Act |
| Developed | The enlarged Kinematic Envelope that takes into account all of the possible effects of |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 59 |

| Term | Definition |
|--------------------------|--|
| Kinematic Envelope (DKE) | curvature, including superelevation of the track together with end and centre throw of the Tram. It is speed dependent and unique to a particular location at a given speed (See also Static Envelope, Dynamic Envelope and Kinematic Envelope) (See also RSPG Part 2 Section G – Guidance on Tramways). |
| DfT | Department for Transport |
| DMRB | Design Manual for Roads and Bridges |
| DSD | Drivers Safety Device |
| Dynamic Envelope | The Static Envelope enlarged to the maximum possible displacement of the Tram in motion on straight track. It takes into account suspension characteristics and allowances for maintenance and wear of Trams. (End and Centre throw is not included.) (See also Static Envelope, Kinematic Envelope and Developed Kinematic Envelope.) (See also RSPG Part 2 Section G – Guidance on Tramways) |
| EDMS | Electronic Document Management System |
| EIA | Environmental Impact Assessment |
| EMC | Electromagnetic Compatibility |
| EMI | Electromagnetic Interference |
| EMP | Environmental Management Plan |
| Enhanced Timetable | The Timetable described at Part 1a with 16 trams per hour Hay to Oct |
| ES | Environmental Statement |
| FAT | Factory Acceptance Test |
| GDPO | Town and Country Planning (General Development Procedure)(Scotland) Order 1992 |
| GPR | Ground penetrating radar |
| Grandfather Rights | A longstanding right where the original reason and date of the granting of the right is unknown |
| GSN | Goal Structured Notation |
| HCI | Human Computer Interface |
| HF | Human Factors |
| HLM | High Level Model |
| HMRI | Her Majesty's Railway Inspectorate (or the appropriate approval regime in force) |
| HS | Historic Scotland |
| HSCB | High Speed Circuit Breaker |
| HVAC | Heating, Ventilating and Air Conditioning |
| ICP | Independent Competent Person |
| ISO | International Organisation for Standardisation |
| ITSO | Integrated Transport Smartcard Organisation - a non profit sharing, member owned organisation supported by the Department for Transport |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 60 |

| Term | Definition |
|----------------------------|--|
| ItN | Invitation to Negotiate |
| JRC | Joint Revenue Committee |
| Kinematic Envelope (DKE) | The Dynamic Envelope enlarged to allow for the permitted tolerances in track gauge, alignment, level and cross-level and the dynamic and static effects of track wear. It is speed dependant. See also Static Envelope, Dynamic Envelope and Developed Kinematic Envelope. (See also RSPG Part 2 Section G – Guidance on Tramways) |
| LBC | Listed Building Consent |
| LHMP | Landscape and Habitat Management Plan |
| Lifecycle Replacement Plan | The Plan to be developed in accordance with the Employer's Requirements |
| Line 3 | A planned extension of the Edinburgh Tram Network to the south east. Line 3 is not currently being progressed although some safeguarding provisions are required. |
| LRU | Line Replaceable Unit |
| LRV | Light Rail Vehicle |
| Maintainer | Infrastructure and Tram Vehicle maintenance |
| Markov Analysis | Reliability modelling method |
| MUDFA | Multi-Utilities Diversion Framework Agreement |
| MX | Proprietary software used for engineering design |
| NCR | Non Conformance Report |
| NR | Network Rail |
| OEM | Original Equipment Manufacturer |
| OLE | Overhead Line Equipment |
| Operational Timetable | The Timetable described at Table 2 – First and Last Trams for the 6 & 6 Tram per Hour Operational Timetable Table 2 – First and Last Tram Times for the 6 & 6 Tram per Hour Operational Timetable - Hay to Oct |
| ORR | Office of Rail Regulation |
| ORS | Operational Radio System |
| OTMR | On Tram Monitoring and Recording |
| PA | Public Address System |
| Pan | Pantograph |
| PCC | Point Control Cabinet |
| PCS | Point Control System |
| PHC | Point Heating Cabinet |
| PHP | Passenger Help Point |
| PEHP | Passenger Emergency Help Point |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 61 |

| Term | Definition |
|-------------------------|--|
| PID | Passenger Information Display |
| Prior Approval | Written approval by any approving body evidencing prior consent. |
| QA | Quality Assurance |
| Quality Management Plan | The Plan to be developed in accordance with the Employer's Requirements |
| RAMS | Reliability, Availability, Maintainability and Safety |
| RSPG | Railway Safety Principles and Guidance |
| RSP2 | Railway Safety Publication 2 – Guidance on Tramways |
| RTPI | Real Time Passenger Information |
| RVAR | Rail Vehicle Accessibility Regulations |
| Safety Management Plan | The Plan to be developed in accordance with the Employer's Requirements |
| SAT | System Acceptance Test |
| SCADA | Supervisory, Control and Data Acquisition |
| SCC | Supervisory Control and Communications |
| SCT | Site Commissioning Test |
| SEPA | Scottish Environment Protection Agency |
| Shadow Running | Validation of the Operational Timetable without carrying passengers |
| SIT | System Integration Test |
| SP | Swept Path |
| SSSI | Site of Special Scientific Interest |
| STAG | Scottish Transport Assessment Guidance |
| Static Envelope | The maximum cross-section of Trams loaded or unloaded at rest on straight and level track, taking account of tolerances in the manufacture of the trams and the effects on the suspension of tram loading and tram loads arising from the wind and other weather. See also Dynamic Envelope, Kinematic Envelope, and Developed Kinematic Envelope. (See also RSPG Part 2 Section G – Guidance on Tramways) |
| Sub-System | An individual technical element e.g. communications, Tram etc. |
| SUC | Statutory Utility Company |
| SUDS | Sustainable Urban Drainage System ('soakaways') |
| The System | Collectively the technical sub-systems that together form the Edinburgh Tram Network. |
| System Interface | The interaction point between the sub-systems |
| Test Plan | The proposals developed by the Infraco for the structured and programmed testing of the components and the System |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 62 |

| Term | Definition |
|--------------|--|
| Test T1 – T5 | Formal Test requirements defined at Tests and Commissioning |
| TPDS | Tram Position and Detection System |
| Tramway Path | The area reserved for a moving tram in its environment. (See also RSP2 – Guidance on Tramways) |
| Transdev | "Transdev Edinburgh Tram Limited" (TETL) the Edinburgh Tram Network Operator |
| TRO | Traffic Regulation Order |
| TRY | Test Reference Year |
| TTRO | Temporary Traffic Regulation Order |
| TSS | Traction Sub-Station |
| TSS | Technical Support Services – advisors to tie. |
| TVM | Ticket Vending Machine (see also AFC) |
| UTC | Urban Traffic Control |
| UPS | Uninterruptible Power Supply |
| WBS | Work Breakdown Structure |
| WEBS | West of Edinburgh Busway Scheme |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 63 |

3.2 Infraco Services

3.3 General

This section provides a summary of the services that shall be required to be undertaken by the Infraco throughout the duration of the Infraco Works, or during particular stages of the Infraco Works, as appropriate.

3.4 Management and Technical Services

3.5 Summary of Deliverables

This section summarises the Deliverables that shall be provided by the Infraco. The Deliverables shall be provided in accordance with the requirements of the Agreement and shall be reviewed in accordance with the Review Procedure.

The Infraco shall complete the Deliverables set out hereunder, in the timescales agreed, and as identified in the Submittal Programme referred to.

In addition to the required Deliverables, this section also develops, where appropriate, the management and technical systems and services that shall be required to be provided by the Infraco to meet these Employer's Requirements. The Infraco shall develop and submit the following Deliverables for approval by tie in accordance with the Review Procedure.

Table 20 - Table showing Summary of Deliverables

Communications, Meetings and Reporting

Communications Plan

Meetings Schedule

Progress Photos

Progress Reports

Site Reports

Topics Register

Programme

Programme to include Design, Construction, Snagging, Commissioning, training, shadow running and opening to passenger service

Time Chainage Diagram

Management Plans

Construction Health and Safety Plan

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 64 |

Construction Plan
 Construction Stage Environmental & Sustainability Management Plan(s)
 Documentation associated with the completion of all research, surveys and inspections
 Environmental Action Plan (EAP)
 Infraco KPI Reporting
 Infraco Performance Measurement
 Network Rail Interface Plan
 Overall Approvals Management Plan and Approvals Management Plan
 Project Health & Safety File
 Project Management Plan
 Quality Forms (associated with the Project Safety and Quality Interface document)
 Quality Management Plan
 Research, Surveys and Inspections
 Safety Forms associated with the Project Safety and Quality Interface document.
 Safety Management Plan
 Schedule of Internal Audits
 System Safety Management Plan
 Testing and Commissioning Plans
 Training Plans

Design Deliverables

Earthing and Bonding Plan
 Case for Safety for the Network or Geographical Sections as applicable
 Design Stage Configuration Management Plan
 Design Stage Verification & Validation Plan
 Detailed Cause Consequence Analysis
 Functional Hazard Analysis
 Hazard Log & Risk Register
 Interface Control Documents
 Interface Schedules
 List of Applicable Standards
 Procurement Plan
 Requirements Specification / Database
 Scheme Plan
 Road Network Plan of affected areas
 System Architecture Specification
 System Design Specification
 System Design Test Specification
 System Interface Management Plan
 System Interface Register

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 65 |

Detailed drawings and other detailed design documentation

Archaeological & Heritage Mitigation Plan
 Boundaries Treatment Management Plan
 Construction Advice
 Construction Site Drainage Plan
 Initial and Final Buildability Reports
 Landscape and Habitat Management Plan
 Method of Working around Protected Species
 Other construction advice as noted
 Procedures for dealing with Unidentified Apparatus or Recorded Artificial Obstructions
 Schedule 3 (Code of Construction Practice) Deliverables
 Schedule and Conditional Surveys of Structures / Buildings Documentation
 (Dilapidation)
 Strategy for controlling Invasive and Alien Species
 Survey Photographs of Reinstatement Work
 Temporary Works, Security and Fencing Arrangements Plan
 Waste Management Plan

Cost Management

Actual / Planned / Forecast Spend Tables / Curves
 Change Control Schedule and background information
 Cost Loaded Programme / Earned Value Analysis based on WBS structure
 Cost Report
 Schedule of Compensation Events and background information
 Value Management Estimates / Analysis

Risk

Commissioning Risk Control Report
 Construction Risk Control Report
 Infraco Assumptions Register
 Infraco Risk Management Plan
 Infraco Risk Register
 Operational and Maintenance Report
 Residual Risk Control Report
 Risk Progress Reports

Traffic Management and TTROs

Access Control Permit Procedures
 Access Control Permits and Permits to Work
 Permits to Work and Utility Permits to Work Procedures
 Traffic Management and Work Site Staging Plan
 TTRO Obligations and Traffic Management Procedures

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 66 |

Method Statements

Method Statements

Schedule and Conditional Surveys of Structures / Buildings and Documentation (to avoid delay to the Service Commencement Date)

Survey Photographs of Reinstatement Work

Surveys of Structures which may affect Progress

Stakeholder Management Deliverables

Communications Log

Information for the tie monthly newsletter

Procurement Schedule

Traffic Routing Map

Weekly Newsletter

Weekly updates of Progress

Other Deliverables as defined below:

Asset Register

Documentation - As-built Design Drawings

Infrastructure Maintenance Plan

Maintenance Plan

O&M manuals

Overall Approvals Management Plan and Approvals Management Plan

Overall Test and Commissioning Plan

Simulation

Spare Parts manuals

Spare Parts, Tools & Test Equipment

Staffing Plan and Recruitment, Retention and Training Plan

System Acceptance

System Integration – including System Integration Plan

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 67 |

3.6 Design

3.6.1 General Obligations

The Infraco shall be responsible for the complete design of the Edinburgh Tram Network including the achievement of full compliance with the Employer's Requirements. The Infraco shall be responsible for achieving the following:

- The Deliverables necessary to enable the Edinburgh Tram Network to be procured, constructed, tested, commissioned and brought into commercial service and consistent with the requirements for training and Case for Safety (taking account of the need to fully co-ordinate these activities, including with other physically-related projects, so as to minimise overall disruption) to meet these Employer's Requirements and the Programme.
- The Infraco shall produce a tram service simulation that will demonstrate that its implementation of the design will achieve the required run times, power consumption and service performance where defined in these Employer's Requirements;
- The Infraco shall ensure that the design covers all aspects of the Edinburgh Tram Network and the associated works as defined in these Employer's Requirements;
- The Infraco shall approach the design and technical services in a structured manner using a recognised 'V' life cycle model with regard to the integration of design engineering, systems engineering and safety engineering activities;
- The Infraco shall be responsible for ensuring that there are no gaps and omissions in the specification and design of the Edinburgh Tram Network;
- The Infraco shall demonstrate that the design has properly considered and adopted the most advantageous whole life cost solutions;

3.6.2 Design Approach

The design approach shall be as set out in the SDS Agreement. The Infraco shall:

- Adopt, develop and adapt the SDS Management Plans covering Configuration Management and Verification and Validation.
- Undertake such supplementary safety analysis that will allow further development of the Case for Safety concurrent with any design undertaken to prove that the Edinburgh Tram Network is acceptably safe;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 68 |

- Where any new technologies are proposed by the Infraco, submit reports and presentations analysing and assessing the options and justifying the final selections of technologies in terms of time, cost, quality, safety, risk and maintainability, for review by tie;
- Prepare and maintain the Risk and Hazard Log;
- Prepare and maintain the System Architecture Specification;
- Prepare and maintain the System Design Specification;
- Prepare and maintain the System Design Test Specification;
- Prepare and maintain the Functional Hazard Analysis;
- Prepare and maintain the Detailed Cause Consequence Analysis;
- Prepare and maintain the Requirements Specification / Database;
- Prepare and maintain the Scheme Plan;
- Prepare and maintain the Procurement Plan;
- Prepare and maintain the Interface Schedules;
- Prepare and maintain the Earthing and Bonding Plan;
- Prepare and maintain the detailed drawings and other detailed design documentation;

3.6.3 Transport Modelling

The Infraco shall procure that the SDS provider performs its obligations in respect of

- transport modelling as such obligations are set out in the SDS Agreement.
- detailed traffic junction design recognition and evaluation and wider area effect assessment;
- temporary traffic diversions and support to tie where reasonably required in respect of obtaining the Traffic Regulation Order including impact analysis as defined in section 12.12.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 69 |

For detailed traffic signal modelling; Infraco shall provide adequate modelling upon which to base its design.

3.6.4 Environmental

All equipment shall meet its required operational functionality in accordance with these Employer's Requirements. The Edinburgh Tram Network and its components shall take cognisance of, inter alia, the following factors: electrical interference, dust, vibration, supply voltage variations, radio signal variations, solar radiation, temperature, humidity, salt, mist, wind, precipitation, snow etc.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 70 |

Table 21 shows average temperature and humidity conditions for the region. Based on the given information all equipment shall be suitable for a working life as defined in Design Life of these Employer's Requirements under maximum ambient temperature range from -9° to $+28^{\circ}\text{C}$, unless otherwise agreed by tie.

| Edinburgh (eastern Scotland) | | | | | | | | | | | | | | | |
|-------------------------------------|---------------|----|---------|----|------------------|----|-----------------|----|----------------------------|----|-------------------------------|----|---|-------|--|
| Sunshine (average hours per day) | Temperatures | | | | | | | | Precipitation and humidity | | | | Wet days (more than 0.1 mm/0.004 in) | | |
| | Average daily | | | | Highest recorded | | Lowest recorded | | Relative humidity | | Average monthly precipitation | | | | |
| | minimum | | maximum | | | | | | 900 | x | | | | | |
| | °C | °F | °C | °F | °C | °F | °C | °F | % | | mm | in | | | |
| Jan | 2 | 1 | 34 | 6 | 42 | 14 | 57 | -8 | 17 | 84 | 57 | 2 | 17 | Jan | |
| Feb | 3 | 1 | 34 | 6 | 43 | 14 | 58 | -9 | 15 | 83 | 39 | 2 | 15 | Feb | |
| March | 4 | 2 | 36 | 8 | 46 | 20 | 68 | -6 | 21 | 81 | 39 | 2 | 15 | March | |
| April | 5 | 4 | 39 | 11 | 51 | 22 | 72 | -4 | 25 | 75 | 39 | 2 | 14 | April | |
| May | 6 | 6 | 43 | 14 | 56 | 24 | 76 | -1 | 31 | 76 | 54 | 2 | 14 | May | |
| June | 6 | 9 | 49 | 17 | 62 | 28 | 83 | 3 | 37 | 75 | 47 | 2 | 15 | June | |
| July | 5 | 11 | 52 | 18 | 65 | 28 | 83 | 6 | 42 | 78 | 83 | 3 | 17 | July | |
| Aug | 4 | 11 | 52 | 18 | 64 | 28 | 82 | 4 | 40 | 80 | 77 | 3 | 16 | Aug | |
| Sept | 4 | 9 | 49 | 16 | 60 | 25 | 77 | 1 | 33 | 80 | 57 | 2 | 16 | Sept | |
| Oct | 3 | 7 | 44 | 12 | 54 | 20 | 68 | -2 | 28 | 82 | 65 | 3 | 17 | Oct | |
| Nov | 2 | 4 | 39 | 9 | 48 | 19 | 67 | -4 | 24 | 83 | 62 | 2 | 17 | Nov | |
| Dec | 1 | 2 | 36 | 7 | 44 | 14 | 58 | -7 | 20 | 84 | 57 | 2 | 18 | Dec | |

Based on readings for 30 years at 55°55' N, 3°11' W, altitude 134 m/440 ft.

Based on readings for 30 years at 55°55' N, 3°11' W, altitude 134 m/440 ft.

Where equipment is enclosed in equipment housings / enclosures the equipment contained therein shall be capable of operating at an external ambient temperature 15°C higher than the upper limit and at a temperature of 5°C lower than the figures in Table 21 taking into account any heat generated by the equipment.

All equipment housings / enclosures that contain electronic equipment shall be so equipped to minimise the occurrence of condensation within the enclosure.

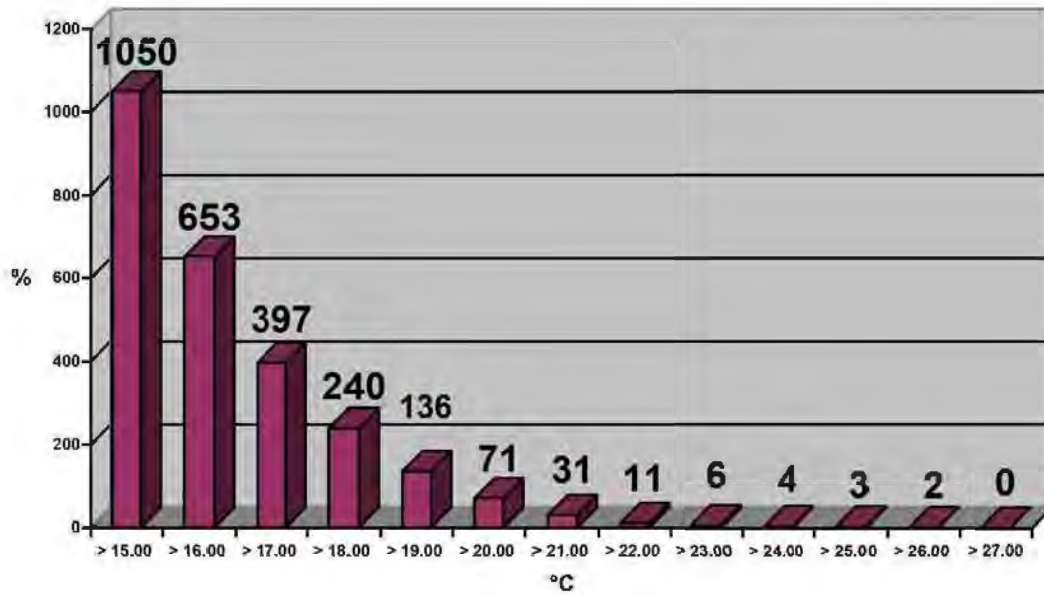
The following data in Figures 8 & 9 are based on the Edinburgh Test Reference Year (TRY) as given by CIBSE. It is a synthesised weather year based on 20 years of record data. CIBSE recommend that this type of weather data be used for analysing energy use and overall environmental performance.

Temperature

| | | | |
|----------------------|----------------------------|-----------------------------|-----------------------------|
| Dry Bulb Temperature | MAX 26.7°C | MIN -10.1°C | MEAN 8.43°C |
| Wet Bulb Temperature | MAX 18.9°C | MIN -10.7°C | MEAN 6.82°C |

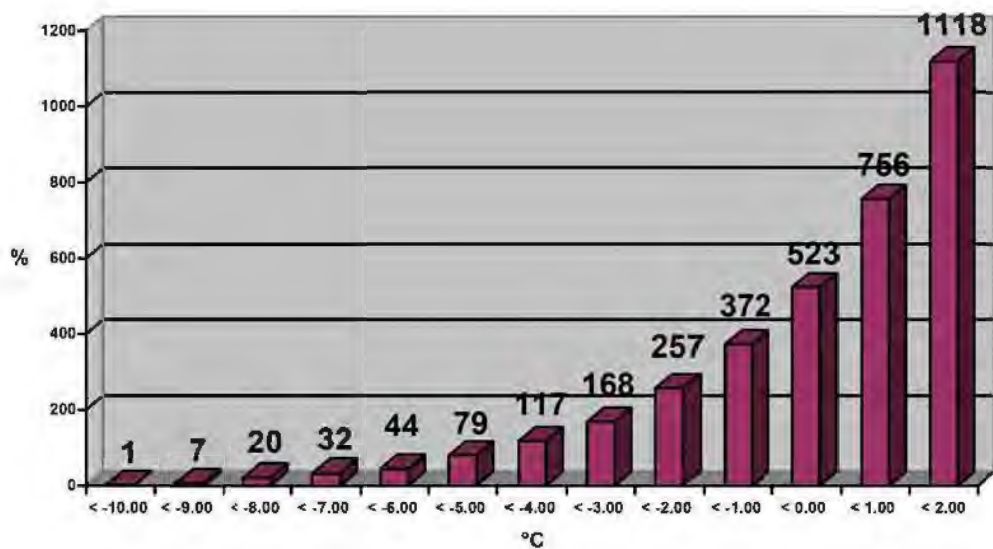
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 71 |

Figure 8 - Dry Bulb Temperature Analysis 1: Number of Hours per Year That the Dry Bulb Temperature is Greater Than the Given Value



| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 72 |

Figure 9 - Dry Bulb Temperature Analysis 2: Number of Hours per Year That the Dry Bulb Temperature is Less Than the Given Value



Wind Speed

MAX 19.5m/s

MIN 0m/s

MEAN 4.6m/s

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 73 |

3.7 Construction-related Deliverables (Schedule 3 Requirements)

The following deliverables, from and with regard to *Schedule 3 (Code of Construction Practice and Code of Maintenance Practice)* are highlighted for submission in accordance with the Review Procedure:

- In accordance with Schedule 3 (Code of Construction Practice and Code of Maintenance Practice), the Infraco shall compile a schedule of all buildings, or other structures, which may be at risk of physical damage as a result of the Infraco Works. Furthermore records of the condition and surveys of any defects shall be prepared by the Infraco;
- Under Schedule 3 (Code of Construction Practice and Code of Maintenance Practice) there is a requirement for the Infraco to undertake works to address defects in existing structures, caused by the Infraco Works. Where such work is completed the Infraco shall be required to take appropriate photographs to fully demonstrate the quality of the reinstatement works;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 74 |

3.8 Construction Advice and Buildability

The Infraco shall be required to develop a Buildability Report in accordance with the Review Procedure.

The Infraco shall provide a Buildability Report in accordance with the Review Procedure, which shall address the following.

- The Infraco shall propose construction methods which shall be utilised in respect of the Infraco Works. The Infraco shall also advise tie on the time and cost implications of any alternative solutions proposed by the Infraco and which have been accepted by tie. The Infraco shall initiate the requirements for Temporary Works, and the programme for approvals for such Temporary Works and their execution.
- Notwithstanding the Infraco's obligations with respect to compliance with the third party agreements, the Infraco shall advise tie on the potential impact of the Infraco Works upon neighbouring occupiers and users of nearby roads, railways, buildings and airport facilities and the Infraco shall plan the execution of the Infraco Works in such a way as to minimise disruption and prevent nuisance.
- The Infraco shall advise tie on the provision and layout of the main site office and local Work Sector / Work Section facilities and services to be provided or secured by the Infraco. tie's requirements for office accommodation at the main site office are expressed in this section.

The Infraco shall prepare, maintain and comply with plans, schedules and drawings that shall show the Infraco's proposals for temporary works, security and fencing arrangements throughout the duration of the Infraco Works ("Temporary Works, Security and Fencing Arrangements Plan").

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 75 |

3.9 Site Support Facilities for tie

The Infraco shall be responsible for the provision, servicing, maintenance and removal of the specified tie office accommodation and transport for the use of tie officers and staff

The Infraco shall provide and maintain fully serviced office accommodation and furnishings throughout the duration of the Infraco Works, in accordance with the following requirements:

- Office accommodation to accommodate 10 desks (Infraco supply) each with at least one secure lockable drawer, a swivel cloth upholstered chair. ;
- Three separate offices with a minimum working space of 16m²;
- 2 meeting rooms suitable for sitting up to 20 and 8 people respectively;
- Male and female toilets. Minimum area 3m² each;
- Changing/Locker facilities;
- Kitchen facilities;
- Drying facilities;
- Male & Female shower room;
- Parking for up to 15 cars.

The Infraco shall prepare and submit an office layout based on the accommodation description set out below for approval by tie.

The Infraco shall integrate this accommodation with the Infraco's own accommodation and, subject to proposals which are acceptable to tie, the meeting rooms and welfare facilities may be shared by the Infraco.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 76 |

3.9.1 Fittings and Furnishings

The Infraco shall also provide the following as minimum requirements:

General Office

- 7 x 4 drawer lockable metal filing cabinets
- 6 wall mounted notice board 1m high 1.5m wide
- 10 waste paper baskets
- 10 telephones connected to 2 lines
- 1 fax machine connected to a separate dedicated line
- 1 high output combined printer and photocopier capable of producing A4 and A3 black and white copies
- 10 connections to internet via broadband, all able to connect at same time
- 1 plan layout table 1 x 2 m
- 1 A0 drawing board and drafting equipment
- 10 desk lamps
- 10 letter tray/ filing baskets
- 2 m of book shelves at 6 of the desks
- 6 large white boards

Meeting Rooms

- Suitably sized tables and the requisite number of chairs for each of the two meeting rooms referred to above.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 77 |



Edinburgh Tram Network - Employer's Requirements

Section 3 – General

- 3 flip charts and flip chart paper as required and 1 large wall mounted white board in each meeting room

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 78 |

Changing / drying room

- Lockers c/w locks and keys for 30 people
- 4 chairs
- 30 coat pegs mounted on wall
- 1 boot pull.

General

- A security alarm system
- Access doors, fitted with five lever mortice locks and 6 sets of keys

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 79 |

3.9.2 Services

The Infraco shall provide, install and maintain all the services i.e. Gas, electric, water, drainage, telephone (two lines), broadband etc necessary to ensure effective occupation by tie of the accommodation for the duration of the Infraco Works

The Infraco shall provide install and maintain a printer/photocopier capable of producing A4 and A3 size black and white photocopies. The Infraco shall ensure that sufficient stocks of consumables (including paper and toner) are available at all times. Subject to acceptable proposals, the photocopier / fax may be shared by the Infraco and tie.

The Infraco shall provide tea, coffee, sugar fresh milk and a supply of drinking water for use by tie for the duration of the Infraco Works.

The Infraco shall arrange for the servicing and daily cleaning of the accommodation.

Toilet paper, paper towels, soap, and detergents shall be provided by the Infraco as required.

3.9.3 Equipment

The Infraco shall provide the following equipment for the exclusive use of tie throughout the duration of the Infraco Works:

- 10 x 10m long steel tape measures
- 10 x 50m long tape measures
- 10 x high output hand-held torches
- 2 approved electronic utility tracers for tracing/locating cables and pipes
- other consumables as may be required by tie (i.e. marker paint etc.).

The Infraco shall provide surveying/setting out equipment to tie as reasonably required, in connection with the Infraco Works.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 80 |

3.9.4 Site Vehicles

The Infraco shall provide, licence, insure (comprehensive for any qualified driver together with any authorised passengers and the carriage of goods or samples), service and maintain four 4 wheeled road vehicles (suitable for the Edinburgh Tram Network) and visitor transport for the exclusive use of tie's representative and staff to enable them to carry out their duties for the duration of the Agreement. The number and type shall be to the specific approval of tie.

The vehicles shall be delivered and maintained by the Infraco in good, roadworthy condition.

The Infraco shall provide fuel, oil and maintenance in conformity with the vehicle manufacturers' recommendations and shall clean the vehicles inside and outside as required by tie.

A suitable replacement vehicle shall be provided by the Infraco in the event any vehicle being out of service for more than 24 hours.

The Infraco shall ensure that each vehicle shall be fitted with approved warning beacons and any other safety equipment as required for work on roads or within the boundaries of the Edinburgh International Airport.

3.10 Spare Parts, Tools and Test Equipment

The Infraco shall be responsible for the provision, delivery, offloading and placing into stores of the necessary Spares Parts, Tools & Test Equipment.

Detailed requirements and deliverables in respect of the Spares Parts, tools and Test Equipment responsibilities are included in the Agreement.

3.11 Documentation

The Infraco shall be responsible for the provision of all as built / constructed / manufactured drawings, manufacturers information, test certification and other documentation to be provided in accordance with the Agreement.

Detailed requirements and Deliverables in respect of the documentation responsibilities are included within the Agreement and the Maintenance section of these Employer's Requirements.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 81 |



3.12 Training

The Infraco shall be responsible for all necessary initial training associated with the operation and maintenance of the Edinburgh Tram Network. Detailed requirements and deliverables in respect of the Training responsibilities are included within Section 40 (*Maintenance*) of these Employer's Requirements.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 82 |

4 Use of Industry Standard Equipment

The Infraco shall base its system supply on Commercial Off the Shelf (COTS) equipment and software. The use of proprietary equipment and software which is not available on a COTS basis is prohibited unless prior written agreement has been obtained from tie, other than that which is specified in the Infraco Proposal.

This is to allow the maintenance, extension and modification of the ETN by third party suppliers and maintainers if necessary.

All electronic interfaces between subsystems shall use open standards and shall utilise non-proprietary protocol.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 83 |

5 System Identity and Branding

A single system identity shall be applied to the ETN. This shall be developed by tie through a specialist contractor appointed by tie. The output of this contract with the specialist contractor shall be a documented set of design guidelines which shall be incorporated into these Employer's Requirements as Appendix 1 and which shall be complied with by the Infraco in respect of the Infraco Works. The design guidelines shall include the following elements:

- Logo and other elements of the ETN's graphic identity;
- Signage;
- Application of the systems identity to the following:
 - Ticket machines;
 - Stop furniture;
 - Passenger information;
 - Depot.
- Tram livery;
- Tram interior;
- Uniforms;
- Pictograms;
- Other aspects of the ETN which are visible to the public.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 84 |

6 Design Life

The equipment and systems to be supplied for the Edinburgh Tram Network shall be designed and built by the Infraco to a standard that shall ensure the System as a whole is capable of continuous operation for a minimum period of 15 years from the Service Commencement Date for each Phase.

Individual items of Infrastructure and equipment shall have a design life as indicated in the table below. Where the design life for an item of equipment is not specified, a minimum of 15 years shall be assumed. All design lives are from the Service Commencement Date for each Phase.

| Item of Equipment or System | Design Life |
|--|-------------|
| Trams | 30 years |
| Structures | 120 years |
| Track Bed | 50 years |
| Track | 25 years |
| Rails in Straight Lines | 20 years |
| OLE | 30 years |
| Power Cables | 30 years |
| Substations and Substation Equipment | 30 years |
| Tramstop Platforms | 50 years |
| Tramstop Superstructure (including shelters and poles) | 25 years |
| Tram Position and Detection equipment | 15 years |
| Passenger Information Displays | 10 years |
| Telephone Handsets | 10 years |
| Telephone PABX | 15 years |
| Voice recorder | 15 years |
| PA Controller | 10 years |
| Loudspeakers | 15 years |
| Hand Portable Radio Handsets | 5 years |
| Vehicle Mobile Radio Equipment | 7 years |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 85 |

| Item of Equipment or System | Design Life |
|--------------------------------------|-------------|
| Radio Base Station Equipment | 15 years |
| Radio Masts and Antennae | 15 years |
| Passenger Help Points | 15 years |
| CCTV cameras | 7 years |
| CCTV Digital Video Recorders | 7 years |
| SCADA outstations | 20 years |
| Fibre Optic Cabling and Patch Panels | 25 years |
| Fibre Optic Switches, Routers, Hubs | 15 years |
| Other communications equipment | 15 years |
| Cabinets | 25 years |
| UPS systems (excluding batteries) | 15 years |
| Copper Communications Cables | 25 years |
| Batteries (if employed) | 4 years |
| Workstations including Monitors | 5 years |
| Servers | 5 years |
| Standard hand tools | 5 years |
| Portable electrical tools | 7 years |

Table 22 - Equipment Design Life

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 86 |

7 Extensibility

Table 23 below sets out the assumptions being made in the design of Phase 1a and Phase 1b to allow Phases 2 and 3 to be added with minimum change, and also for future increase in service levels on Phase 1a/1b (over the "8+8" pattern) and for the addition on the proposed Line 3 (assumed routing Bridges-Princes St-Haymarket).

| Area | Topic | Phase 1a/1b Design Basis | Provision for Phases 2 and 3 | Provision for Phase 1a/1b increased service | Provision for ETL3 (Edinburgh Tram Line 3) | Provisions for other purposes |
|--------------|-----------------------------|-------------------------------|---|---|--|-------------------------------|
| Track Layout | Roseburn Junction/Delta | Design for full delta | n/a | | n/a | n/a |
| | Balgreen loop and crossover | Design for loop and crossover | n/a | | n/a | n/a |
| | Granton Square | Design for interim terminus | Design for track continuation; build initial as over-run for terminus | n/a | n/a | n/a |
| | Newhaven | Design for interim terminus | Design for track continuation | n/a | n/a | n/a |

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 87 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 7 – Extensibility

| Area | Topic | Phase 1a/1b Design Basis | Provision for Phases 2 and 3 | Provision for Phase 1a/1b increased service | Provision for ETL3 (Edinburgh Tram Line 3) | Provisions for other purposes |
|----------------------------|---|--|--|---|--|-------------------------------|
| | Ingliston Junction and P&R Tramstop | Make provision for Phase 3 and long-term aspirations | Alignment design not to preclude an allowance terminating Phase 3 service at Ingliston P&R and for East-West continuation from Phase 1 | n/a | n/a | n/a |
| | Track alignment at Princes St/South St Andrew St Junction | Make Provision for Line 3 | n/a | n/a | Alignment to allow pointwork and appropriate future traffic management(See CR078) | n/a |
| Modelling | Network modelling inc. for TSJs | To support 8+8 service | None | None | None | n/a |
| Traction Power | Traction Power Supply system (Substations/OLE/cabling) | To support 8+8 service +50% addition | Part of basic design | In basic design | Effectively in basic design, as an alternative use of the increased service design provision | n/a |
| DOC NO PRO-INFRACO-1399 | | VERSION 4.0 | STATUS FOR ISSUE | | DATE 16/04/2008 | SHEET 88 |

Edinburgh Tram Network - Employer's Requirements

Section 7 – Extensibility

| Area | Topic | Phase 1a/1b Design Basis | Provision for Phases 2 and 3 | Provision for Phase 1a/1b increased service | Provision for ETL3 (Edinburgh Tram Line 3) | Provisions for other purposes |
|-------|--|---|----------------------------------|---|--|-------------------------------|
| | Definition of Power characteristics (and other parameters for modelling) | Full traction characteristic of the selected tram | n/a | n/a | n/a | n/a |
| Depot | Stabling sidings | Design for 35, build for 27 | Inc. in 8 extra | Inc. in 8 extra | Not specifically included | n/a |
| | Workshop | 8 Berths theoretical maximum; (practically: 4 berths plus 2 service roads) | Initial design would accommodate | Initial design would accommodate | Not specifically included | n/a |
| | Depot staff accommodation | Numbers to be accommodated nominally match fleet that could be accommodated | Initial design would accommodate | Initial design would accommodate | Not included | n/a |
| | Depot car parking | See drawings | n/a | n/a | Not included | n/a |
| | Depot Control Centre | Design for 5 desks; provide 3 | Design layout would accommodate | Initial provision would accommodate | Design layout would accommodate | n/a |

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 89 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 7 – Extensibility

| Area | Topic | Phase 1a/1b Design Basis | Provision for Phases 2 and 3 | Provision for Phase 1a/1b increased service | Provision for ETL3 (Edinburgh Tram Line 3) | Provisions for other purposes |
|-------|---|---|--|---|--|-------------------------------|
| | Depot stores | Design basis | Would accommodate | Would accommodate | Not included | n/a |
| | | | | | | n/a |
| SCC | ODN capacity | | | | | |
| | General capacity | There is an initial +50% requirement above the calculated maximum usage | TBA | TBA | TBA | n/a |
| | Route coding capacity | 3-digit route-coding included | Included in base | n/a | Included in base | n/a |
| | Radio system capacity | A minimum ² of two channels at each base station | TBA | TBA | TBA | n/a |
| Roads | Traffic Signalled Junction design and modelling (inc. at temporary termini) | Phase 1a/1b only | Possibly ductwork at temporary termini | n/a | None | n/a |

² The word maximum would allow no channels to be provided and still be compliant! Two channels ok as a minimum.

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 90 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 7 – Extensibility

| Area | Topic | Phase 1a/1b Design Basis | Provision for Phases 2 and 3 | Provision for Phase 1a/1b increased service | Provision for ETL3 (Edinburgh Tram Line 3) | Provisions for other purposes |
|-----------------|--|---|----------------------------------|---|--|---|
| | Traffic Management layout at Princes St/South St Andrew St | Phase 1a only | n/a | n/a | None | n/a |
| | Traffic signalling ductwork | Design basis | n/a | n/a | n/a | Allowance in design at locations where additional signals might be provided |
| Tramway Ducting | Ductwork and access chambers | A minimum of 20% addition of the number of ducts | Initial design would accommodate | Initial design would accommodate | Initial design would accommodate | n/a |
| Utilities | Cross-track ducts | Where agreed with the SUCs, provision of secondary spare duct | n/a | n/a | n/a | Provision in design basis |

Table 23 - Extensibility Assumptions

| | | | | |
|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 91 |
|----------------------------|----------------|---------------------|--------------------|-------------|

8 Standards

8.1 Principles

Where there is no relevant standard specified in the Agreement, the Infraco Works shall comply as a minimum with relevant current British or European Standards, DfT and/or Scottish Government Publications, Standards and Technical Memoranda or IEC/ISO Standards in accordance with the order of precedence set out in section 8.2.

The Infraco Works shall comply with the ORR Safety Publication 2 and with the requirements of HMRI. Where standards do not exist, the Infraco Works shall comply with Good Industry Practice and all relevant codes of practice and guidance notes. Materials or equipment provided shall be in accordance with regulations and standards appropriate to the United Kingdom or the country of manufacture, but only where in the opinion of tie, compliance with the regulations and standards appropriate to the country of manufacture ensures an equivalent or higher quality than the regulations and standards appropriate to the United Kingdom. In such situations, the onus will be on the Infraco to prove that they are of an equivalent or higher quality.

Where standards are specified in these Employer's Requirements, these shall include any successor or replacement standards, announced or in force before 7 August 2007 and in relation to Tram Supply Obligations and Tram Maintenance Obligations only, 14 September 2007, which provide an equivalent or improved quality and standard.

The Infraco shall comply with standards reasonably required by the relevant Roads Authority, including any local standards and amendments to the Design Manual for Roads and Bridges.

The Infraco shall be responsible for identifying all proposed departures from standards: in these instances, the Infraco shall seek the formal approval of tie, and provide all details justifying the departure from standards.

The Infraco shall be responsible for making any necessary applications to the relevant Roads Authority for departure from standards and for complying with the resulting consequences, including those arising from the failure of an application for such departure.

The Infraco shall ensure that all materials, construction and workmanship comprised in the Infraco Works meet the requirements of the British or European standards relevant to the materials used. Materials used should have a British Board of Agrément Certificate wherever reasonably possible which identifies a lifespan for that material.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 92 |

8.2 Hierarchy of Precedence.

The order of precedence shall be as follows:

- 1) Legislation;
- 2) Guidance;
- 3) Where not included in Guidance;
 - (i.) British Standards;
 - (ii.) Scottish Government standards and guidance;
 - (iii.) Local Authority standards (CEC);
 - (iv.) Statutory Utility standards;
 - (v.) International Industry standards.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 93 |

8.3 The Infraco's Responsibilities

The Infraco in its system integrator role and as the system designer shall be responsible for:

- As appropriate, the development of, and compliance to, robust management processes in respect of compliance with Law and any other relevant standards or regulations included in the Agreement and section 8.2.
- The identification and selection of appropriate standards for all aspects of the Infraco Works
- The identification and definition of any application limits of such standards for all aspects and at all stages of the Infraco Works (such as design, construction, testing and commissioning, operation, and maintenance) in particular at the network, System and subsystem level.
- The identification and successful resolution of any conflicts within and between the obligations contained within this section 8 and Law.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 94 |

8.3.1 Applicable Standards

Applicable standards are listed in the following table.

| Specification No. | Specification Title | Structures | Tracks | Roads | Power Distrib. | Power Collection | DLE | SC & C | Transstops | Depot | Trams |
|-------------------------|--|------------|--------|-------|----------------|------------------|-----|--------|------------|-------|-------|
| BS 8500 – 1: 2002 | Concrete – Complementary British Standard to BS EN 206-1. Method for specifying and guidance for specifier | x | x | x | | | x | | x | x | |
| BS 8500 – 2: 2002 | Concrete – Complementary British Standard to BS EN 206-1. Specification for constituents material and concrete | x | x | x | | | x | | x | x | |
| BRE Special Digest Nr 1 | Concrete in aggressive ground. | x | x | x | | | x | | x | x | |
| BS 4449: 1997 | Specification for carbon steel bars for reinforcement of concrete | x | x | x | | | x | | x | x | |
| BS 6744: 2001 | Stainless steel bars for the reinforcement and use in concrete – Requirements and test methods | x | x | x | | | x | | x | x | |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 95 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SL & C | Transpigs | Signal | Trams |
|------------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-----------|--------|-------|
| BS EN 10210 S355 J2H | Steelwork: Hollow sections | x | | | | | x | | | | |
| BS EN 10025 S355J2G3 | Steelwork: All other sections | x | | | | | x | | | x | |
| BS 5400 - | Steel, Concrete and Composite Bridges | x | | | | | | | | | |
| BS 5400 - Part 1: 1988 | General Statement (see BD 15/92) | x | | | | | | | | | |
| BS 5400 Part 2: 1978 | Specification for Loads (See BD 37/01) | x | | | | | | | | | |
| BS 5400 Part 3: 2000 | Code of Practice for Design of Steel Bridges | x | | | | | | | | | |
| BS 5400 Part 4: 1990 | Code of Practice for Design of Concrete Bridges (see IA.5 and BD 24/92) | x | | | | | | | | | |
| BS 5400 Part 5: 1979 | Code of Practice for Design of Composite Bridges (see BD 16/82) | x | | | | | | | | | |
| BS 5400 Part 9: 1983 | Bridge Bearings (see BD 20/92) | x | | | | | | | | | |
| BS 5400 Part 10: 1980 | Code of Practice for Fatigue (see BD 9/81) | x | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 96 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SC & C | Transpnt | Depot | Trains |
|--------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|----------|-------|--------|
| BS 5930: 1999 | Code of Practice for Site Investigations | x | x | x | | | | | x | x | |
| BS 8666: 2000 | Scheduling, Dimensioning, Bending and Cutting of Steel Reinforcement for Concrete | x | x | x | | | x | | x | x | |
| BS EN 206-1: 2000 | Concrete - Specification, performance, production and conformity (AMD 13189) | x | x | x | | | x | | x | x | |
| BS 8500-1: 2002 | Concrete – Complimentary British Standard to BS EN 206-1. Method of specifying and guidance for the specifier. | x | x | x | | | x | | x | x | |
| BA 47/99 (Aug '99) | Waterproofing and Surfacing of Concrete Bridge Decks | x | | | | | | | | | |
| BA 41/98 (Feb '98) | The Design and Appearance of Bridges | x | | | | | | | | | |
| BA 42/96 (Nov '96) | The Design of Integral Bridges | x | | | | | | | | | |
| BA 55/00 (May '00) | The Assessment of Bridge Substructures & Foundations, Retaining Walls & Buried Structures | x | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 97 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SC & C | Transpnt | Depot | Trams |
|-----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|----------|-------|-------|
| BA 57/95 (Aug '95) | Design For Durability | x | | | | | | | | | |
| BD 2/79 (Jun '88) | Technical Approval of Highway Structures on Motorways and other Trunk Roads, Part IV: Procedures for Lighting Columns | x | | x | | | | | | | |
| BD 2/89 (Oct '89) | Technical approval of DTp highway structures on motorways and other trunk roads Part 1, General Procedures | x | | | | | | | | | |
| BD 7/81 (Aug '81) | Weathering steel for highway structures | x | | | | | | | | | |
| BD 9/81 (Dec '81) | Implementation of BS 5400 Pt 10, CP for fatigue | x | | | | | | | | | |
| BD 12/95 (Feb '96) | Design of Corrugated Steel Buried Structures with spans not exceeding 8m (including circular Arches) | x | | | | | | | | | |
| BD 13/90 (Feb '91) | Design of Steel Bridges Use of BS 5400: Part 3: 1982 | x | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 98 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transit | Depot | Trains |
|-----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| BD 15/92 (Dec '92) | General Principles for the Design and Construction of Bridges Use of BS 5400: Part 1: 1988 | x | | | | | | | | | |
| BD 16/82 (Dec '82) | Design of composite bridges - Use of BS 5400 Pt 5: 1979 including Amendment No. 1 (Dec '87) | x | | | | | | | | | |
| BD 20/92 (Oct '92) | Bridge Bearings Use of BS 5400: Part 9: 1983 | x | | | | | | | | | |
| BD 21/97 (Aug '97) | The Assessment of Highway Bridges and Structures Amendment No. 1 (Aug '97) | x | | | | | | | | | |
| BD 24/92 (Nov '92) | Design of Concrete Highway Bridges and Structures Use of BS 5400: Part 4: 1990 Including Interim Advice Note IA.5 July 1996 | x | | | | | | | | | |
| BD 28/87 (Jul '87) | Early thermal cracking of concrete including Amendment No. 1 (Aug '89) | x | | | | | | | | | |
| BD 30/87 (Jul '87) | Backfilled retaining walls and bridge abutments | x | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|-------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 99 |
|----------------------------|----------------|---------------------|--------------------|-------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SC & C | Transitpass | Depot | Trams |
|-----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-------------|-------|-------|
| BD 31/87 (Jan '88) | Buried concrete box type structures | x | | | | | | | | | |
| BD 33/94 (Nov '94) | Expansion Joints for Use in Highway Bridge Decks | x | | | | | | | | | |
| BD 37/01 (Aug '01) | Loads for Highway Bridges | x | | | | | | | | | |
| BD 42/00 (May '00) | Design of Embedded Retaining Walls and Bridge Abutments | x | | | | | | | | | |
| BD 43/90 (Apr '90) | Criteria and Material for the Impregnation of Concrete Highway Structures | x | | | | | | | | | |
| BD 44/95 (Jan '95) | The Assessment of Concrete Highway Bridges and Structures Including Interim Advice Note IA.4 July 1996. | x | | | | | | | | | |
| BD 47/99 (Aug '99) | Waterproofing and Surfacing of Concrete Bridge Decks | x | | | | | | | | | |
| BD 48/93 (Jun '93) | The Assessment and Strengthening of Highway Bridge Supports | x | | | | | | | | | |
| BD 49/93 (Jan '93) | Design Rules for Aerodynamic Effects on Bridges | x | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 100 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Tram | Power Distr. | Fare Collection | QLE | SC & C | Transp. | Depot | Trains |
|-----------------------|--|------------|-------|------|--------------|-----------------|-----|--------|---------|-------|--------|
| BD 52/93 (Apr '93) | The Design of Highway Bridge Parapets | x | | | | | | | | | |
| BD 56/96 (Nov '96) | The Assessment of Steel Highway Bridges and Structures | x | | | | | | | | | |
| BD 57/95 (Aug '95) | Design for Durability | x | | | | | | | | | |
| BD 58/94 (Nov '94) | The Design of Concrete Highway Bridges and Structures with External and Unbonded Prestressing | x | | | | | | | | | |
| BD 60/94 (Apr '94) | The Design of Highway Bridges for Vehicle Collision Loads (this does not apply to existing structures). | x | | | | | | | | | |
| BD 70/97 (Feb '97) | Strengthened/Reinforced Soils and Other Fills for Retaining Walls and Bridge Abutments (use of BS 8006:1995) | x | | | | | | | | | |
| BD 74/00 (May '00) | Foundations | x | | | | | x | | | x | |
| TD 9/93 (Jun '93) | Highway Link Design | x | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 101 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SC & C | Transpats | Depot | Trams |
|-----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| TD 27/96 (Aug '96) | Cross sections and headrooms | x | | | | | | | | | |
| ASO10 | Railway sleepers – Jarrah, Karri and Wandoo. | | x | | | | | | | | |
| ASO11 | Railway crossing timbers – Jarrah. | | x | | | | | | | | |
| BS EN 13674-1:2003 | Specification for railway rails (partially replaces BS11) | | x | | | | | | | | |
| BS47 | Fishplates for railway rails. | | x | | | | | | | | |
| BS EN 13043:2002 | Aggregates for bituminous mixtures and surface treatments for roads. | | x | x | | | | | | x | |
| BS64 | Specification for normal and high strength steel bolts and nuts for railways rail fishplates. | | x | | | | | | | | |
| BS729 | Specification for hot dip galvanised coatings on iron and steel articles. | | x | | | | | | | | |
| BS EN 1097-3:1998 | Testing aggregates. (partially replaces BS812) | | x | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 102 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Travels | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Trains |
|--------------------|--|------------|-------|---------|--------------|-----------------|-----|--------|---------|-------|--------|
| BS970 | Specification for wrought steels for mechanical and allied engineering purposes. | | x | | | | | | | | |
| BS1377 | Methods of tests for soils for civil engineering purposes. | x | x | x | | | x | | | x | |
| BS3100 (withdrawn) | Specification for steel coatings for general engineering purposes. | | x | | | | x | | | x | |
| BS4921 | Specification for sheradised coatings on iron and steel. | | x | | | | x | | | x | |
| BS EN 10270-1:2001 | Specification for patented cold drawn steel wire for mechanical springs. | | x | | | | | | | | |
| BS6906 | Methods of tests for geotextiles. | | x | | | | | | | | |
| BS EN 1562 | Founding. Malleable cast irons. | | x | | | | | | | | |
| BS EN 1563 | Founding. Spheroidal graphite cast iron. | | x | | | | | | | | |
| BS EN 13481-2 | Performance requirements for fastening systems for concrete sleepers. | | x | | | | | | | | |
| BS EN 13481-3 | Performance requirements for fastening systems for wooden sleepers. | | x | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 103 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SC & C | Transpnt | Depot | Trains |
|-------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|----------|-------|--------|
| BS EN 10002 – 1 | Tensile testing of metallic materials (method of test at ambient temperature). | | x | | | | | | | | |
| BS EN 10025 | Hot rolled products of structural steels. General technical delivery conditions | | x | | | | | | | x | |
| ENAAA-2 | Railway applications – Track – Fastening Systems Part 2: Performance requirements for fastening system for concrete sleepers. | | x | | | | | | | | |
| ISO/R887 | Plain washers for metric bolts, screws and nuts. | | x | | | | | | | | |
| RT/E/S/4004 5 | Network Rail Standard Electric Points Heating. | | x | | | | | | | | |
| UIC605OR | Protection from corrosion – measures to be taken on direct current catenaries to reduce the risks on adjacent piping and cable systems. | | x | | | | | | | | |
| UIC860 | Technical specification for the supply of rails. | | x | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 104 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Rollers | Power Distr. | Fare Collection | QLE | SC & C | Transpats | Depot | Trams |
|-------------------|--|------------|-------|---------|--------------|-----------------|-----|--------|-----------|-------|-------|
| UIC861-2 | Standard sections for points rails adapted to the UIC54 and 60kg/m rail sections. | | x | | | | | | | | |
| UIC861-3 | Standard 60kg/m rail profiles – types UIC60 and 60E. | | x | | | | | | | | |
| UIC863 | Technical specification for the supply of non-treated track support (wooden sleepers for standard and broad-gauge track and crossing timbers). | | x | | | | | | | | |
| UIC863-1 | Use of non-European timbers for the manufacture of sleepers. | | x | | | | | | | | |
| UIC864-1 | Technical specification for the supply of sleeper screws. | | x | | | | | | | | |
| UIC864-2 | Technical specification for the supply of steel track bolts. | | x | | | | | | | | |
| UIC864-3 | Technical specification for the supply of spring steel washers for use in permanent way. | | x | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 105 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpuls | Depot | Trains |
|-------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|--------|
| UIC864-4 | Technical specification for the supply of fishplates or sections for fish-plates made of rolled steel. | | x | | | | | | | | |
| UIC864-5 | Technical specification for the supply of rail seat pads. | | x | | | | | | | | |
| UIC864-6 | Technical specification for the supply of baseplates and for sections for baseplates made of rolled steel. | | x | | | | | | | | |
| UIC864-7 | Rolled profiles for baseplates for UIC rails. | | x | | | | | | | | |
| UIC864-8 | Rolled profiles for fishplates for 54kg/m and 60kg/m rails. | | x | | | | | | | | |
| UIC866 | Technical specification for the supply of cast manganese steel crossings for switch and crossing work. | | x | | | | | | | | |
| BS 1363-2:1995 | 13A plugs, sockets-outlets and adaptors. Part 2, Spec. for 13A switched and unswitched socket-outlets | | | | x | | | x | x | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 106 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SL & C | Transpnt. | Depot | Trains |
|--|--|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|--------|
| BS 1363-4:1995 | 13A plugs, socket-outlets and adaptors. Part 4, Spec. for 13A fused connection units switched and unswitched | | | | X | | | X | X | X | |
| BS 3573:1990 | Polyolefin copper-conducted telecommunications cables | | | | | | | X | X | X | |
| BS 4533-102.1:1990 | Luminaires. Particular requirements. Part 102.1 Fixed general purpose luminaires | | | | X | | | | X | X | |
| BS 4579-1:1970 (withdrawn, replaced by BS EN 61238-1) | Performance of mechanical and compression joints in electric cable and wire connectors. Part 1 Compression joints in copper conductors | | | | X | X | X | X | X | X | |
| BS 4579-2:1973 | Performance of mechanical and compression joints in electric cable and wire connectors. Part 2 Compression joints in nickel, iron and plated copper conductors | | | | X | X | X | X | X | X | |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 107 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Route | Power Distr. | Fare Collection | ULE | SC & C | Translophs | Depot | Trains |
|---|---|------------|-------|-------|--------------|-----------------|-----|--------|------------|-------|--------|
| BS 4662:1970 (withdrawn, replaced by BS 4662:2006) | Specification for boxes for the enclosure of electrical accessories | | | | X | X | X | X | X | X | |
| BS 4737-4.1:1987 | Intruder alarm systems in buildings. Part 4.1 Codes of practice. Code of practice for planning and installation | | | | X | | | | X | X | |
| BS 5225-1:1975 | Photometric data for luminaires. Part 1 Photometric measurements | | | | X | | | | X | X | |
| BS 5225-3:1982 | Photometric data for luminaires. Part 3 Method of photometric measurement of battery-operated emergency lighting luminaires | | | | X | | | | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 108 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Translapse | Depot | Trams |
|---|---|------------|-------|-------|--------------|-----------------|-----|--------|------------|-------|-------|
| BS 5266-1:1999 | Emergency lighting. Part 1 Code of practice for the emergency lighting of premises other than cinemas and certain other specified premises used for entertainment | | | | X | | | | X | X | |
| BS 5266-3:1981 | Emergency lighting. Part 3 Specification for small power relays (electromagnetic) for emergency lighting applications up to and including 32A | | | | X | | | | X | X | |
| BS 5467:1997 (equivalent to European harmonisation document to be provided) | Specification for 600/1000V and 1900/3300V armoured electric cables having thermosetting insulation | | | | X | | X | | X | X | |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 109 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpigs | Depot | Trans |
|---|--|------------|-------|-------|---------------------------------------|-----------------|-----|--------|-----------|-------|-------|
| BS 546:1950 | 2-pole and earthing-pin plugs, socket-outlets and socket-outlet adaptors. See also Supplement No 1:1960 Specification for plugs made of resilient material | | | | x | | | | x | x | |
| BS 5486-11:1989 (withdrawn, replaced by BS EN 60439) | Low-voltage switchgear and control gear assemblies. Part 11 Specification for particular requirements of fuseboards | | | | (withdrawn, replaced by BS EN 60439)x | | | x | x | x | |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 110 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpats | Depot | Trams |
|---|---|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| BS 5486-12:1989 (withdrawn, replaced by BS EN 60439) | Low-voltage switchgear and control gear assemblies. Part 12 Specification for particular requirements of type-tested miniature circuit-breaker boards | | | | X | | | X | X | X | |
| BS 5499-1:2002 | Graphical symbols and signs. Part 1 Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout | | | | X | | | | X | X | |
| BS 5499-3:1990 | Fire safety signs, notices and graphic symbols. Part 3 Specification for internally-illuminated fire safety signs | | | | X | | | X | X | X | |
| BS 5499-5:2002 | Graphical symbols and signs. Safety signs, including fire safety signs. Part 5 Signs with specific safety meanings | | | | X | | | X | X | X | |
| BS 5649-2:1978 | Lighting columns. Part 2 Dimensions and tolerances | | | X | | | | | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 111 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Buildings | Track | Roads | Power Distr. | Fare Collection | ULE | SC & C | Transpnt | Depot | Trains |
|-------------------|--|-----------|-------|-------|--------------|-----------------|-----|--------|----------|-------|--------|
| BS 5649-5:1982 | Lighting columns. Part 5 Specification for base compartments and cableways | | | X | | | | | X | X | |
| BS 5649-7:1985 | Lighting columns. Part 7 Method for verification of structural design by calculation | | | X | | | | | X | X | |
| BS 5733:1995 | Specification for general requirements for electrical accessories | | | | X | X | X | X | X | X | |
| BS 5839-1:2002 | Fire detection and alarm systems for buildings. Part 1 Code of practice for system design, installation, commissioning and maintenance | | | | X | | | | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 112 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Furn. Collection | OLE | SC & C | Transpigs | Depot | Trams |
|---|---|---------------------|-------|--------------------|--------------|---|-----|--------|-----------|-------|-------|
| BS 6004:2000 (equivalent European harmonisation document to be provided) | Electric cables. PVC insulated, non-armoured cables for voltages up to and including 450/750V, for electric power, lighting and internal wiring | | | | x | (please provide equivalent European harmonisation document) | x | x | x | x | |
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | | DATE 16/04/2008 | | SHEET 113 | | | | | |

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Tram |
|--|---|------------|-------|-------|---------------------------------------|-----------------|--------------------------------|--------|---------|-------|------|
| BS 6121-2:1989 (withdrawn, replaced by BS EN 50262) | Mechanical cable glands. Part 2 Specification for polymeric glands | | | | (withdrawn, replaced by BS EN 50262)x | x | x(withdrawn; refer to "Power") | x | x | x | |
| BS 6133:1995 | Code of practice for safe operation of lead-acid stationary batteries | | | | | | | | x | x | |
| BS 6290-2:1999 | Lead-acid stationary cells and batteries. Part 2 Specification for the high-performance Plant positive type | | | | | | | | x | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 114 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transmitt. | Depot | Trains |
|-------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|------------|-------|--------|
| BS 6290-4:1997 | Lead-acid stationary cells and batteries. Part 4 Specification for classifying valve regulated types | | | | | | | | X | X | |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 115 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distrib. | Fans Collection | GLE | SL & C | Translapse | Depot | Trams |
|--|---|------------|-------|-------|--|-----------------|-----|--------|------------|-------|-------|
| BS 6346:1997 (equivalent european harmonisation document to be provided) | 600/1000V and 1900/3300V armoured electric cables having PVC insulation | | | | x(please provide equivalent european harmonisation document) | x | x | x | x | x | |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 116 |

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpigs | Depot | Trams |
|--|---|------------|-------|-------|---------------------------------------|-----------------|--------------------------------|--------|-----------|-------|-------|
| BS 6651:1999 (withdrawn, replaced by BS EN 62305) | Code of Practice for protection of structures against lightning | x | | | (withdrawn, replaced by BS EN 62305)x | x | x(withdrawn; refer to "Power") | x | x | x | |
| BS 6701:1994 | Code of Practice for installation of apparatus intended for connection to certain telecommunication systems | | | | x | x | x | x | x | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 117 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | SC & C | Translophs | Depot | Trams |
|---|---|------------|-------|-------|--------------|-----------------|-----|---------------------------------------|------------|-------|-------|
| BS 6724:1997 (equivalent european harmonisation document to be provided) | 600/1000V and 1900/3300V armoured electric cables having thermosetting insulation and low emission of smoke and corrosive gases when affected by fire | | | | x | x | x | x | x | x | |
| BS 7001:1988 | Interchangeability and safety of a standardized luminaire supporting coupler | | | | | | | | x | x | |
| BS 7211:1998 (equivalent european harmonisation document to be provided) | Thermosetting insulated cables (non-armoured) for electric power and lighting with low emission of smoke and corrosive gases when affected by fire | | | | x | x | x | (ref er to "Po wer ")x | x | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 118 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Signalling | Track | Roads | Power Distr. | Fare Collection | OLE | EC & C | Transpnt | Depot | Trams |
|---|---|------------|-------|-------|--------------|-----------------|-----|--|----------|-------|-------|
| BS 7430:1998 | Code of practice for earthing | x | | | x | x | x | | x | x | |
| BS 7654:1997 | Single phase street lighting fuses (cut-outs) for low-voltage public electricity distribution systems. 25A rating for highway power supplies and street furniture | | | x | | | | | x | x | |
| BS 7671:2001 | Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition | | | x | x | x | x | x | x | x | |
| BS 7919:2001 (equivalent european harmonisation document to be provided) | Electric cables. Flexible cables rated up to 450/750V, for use with appliances and equipment intended for industrial and similar environments | | | x | x | x | x | x(r efe r to "Po wer ") | x | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 119 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Trains |
|--------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| BS EN 12613:2001 | Plastic warning devices for underground cables and pipelines with visual characteristics | | | X | X | X | X | X | X | X | |
| BS EN 40-1:1991 | Lighting columns. Part 1 Definitions and terms | | | X | | | | | X | X | |
| BS EN 40-3-1:2000 | Lighting columns. Part 3-1 Design and verification. Specification for characteristic loads | | | X | | | | | X | X | |
| BS EN 40-3-2:2000 | Lighting columns. Part 3-2 Design and verification. Verification by testing | | | X | | | | | X | X | |
| BS EN 40-5:2002 | Lighting columns. Part 5 Requirements for steel lighting columns | | | X | | | | | X | X | |
| BS EN 40-6:2002 | Lighting columns. Part 6 Requirements for aluminium lighting columns | | | X | | | | | X | X | |
| BS EN 50085-1:1999 | Cable trunking and cable ducting systems for electrical installations. Part 1 General requirements | | | X | X | X | X | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 120 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SC & C | Transpots | Depot | Trams |
|----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| BS EN 50085-2-3:2001 | Part 2-3 Particular requirements for slotted cable trunking systems intended for installation in cabinets | | | | X | X | X | X | X | X | |
| BS EN 50086-2-1:1996 | Conduit systems for cable management. Part 2-1, Particular requirements. Rigid conduit systems | | | | X | X | X | X | X | X | |
| BS EN 50171:2001 | Central power supply systems | | | | X | X | X | X | X | X | |
| BS EN 50173-1:2002 | Information technology. Generic cabling systems. General requirements and office areas | | | | X | X | X | X | X | X | |
| BS EN 50174-1:2001 | Information technology. Cabling installation. Part 1 Specification and quality assurance | | | | X | X | X | X | X | X | |
| BS EN 50174-2:2001 | Information technology. Cabling installation. Part 2 Installation planning and practices inside buildings | | | | X | X | X | X | X | X | |
| BS EN 50262:1999 | Metric cable glands for electrical installations | | | | X | X | X | X | X | X | |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 121 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Buildings | Track | Roads | Power Distr. | Furn. Collection | OLE | SC & C | Transp. | Depot | Tram |
|-------------------|--|-----------|-------|-------|--------------|------------------|-----|--------|---------|-------|------|
| BS EN 50310:2000 | Application of equipotential bonding and earthing in buildings with information technology equipment | | | | X | X | X | X | X | X | |
| BS EN 54-10:2002 | Fire detection and fire alarm systems. Part 10 Flame detectors. Point detectors | | | | X | | | | X | X | |
| BS EN 54-11:2001 | Fire detection and fire alarm systems. Part 11 Manual call points | | | | X | | | | X | X | |
| BS EN 54-1:1996 | Fire detection and fire alarm systems. Part 1 Introduction | | | | X | | | | X | X | |
| BS EN 54-2:1998 | Fire detection and fire alarm systems. Part 2 Control and indicating equipment | | | | X | | | | X | X | |
| BS EN 54-3:2001 | Fire detection and fire alarm systems. Part 3 Fire alarm devices. Sounders | | | | X | | | | X | X | |
| BS EN 54-4:1998 | Fire detection and fire alarm systems. Part 4 Power supply equipment | | | | X | | | | X | X | |
| BS EN 54-5:2001 | Fire detection and fire alarm systems. Part 5 Heat detectors. Point detectors | | | | X | X | | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 122 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | SC & C | Transp. | Depot | Trans |
|--------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|-------|
| BS EN 54-7:2001 | Fire detection and fire alarm systems. Part 7 Smoke detectors. Point detectors using scattered light, transmitted light or ionization | | | | X | | | | X | X | |
| BS EN 55015:2001 | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment | | | | | | | X | X | X | |
| BS EN 60051-1:1999 | Direct acting indicating analogue electrical measuring instruments and their accessories. Part 1 Definitions and general requirements common to all parts | | | | X | | | | X | X | |
| BS EN 60081:1998 | Double-capped fluorescent lamps. Performance specifications | | | | X | | | | X | X | |
| BS EN 60188:2001 | High-pressure mercury vapour lamps. Performance specifications | | | | | | | | X | X | |
| BS EN 60269-1:1999 | Low-voltage fuses. Part 1 General requirements | | | | X | X | X | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 123 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | SC & C | Transp. | Depot | Trains |
|--------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| BS EN 60400:2000 | Lamp holders for tubular fluorescent lamps and starter holders | | | | X | | | | X | X | |
| BS EN 60432-2:2000 | Safety specification for incandescent lamps. Part 2 Tungsten halogen lamps for domestic and similar general lighting purposes | | | | X | | | | X | X | |
| BS EN 60439-1:1999 | Specification for low-voltage switchgear and control gear assemblies. Part 1 Type-tested and partially type-tested assemblies | | | | X | X | | X | X | X | |
| BS EN 60439-2:2000 | Specification for low-voltage switchgear and control gear assemblies. Part 2 Particular requirements for busbar trunking systems (busways) | | | | X | X | | X | X | X | |
| BS EN 60439-3:1991 | Part 3 Particular requirements for low-voltage switchgear and control gear assemblies for installation in places where unskilled persons have access to their use. | | | | X | X | | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 124 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Tram |
|-----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|------|
| BS EN 60439-4:1991 | Part 4 Particular requirements for assemblies for construction sites (ACS) | | | | X | X | X | X | X | X | |
| BS EN 60439-5:1996 | Part 5 Particular requirements for assemblies intended to be installed outdoors in public places. Cable distribution cabinets (CDCs) for power distribution in networks | | | | X | X | X | X | X | X | |
| BS EN 60454-1:1995 | Pressure-sensitive adhesive tapes for electrical purposes. Part 1 General requirements | | | | X | X | X | X | X | X | |
| BS EN 60529:1992 | Degrees of protection provided by enclosures (IP code) | | | | X | X | X | X | X | X | |
| BS EN 60598-1:2000 | Luminaires. Part 1 General requirements and tests | | | | | | | | X | X | |
| BS EN 60598-2-18:1994 | Luminaires. Part 2-18. Particular requirements. Luminaires for swimming pools and similar applications | | | | | | | | X | X | |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 125 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Tram |
|-----------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|------|
| BS EN 60598-2-22:1999 | Luminaires. Part 2-22. Particular requirements. Luminaires for emergency lighting | | | | | | | | X | X | |
| BS EN 60598-2-23:1997 | Luminaires. Part 2-23. Particular requirements. Extra low voltage lighting systems for filament lamps | | | | | | | | X | X | |
| BS EN 60598-2-2:1997 | Luminaires. Part 2-2. Particular requirements. Recessed luminaires | | | | | | | | X | X | |
| BS EN 60598-2-3:2003 | Luminaires. Part 2-3. Particular requirements. Luminaires for road and street lighting | | | X | | | | | X | X | |
| BS EN 60598-2-5:1998 | Luminaires. Part 2-5. Particular requirements. Floodlights | | | | | | | | X | X | |
| BS EN 60896-2:1996 | Stationary lead-acid batteries. General requirements and methods of test. Part 2 Valve regulated types | | | | | | | | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 126 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpnt. | Depot | Trams |
|--------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| BS EN 60898-1:2003 | Circuit-breakers for overcurrent protection for household and similar installations. Part 1 Circuit-breakers for a.c. operation | | | | X | X | | X | X | X | |
| BS EN 60898-2:2001 | Part 2 Circuit-breakers for a.c. and d.c. operation | | | | X | X | X | X | X | X | X |
| BS EN 60921:1991 | Ballasts for tubular fluorescent lamps. Performance requirements | | | | X | X | X | X | X | X | |
| BS EN 60923:1996 | Auxiliaries for lamps. Ballasts for discharge lamps (excluding tubular fluorescent lamps). Performance requirements | | | | X | X | X | X | X | X | |
| BS EN 60925:1991 | Performance requirements for d.c. supplied electronic ballasts for tubular fluorescent lamps | | | | X | X | X | X | X | X | |
| BS EN 60927:1997 | Auxiliaries for lamps. Starting devices (other than glow starters). Performance requirements | | | | X | X | X | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 127 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Trains |
|----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| BS EN 60929:1992 | a.c. supplied electronic ballasts for tubular fluorescent lamps. Performance requirements | | | | X | X | X | X | X | X | |
| BS EN 60947-2:2003 | Low-voltage switchgear and control gear. Part 2, Circuit-breakers | | | | X | X | X | X | X | X | |
| BS EN 60947-3:1999 | Part 3, Switches, disconnectors, switch-disconnect TBA ors and fuse-combination units | | | | X | X | X | X | X | X | |
| BS EN 60947-4-1:2001 | Part 4-1, Contactors and motor-starters. Electromechanical contactors and motor-starters | | | | X | X | X | X | X | X | |
| BS EN 61008-1:1995 | Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs). Part 1 General rules | | | | X | X | X | X | X | X | |
| BS EN 61008-2-1:1995 | Part 2-1 Applicability of the general rules to RCCBs functionally independent of line voltage | | | | X | X | X | X | X | X | |

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| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 128 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | SL & C | Transpnt. | Depot | Trans |
|----------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| BS EN 61009-1:1995 | Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs). Part 1 General rules | | | | X | X | X | X | X | X | |
| BS EN 61009-2-1:1995 | Part 2-1 Applicability of the general rules to RCBOs functionally independent of line voltage | | | | X | X | X | X | X | X | |
| BS EN 61048:1993 | Capacitors for use in tubular fluorescent and other discharge lamp circuits. General and safety requirements | | | | X | X | X | X | X | X | |
| BS EN 61049:1993 | Capacitors for use in tubular fluorescent and other discharge lamp circuits. Performance requirements | | | | X | X | X | X | X | X | |
| BS EN 61347-2-1:2001 | Lamp control gear. Part 2-1 Particular requirements for starting devices (other than glow starters) | | | | X | X | X | X | X | X | |
| BS EN 61347-2-3:2001 | Lamp control gear. Part 2-3 Particular requirements for a.c. supplied electronic ballasts for fluorescent lamps | | | | X | X | X | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 129 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpots | Depot | Trams |
|----------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| BS EN 61347-2-7:2001 | Lamp control gear. Part 2-7 Particular requirements for d.c. supplied electronic ballasts for emergency lighting | | | | X | X | X | X | X | X | |
| BS EN 61347-2-8:2001 | Lamp control gear. Part 2-8 Particular requirements for ballasts for fluorescent lamps | | | | X | X | X | X | X | X | |
| BS EN 61347-2-9:2001 | Lamp control gear. Part 2-9 Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps) | | | | X | X | X | X | X | X | |
| BS EN 61537:2002 | Cable tray systems and cable ladder systems for cable management | | | | X | X | X | X | X | X | |
| BS EN 61558-1:1998 | Safety of power transformers, power supply units and similar devices. Part 1 General requirements and tests | | | | X | X | X | X | X | X | |
| BS EN 61558-2-9:2003 | Part 2-9 Particular requirements for transformers for Class III handlamps for tungsten filament lamps | | | | X | X | X | X | X | X | |
| BS EN 62035:2000 | Discharge lamps (excluding fluorescent lamps). Safety specifications | | | | X | X | X | X | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 130 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SL & C | Transp. | Depot | Trains |
|----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| BS EN 62040-1-1:2003 | Uninterruptible power systems (UPS). Part 1-1 General and safety requirements for UPS used in operator access areas | | | | X | X | X | X | X | X | |
| BS EN 62040-1-2:2003 | Uninterruptible power systems (UPS). Part 1-2 General and safety requirements for UPS used in restricted access locations | | | | X | X | X | X | X | X | |
| BS IEC 1008-2-2:1990 | Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCCBs). Part 2-2 Applicability of the general rules to RCCBs functionally dependent on line voltage | | | | X | X | X | X | X | X | |
| BS 5489-1:2003 | Code of Practice for the Design of Road Lighting | | | | X | X | X | X | X | X | |
| GM/TT0146 | Lighting of Railway Premises (Railway Group Standards) | | | | | | | | X | X | |
| GI/RT7010 | Lighting of Railway Premises (Railway Group Standards) | | | | | | | | X | X | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 131 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Trains |
|-------------------|---|------------|-------|-------|------------------|-----------------|-----|--------|---------|-------|--------|
| GI/GN7607 | Guidance for Low Voltage Electrical Installations (Railway group guidance notes) | | | | x | x | x | x | x | x | |
| GI/RT7007 | Low Voltage Electrical Installations (Railway Group Standards) | | | | x | x | x | x | x | x | |
| GPGLRP3 | Good Practice – Lighting for Railway Premises | | | | x | | | x | x | x | |
| | | | | | | | | | | x | |
| EN50121 Pts 1-5 | Railway applications electromagnetic compatibility | | | | x | x | x | x | x | x | |
| 2004/40/EC | European directive | | | | x | | | x | | x | |
| EN50128: 2001 | Railway Applications – Communications, signalling and processing systems – software for railway control and protection systems. | | | | (not applicable) | | | x | | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 132 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpigs | Depot | Trams |
|-------------------|---|------------|-------|-------|-------------------|-----------------|-----|--------|-----------|-------|-------|
| ENV50129: 1998 | Safety related electronic systems for signalling. | | | | (not applicable)x | | | x | | x | |
| IEC61508: 1998 | Functional safety of electrical/electronic/programmable electronic safety related systems. | | | | | | | x | | x | |
| | Methods for assessing the safety integrity of safety related software of uncertain pedigree (SOUP), Health and Safety Executive | | | | (not applicable)x | | | x | | x | |
| | Edinburgh Tram Earthing Systems Policy | x | x | | x | x | x | x | x | x | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 133 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | SC & C | Transitsys | Depot | Trains |
|-------------------|---|------------|-------|-------|-------------------|-----------------|-----|--------|------------|-------|--------|
| EN50128: 2001 | Railway Applications – Communications, signalling and processing systems – software for railway control and protection systems. | | | | (not applicable)x | x | x | x | x | x | |
| IEC61508: 1998 | Functional safety of electrical/electronic/programmable electronic safety related systems. | | | | (not applicable)x | | | x | | | |
| MPT 1331 | Code of Practice for Radio Site Engineering | | | | | | | x | | | |
| MPT 1362 | Code of Practice for installation of mobile radio equipment in land based vehicles | | | | | | | x | | | |
| MPT 1327 | A Signalling Standard For Trunked Private Land Mobile Radio Systems (June 1997) | | | | | | | x | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 134 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Route | Power Distr. | Fare Collection | ULE | SC & C | Translopts | Depot | Tram |
|-------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|------------|-------|------|
| G1/RT7015 | Railway Group Standard (Feb 2003) | | | | | X | | | | | |
| BS EN50126 | Railway applications- The specification and demonstration of Dependency, Reliability, Availability, Maintainability and Safety, | | X | | X | X | X | X | X | X | X |
| BS EN50149 | Railway applications – Fixed installation- Copper and Copper alloy grooved contact wire, | | | | | | X | | | | |
| BS EN50119 | Railway applications - Fixed installation- electric traction-Overhead Lines. | | | | | | X | | | | |
| BS EN50206-2 – | Pantographs for Light Rail vehicles | | | | | | X | | | | |
| BS EN50125-1 | Railway applications - Fixed installations, Environmental conditions | | | | | | X | | | | |
| BS EN50317, | Railway applications - Fixed installations, Requirements for and validation of measurements of dynamic interaction between pantograph and contact line | | | | | | X | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 135 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transpuls | Depot | Trams |
|-------------------|--|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|-------|
| BS EN50151 | Railway applications - Fixed installations, Special requirements for composite insulators | | | | | | X | | | | |
| BS EN50345 | Railway applications - Fixed installations, Insulating synthetic rope assemblies for support of overhead contact lines | | | | | | X | | | | |
| BS EN50318 | Railway applications - Fixed installations, validation of the simulation of dynamic interaction between pantograph and contact line | | | | | | X | | | | |
| | | | | | | | | | | | |
| BS EN 50122-1 | Railway Applications – Fixed Installations Part 1: Protective provisions relating to electrical safety and earthing | | | | X | | X | | | | |
| BS EN 50122-2 | Railway Applications – Fixed Installations Part 2: Protective provisions against the effects of stray currents caused by d.c. traction systems | | | | X | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 136 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transp. | Depot | Tram |
|------------------------|--|------------|-------|-------|-------------------|-----------------|-----|--------|---------|-------|------|
| BS EN 60146 | Semiconductor convertors – General requirements and line commutated convertors | | | | x | | | | | | |
| BS EN 50123 | Railway Installations – Fixed installations – d.c. switchgear | | | | x | | | | | | |
| IEC 850 (IEC 60850) | Supply voltages for traction systems | | | | | | | | | | |
| BS 2618 | British Standard Specification for Electrical Traction Equipment | | | | (not applicable)x | | | | | | |
| BS 6290 | Batteries | | | | x | | | | | | |
| BS 7354 | Battery Duty Calculations. | | | | x | | | | | | |
| CP 1013 | Earthing. | | | | x | | | | | | |
| BRB Spec. DC 112 | DC Power Cables. | | | | x | | x | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 137 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | QLE | SL & C | Transit | Depot | Trains |
|------------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| BS 6360 (IEC 60228) | Cable Conductors. | | | | X | | X | | | | |
| BS 6899 Type GP2 | DC Power Cable Insulation. | | | | X | | X | | | | |
| IEC 228 (BS 6360) | Conductors for Multicores. | | | | X | | X | | | | |
| DMRB | The United Kingdom Design Manual for Roads and Bridges (as amended by any City of Edinburgh Council -specific requirements) | X | | X | | | | | | | |
| TSM | Traffic Signs Manual | | | X | | | | | | | |
| MCDHW | The Manual of Contract Documents for Highway Works; | | | X | | | | | | | |
| SHW | Specification for Highway Works; | | | X | | | | | | | |
| HCD | Highway Construction Details. | | | X | | | | | | | |
| CEC | 'Edinburgh Standards for Streets'. | | | X | | | | | | | |
| NRSAWA | New Roads and Street Works Act 1991 | | | X | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 138 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | SC & C | Transpats | Depot | Trains |
|------------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-----------|-------|--------|
| CEC | Measures Necessary Where Apparatus is Affected by Major Works (Diversionary Works) | | | X | | | | | | | |
| CEC | Specification for the Reinstatement of Openings in Roads | | | X | | | | | | | |
| | Code of Practice for the Co-ordination of Street Work and Works for Road Purposes and Related Matters | | | X | | | | | | | |
| | Utility specific specifications (to be advised by each utility) | | | X | | | | | | | |
| | | | | | | | | | | | |
| RSPG Part 1, 1966 | Railway Safety Principles and Guidance, Safety Principles | X | X | X | X | X | X | X | X | X | X |
| RSPG Part 2, Section G | 2005, Railway Safety Principles and Guidance, Tramways | X | X | X | X | X | X | X | X | X | X |
| RVAR | Railway Vehicle Accessibility Regulations | | | | | | | | X | | X |
| GM/RC1500 | 1994-12, 2001-10 Code of Practice for EMC between the railway and its neighbourhood | | | | X | X | X | X | X | X | X |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 139 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ULE | EC & C | Transit | Depot | Trains |
|-------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|---------|-------|--------|
| EN55013 | Sound and television broadcast receivers and associated equipment. Radio disturbance characteristics. Limits and methods of measurements. | | | | | | | X | | X | X |
| GE/RT8015, 2002 | Electromagnetic compatibility between railway infrastructure and trains. | | | | | | | | | | X |
| ECE 43 | 1990-08, Uniform Provisions Concerning the Approval of Safety Glazing and Glazing Materials (Rev1 08.1990). | | | | | | | | X | X | X |
| prEN13129-3 | 2003-10, Railway Applications – Air conditioning for urban and suburban rolling stock – Part 1: Comfort parameters | | | | | | | | | | X |
| BS EN 779 | 2002-12-05, Particulate air filters for general ventilation - Determination of the filtration performance | | | | | | | | | X | X |
| BS 857 | 1967-06-30, Specification for safety glass for land transport | | | | | | | | | | X |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 140 |

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | OLE | SC & C | Transitsys | Depot | Trains |
|-------------------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|------------|-------|--------|
| BS 6853 1999-01-15 | Code of Practice for fire precautions in the design and construction of passenger carrying trains or European equivalent Standard | | | | | | | | | | X |
| BS EN 50121-3-1 2000-12-15 | Railway Applications - Electromagnetic compatibility - Rolling stock - Train and complete vehicle | | | | | | | | | | X |
| BS EN 50125-1 | Railway Applications – Environmental conditions for equipment | | | | | | | | | | X |
| BS EN 50155-3-1 2000-12-15 | Railway Applications – Electronic Equipment used on Rolling Stock | | | | | | | | | | X |
| BS EN 50215 1999-09-15 | Railway Applications - Testing of rolling stock after completion of construction and before entry into service | | | | | | | | | | X |
| BS EN 60077-1 2002 | Railway Applications – Electric Equipment for Rolling Stock | | | | | | | | | | X |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 141 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network - Employer's Requirements

Section 8 – Standards

| Specification No. | Specification Title | Structures | Track | Roads | Power Distr. | Fare Collection | ATC | SC & C | Translators | Depot | Trains |
|-----------------------|---|------------|-------|-------|--------------|-----------------|-----|--------|-------------|-------|--------|
| prEN ISO 3095 1975-09 | Acoustics; Measurement of noise emitted by rail bound vehicles | | | | | | | | | | X |
| prEN ISO 3381 1976-02 | Acoustics; Measurement of noise inside rail bound vehicles | | | | | | | | | | X |
| EN 12663-2000 | Railway applications, Structural requirements of railway vehicle bodies | | | | | | | | | | X |
| EN 13749-2005 | Methods of specifying structural requirements of bogie frames | | | | | | | | | | X |
| VDV 164 1995-04 | System for fault detection, fault registration and fault message (FERM) on guided public transport vehicles | | | | | | | | | | X |
| IEC 60494-2, 2002-08 | Railway applications - Rolling stock; Pantographs; Characteristics and tests - Part 2: Pantographs for metros and light rail vehicles | | | | | | X | | | | X |

Table 24 - Applicable Standards

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 142 |

9 Geotechnical

Where the Infraco Works may affect geotechnical and geo-environmental features, including but not limited to, aquifers, ground water and surface watercourses, the Infraco shall comply with the requirements of relevant third parties, the Scottish Environment Protection Agency (SEPA) or other statutory consultees and environmental legislation.

The Infraco shall agree the criteria and methods for the identification, classification, treatment and disposal of material with SEPA, the relevant local environmental health authority or other relevant authority as appropriate. The Infraco shall obtain all necessary consents for the removal, disposal or re-use of materials. Materials not suitable for re-use shall be transported off Site to a licensed facility in accordance with the requirements of the applicable relevant authority and environmental legislation.

The Infraco shall not carry out works or activities which would result in any Site or any land licensed to the Infraco under the Agreement or any adjacent or adjoining property being classified as contaminated land under the Environmental Protection Act 1990, the Contaminated Land (Scotland) Regulations 2000, the Contaminated Land (Scotland) Regulations 2005 and the guidance contained in the Scottish Executive Statutory Guidance for the the Contaminated Land Regime, Edition 2 dated May 2006 and/or any similar environmental legislation, or that would preclude such a classification being removed.

The Infraco shall assess the risk of the ingress of landfill gases, coalfield gases and other hazardous ground gases and implement appropriate measures to mitigate such risks.

The Infraco Works shall be designed and constructed to accommodate reasonably foreseeable changes in the existing and potential future nature and level of ground water, where reasonably practicable.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 143 |

10 Environment

10.1 Environmental Considerations

10.1.1 General

Environmental Statements have been prepared for Line One and Line Two in accordance with the standing orders of the Scottish Parliament, which require that projects approved by private Act of Parliament must be subject to Environmental Impact Assessment (EIA). EIA in Scotland is governed by the Environmental Impact Assessment (Scotland) Regulations 1999 (S.I. 1999 No. 1). The Environmental Impact Assessments (EIAs) have been undertaken to identify the construction and operational effects of building and operating a tram network in Edinburgh. Each assessment has been documented in a comprehensive Environmental Statement which describes:

- The design of the project and the way it will be constructed and operated;
- Its impacts on the physical, natural and human environment; and
- The measures that will be undertaken to minimise these impacts.

The Environmental Statements report the assessment of the following environmental topics which should be considered by the Infraco:

- The proposed scheme – including an explanation of the need for the scheme, alternatives considered, route alignment and infrastructure description, construction and operational activities;
- Approach to the EIA – summarising the legal requirements, scope and methods used in undertaking this EIA;
- Policy context – provides a review of compliance of Line One and Line Two to relevant national, regional and local policies;
- Traffic and transport;
- Land use - including potential impacts to the agricultural use of land along the route;
- Geology, soils and contamination – including references to hydrogeology and waste management;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 144 |

- Landscape and visual amenity;
- Ecology and nature conservation;
- Surface water – including water quality and hydrology;
- Heritage - including archaeology;
- Socio-economic effects;
- Noise and vibration;
- Air quality - including local air quality (PM10, NO2), global air quality (CO2) and dust; and
- Cumulative impacts.

The Infraco shall ensure that the environmental impact caused by the Infraco Works shall be no worse than that contained in the Environmental Statements.

10.1.2 Freedom of Access to Environmental Information

The attention of the Infraco is drawn to the requirements of the Environmental Information (Scotland) Regulations 2004 (SSI 2004/520). This Statute permits public access to environmental information held by a Scottish public authority.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 145 |

10.1.3 Relevant Legislation, Regulations and Guidance

The following are a series of project specific documentation governing various aspects of the environmental considerations of the Edinburgh Tram Network design, construction and operation.

10.1.4 Code of Construction Practice

A code of construction practice was prepared in consultation with the City of Edinburgh Council (CEC), Scottish Natural Heritage (SNH), the Scottish Environmental Protection Agency (SEPA) and Historic Scotland, in order to define tie's minimum standards of construction practice. Compliance with this code is a legal requirement of the Edinburgh Tram (Line One) and (Line Two) Acts (2006) under Section 66 and this code has been developed by tie and this developed version is included in Schedule 3 (Code of Construction Practice and Code of Maintenance Practice).

The Code of Construction Practice sets out policies, legislation and guidance relating to the impact of the proposed construction works on the environment and the amenity and safety of residents, businesses, the general public and the physical surroundings adjacent to the ETN. The Code of Construction Practice also provides a list of environmental protection measures to be implemented during the construction of the ETN.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 146 |

10.1.5 tie's Noise and Vibration Policy

tie's Noise and Vibration Policy (NVP/001 V1.01) sets out the mitigation approach for noise and vibration impacts during the operation of the Tram in Edinburgh. Mitigation requirements relating to noise and vibration impacts during the construction of the ETN route are outlined in the Code of Construction Practice. Compliance with the Noise and Vibration Policy is a legal requirement under Section 66 of the Edinburgh Tram (Line One) and (Line Two) Acts (2006). Other legal requirements relating to noise insulation are set out in Sections 63, 64 and 65 of the respective Acts. The Noise and Vibration Policy is included in Schedule 32 (tie and CEC Policies).

10.1.6 The Tram Design Manual and Urban Design Briefs

A Design Manual and urban design briefs have been prepared for the ETN. Both sets are regarded as supplemental guides to deemed consent for Line One and Line Two under the section 11 (Class 29) of the General Permitted Development (Scotland) Order 1992.

Although permitted development status exists for the ETN it is nonetheless necessary to gain prior approval from the City of Edinburgh Council before the Infraco Works can commence. The Design Manual and urban design briefs are both designed as guides in informing both the design process and the prior approval process. It is therefore important that the Infraco gives appropriate consideration to the contents of the Design Manual and the briefs as major component in the integration of a tram design into the urban fabric of the City.

10.1.7 Landscape and Habitat Management Plan

The Landscape and Habitat Management Plan (LHMP) details the proposals for retention, protection and enhancement of existing planting and habitats, within the Roseburn Corridor. It also sets out details of replacement planting and habitat which are lost as a consequence of the development. The plan will be updated by the Infraco as new information on habitat, landscape proposals and Tram design becomes available. The plan will also include proposals for noise mitigation for properties adjacent to the ETN. Revisions to the LHMP will require to be approved by the City of Edinburgh Council Planning Authority. The procedure for updating the LHMP is set out within Section 68 of the Edinburgh Tram (Line One) Act (2006).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 147 |

10.1.8 Badger Mitigation Plan

The Badger Mitigation Plan sets out the scope and form of the proposed mitigation measures for avoiding/ reducing adverse impacts on badgers within the Roseburn Corridor. The Plan will be updated by the Infraco as new information on badger social groups and the ETN design becomes available. Revisions to this Plan will be agreed with SNH, CEC and the Edinburgh and Lothians Badger Group (ELBG) and approved by the CEC Planning Authority.

In preparing the detailed environmental design and implementation (including maintenance and monitoring periods) proposals for landscape and ecology the Infraco will ensure that all commitments given in the Environmental Statement and arising from the Scottish parliamentary process relating to the Tram Legislation (including the detailed agreements following discussions with stakeholders) are met.

10.1.9 Protected Species Plan

The Protected Species Plan identifies the constraints governing how all protected species (predominantly located in the Gogarburn area) are to be dealt with.

10.1.10 Archaeological Requirements

All Infraco Works are to be carried out in compliance with the approved AHMP relevant to that location.

10.1.11 Landscape Design

The landscape design shall include, for construction, aftercare and maintenance / monitoring, ongoing for the whole Term. The detailed landscape design shall be in accordance with the environmental objectives, principles and requirements given in the Environmental Statements, to ensure that the Edinburgh Tram Network as constructed and operated is in compliance with the Environmental Statements, and any subsequent side agreements entered into between the CEC, tie and various third parties.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 148 |

10.2 Ecological Design

The ecological design shall include, for construction, aftercare maintenance and monitoring; the ecological mitigation proposals will cover the wholeTerm.

The ecological design shall be in accordance with the environmental objectives, principles and requirements given in the Environmental Statements, to ensure that the Edinburgh Tram Network as constructed and operated is in compliance with the Environmental Statements prepared for Parliament, and any subsequent side agreements entered into between the CEC, tie and various third parties (e.g. Scottish Natural Heritage, New Ingliston Limited, Edinburgh and Lothian Badger Group).

The updated and ongoing ecological surveys and mitigation works to be carried out by Infraco shall take into account seasonal constraints and variations and will accommodate ongoing relevant surveys begun by other parties (e.g. biological water quality monitoring). The Infraco shall ensure that the construction, maintenance and monitoring of the Infraco Works complies with all existing UK and EU Environmental legislation concerned with the protection of species and habitats including but not limited to:

- Wildlife and Countryside Act 1981 (as amended in particular by Variation of Schedules 1988, 1992 & 1998);
- The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended);
- Protection of Badgers Act 1992; and
- Countryside and Rights of Way Act 2000 in so far as it extends to Scotland.

The Infraco shall not commence works within any part of the Site until the necessary update surveys of ecological interest in respect of that part of the Site have been undertaken and a survey report has been submitted to tie. Any relevant findings of such surveys shall be included into the Infraco's Landscape and Habitat Management Plan and the Construction Environmental Management Plan (CEMP).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 149 |

The Infraco shall ensure that:

- Details of all species protected by Law and any structure or place used for shelter or protection by any such species protected by Law within the Site are kept confidential and not disclosed to any person except insofar as is essential for carrying out the Infraco Works; and
- All necessary current licenses, and named license holders, are available before the commencement of any Infraco Works, which may affect species protected by Law and or any structure or place used for shelter or protection by any such species protected by Law.

In the event that the Infraco identifies or becomes aware of any species protected by Law, or any structure or place used for shelter or protection by any species also protected by Law, which could be directly or indirectly affected by the Infraco Works and for which appropriate protection measures have not previously been agreed, the Infraco shall notify tie immediately and shall:

- Cease all Infraco Works that may adversely affect such species, structure or place;
- Provide Scottish Natural Heritage and tie with any further information of which the Infraco is aware relating to such species, structure or place as may be requested;
- Consult upon and agree mitigation and/or monitoring measures with Scottish Natural Heritage and tie in relation to such species, structure or place; and
- Obtain any necessary licenses to carry out the agreed measures.

The Infraco shall ensure that all construction work is carried out with due regard to the seasonal interests of any flora, fauna or habitat and in particular, all species listed for any degree of protection under Law. The Infraco shall make due allowance for the seasonal constraints in preparing the Programme.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 150 |

10.3 Construction of Ecological Measures

10.3.1 General

Special ecological measures shall include but not be limited to the requirements for carrying out the Infraco Works:

- fencing;
- safe passage for wildlife;
- the location of nesting or roosting boxes;
- the location of habitat creation measures to be inspected;
- the known location of protected species, and
- the list of licenses obtained or required for working with or within the vicinity of Protected Species; and
- maintaining access to foraging and water.

10.3.2 Site Supervision of Landscape and Ecological Works

The Infraco shall ensure that the environmental Site works shall be inspected and monitored by Infraco's environmental clerk of works who will be supported by Infraco's landscape architect and ecologist, as necessary.

10.3.3 Landscape Works

Planting, seeding and aftercare works shall be carried out by the Infraco.

The Infraco will be responsible for locating all services routes prior to any landscape work being carried out.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 151 |

10.3.4 Completion of the Planting Works and Completion of the Landscape and Ecological Aftercare Works

On practical completion of the landscape and ecological implementation works and on completion of the three years landscape and ecological aftercare works. The Infraco shall submit the required certificates and arrange a formal inspection of the Infraco Works with tie.

A separate inspection shall be arranged with relevant landowners for any areas of off-site planting.

10.3.5 Construction Environmental Management Plan (CEMP)

The Infraco shall prepare a Construction Environmental Management Plan (CEMP) including specific management / action plans or Method Statements, as necessary, to convey the required level of information for the following:

- Drainage features, including oil interceptors and pollution control valves, treatment of run-off, (including run-off volumes) and the location and appearance of any balancing ponds and/or swales, access or proposed access to the same;
- Carriageway surfacing;
- Working times;
- Noise reduction and abatement;
- Pollution control and contingency plan (see below);
- Discharge, land drainage and abstraction licenses to comply with EA requirements;
- Protection of retained vegetation;
- Maintenance e.g. de-icing;
- Sourcing of construction materials;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 152 |

- Waste disposal, including disposal of construction waste, arisings, spoil, miscellaneous solids and liquids;
- Topsoil and subsoil handling (strip, storage, amelioration and re-use);
- Management and disposal of any excess soil or spoil arising from the works; and
- Site compounds.

The specific requirements of the pollution control and contingency plan are as follows:

- Compliance with the SEPA pollution prevention guidance;
- Identification and categorisation of surface waters vulnerable to Site works and an assessment of the earthworks that are likely to give rise to silty run off, the routes this is likely to take and the methods to prevent damage from silt;
- Precautions for handling of fuel, oil and other liquids during the works, in particular, near rivers, streams and watercourses;
- Requirements for pollution control equipment;
- How mud and dust will be controlled;
- How water supply boreholes and wells will be protected;
- The measures to be taken to protect watercourses and associated wildlife from, for example, chemical spillages or the introduction of sediment-laden run off; and
- Discharge criteria for suspended solids in run off from the Site during construction and proposals for monitoring and control.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 153 |

11 Surveys

Surveys and investigations shall be undertaken by the Infraco as required to facilitate the design, construction and maintenance of the Edinburgh Tram Network.

Before commencing any Infraco Works (including investigations) where either the Infraco or tie considers there to be potential for a future claim from adjacent property owners or occupiers, the Infraco shall carry out a detailed condition inspection of the relevant properties and infrastructure which may be affected by the Infraco Works. If any such inspection is carried out, this shall be done in conjunction with the owners or occupiers concerned. A condition survey report shall then be prepared and agreed with the owner or occupier.

Condition survey reports prepared under the preceding paragraph shall include photographic evidence of the existing condition of the relevant property or infrastructure including evidence of critical dimensions such as existing crack widths.

The Infraco shall undertake sufficient surveys to prepare a topographical survey model. Relevant sections of the topographical survey model shall be updated by the Infraco at least every six months throughout the period of the Infraco Works, where work has been undertaken in relation to the sections concerned.

The topographical survey model shall include all Works as constructed and the Infraco shall include in each updated topographical survey model all then existing fixtures including:

- principal cabling;
- street furniture;
- structures and buildings;
- trackwork;
- drainage;
- power supply systems including OLE structures;
- ducting and draw pits.

These surveys shall include aspects concerned with:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 154 |

- dimensions
- condition; and
- inspection for assessment.

The Infraco shall update the photographic records (excluding aerial photographs) and other such data contained in the topographical survey model at intervals of not less than six months.

The Infraco shall provide access to and copies of, when requested, all reports of investigations carried out as part of the Infraco Works.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 155 |

12 Project Management Processes

12.1 Communication – General

The Infraco shall develop and maintain a "Communications Plan" and this shall be submitted to **tie** in accordance with the Review Procedure.

The Communications Plan shall illustrate how all the communication processes, activities and issues are to be managed, progressed and satisfactorily resolved. The Communications Plan shall detail how the Infraco will communicate with Sub-Contractors, the Operator, **tie**, the MUDFA Contractor, key stakeholders and third parties. The Communications Plan shall also include the intended processes for dealing with enquiries, particularly complaints, from all sources. The Infraco shall refer to the Stakeholder Services in this Section of the Employer's Requirements, in order to ensure that the Communications Plan includes all necessary requirements.

The Infraco shall implement all the requirements of the Communications Plan.

The Infraco shall liaise with the relevant parties to ensure that the Infraco is copied into all relevant communications that are generated by others, in order to ensure that any relevant construction related issues, such as Temporary Works and practical constraints, are identified and addressed.

12.1.1 Meetings

The Infraco shall work with **tie** to develop the meetings schedules and requirements for progress reporting throughout the duration of the Infraco Works. The following table provides an outline of the minimum requirements:

| Meetings | Frequency | Chaired by / Minutes taken |
|----------------------------|--|---------------------------------|
| Safety Meeting | Weekly | Infraco |
| Management Review Meetings | Two monthly | tie /Infraco alternately |
| Project Progress Meetings | Four weekly (Fortnightly prior to Site start) | tie |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 156 |

| Meetings | Frequency | Chaired by / Minutes taken |
|------------------------------------|-------------|----------------------------|
| Design and Planning Meetings | Fortnightly | Infraco |
| Stakeholder & Third Party Meetings | As required | tie |
| Site Meetings | Weekly | Infraco |
| Cost Review Meetings | Four weekly | tie |
| Risk Review Meetings | Four weekly | tie |

Table 25 - Table showing meeting schedules

The primary purpose of these meetings shall be to enable the Infraco to advise on:

- Any safety issues;
- The current state of the programmed Infraco Works;
- Progress made in the various activities;
- Communication issues;
- Third party issues; and
- Commercial issues (Including change control).

The Infraco shall develop and maintain a comprehensive meetings schedule indicating those meetings which the Infraco shall chair and those meetings which the Infraco shall attend.

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|-------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 157 |

Prior to commencement on Site, progress meetings shall be held every two weeks. The purpose of these meetings shall be to review progress made by both Parties, and identify and agree actions required.

The Infraco shall provide an agenda, for all meetings to which they are designated as chair. The Infraco shall also provide appropriate documentation in advance of each of the meetings, as defined in the following sections, or otherwise as agreed with tie.

12.1.2 Progress Reporting

Progress reports shall be submitted by the Infraco to tie no later than three Business Days before each progress meeting.

The Infraco's progress reports shall contain comprehensive information and shall be structured in a manner which is commensurate with tie's own reporting structure. The various sections of the progress reports shall require to be agreed with tie, but should include the following:

1. Executive Summary;
2. Health & Safety Report;
3. Quality & Environment;
4. Financial Summary Report; and
5. Project Performance / Programme.

Information provided within the progress reports shall include, but not be limited to, the following:

- Health & safety report including a summary of H&S records
- Summary financial information summarised from the separate cost report including summary and headline data on planned spend/actual spend, forecast spend and summary of costs for Compensation Events and future forecast.
- Planned versus actual resource summary;
- Physical progress against Milestones anticipated/required completion dates;

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 158 |

- Four weekly forecast of all activities;
- Eight weekly critical impact notice (including all information on any internal or external factor which may affect programme delivery);
- Labour histograms detailing planned, actual and forecast across all disciplines;
- The activities commenced or completed since the previous report and upon what dates;
- The expected remaining duration of all activities commenced but not completed;
- Any other additional activities with expected durations, methods, and resource requirements and sequence assumptions;
- Schedule and programme for the delivery of method statements, permits and isolations for the next four weeks;
- Any changes to expected durations, method, resource requirements and sequence assumptions;
- Forecast completion dates for all Infraco Works in each geographical section and intermediate geographical section including any slippage or advance upon the Planned Service Commencement Date and/or the Planned Sectional Completion Dates (as appropriate);
- Programme comparison between actual vs. planned;
- Schedule of information received;
- Schedule of outstanding information;
- Progress photographs;
- Top 10 opportunities; and
- Top 10 risks.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 159 |

12.1.3 Progress Photos

The Infraco shall on a monthly basis throughout the period until the Service Commencement Date procure that photographs covering all of the Infraco Works are taken by a professional photographer whose appointment the Project shall be approved by tie, such approval not to be unreasonably withheld or delayed.

tie shall determine the scope of the photographs referred above.

The Infraco shall ensure that:

- A minimum of 50 digital colour photographs shall be taken on a monthly basis;
- All photos shall be provided in electronic format in a form to be agreed with tie;
- One set of 10 inch x 8 inch size prints shall be prepared from the colour photographs referred to above;
- All prints referred to above shall be presented in albums with individual clear plastic wallets and marked on the reverse side with the date that the photograph was taken, the name and address of the photographer, identification reference number and a brief description of Work being undertaken and the direction from which the photograph was taken;
- All prints and negatives shall be delivered to tie within two weeks of being taken; and
- Except where tie have provided their prior written consent, the photographs shall not be used for any purpose other than as set out in the Agreement.

The Infraco shall procure that all Intellectual Property in respect of the photographs vests in tie.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 160 |

12.1.4 Site Meeting Report

A report shall be submitted by the Infraco to tie no later than one Business Day before each site meeting. The report shall include reference to any significant issues (associated with safety, programme, design, cost, planning and consultee aspects), which have arisen since the previous monthly progress report.

The site meeting report shall also identify actual manpower resources (labour returns), plant and equipment that have occurred on site, for the previous week.

12.1.5 Topic Register

It is tie's intention to continue to develop and maintain a "Topics Register" for the Infraco Works. The Topics Register is used to record all issues as they arise that require to be specifically addressed. The record is then amended as appropriate to track the manner in which issues have been progressed or resolved to the satisfaction of tie. The Infraco is required to add to, or respond to issues as appropriate and attend regular review meetings at which the Topics Register shall be updated and actions assigned by tie.

The Infraco shall participate in the management of the Topics Register.

12.1.6 Work Breakdown Structure

An agreed Work Breakdown Structure is included in the Introduction of these Employer's Requirements. The Infraco shall adopt this WBS to ensure a recognised, structured analysis, by all parties, when interrogating the programme and cost analysis. The WBS may be further developed by the Infraco with the written consent of tie.

Accordingly there shall be a requirement for the Infraco to adopt all aspects of the WBS in the development of programme and cost documentation.

12.2 Programme Management

The Infraco shall undertake programme management including the implementation, regular updating and management of a fully detailed comprehensive Programme illustrating how the Infraco proposes to execute the whole of the Infraco Works in compliance with the Project Programme.

This Infraco Programme shall be prepared using Primavera software in a version compatible with that of tie.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 161 |

This Programme shall be in Primavera P3e (Version 6 or otherwise as agreed with tie) format and accompanied by a time chainage programme illustrating the same information. The Programme shall be cost and resource loaded and coded to reflect the Infraco's WBS activities as detailed in section 39 of these Employer's Requirements.

The Infraco shall be responsible for liaising directly with tie, CEC (and other appropriate third parties) to maximise delivery of the ETN but minimise disruption to public transport and other services, and ensuring that any necessary diversion routes are agreed in recognised time periods prior to the commencement of Infraco works. The Infraco shall also take note of the constraints as identified in 39 of these Employer's Requirements.

The Programme shall be submitted to tie in accordance with the Review Procedure within a period which shall ensure that the Infraco Works can be progressed and monitored by the Infraco and tie against the details contained therein. The Programme shall clearly identify the following:

- the commencement, construction and completion constraints for all elements of the Infraco Works, separated into sectors by WBS code;
- all Milestones;
- the constraints, procedures, documentation and approvals specified in the Agreement;
- the Infraco manufacture and construction execution strategy, Infraco Works and site testing and commissioning, all constraints, procedures, documentation and approvals periods;
- seasonal constraints and constraints applied by CEC and other third party and statutory bodies as defined in the Agreement;
- the required design approvals and notices;
- all works to be undertaken by any Sub-Contractor;
- sufficient detail to illustrate the integration of the Deliverables with the proposed dates of possessions and the commencement and completion of construction for all elements of the Infraco Works, by WBS code;
- all other projects affecting the Infraco Works and how they are integrated into the Infraco Works. For example, any street works to be carried out by CEC, and works by or on behalf of all third parties (including landowners and developers);

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 162 |

- any witnessing, inspections, testing etc of the Infraco Works which requires to be carried out by third parties;
- long lead time materials and works;
- the identification and duration of all advance works, other than those already underway;
- the requirements and approval periods for traffic management, TROs, TTROs, and including any third party's requirements for notices and road closures;
- the commencement, completion dates and relationships of intermediate geographical section of the Infraco Works within each geographical section of the Infraco Works;
- the links and relationships between all activities and the justification of the underpinning logic;
- all design, manufacture and construction periods;
- the identification and timing of inputs and approvals required from tie, third parties, and any Approval Bodies are clearly identified; and
- the interface and relationship with the MUDFA Works;

The Programme shall meet the following minimum requirements:

- shall be in Primavera P3e (Version 6) for detailed implementation;
- shall follow and fully reflect the tie's Work Breakdown Structure ("WBS") included within these Employer's Requirements.
- shall be cost and resource loaded down to coded activities;
- all resource reporting and progress reporting shall be coded to suit the activities contained within the WBS;
- records of time spent against activities shall be completed weekly against planned works as generated by Primavera;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 163 |

- Any deviations shall be reported in the progress report and include notification of remedial actions for authorisation by tie;
- weekly records shall be collated and delivered to tie by 09:00hrs on the Tuesday following the week to which the records relate;
- the Programme shall also take into account programming input and attendance at meetings, both as required by tie; and
- the Programme shall also contain cost/spend tables and cumulative curves to match the achievement of major milestones and activities within the WBS.

The Infraco shall take into account the availability of alternative materials or components when developing the Programme. The Infraco shall identify those materials and components which require advance ordering and processing. Any advanced orders which are approved shall be identified and defined in the Programme.

The Infraco shall update the Programme every four weeks in line with tie reporting periods to take full account of the Infraco progress in completing the Infraco Works.

A hard and soft copy updated Programme and an Infraco Progress Report shall be submitted by the Infraco to tie no later than three Business Days before each four weekly progress meeting.

12.3 Time Chainage

The Infraco shall also produce, manage, develop and work in accordance with its Time Chainage Diagram.

The Time Chainage Diagram shall be submitted to tie in accordance with the Review Procedure to ensure that the Infraco Works can be progressed and monitored by the Infraco against the details contained therein but in any case, the Time Chainage Diagram shall be submitted not later than six weeks after the Commencement Date. The Time Chainage Diagram shall be updated regularly and be available for inspection or distribution on a monthly basis, during the course of the Infraco Works.

The Time Chainage Diagram shall fully reflect, accommodate and comply with the information detailed on the Programme.

12.4 Planning and Other Consents

The responsibility for the Consents is as set out in Clause 19 of the Agreement.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 164 |

12.5 Project Management Plan

12.5.1 General

The Infraco shall submit and maintain a plan describing the approach to project management for the delivery of the complete scope of the Infraco Works. This project management plan shall include sections to clearly and separately describe the approach to the specific topics set out below.

12.5.2 Resource and Competence

A description of the procedures employed to ensure that the required resource and competence level throughout the duration of the Infraco Works shall be achieved.

12.5.3 Documentation

Identify key policies and procedures to deliver such works, infrastructure and equipment to programme, specification, budget and otherwise safely and efficiently and in a manner which is fully integrated with the activities of other relevant contractors.

The approach to the development of a suite of project specific documentation, indicating how they shall effectively be integrated with, and reflect, the Infraco's corporate procedures and policies (including any Joint venture or consortia procedures).

Templates that shall be used for the procurement and delivery of the service deliverables, which shall be required to be prepared by the Infraco.

Outline proposals covering the suite of required documentation including training, maintenance and operations manuals, as-built drawings, design Information, testing procedures and proposals, and certification and records (e.g. testing).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 165 |

12.5.4 Regulations

Management arrangements and procedures for ensuring/monitoring compliance with all applicable Regulations (e.g. HMRI), Law, and the requirements of the Agreement and its Schedules.

12.5.5 Procedures

Details of internal procedures for decision making and review in your management team with particular emphasis on safety, programme, budget, quality, the management and control of non-compliance and the implementation of continuous improvement.

12.5.6 Proposals on reporting and controlling design information requirements

Procedures which shall be followed in obtaining outstanding consents and approvals for the works.

Definition of the process for managing the approvals interface with tie, HMRI, Planning Authority, Roads Authority, Network Rail, the Operator and third parties with whom agreements have been entered into.

12.5.7 Interface Plans

Given that successful co-operation between the Operator, Infraco, and tie is essential to the delivery of a successful project, a description of the key areas of this interface and details which demonstrate how this is successfully achieved.

Details of supply chain process/procedures, in particular provide details of the criteria for selection of sub-contractors/suppliers for this project.

Details of how the Tram Provider shall be managed.

Details regarding the commissioning and handover of the Edinburgh Tram Network or Geographical Sections thereof to the Operator shall be provided.

12.5.8 Design

Clear definition of the areas where the Infraco shall undertake design work and an explanation of where the Infraco believes this deviates from the previous design work done.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 166 |

12.6 Construction Management Plan

The Infraco shall submit and maintain a Construction Plan relating to the Programme. This Construction Plan shall include sections to clearly and separately describe the approach to the specific topics set out below.

12.6.1 Mobilisation

Detailed mobilisation plan, to incorporate comprehensive details of all aspects of mobilisation including, but not limited to, number of work sites, the facilities on each, a general arrangement drawing of main sites, lay down areas, materials storage, welfare and car parking. This should detail timescales and immediate resource availability and should also provide details of the permissions required and assumptions made.

12.6.2 Plant

A description of the plant that will be used for the construction of the project and of how long the plant will be used. This should include description in relation to plant used for specialist purposes such as rail laying or wire stringing (these should be separately identified).

12.6.3 Sub-Contractors

Details of the sub-contractor management and control process during the construction phase, including how the performance of sub-contractors will be measured and reviewed and how sub-contractor compliance with standards will be assured.

12.6.4 Method Statements

A description of the process by which method statements shall be developed and approved, and a schedule summarising those method statements that are anticipated. An initial schedule shall be submitted in accordance with the Review Procedure and this shall be updated from time to time with agreement from tie.

12.6.5 Avoidance of Disruption

Description of the management process for ensuring that traffic disruption is kept to a minimum, particularly in relation to Traffic Management and TTRO requirements. Details of procedures of how unforeseen works (that are out with the area covered by the Temporary Traffic Restriction Order, but are necessary to complete the Infraco Works within the TTRO area) shall be dealt with.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 167 |

Proposals for maintaining reasonable access to premises at all times and what measures The Infraco might employ when access is denied taking into account the requirements of the Disability Discrimination Act 1995.

Details of how it is proposed to liaise with all potentially affected third parties, and an assessment of the likely identities of such parties.

12.7 Network Rail Interface Plan

The Infraco shall submit and maintain a plan describing the approach to managing the ongoing interface requirements with Network Rail. The plan should identify the critical activities and the key risks associated with this interface and proposals to mitigate these risks. Notwithstanding the Infraco's responsibility of complying with the Agreement (including compliance with the Third Party Agreement and the Asset Protection Agreement) the Plan should address the following issues.

- A description of procedures for gaining access to Network Rail's infrastructure both in terms of the approval process and the physical access proposals;
- Confirmation, in terms of safety and in terms of undertaking the Infraco Works, the personnel utilised shall be appropriately qualified, skilled, experienced and adequate in quantity;
- The proposed Possession Strategy for works on or adjacent to Network Rail infrastructure, to include identification of Possessions & Isolations on Programme taking cognisance of lead time;
- Summary of the required method statements for principal construction activities associated with Works adjacent to Network Rail infrastructure;
- The proposals which allow access for Network Rail to maintain their infrastructure;
- Details as to how the Railway Group & Network Rail Line standards shall be complied with;
- Specific details of how Network Rail's infrastructure and rail vehicles shall be protected from injury/damage arising from the works activities;
- Details of how staff and any third parties shall be protected from injury from Network Rail's infrastructure or vehicles using it;
- The strategy for Red & Green Zone working;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 168 |

- Proposals for competencies, making specific reference to management of the certification of personnel and operatives in accordance with the National Competency Control Agency "Sentinel" systems and procedures;
- A specific accident/incident procedure with regard to Network Rail infrastructure which details action to be taken, including the communications regime;
- Proposals for security and prevention of trespass onto site, especially onto adjacent Network Rail property;
- Proposals with regard to work in and around First Scotrail's Haymarket Depot and its associated stabling & sidings. There shall be a requirement to highlight proposals for ensuring access to Haymarket Depot is maintained for staff; road and rail vehicles, especially if rail vehicles require access/egress to the depot by road. There shall be a requirement to identify how First ScotRail operations shall not be restricted.

12.8 Quality Management

The Infraco shall undertake the Works fully in compliance with quality management processes and procedures referenced in ISO 9001 and ISO 9004.

The Infraco shall develop and maintain a Quality Plan to meet the requirements of ISO 10005 - 1995, and which fully defines all quality aspects of the Works. The Quality Plan shall be submitted in accordance with the Review Procedure. The Quality Plan shall demonstrate an integrated quality management system relating to the design, construction, testing and commissioning of the system and shall show how Infraco and its Sub-Contractors shall comply with the requirements of the Quality Plan.

The Infraco shall have all associated documentation readily available for internal review and review by tie. Regular internal audits shall be undertaken by the Infraco to ensure full compliance with ISO 9001 and ISO 9004 in accordance with Clause 5.1 of the Code of Construction Practice. The Infraco shall prepare and submit in accordance with the Review Procedure a "Schedule of Internal Audits" for agreement with tie. This shall define the planned nature and timing of the internal audits. Furthermore tie reserve the right to undertake external audits in accordance with paragraph 5.2 of the Code of Construction Practice and Code of Maintenance Practice.

The Infraco shall ensure that their management system for the Infraco Works is developed to ensure that it aligns with the requirements of the Tram Project Quality policy Statement (DEL.HSQE.103).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 169 |

Quality control including materials and works on Site shall also be undertaken in accordance with the requirements of paragraph 3.2 of the Code of Construction Practice. The Infraco shall be required to comply with these Employer's Requirements including the completion of forms and other systems in order to assist tie in complying with tie's own safety and quality management systems.

12.8.1 Document Standards and Control

All Deliverables that are shared with, or issued to, tie shall be posted and reside within tie's document management system. The official version of any project document shall be the version that exists within tie's document management system. Access shall be granted to tie's document management system on a named basis, and access levels shall be determined by tie. The Infraco also agrees to abide by tie's document management procedure as notified to Infraco from time-to-time.

Documents from external parties should be uploaded to the project extranet for processing by document control. The extranet will also be the official conduit for issuing project information. In exceptional circumstances where documents must be exchanged by email, only the Document Control team will receive and issue this information. They will then handle all appropriate processing and distribution.

Deliverables shall conform to the following standards:

Acceptable File Types

- MS Office Suite 2003;
- MS Project 2003;
- MS Visio 2003;
- Portable Document Format (PDF) – Fully-searchable (OCR) Acrobat Reader v7 compatible;
- Compressed Files/Folders – WinZip v10 compatible;
- Graphics – GIF, TIFF, JPG, JPEG, or BMP;
- Audio – Audio files should be saved in MP3 format;
- Video – WMV or MPEG format with WMV preferred;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 170 |



- Drawings – DWG (inclusive of used templates) and DCF.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 171 |

Acceptable File Sizes

In general, all files should be optimised to keep their size to a minimum. For email correspondence the maximum allowable attachment size is 10MB. Individual files in excess of 50MB are only acceptable with prior agreement from tie.

Project Applications

- Collaboration – SharePoint 2007 (hosted by tie);
- Project Planning – Primavera v6;
- Risk Management – Active Risk Manager (hosted by tie);
- Deliverables. In addition to Deliverables conforming to the above, they should specifically be supplied in complete, self-contained and fully editable formats.

Typical examples include;

- Drawing Deliverables should be supplied as complete DWG files (inclusive of used templates) as well as the DCF print snapshot;
- Documents should be in Word 2003 (or previous) format;
- Spreadsheets should be in Excel 2003 (or previous) format and include the associated macros, equations, and functions.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 172 |

Illegal Characters

As a matter of best practice the following characters should not be used in filenames to minimise the risk of error in software applications:

| | | |
|---|------------------|----|
| & | | \$ |
| ~ | ¬ | £ |
| * | ^ | ? |
| % | ; (semi-colon) | ! |
| # | , (comma) | @ |
| \ | ' (apostrophe) | = |
| / | ` (single quote) | |
| < | " | |
| > | . (dot) | |
| { | : (colon) | |
| } | | |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 173 |

12.9 Infraco Performance Measurement

As part of the overall project reporting regime, a four weekly report incorporating performance against Key Performance Indicators (KPI) shall be required from the Infraco. These shall be project, as opposed to company, specific.

A fundamental consideration is that the KPIs agreed must be measurable and without dispute, thus they shall be fact based. The outputs shall be compared on a four weekly basis against both four weekly and rolling targets. A colour coded "traffic light" visual warning shall be used.

The KPIs agreed are split into a number of different areas. The following provides the breakdown of components within each of the areas. Deductions against the failure to achieve the agreed KPIs are set out in Schedule 45.

Table 26 – Table showing indication of Safety KPIs

| Safety |
|---|
| Accident Frequency Rate (AFR) |
| Equivalent Fatality Rate (EFR) |
| Lost Time Accidents (LTA) |
| RIDDOR |
| Road Traffic Injuries |
| Road Traffic Damage (caused by Infraco actions) |
| Accident Investigations (late receipt) |
| HSE inspections, observations, improvement notices and prohibitions |
| Working at height |
| PPE – not using/not using correctly |
| Review of Accident Book entries |
| Possible 3rd Party specific (e.g. Network Rail) |
| NCRs |
| CARs (non-completion/late response or action) |
| Procedure compliance |
| Test failures (to include concrete and welding) |
| Safety Tours |
| Safety Inspections |
| Security |
| Achievement of programme |
| Snagging correction |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 174 |

| |
|---|
| Method Statements/Risk Assessments – failure to operate in compliance therewith |
| Late Possessions / Overruns |
| Reporting |
| Spills |
| Working hours contraventions |
| Complaints |
| Pollution – water courses; noise; light; dust; others |
| Trespass |
| COSHH contraventions |
| Signage and warning signage |
| Specific parameters may need to be devised relating to programme, performance, reporting and other specific issues that are important to tie. |

The Infraco shall submit samples, manufacturers' literature, documentation and other such materials to demonstrate compliance with the Employer's Requirements, from time to time, for review by tie, in advance of the associated materials or equipment being procured. The Infraco shall prepare a Schedule of Procurement Proposals to identify all such proposed submissions and their timing for approval by tie.

12.10 Cost Management and Reporting

The Infraco shall carry out a pro-active role in cost management and reporting. A cost report shall be submitted by the Infraco to tie no later than 3 Business Days before each cost review meetings / or at a 4 weekly period, to be agreed with tie. In addition cost summary information shall be provided for inclusion in the Progress Reports.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 175 |

The Infraco cost reports shall contain comprehensive information and shall be structured in a manner that is commensurate with tie's own reporting structure. The cost reports shall be required to provide information, including the following:

- Executive summary and narrative on significant changes from the previous report;
- Actual / Planned / Forecast Spend Tables / Curves to match the achievement of major deliverables and activities within the Work Breakdown Structure;
- Change Control Schedule and background information;
- Schedule of Compensation Events and background information;
- Value management estimates / analysis;
- Schedule of status of completion of Construction Milestones and Critical Milestones;
- Copy of the progress statements included in Monthly Progress Monitor.

The Infraco shall also be required to provide value engineering estimates and reports. These reports shall be provided by Infraco from time to time, as proposed by the Infraco or as required by tie, for the purpose of achieving better value.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 176 |

12.11 Risk Management

12.11.1 Project Objectives

tie is dedicated to ensuring that a consistent approach to risk management is adopted across the ETN, which shall enable an informed view of risk to be taken.

ETN project risk management's mission is "to successfully manage all risks to and opportunities for the project thus ensuring that a supported and fully functioning operational service is delivered within budget and on time.

The key drivers within this mission are to:

- Promote and support proactive management of risk and opportunity;
- Integrate risk awareness / management, and not risk aversion, into the project culture;
- Manage risk in accordance with best practice;
- Reduce risk exposure to acceptable levels;
- Capitalise on opportunities;
- Ensure that all identified risks are owned and managed by the party best able to manage them;
- Provide assurance and enhanced information to managers and stakeholders.

tie maintains a project risk management plan and risk register covering the strategic, project management and commercial aspects of the ETN and shall continue to do so throughout the Term and operation. **tie** seeks to have all service providers, including the Infraco, contributing towards this risk register.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 177 |

12.11.2 Risk Deliverables

The Infraco shall provide various Deliverables, as described in this section, to assist tie in meeting tie's risk management obligations associated with strategic, project management and commercial aspects of the ETN. The required procedures for managing hazards and risks associated with obligations associated with safety are not covered in this section.

The Infraco shall be responsible for the production, management, development, regular maintenance and necessary updating and distribution of the documentation included within the table below. The documentation shall be held by the Infraco in electronic format with hard and soft copies being made available as required.

Risk Documentation shall be submitted to tie, in paper copy and electronically, for their approval in accordance with the Review Procedure and the required dates and frequencies are included in the table below.

| Required Action from the Infraco | Timing/Frequency applicable to the Infraco |
|---|---|
| The Infraco shall provide assurance that they shall manage design and construction risk to the satisfaction of tie and in order to fulfil the objectives described in 12.11.1. As part of this obligation the Infraco shall be responsible for the production, development and maintenance of a Infraco Risk Management Plan ("IRMP") for the management of all risk aspects of the Edinburgh Tram Network throughout the Term. The IRMP shall focus on the risk factors related to the Infraco managed activities related to the Infraco Works for the delivery of the Edinburgh Tram Network including the risk deliverables noted below. The IRMP shall identify individuals and their responsibility in relation to risk. | Agree format and delivery date for the IRMP with tie's designated risk manager within one month of the Commencement Date. The Infraco shall update and maintain the IRMP throughout the Term. The Infraco shall issue an update to the IRMP at least bi-annually throughout the Term. |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 178 |

| Required Action from the Infraco | Timing/Frequency applicable to the Infraco |
|--|--|
| <p>The Infraco shall be responsible for the development and maintenance of an Infraco Risk Register ("IRR"), to best present all capex, opex, lifecycle, programme and quality risks to the Edinburgh Tram Network. The IRR shall also detail the proposed and completed mitigation of such risks. The platform used shall include the ability to generate reports, highlight risks to tie, key programme and cost impacts.</p> <p>The Infraco shall be responsible for the identification of commercial risks associated with all interfaces related to the works and shall facilitate and coordinate the inputs from stakeholders and other parties requested by tie from time to time.</p> <p>The IRR shall include analysis of each risk in terms of 'likelihood' and 'impact' providing detail on the inherent risk significance and current residual risk significance. Each risk shall have a designated responsible owner and the Infraco shall provide dashboard type graphical summaries of the risk profile and management actions being taken to mitigate.</p> <p>The risks to be addressed should include technical, operational, infrastructure, interface, economic, legal and regulatory, organisational and environmental risks.</p> <p>The Infraco should review the IRR on a four weekly basis to ensure that it is current. The Infraco shall meet with tie on a four weekly basis in line with the tram period calendar to discuss the control of key risks by the Infraco.</p> | <p>Agree format assessment criteria, platform and delivery date with tie's designated risk manager within one month of the Commencement Date.</p> <p>The Infraco shall update and maintain the IRR as required on a four weekly basis and shall distribute the IRR to tie on a four weekly basis throughout the Term. Assessment criteria must be compatible with tie's own risk register and assessment criteria.</p> |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 179 |

| Required Action from the Infraco | Timing/Frequency applicable to the Infraco |
|---|---|
| <p>It is recognised that the identification, monitoring and progress of risk shall be discussed at regular workshops. The Infraco shall provide to tie a schedule of and undertake workshops, regarding risk matters to assist tie in ensuring the effective management of risk in relation to the Edinburgh Tram Network, tie, the Operator and/or relevant suppliers should receive timely notification of these in order to be able to attend. It is noted that tie may routinely request to attend workshops in order to be able to evaluate Infraco's approach to and performance in relation to risk.</p> <p>Infraco shall also attend meetings and workshops with tie's project and risk management team and other ETN suppliers, the Operator and service providers as instructed by tie to take part in update of existing project risk and identification of new risks. The representatives attending such workshops shall be qualified and shall have sufficient knowledge of the ETN project to be able to contribute pertinent information within these workshops.</p> | <p>Provide and agree workshop schedule for the coming 6 months within the risk progress report to tie's designated risk manager within 2 months of the Commencement Date.</p> |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 180 |

| Required Action from the Infraco | Timing/Frequency applicable to the Infraco |
|--|--|
| <p>The Infraco shall be responsible for the preparation and maintenance of a Commissioning Risk Control Report which shall detail the plans for mitigating risks associated with the commissioning of the Edinburgh Tram Network. This should cover commissioning, operational and design risks, but not limited to the trams, the tracks, the power supply and the tram depot.</p> <p>The Commissioning Risk Control Report shall concentrate primarily on the (commercial risk) associated with the commissioning process, but shall also refer to ongoing issues which also affect the construction and/or operation or part operation of the Edinburgh Tram Network .</p> | <p>Agree format of the Commissioning Risk Control Report to tie's designated risk manager (as notified to the Infraco from time to time) within 6 month of the Commencement Date. Final report to be delivered at least 3-months prior to start of the Testing and Commissioning. The Infraco shall update the Commissioning Risk Control Report as required until the Service Commencement Date..</p> |
| <p>The Infraco shall be responsible for the preparation and maintenance of a Residual Risk Control Report ("RRCR") that will detail the plans for mitigating the risks arising from the construction and commissioning of the Edinburgh Tram Network, which are still of ongoing importance. The RRCR should clearly detail the areas of importance that could affect the ETN after the Service Commencement Date until the end of the Term. These areas could be associated with design, operational and defects factors.</p> <p>Risks to be noted in the RRCR may include, but shall not be limited to commercial risk associated with, snagging, claims, specification defects and other commercial concerns.</p> | <p>Agree format of RRCR with tie's designated risk manager (as notified to the Infraco from time to time) within 12 months of the Commencement Date. Final report to be delivered at least three months prior to the Service Commencement Date. The Infraco shall update the RRCR as required throughout the Term.</p> |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 181 |

| Required Action from the Infraco | Timing/Frequency applicable to the Infraco |
|---|--|
| <p>The Infraco shall prepare and maintain an Operational and Maintenance Risk Register ("OMRR") that will detail the identified risks associated with provision of the Maintenance Services in relation to the Edinburgh Tram Network and management actions being taken to mitigate.</p> <p>The Infraco shall liaise with its Sub-Contractors and the Operator and any other relevant party as required in relation to the creation, development and updating of the OMR</p> | <p>Agree format and assessment criteria of the OMRR with tie's designated risk manager (as notified to the Infraco from time to time) within 12 months of the Commencement Date. First formal report to be delivered at least three months prior to the Service Commencement Date. The Infraco shall update the OMRR in line with the four weekly tram period calendar</p> |

Table 27 - Table showing required actions from the Infraco

12.12 Traffic Management / Temporary Traffic Regulation Orders (TTROs)

The Infraco shall be responsible for the preparation of a Traffic Management Plan (TMP) and Work Site Staging Plan (WSSP). The TMP and WSSP shall comply with instructions issued by tie and shall be drafted in consultation with tie and CEC. The Infraco shall be responsible for the preparation of a Traffic Management Plan (TMP) and Work Site Staging Plan (WSSP). The plans shall apply to all work required in connection with the Infraco and including wider area traffic management measures associated with the construction of the main works. The TMP and WSSP shall comply with instructions issued by tie and shall be drafted in consultation with tie and CEC.

The TMP and WSSP shall identify and account for interfaces with parallel works, including the MUDFA Works.

The TMP and WSSP shall also include all necessary survey work, temporary traffic diversion modelling, assessment and design which will take account of the works, network constraints and the traffic control requirements.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 182 |



The design shall identify the required alterations to road layouts, regulatory changes to be enacted through TTRO, altered/additional traffic signal equipment, new traffic signal installations and advance/local road signage.

The design shall also determine the locations of temporary bus stops and taxi ranks, alterations to parking and access/servicing arrangements for residents and businesses in works areas.

The TMP and WSSP shall be submitted within four weeks of the Commencement Date by the Infraco to tie and CEC for approval in accordance with the Review Procedure and as detailed in the current CEC-tie Interface Protocol relating to TTROs (Protocol Ref: TECH – 01).

The TMP and WSSP submission packages shall be as described in the Protocol and the plans shall include temporary works method statements, and shall identify general traffic, bus and pedestrian diversionary routes, access routes for emergency vehicles, and alternative arrangements for bus stops, parking and loading. The plans shall also include assumptions registers, issues logs and any other means to ensure prompt resolution of issues which could affect the progress and economic execution of the Infraco Works.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 183 |

Leaflets and other approved publicity material as reasonably required shall be prepared for the information of the public/stakeholders/media showing temporary traffic management arrangements and traffic diversions and how these will operate.

Prior to implementation the TMP and WSSP shall be presented for review and approval to the **tie**/CEC/ Police/TEL Traffic Management Review Panel (TMRP) in-line with the agreed protocols and timescales which include procedures to give stakeholders advanced notification of the proposed arrangements to be implemented during the works.

The TMP and WSSP shall also include all necessary drawings, diagrams and supporting information to show the mobilisation, erection and dismantling of Temporary Works, traffic and pedestrian management during any pre-diversion works and the Infraco Works, access to properties, details of fencing and security measures.

The Infraco shall update the TMP and WSSP every two weeks throughout the duration of the Infraco Works for review at fortnightly design meetings and every four weeks at stakeholder and third part meetings.

The Infraco shall be responsible for the preparation of draft TTROs which shall be submitted to **tie** for onward submission to CEC, in its capacity as Roads Authority, for approval, again as described in the current CEC-**tie** Interface Protocol relating to TTROs (Protocol Ref: TECH – 01). The submission packages shall be as described in the Protocol.

TTRO submissions will adhere to the programme detailed in the Protocol.

The Infraco shall also attend meetings in relation to the TTROs, as required by **tie**, including representations to the **tie** / CEC Roads Working Group Committee, which convenes quarterly.

The Infraco shall develop a set of requirements in relation to TTROs and traffic management, which shall be based on information supplied to the Infraco by **tie** and/or **tie** ("TTRO Obligations and Traffic Management Plan") and shall take account of the interface on traffic management that will be required in relation to the MUDFA Works.

The Infraco shall prepare and develop project-specific procedures for complying with the TTRO Obligations and Traffic Management Plan, and these procedures shall be submitted for approval by **tie** and CEC in sufficient time to avoid disruption to the Programme.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 184 |



By appropriate induction, the Infraco shall ensure all site-based personnel, management staff, operatives and visitors are fully aware of and understand the procedures contained within these Employer's Requirements.

The designated project or site manager appointed by the Infraco shall be accountable for the implementation and compliance with these requirements and procedures.

The Infraco shall ensure that the overriding considerations expressed in these procedures and requirements shall be the safety of road users, minimising disruption caused by the Infraco Works, pedestrian management and ensuring that traffic and pedestrian disruption is kept to a minimum.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 185 |

This shall include taking such measures as CEC, in its capacity as roads authority, may reasonably require.

The Infraco shall ensure that reasonable access to all business, residential premises and properties (having regard to Infraco's obligation to comply with the Programme) along the route of the Edinburgh Tram Network is maintained at all times. Infraco shall not be obliged by virtue of this provision to provide access which is more extensive than the access agreed in any Third Party Agreement.

12.13 Stakeholder Management

12.13.1 General

A Stakeholder and Communications Management Plan has been developed by tie. The Infraco shall comply with the requirements of this document.

The Infraco shall be, jointly with tie, accountable for minimising any possible adverse impact of the implementation of the Edinburgh Tram Network on stakeholders (both statutory and non statutory), local businesses and the general public.

12.13.2 Design

The Infraco shall incorporate the following requirements into the design in addition to any other requirements as defined:

- Securing, implementing and incorporating into the design all necessary Network Rail, BAA and other third party agreements;
- Assisting by providing all technical details relevant to the compulsory purchase order process and land acquisition process (including wayleaves and servitudes); including integration with tie's stakeholder and GIS systems.
- Liaising with CEC, Scottish Executive, Historic Scotland, World Heritage Trust, Scottish Natural Heritage and others as required by tie in relation to the performance of the Infraco Works.

12.13.3 Liaison and Public Information

The Infraco shall appoint a liaison officer to manage all public relations, information and press related matters relating to the Infraco Works, who shall along with the necessary technical, commercial and other Infraco resource, liaise with tie, and if so requested by tie, with CEC, other statutory bodies, members of the public, local businesses, the press and the media as may be

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 186 |

necessary on all matters relating to the Infraco Works. Except where expressly stated in the Agreement, the Infraco shall not make any publicity or media statements or make any other formal disclosure of information regarding the Infraco Works without the prior approval of **tie**.

The liaison obligation referred to in the above paragraph shall include, but shall not be limited to the following matters:

- From time to time as directed by **tie**, Infraco shall be required to participate in business, stakeholder and community liaison groups, public meetings and consultation meetings as the progress of the Infraco Works dictate.
- From time to time as directed by **tie**, Infraco shall be required to provide proactive input, information and comment into information initiatives organised by or on behalf of **tie** and attending as requested by **tie** at any relevant consultation meetings
- As directed by **tie** **Infraco** will assist with the development and maintenance of, and adherence to, a communications protocol for dealing with all stakeholders, businesses and members of the public affected by the Infraco Works. In particular this will require strict adherence to timescales determined by **tie**.
- Assisting with the development and maintenance of procedures developed by **tie** in relation to stakeholder management by way of the provision of information relating to the Infraco Works
- Provision of weekly updates to **tie** on the progress of the Infraco Works and all planned Infraco Works in a form reasonably requested by **tie**.
- Depending upon the type of communication, Infraco shall give **tie** a minimum of two weeks notice in advance of all plans for any formal communication with stakeholders, businesses and members of the public (e.g. for major customer works governed by the Customer Interaction Cycle far more weeks would be required). The form and content of such formal communication shall be subject to **tie**'s prior approval
- Provision to **tie** of all information reasonably requested by **tie** in respect of the Infraco Works planned in a form prescribed by **tie** and timescales and frequency agreed with **tie**.
- **tie** and Infraco will be jointly involved in the appointment of appropriately qualified "Tram Helpers". They will be directly managed by **tie**, but integrated into Infraco work areas and teams through joint induction and briefing; appropriate cross training; "Tram Helper" visibility in Infraco work areas; "Tram Helper" involvement in the direct management of stakeholder issues on site;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 187 |



direct engagement by "Tram Helpers" or appropriate Infraco management and staff to assist in the resolution of on site issues; provision of appropriate Infraco uniform and equipment, etc. "Tram helpers" are to be recruited and in place four weeks prior to commencement of notification.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 188 |

- Provision and use of approved branding materials, PPE kit and signage at all operational Work Sections. No such materials, kit or signage shall be erected at any Work Section without the prior approval of tie.
- The provision and distribution of traffic routing maps which conform to the terms of the TTROs for all areas affected by the Infraco Works in advance of the Infraco Works starting in any particular location as may be requested by tie. In the event that tie requires that such material is for public issue, public issue shall not occur before the form and content has been approved by tie. Infraco shall ensure that all public statements (including by way of media referred to in the sections below (customer care centre, website, weekly newsletter, monthly newsletter, call centre and communication log) in relation to the Infraco Works are consistent with (tie's) Communications Strategy and integrated with tie's systems and procedures.

12.13.4 Information Centre

The Infraco shall provide all information and documentation regarding the Infraco Works as may be reasonably required by tie in respect of the mobile and fixed information centres being operated jointly by tie and Infraco in relation to the Edinburgh Tram Network. The frequency of update and version control of information shall be subject to a process agreed with tie.

12.13.5 Website

The Infraco shall provide all information regarding the Infraco Works, reasonably requested by tie, in order to populate the website, which shall be maintained and operated by tie throughout the progress of the Infraco Works, in respect of the Edinburgh Tram Network. The frequency of update and version control of information shall be subject to a process agreed with tie.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 189 |

12.13.6 Weekly Newsletter

The Infraco shall produce and publish weekly newsletters every Wednesday, detailing the Infraco Works to be undertaken in the forthcoming week and outlining, with appropriate maps, drawings and diagrams, the impact on the general public, businesses and in particular any alterations to road traffic circulation patterns required by the coming week's Infraco Works.

Each newsletter, the contents and format of which shall have the prior approval of tie, will also be issued, if requested by tie, by fax and email to: local and national newspapers and other news media, CEC, Lothian and Borders Police, the emergency services, to any party or parties requested by tie and to any other persons or organisations that have requested receipt of the newsletters.

The newsletters shall also be distributed door to door by the Infraco in affected locations and the Infraco shall advise tie when such distribution is occurring.

The Infraco shall monitor and record the distribution of newsletters, recording who is carrying out such distribution, the intended recipients etc, so as to enable tie to carry out its own audit and monitoring of such distribution. Infraco to ensure, by regular surveys that circulation data is accurate and up to date.

Sufficient free distribution take-away hard copies of these newsletters shall be delivered to and placed in the information centre by the Infraco before 08:00 every Thursday morning.

The Infraco is required to submit a draft of each issue of the newsletters to tie no later than midday on the Monday immediately preceding the proposed issue of the newsletters on the Wednesday. tie shall respond before 17.00 hours the same day.

12.13.7 tie Monthly Newsletter

The Infraco shall provide all information and assistance reasonably requested by tie in relation to the publication by tie, of a monthly newsletter in relation to the progress of and future plans for the Edinburgh Tram Network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 190 |

12.13.8 Customer Contact Centre

The telephone number, fax number and e-mail address of the call centre to be operated jointly by **tie** and Infraco in relation to the Edinburgh Tram Network (the "hotline") shall be publicised through the press and the weekly newsletter and clearly displayed on all appropriate PPE kit, site signage, hoardings and at other suitable locations within and throughout the vicinity of the Infraco Works. All letters, e-mails, customer queries shall be answered by Infraco within timescales, to be agreed in advance with **tie**.

12.13.9 Communication Log

All contacts, communications, complaints, comments and queries howsoever received by the Infraco shall be registered in a suitable electronic log (the "communication log").

The Communications Log shall be developed and maintained by Infraco in a manner that allows it to be fully integrated with **tie**'s Stakeholder Database and GIS systems. The communication log shall set out each contact under the type (e.g. General, Traffic, Safety, Vibration, Noise, Dirt, Disruption, Injury, Parking, Access, RTA, publicity, suggestions etc).

The method of approach shall also be logged (e.g. phone, direct, letter, email, etc.) as well as the time and date.

The log shall be so constructed such that statistical analysis of the different communications can be presented as part of the data to be provided to **tie**. It shall be a requirement that the Infraco shall deliver an "above average" customer satisfaction level, with criteria, frequency and method of assessment to be agreed by **tie**. In order to demonstrate this, there shall be a requirement for the Infraco (and as required **tie**) to undertake internal (and external) audits of the overall engagements with the stakeholders. All this information shall be summarised by the Infraco in its monthly progress report.

Infraco shall take such steps as are required to address any such contact, communication, complaint, comment or query in accordance with the response requirements set out in Table 28 - Notification Hierarchy and in line with the agreed enquiry management process.

To the extent that a stricter response requirement is otherwise required under the Agreement, the stricter response requirement shall apply.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 191 |

To the extent that Table 26 provides for the recovery of any amount by tie from the Infraco, such amount may be deducted from any monies due to or to become due to the Infraco or, alternatively, may be recovered from the Infraco as a debt.

A record of all remedial actions taken shall be maintained.

In the event of the Infraco receiving a complaint, a follow up letter or electronic communication shall be passed to the complainant by the Infraco within 24 hours of their receipt of the complaint, outlining the complaint and details and timing of the remedial action being undertaken by the Infraco.

An up to date copy of the communications log shall be compiled daily by the Infraco, together with a report on the progress of any actions.

The communications log shall be inspected and signed daily by a nominated senior representative of the Infraco and shall be counter signed by the Infraco's Representative at least once per week.

The Infraco's Representative shall write a report to tie and/or the Nominated City Officer of CEC (as notified by tie from time to time) at a frequency determined by tie (at least once per month) containing a list of any breaches of the requirements as defined within this section and also Schedule 3 (Code of Construction Practice and Code of Maintenance Contract) occurring within the previous month, setting out:

- the nature of the breach;
- the duration of the breach;
- the action taken by the Infraco to mitigate the breach; and
- the steps taken to minimise the likelihood of a subsequent occurrence of the breach

Subject to the Infraco obtaining tie's prior approval, a copy of each week's communication log shall be placed every Friday in the information centres, where it will remain until completion of the Infraco Works.

Any person, including representatives of tie and CEC's nominated representatives may freely inspect all deposited copies of the communications log during the normal opening hours of the information centres.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 192 |

The version of communications log on public display should not breach any data protection legislation or other Law.

Copies of the communication log shall be forwarded to tie's Representative and/or and CEC's Nominated City Officer once per week.

The master communication log shall be available for tie's Representative and CEC's Nominated City Officer to inspect at any other time during normal working hours.

| Level of Urgency | Category of Notification | Required Response Time |
|------------------|---|--|
| 1 | High urgency Involves an immediate threat to persons or property or the circumstances otherwise require immediate rectification. | Immediate action required. If response not completed by the Infraco within 4 hours, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco. |
| 2 | Medium urgency No immediate threat to persons or property, but circumstances require rectification within 24 hours. | Remedial action requires to be completed within 24 hours. If the Infraco does not complete the required response within 24 hours, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco. |
| 3 | Issue requires rectification but no immediate threat to persons or property and the circumstances do not otherwise require immediate rectification. | Timescales for rectification to be agreed between the Infraco and tie. In the event that the Infraco does not comply with the agreed timescales, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco. |

Table 28 - Notification Hierarchy

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 193 |

13 Permits / Approvals

The Infraco shall obtain all necessary permits and approvals prior to undertaking investigations or works on Site, in accordance with paragraph 3 of the Code of Construction Practice.

13.1 Method Statements

The Infraco shall prepare method statements in respect of all investigation and work activities, as detailed in this Section and paragraph 3.2 of the Code of Construction Practice and submit these in accordance with paragraph 3.3 of the Code of Construction Practice.

The Infraco shall produce a method statement entitled "Procedures for dealing with Unidentified Apparatus or Unrecorded Artificial Obstructions", which shall be submitted by Infraco in accordance with paragraph 3.3 of the Code of Construction Practice. This method statement shall contain procedures which shall confirm the processes for dealing with unforeseeable events or circumstances, the discovery of unidentified apparatus (including live services) or unrecorded artificial obstructions. The final version of the method statement and procedures shall be agreed with the relevant key third parties, Approval Bodies, the Utilities and the emergency services. The method statement shall be updated and a final version produced which shall be finalised by the Infraco in accordance with paragraph 3.3 of the Code of Construction Practice.

13.2 Existing Structures Which May Affect Progress and relationship with Third Parties

The Infraco shall undertake works to address the condition of existing structures where such condition may affect the progress of the Infraco Works. Where such work is completed the Infraco shall take appropriate photographs to fully demonstrate the quality of the reinstatement works.

The Infraco shall undertake survey inspections associated with buildings and structures which may be at risk of physical damage as a result of the Infraco Works.

For such structures and buildings the Infraco shall compile an appropriate schedule of such buildings / structures, and produce surveys / records similar to those described under paragraph 18.2.1 of Schedule 3 (Code of Construction and Code of Maintenance Practice).

Early warning must be given to tie where any third party is, or is likely to start, acting unreasonably. In these situations, tie will seek to resolve any issues with the third party to assist Infraco.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 194 |

13.3 Network Rail

The Infraco shall ensure that the requirements of the Network Rail GRIP process are implemented on the works for which they are responsible whilst working in accordance with all relevant Network Rail Group Standards.

The contract requirements for Network Rail with regard to health and safety are included within the Network Rail document NR/SP/OHS/008. The project specific requirements are identified within the Safety Clause Menu against the requirements of Network Rail document NR/SP/OHS/008 and indicated with 'ticks' in the contractor column sections 51 to 59 inclusive of the safety clause menu and any other requirements that the Infraco is proposing by virtue of his method of undertaking the Infraco Works. The safety clause menu shall be signed off by the Infraco to confirm its proposals.

The Infraco Works shall be undertaken as Third Party Works as identified within the Network Rail document (RT/LS/P/043).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 195 |

14 Human Factors

The Infraco shall provide systems and working practices that are:

- As easy to use as possible;
- Unlikely to cause annoyance or stress to users of the Edinburgh Tram Network, whether members of the public, operators, or maintainers; and
- Likely to promote safety to all.

The Infraco shall systematically and comprehensively:

- identify all the human factors issues associated with the engineering of the Edinburgh Tram Network, using task analysis;
- determine which of these human factors issues pose the most significant risk to the efficiency, productivity, safety and health of the Edinburgh Tram Network; and
- describe the organisational arrangements and processes the Infraco intends to put in place to manage these significant human factors issues as part of the engineering of the Edinburgh Tram Network

The Infraco shall produce and maintain in accordance with the submittals schedule a human factors management plan, covering the requirements summarised above, and where appropriate, shall undertake human factors studies to recommend solutions.

Areas of particular concern are:

- The human computer interfaces in the Control Centre;
- The layout of the driver's cabs;
- The facilities to enable maintenance of equipment:
 - In the workshop and Depot;
 - At trackside;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 196 |

- In substations;
- At the Tramstops; and
- In the Control Centre.

The Infraco shall adopt all applicable best practice and guidelines for human factors. In designing the environment in the Control Centre, the Infraco shall comply with BS EN 50126 and ISO 11064 "Ergonomic Design of Control Centres".

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 197 |

15 Reliability, Availability and Maintainability

15.1 Reliability and Availability

The Edinburgh Tram Network is made up of many different subsystems, most of which may affect the reliability of operation of the ETN as a whole. In respect of achieving and maintaining reliability, the Infraco shall design, construct and maintain the Edinburgh Tram Network in accordance with Good Industry Practice, subject to the reasonable constraints of cost. Where necessary, the ETN should be made resilient to single point equipment and cable failure by employing suitable levels of equipment/cable redundancy and duplication.

On equipment or cable failure, subsystems shall be designed in a fail-safe manner, with graceful degradation. Limited back-up facilities shall be provided to maintain services under specified partial failure conditions.

Defined below are the requirements for availability of individual subsystems (each of which is given a definition), and also the availability of individual components of the subsystems.

In addition to the above, the overall availability of the Edinburgh Tram Network and its subsystems must support the tram punctuality requirement that is set out in these Employer's Requirements. Consequently it may be necessary to increase the minimum requirements that are set out below, especially as the consequences of the actions that third parties may take, including delays caused by other road users, need to be included in the punctuality analysis for the Edinburgh Tram Network.

For all components and subsystems, assume a Mean Time to Repair (MTTR) of 4 hours.

Any downtime required for planned maintenance can be discounted from the determination of availability, provided that such maintenance can be reasonably undertaken at a time when the maintenance has no impact on the operation of the ETN. This will often be during overnight shut downs.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 198 |

15.2 Traction Power System

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| AC circuit breaker, where its availability is defined as the probability that it either fails to conduct electricity when commanded to be closed. | 99.99% |
| Transformer / rectifier where its availability is defined as the probability that it either fails to provide the nominal 750VDC when energised. | 99.99% |
| DC circuit breakers and busbars, where its availability is defined as the probability that traction power is not available from the DCCB when commanded to be closed, provided that 750 VDC is available at from the rectifier | 99.99% |
| Transformer / rectifier where its availability is defined as the probability that it fails to provide the nominal 750VDC when energised by the HV input. | 99.99% |
| Substation battery and charger, where its availability is defined as the probability that control voltage is not available from the battery at any time during its normal operation, regardless of the state of the incoming LV supply | 99.99% |
| Substation, where its availability is defined as the probability that 750VDC voltage is not available for the OLE when the substation is commanded to provide 750VDC | 99.75% |

Table 29 - Substation Equipment

| Component or Subsystem | Minimum Availability |
|---|--------------------------|
| OLE System, where its availability is defined as the probability that in any linear km of the OLE system, trams are not able to operate at the normal operational speed due to defects in the OLE. This is based on an 8 hour incident once every 3 years, 20hr/day operation and (20 route-km plus depot, about 50 track-km) | 99.99925% for each km |

Table 30 – Overhead Line Equipment

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 199 |

15.3 Supervisory and Communications Systems.

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| ODN node | 99.99% |
| Fibre Optic Cabling | 99.99% |
| Patch Panels and Connectors | 99.99% |
| ODN network, where its availability is defined as the probability that any message from a given input to a node reaches its intended destination node correctly and could be transmitted onwards by that node. | 99.99% |

Table 31 - Operational Data Network

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| Transponder (if used) | 99.9% |
| Loop Detector | 99.9% |
| TPDS Trackside Controller | 99.9% |
| TPDS subsystem, where its availability is defined as the probability that any given tram has its position detected and passed to the signal controller and to Control Centre operators correctly, assuming that the ODN is fully functional and that the hardware component of the Control Centre servers and workstations is fully functional | 99.75% |

Table 32 - Tram Position and Detection System

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 200 |

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| Passenger Information Display | 99.9% |
| Local Controller (if required) | 99.9% |
| PID subsystem, where its availability is defined as the probability that the appropriate message is displayed correctly at a given PID, assuming that the ODN is fully functional and that the hardware component of the Control Centre servers and workstations is fully functional | 99.75% |

Table 33 – Passenger Information Display

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| Telephone Handset | 99.9% |
| PABX | 99.99% |
| Telephone network, where its availability is defined as the probability that any 30 second conversation between a given telephone and another given telephone is heard clearly and completely by the caller and the intended recipient, assuming that the ODN is fully functional. | 99.75% |

Table 34 – Telephone Network

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 201 |

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| PA speaker | 99.9% |
| PA controller | 99.9% |
| Microphone and speaker | 99.9% |
| PA subsystem, where its availability is defined as the probability that an operator can make an intended announcement clearly at a given platform, assuming that the ODN is fully functional and that the hardware component of the Control Centre servers and workstations is fully functional. | 99.75% |

Table 35 - Public Address System

| Component or Subsystem | Minimum Availability |
|---|----------------------|
| Base Station | 99.95% |
| Mobile Handset (Tram, Vehicle, or Hand Held) | 99.7% |
| Central Switch | 99.99% |
| Operational Radio subsystem, where its availability is defined as the probability that a 10 second call (voice) or short data message can be received clearly by the intended recipient, assuming that the ODN is fully functional and that the hardware component of the Control Centre workstations is fully functional | 99.75% |

Table 36 - Operational Radio System

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| Help / Emergency Help Point | 99.9% |
| Help Point subsystem, where its availability is defined as the probability that a member of the public can contact the Control Centre operator and can carry out a Help Point conversation lasting 20 seconds, clearly and without interruption, assuming that the ODN is fully functional and that the PABX is fully functional | 99.75% |

Table 37 - Passenger Help / Passenger Emergency Help System

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 202 |

| Component or Subsystem | Minimum Availability |
|---|----------------------|
| CCTV camera | 99.95% |
| Digital Video Recorder | 99.95% |
| CCTV Matrix | 99.95% |
| CCTV subsystem, where its availability is defined as the probability that an image is displayed correctly and in the specified sequence at the Control Centre, assuming that the ODN is fully functional and that the hardware component of the Control Centre servers and workstations is fully functional | 99.9% |
| Recording and replay subsystem, where its availability is defined as the probability that an image is displayed from any given time in the past (within the recorded period) can be retrieved and displayed correctly, assuming that the ODN is fully functional and that the hardware component of the Control Centre servers and workstations is fully functional | 99.9% |

Table 38 - CCTV System

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 203 |

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| SCADA RTU (including I/O cards and interface cards) | 99.95% |
| SCADA subsystem, where its availability is defined as the probability is the lesser of (a) that an indicator is read correctly at the RTU, transmitted to the SCADA Master Station in the Control Centre, and displayed correctly on any SCADA display that is in use within four seconds: and (b) that a control is effectively transmitted to an outstation within two seconds, assuming that the ODN is fully functional and that the hardware component of the Control Centre servers and workstations is fully functional | 99.75% |

Table 39 - SCADA System

| Component or Subsystem | Minimum Availability |
|--|----------------------|
| Servers (if necessary, by use of hardware and software redundancy) | 99.99% |
| Workstations | 99.9% |
| Printers | 99.5% |
| CCTV Matrix Controller | 99.9% |
| LAN Switches, Routers and Hubs | 99.99% |

Table 40 - Central Control Equipment

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 204 |

15.4 Maintainability

The ETN and its components shall be designed with maintainability in mind. To this end, the following shall be observed:

- Important equipment shall be in a redundant configuration, so that a component may be replaced while standby equipment takes over its duty;
- Equipment shall be replaceable, if possible, as field replaceable units, so that defective components can be replaced without the need to power down the overall piece of equipment; and
- Equipment, particularly at trackside and on Tramstops, shall be positioned so that where possible it is accessible for maintenance or replacement without the necessity to halt tramway traffic or to close the Tramstop and without the need to use access equipment such as steps.

15.5 Supportability

The equipment selected for use on the Edinburgh Tram Network shall be selected so that:

- It has a long design life, as specified in section 6 of these Employer's Requirements.
- It shall be based on standard Commercial Off-the Shelf (COTS) equipment as far as appropriate, so that replacement parts may be easily obtained and integrated into the ETN without the necessity of resorting to the original subsystem or equipment suppliers.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 205 |

16 Electromagnetic Compatibility

16.1 EMC Directive

On 20th July 2007 a new EMC Directive came into force in the European Union. Statutory Instrument 2006 No.3418 implements the new EMC Directive 2004/108/EC in UK law. The rules for the new EMC Directive have changed significantly from the old Directive (89/336/EEC). After 19th July 2009 declarations made will require appropriate "Technical Documentation". This means that the Declaration of Conformity made using the old conformance mechanisms will have to be updated to use "Technical Documentation". The Infraco must be aware of the relevance of the 19th July 2009 date and insist that suppliers provide documentation accordingly.

16.2 Essential Protection Requirements

The purpose of the EMC Directive is to ensure that electrical/electronic equipment does not cause or be susceptible to electromagnetic disturbance. The protection requirements required of all electrical/electronic equipment/systems/installations are as follows:

- the electromagnetic disturbance generated shall not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended; and
- they shall have a level of immunity to the electromagnetic disturbance to be expected in their intended use which allows them to operate without unacceptable degradation of that intended use.

The Infraco must produce an Edinburgh Tram Network specific EMC strategy document in accordance with the Submittal Programme that clearly defines its strategy for achieving compliance with these essential protection requirements and shall submit it to tie for its approval.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 206 |

17 Health, Safety, Quality and Environment

17.1 Quality Management

The Infraco shall undertake the Infraco Works fully in compliance with quality management processes and procedures referenced in ISO 9001 and ISO 9004.

The Infraco shall develop a Quality Plan to meet the requirements of ISO 10005 - 1995, and which fully defines all quality aspects of the Infraco Works. The Quality Plan shall be submitted in accordance with the Review Procedure. The Quality Plan shall demonstrate an integrated quality management system relating to the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network and shall show how Infraco and its Sub-Contractors shall comply with the requirements of the Quality Plan.

The Infraco shall have all associated documentation readily available for internal review and review by tie. Regular internal audits shall be undertaken by the Infraco to ensure full compliance with ISO 9001 and ISO 9004 in accordance with paragraph 5.1 of the Code of Construction Practice. The Infraco shall prepare and submit in accordance with the Review Procedure a "Schedule of Internal Audits" for agreement with tie. This shall define the planned nature and timing of the internal audits. Furthermore tie reserves the right to undertake external audits in accordance with paragraph 5.2 of the Code of Construction Practice.

The Infraco shall ensure that its management system for the Infraco Works is developed to ensure that it aligns with the requirements of the Tram Project Quality Policy Statement (DEL.HSQE.103).

Quality control including materials and works on Site shall also be undertaken by the Infraco in accordance with the requirements of paragraph 3.2 of the Code of Construction Practice and the Project Safety and Quality Interface Document. The Infraco shall be required to comply with the requirements of this document including the completion of forms and other systems in order to assist tie in complying with tie's own safety and quality management systems.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 207 |

17.2 Health & Safety

17.2.1 Safety Management Plan

The Infraco shall submit a safety management plan that is over-arching with regard to safety and defines the management procedures that shall be put in place to ensure health and safety for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network. This document shall be stand alone and separate from other safety deliverables such as health and safety plan, system safety management plan, case for safety development etc. The Safety Management Plan shall address all issues relating to the safety of the Infraco Works, staff and third parties, however specific details relating to the items below are required and shall be submitted by the Infraco in accordance with the Submittal Programme:

- The plan shall detail the approach and all management procedures relating to health and safety for the Edinburgh Tram Network;
- The plan shall show how the Infraco will ensure that its Sub-Contractors apply all relevant health and safety policies and procedures to all Sub-Contractors;
- Details of all interfaces associated with safety and the procedures of how these shall be managed. Interfaces shall include Roads Authorities, Health and Safety Executive; any other relevant statutory authorities, HMRI; Competent Person (ROGS); Network Rail; Police; Fire and Rescue Services; Ambulance Service; and all applicable Law;
- Proposed Safety Initiatives;
- How the Infraco proposes that a safety culture shall be cascaded and enforced throughout the team including with Sub-Contractors;
- Infraco proposals for how safety shall be incentivised throughout the team, including with Sub-Contractors;
- The emergency procedures which the Infraco propose to implement;
- Details of how the Infraco shall implement accident and incident reporting and promotion of an open culture;
- The Infraco's safety inspection & safety tour regime;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 208 |

Edinburgh Tram Network - Employer's Requirements Section 17 – Health, Safety, Quality and Environment

- An outline of the Infraco's procedures relating to safety for compliance with tie's Drugs & Alcohol Policy and procedures and details of the Infraco's own similar policy and procedures;
- Details of any particular safety issues the Infraco considers would be significant and initial mitigation measures the Infraco considers necessary;
- Commissioning of the Edinburgh Tram Network;
- Driver Training on the Edinburgh Tram Network;
- Maintenance of the Edinburgh Tram Network.

17.2.2 Occupational Health & Safety Management System

The Infraco shall adopt an occupational health & safety management system consisting of the implementation and use of those processes and procedures referenced in BS 8800, OHSAS 18001-2007 and/or HSG 65 (Successful H&S Management).

17.2.3 Project Health & Safety Plan and Health & Safety File

The Infraco shall develop a construction phase plan and supply all necessary information for the Project Health & Safety File in accordance with the Construction (Design and Management) Regulations 2007 and L144 Managing Health and Safety in Construction and as described in the pre-construction information. The construction phase plan shall require to be submitted in accordance with the Review Procedure.

17.2.4 Interface with tie's Safety Systems

The Infraco shall ensure that the management system for the Infraco Works is developed to ensure that it aligns with the requirements of the Tram Project Safety Policy Statement (DEL.HS.QE.105). Section 32 of the Agreement contains the Project Safety (and Quality) Interface Document. The Infraco shall be required to comply with the requirements of this document including the completion of forms and other systems in order to assist tie in complying with tie's own safety and quality management systems.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 209 |

17.2.5 System Safety Management Plan (SSMP)

The Infraco shall be responsible for the development of the SSMP.

The SSMP shall define the engineering process that shall ensure, and provide a record of, assurance that the tramway has achieved an acceptable level of performance. This is achieved through a staged "case for safety" submission (refer below) process to signify that safety has been engineered into the design of the Edinburgh Tram Network. The SSMP shall define the process, activities and requirements for the preparation for a "case for safety" at the relevant design stage. The SSMP shall also define the system safety management organisation and the strategy to achieve the individual hazard system safety targets. The SSMP is concerned with only with those hazards that could give rise to an increased level of risk to passengers, staff and the general public from the operating system. (All health and safety hazards related to the risk to workers, staff and the general public from the construction activities should be covered under the safety management plan.)

17.2.6 The Railways and Other Guided Transport Systems (Safety) Regulations 2006

The Edinburgh Tram Network shall be delivered in accordance with The Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS).

The Infraco shall design and execute the Infraco Works using safety management and procedures to demonstrate that the Edinburgh Tram Network is safe to introduce into service as defined by the Safety Management System under ROGS. This shall also include the development of the Case for Safety to the satisfaction of the Competent Person and the Project Safety Certification Committee. These aspects form an integral part of the design of the Edinburgh Tram Network and are detailed in this section of these Employer's Requirements.

The Infraco shall undertake all Infraco Works in accordance with the written safety verification scheme requirements prepared by tie. Safety verification will be undertaken by tie. The Competent Person shall assure the process and its outputs. The Infraco shall allow tie and the Competent Person access to undertake safety verification activities, such as system safety audits. The Infraco shall develop a safety management system for when the Edinburgh Tram Network is operational which complies with the requirements of ROGS and other relevant legislation to the satisfaction of the Competent Person and tie/TEL.

Whilst there is no requirement in ROGS for projects such as the ETN to be notified to or given prior consent or approval by HMRI, HMRI have been involved in the development of the Edinburgh Tram

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 210 |



Edinburgh Tram Network - Employer's RequirementsSection 17 – Health, Safety, Quality and Environment

Network scheme to date and it is tie's intention to continue this involvement. The Infraco shall assist tie in any liaison with the HMRI when requested to do so.

17.2.7 Health and Safety Management

The health and safety responsibilities and CDM/ROGs application are defined in the matrix below for each phase of the project.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 211 |

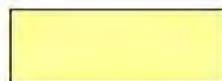
Table 41 – Matrix showing Contractual Responsibilities – Health & Safety Management

| | | Infraco | | | | Revenue |
|---|---|---|--|--|--|---------------------------------|
| UDFA | Pre Novation Design | Post Novation Design | Construction / Installation | Commissioning / Test running * | Shadow running | Operation |
| CDM Client. | CDM Client. | CDM Client. | CDM Client. | CDM Client. | - | - |
| | ROGS duty holder. | ROGS duty holder. | ROGS duty holder. | ROGS duty holder. ** | ROGS duty holder. ** | |
| | Adviser to tie. | Adviser to tie. | Adviser to tie. | Driver training. Inputting into hazard log. | Operator of tram system. Inputting into hazard log. | Operator of tram system. |
| Designer. | Designer. | Designer. | - | - | - | - |
| | Managing hazard log. | Inputting into hazard log. | | | | |
| Principal contractor | - | - | - | - | - | - |
| | - | Design manager. | Principal contractor. | Principal contractor. | - | - |
| | | Managing hazard log. | Managing hazard log. | Managing hazard log. | | |
| | - | Designer. | Contractor. | Contractor. | - | - |
| | | Inputting into hazard log. | Inputting into hazard log. | Inputting into hazard log. | | |
| | - | - | - | - | - | ROGS duty holder. |
| | - | - | - | - | - | - |
| | | | | | | |
| Yes – Construction Phase Plan, Residual Risk Register. Health & safety file initiated. | Yes – Pre-construction information, Residual Risk Register. Health & safety file progressed. | Yes – Pre-construction information, Residual Risk Register. Health & safety file progressed. | Yes – Construction Phase Plan. Health & safety file progressed. | Yes – Construction Phase Plan. Health & safety file completed & handed over to TEL. | No – no longer construction work. | No. |
| | Yes – Safety Verification Scheme. Appointment of | Yes – Safety Verification Scheme. NoNOs from ICP. | Yes – Safety Verification Scheme. NoNOs from ICP. | Yes – Safety Verification Scheme + Safety Management System. | Yes – Safety Verification Scheme + Safety Management System. | Yes – Safety Management System. |

| | Person (ICP). | | | | | |
|--|---|---|---|--|---|--|
| ITEMS | | | | | | |
| <p>IS SMS – construction.</p> <p>S SMS – design.</p> | <p>tie SMS – safety verification.</p> <p>SDS SMS - design.</p> | <p>tie SMS – safety verification.</p> <p>Infraco SMS – design management.</p> <p>SDS SMS – design.</p> <p>Tramco SMS – design.</p> | <p>tie SMS – safety verification.</p> <p>Infraco SMS – construction/installation</p> <p>Tramco SMS – manufacture/installation.</p> | <p>tie SMS – safety verification.</p> <p>Infraco SMS – installation/operation.</p> <p>Tramco SMS – installation.</p> <p>Transdev SMS – operation.</p> | <p>tie SMS – safety verification.</p> <p>Infraco SMS - operation.</p> <p>Transdev SMS – operation.</p> | <p>TEL SMS.</p> <p>Transdev SMS - operation.</p> |

stage in phases once key milestones have been achieved e.g. the energisation of the OLE within the depot.
 assume the role of **ROGS duty holder** during this phase.

es under the CDM Regulations



Responsibilities under the ROGS Regulations

17.3 Environmental Management

17.3.1 Environmental Management System

The Infraco shall adopt an environmental management system consisting of the implementation and use of those processes and procedures referenced in ISO 14001.

Documentation developed to meet the requirements of the environmental management system shall be submitted in accordance with the Review Procedure.

The Infraco shall ensure that the management system for the Infraco Works is developed to ensure that it aligns with the requirements of the Tram Project Environmental & Sustainability Policy Statement (DEL.HSQE.101).

17.3.2 Environmental and Sustainability Action Plan

The Infraco shall submit and maintain an Environmental & Sustainability Action Plan (EAP). This shall be based on SDS Environmental Management Plan and shall cover environmental issues for the duration of the Infraco Works, including design and construction stages. It shall describe the management process, procedures and interface requirements associated with meeting the Infraco's environmental responsibilities.

It shall then develop in detail the potential impacts on environmental resource, mitigation measures and responsibilities associated with all stages of the Infraco Works.

The EAP shall be prepared using the following sources of information.

- the Environmental Statements;
- The Design Manual;
- The Noise and Vibration Policy as contained within the Code of Maintenance Practice;
- The Code of Construction Practice;
- The Landscape and Habitat Management Plan for the Roseburn Corridor;
- The Badger Mitigation Plan for the Roseburn Corridor;
- Agreements made with statutory bodies; and

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 214 |

- Parliamentary agreements.

The EAP shall be amended by the Infraco to reflect any changes to the tramway design or engineering solutions and the results of surveys..

17.3.3 Construction Environmental Management Plan (CEMP)

The Infraco shall prepare a construction environmental management plan (CEMP) including method statements, as necessary, to convey the required level of information during the construction stage of the Infraco Works.

Site specific EMPs shall be prepared for each geographical section and intermediate geographical section as appropriate. These plans shall be produced by the Infraco prior to any works commencing on Site and must be reviewed by tie before work starts. The site specific EMPs must separately address the following sites and/or issues:

- Site accommodation, compound and offices and storage areas;
- Site clearance;
- Geographical sections and intermediate geographical sections of the Tram route;
- The Depot;
- Structures, such as sub-stations not already included in the above; and
- Road, cycleway and footway works, including drainage, signage and lighting.
- A series of site specific and topic related EMPs shall also be produced by the Infraco that shall address all the environmental issues, landscape, ecology etc. These shall cover the general control and protection measures for each topic as it relates to each of the site specific sections in the plan area. The Infraco shall have responsibility for the production, content and implementation of the Site Specific EMPs.
- The Infraco shall submit to tie the site specific EMPs 8 weeks prior to the commencement of the relevant section of the Infraco Works.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 215 |

- tie shall comment on the plan(s) submitted, in accordance with the Review Procedure and agree the final plans prior to the commencement of any work on the relevant section or activity.

17.3.4 Requirement of Site Specific EMPs

The Infraco shall develop the site specific EMPs to include the following details:

- **A description of the works to be undertaken**
 - List of all separate work activities that fall within the scope of the works.
- **A detailed programme of the construction activities**
 - Proposed dates and sequence of the works (showing how environmental impacts are affected by potential changes to the Programme);
 - Details of proposed normal working hours and intended start up and close down times; and
 - Outline of any works which may require construction activities outside of normal working hours.
- **Location of the works, including a site plan, showing construction site boundaries**
 - This shall show the position of plant and position of any sensitive receptors e.g. watercourses, local residents, etc.
- **Personnel access routes/points**
 - Location plan of each access route/point;
 - List of activities for which each access point is to be used
- **Vehicular access routes/points**
 - Location plan of each access route/point;
 - List of activities for which each access point is to be used
- **Equipment and plant to be used (including type, make and expected number)**
- **Method of delivery/removal of materials and plant**

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 216 |

Edinburgh Tram Network - Employer's Requirements Section 17 – Health, Safety, Quality and Environment

- **Details of proposed site accommodation**
- **Details of how public right of way and access to property will be retained and managed**
- A list of Consents/permissions obtained or to be obtained for the works
- **External Consultation**
- A list of those notified of the works and the date notified
- A list of proposed notifications and dates
- **Significant environmental impacts relating to each activity.**
- (This should draw upon the definitions of significant impacts used in the Environmental Statement).
- **Significant environmental risks relating to each activity.**
- **Receptors which are likely to be affected by the works.**
- **On-site mitigating measures for each impact and risk.**

These will be transferred onto site management statements which will briefly state the key risks and mitigating measures which have been agreed. The site management statement will be attached to the construction method statement for the works to ensure that it is brought to the attention of all site staff. The Site Management Statement will be briefed out to all site based staff as a toolbox talk.

- **Monitoring proposals that shall include:**
- The receptors for which monitoring will be undertaken;
- Frequency of monitoring;
- Factors against which the monitoring results will be analysed;
- Threshold levels;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 217 |

Edinburgh Tram Network - Employer's Requirements Section 17 – Health, Safety, Quality and Environment

- Timescales within which results will be analysed;
- List of organisations/individuals to whom results will be distributed; and
- Actions to be taken in the event that thresholds are breached.

17.3.5 Permits to Work

Prior to being granted access to commence construction works, the Infraco shall complete and submit to tie for its authorisation, the required Permits to Work.

Further details of the Permits to Work process are included within the Code of Construction Practice, the Project Safety & Quality Interface Document and Section 39 of the Employer's Requirements.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 218 |

18 Cabling and Ducting

This Section sets out the requirements with the Infraco must comply with in relation to cabling and ducting.

18.1 Cabling

All cables must be mechanically protected such that they cannot be accessed by the public without using tools to remove separate mechanical protection.

Cables and associated supports must be rated such that neither the cables nor the supports degrade due to thermal or mechanical stress during their design life.

Cables must operate satisfactorily under all foreseeable fault, and loading conditions.

Cables must operate satisfactorily under all foreseeable environmental conditions. This must include the effects of sunlight, dampness, temperature, and exposure to water. Cables must be selected to recognise risk that they may be submerged in water.

Cables must be designed to last for the durations that are set out in Table 22 - Equipment Design Life.

Cable terminations must not impose any stress on the cables, and sufficient spare length must be provided in all cables to permit foreseeable maintenance and repair work.

Cables must be identified in accordance with requirements agreed with tie.

Where joints in cables are required, and cannot be reasonably avoided, they must be located in draw pits and identified on the as-built drawings. Joints in draw pits must be both suitably supported and accessible. This may require draw pits that are larger than normal size to be used to contain cable joints.

All cables in all draw pits will be identified with a suitable label.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 219 |

18.2 Ducts

Spare ducts shall be provided on all duct routes as follows:

| Number of ducts in cable route | Minimum number of spare (unused) ducts | Minimum size of spare duct |
|--------------------------------|--|----------------------------|
| 2 | 0 | N/A |
| 3 or more | 20% of the number of ducts | Maximum size of used ducts |

Table 42 – Ducts

All ducts, and all individual ducts in banks of ducts, must contain draw ropes of sufficient mechanical integrity to enable additional new or replacement cables to be pulled through the duct.

All ducts, including ducts that are installed but not used for cables, must be free from debris and free from obstructions.

All installed ducts, including ducts that are installed but not used for cables, must not be crushed. All internal dimensions of the duct as built must never less than 90% of duct's nominal dimensions.

Ducts must be provided with drainage that is integrated with the specification of the cables used such that there is no foreseeable risk of degradation from any water that may be in the ducting system.

Ducts must be of sufficient mechanical integrity to protect both themselves and the cables contained in the ducts from all foreseeable damage, degradation and vandalism.

The bending radii of ducts must be integrated with the requirements of the cables to be installed such that the cables can be installed, replaced and terminated without damage.

Ducts must be provided in sufficient number and size to ensure that there is no degradation in the cables due to thermal effects or chafing of cables. It shall be possible to remove and replace any individual cable in the ducting system without the need to remove or significantly disturb any other cables from the system.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 220 |

Edinburgh Tram Network - Employer's Requirements Section 17 – Health, Safety, Quality and Environment

Cable ducts shall be installed with appropriate warning arrangement to anyone who may be undertaking excavation work that may damage the ducts. This may be achieved by the installation of plastic warning tape in the ground above the ducts.

Where cables are installed in segregated parts of the tramway, they shall not be installed in cable troughs unless specifically agreed by tie. Any proposals for the use of cable troughs must include:

- Locked lids or equivalent to minimise the risk of vandalism and/or theft;
- Where cable troughs form part of the walkway along the tram route, a proven design of locked lids that will eliminate any rocking of the lids must be used; and
- Troughs must be secured against any lateral movement.

For the avoidance of doubt, where cable troughs form part of a structure, the above requirements still apply.

Where ducts are used on the off street tramway, these are preferred to be placed under the walkway with draw pit covers forming part of the walkway.

Any slipping and/or tripping hazards associated with draw pits that are located in a walkway must be eliminated.

Some cables terminate in equipment on ballasted track. These include:

- traction return bonding connected to the rails;
- connections to loops; and
- possibly some connections to some Point Position Indicators.

These cables are to be installed such that the risk of damage to the cables due the activities of track maintenance equipment, vandalism and people walking on the track is minimised.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 221 |

18.3 Duct Chambers and Draw pits

Duct chambers must be structurally sound and built to the requirements of the cabling network as specified in this section 18.

The design of the location of draw pits must such that they can be safely accessed without stopping the operation of the tramway or requiring a road closure, unless specifically agreed by tie.

The integration of draw pit covers into the surfacing in the surrounding area shall be included in the design. This will include the orientation and the surfacing of the cover.

Draw pit covers will be of a family, such that the number of different keys needed to lift draw pit covers is minimised.

The Infraco shall provide sufficient draw pit keys and access equipment to adequately operate and maintain the system.

18.4 Cable separation

Sufficient separation between cables must be provided in order to:

- ensure that any risk of damage to the insulation of the cables that could cause potential risks of energising other circuits is minimised. All cables carrying +750V dc must not be in physical contact with any other cables unless the cables are permanently bonded together,
- ensure that electromagnetic compatibility between cables is provided, and
- permit access to cables and any essential cable joints for maintenance purposes

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 222 |

18.5 Other requirements

Where cables are installed inside conducting items that are not earthed, such as OLE poles, the insulation and the mechanical protection of the cables must be sufficient to mitigate any associated hazards.

As built drawings will accurately identify:

- the cables that are contained in each duct, to aid cable location and fault finding; and
- the location of all draw pits and all duct runs.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 223 |

19 Cabinets

This Section 19 sets out the requirements which the Infraco must comply with in relation to cabinets and the environmental conditions as defined in Section 3.6.4.

Cabinets, cubicles and equipment housings will be required in the following instances as a minimum:

- To house communications equipments at the Tramstops;
- To house SCADA equipment within substations;
- To house radio equipment at base stations; and
- To house points control, points indicator control, points heaters and Tram control equipment at rail junctions.

All cabinets that are located externally shall meet the following requirements:

- They shall provide an ingress protection rating of 55 (BS EN 60529 Specification for Degrees of Protection Provided by Enclosures) as a minimum;
- They shall be coated with materials that inhibit graffiti and assist with its removal;
- Equipment housing, enclosures, cable routes etc. shall allow for an increase of temperature caused by the equipment, whereby the housing itself shall not cause any harm to the functionality of the equipment or the temperature reached at the surface of the enclosure
- All cabinets shall provide an entry for cabling, with no cables visible or accessible without opening the cabinet;
- All cabinets are provided with a robust lock, satisfying the tie lock suiting requirements set out in these Employer's Requirements;
- The cabinet doors shall be equipped with a multi point locking mechanism that complies with the Edinburgh Tram Network security locking policy;
- In the event of the equipment cabinets being opened, an alarm shall be transmitted to the Supervisory Control and Data Acquisition system so that staff in the Control Centre can be alerted;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 224 |

- The equipment contained within the cabinets shall be of a modular construction that shall allow rapid replacement should that become necessary;
- When the cabinet doors are open, they do not obstruct tramway operation, road vehicles, passengers or other members of the public; and
- Work can be carried out safely on the contents without affecting tramway operations or requiring temporary traffic management.

In addition, those cabinets located at Tramstops shall be designed to integrate visually with the Tramstop furniture. The external colour and appearance of the cabinets, shall match and complement the architectural finishes and materials of the structures of the Tramstop where the cabinet is to be mounted.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 225 |



Edinburgh Tram Network - Employer's Requirements

Section 20 – Advanced Works

20 NOT USED

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 226 |



21 Utilities / MUDFA

Where Infraco is instructed by a **tie** Change to carry out utilities diversions, relocation or protective works to deliver the Edinburgh Tram Network the following shall apply.

The philosophy adopted for the MUDFA Works is to clear the ground of utilities such that the track can be installed in ground that has no live utilities within it. The MUDFA Works considers utilities that lie below the area of land that is described by the tram's DKE. It is assumed that the width of ground needed for the construction of the track slab is no more than the width of the tram's DKE.

Where utilities lie below 1200mm from the surface, they are left in-situ.

Where utilities occupy ground that is within 600mm of the existing road surface, they are removed and replaced.

Where utilities lie between these two limits, they are considered on a case by case basis. Generally, utilities that cross the tramway are protected (sleeved for example) and left in position. Where utilities run along the tramway, they are diverted and placed outside the tram's DKE.

Special arrangements are made for major utilities such as the HV cables and the service tunnel along Leith Walk.

Schedule 46 details specific locations and utility types which shall be either left in situ or be diverted by Infraco as a **tie** Change. Where utilities' scope decisions and responsibilities fall outside this schedule Infraco and tie shall jointly agree the most appropriate party (either MUDFA or Infraco) to undertake the diversion works.

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 227 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

The generic allocation of responsibility for relocating utilities is set out in Section 21 of these Employers Requirements. Infraco will only be responsible for relocating such utilities after receiving a **tie** Notice of Change instructing such relocation.

Tie will obtain designs for all utility diversion works and issue them to Infraco.

Infraco shall deliver the utilities diversion works instructed in accordance with designs provided.

Infraco shall ensure that the Programme as amended in accordance with Clause 80 contains adequate allowance for these utility diversion works.

Infraco responsibilities in respect of utilities diversions instructed as a **tie Change** shall also include:

1. Where diversion works are to be delivered by Statutory Utilities (SUs) supporting tie in the development and agreement of utilities diversions works package agreements with the SUCs. Such support mean supporting tie and providing all necessary information to enable tie to negotiate contracts for diversion works with SUCs, assembling and checking work package agreements, defining detailed scope, providing constructability advice and agreeing programme of works with SUC's and co coordinating such so that impact on programme for delivery of the Infraco Works is minimised, agreeing construction and delivery methodologies with SUCs, finalising the scope of Utilities diversion works and the boundary of responsibility between work to be delivered by Infraco and that of SUCs.
2. Providing all enabling, traffic management requirements, ancillary building, civil engineering, electrical and mechanical works in connection and all attendances required to enable SUCs to carry out and complete their works.
3. Coordinate the works of SUCs with each other and with that of the Infraco.

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|-------------|-------------|---------------|-------|
|---------|-------------|-------------|---------------|-------|

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 228 |

Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|---------------------------------------|--|--|--|
| Water | Connections | Connections to new mains will be required before old main can be decommissioned. This is part of the advance diversion scope of MUDFA. | If any connections are missed by MUDFA and subsequently identified by Infraco, they must be carried out at the time of Infraco. However, this risk is small as missed connections would usually lead to immediate customer complaints when the old service was decommissioned. | Note that this is not intended to be the primary mitigation of this risk. site investigation and planning should ensure that connections are identified and dealt with by MUDFA. |
| | Diversion (other than 800mm at Depot) | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, the diversion must be carried out by (or at the same time as) Infraco. Extensive site investigation has been carried out to reduce this risk, but it cannot practically be eliminated. | |
| | Diversion of 800mm at Gogar Depot. | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, the diversion must be carried out by (or at the same time as) Infraco. | There is little, if any, risk of encountering any other water service in the Gogar Depot area that has not been dealt with by MUDFA. |
| | External Protection | Part of the advance diversion scope of MUDFA. | | Long longitudinal protection would not be acceptable for water mains |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 229 |
|-----------------------------|----------------|---------------------|--------------------|--------------|



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|-----------------|---|---------------|-------|
| | Insurance Pipes | Part of the advance diversion scope of MUDFA. | | |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 230 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES | | | | | |
|------------------|-------------------------------------|---|---|---|--------|--|------------|--|-------|
| Waste water | Diversions and manhole construction | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, or where the designs of works have been unable to be sufficiently progressed prior to MUDFA vacating the Work Sections, the diversions must be carried out by (or at the same time as) Infraco. Extensive site investigation has been / will be carried out to reduce this risk, but it cannot practically be eliminated. | Sewer design and agreement with SUC (Scottish Water) regarding treatment required to existing sewers is not currently complete and the programmed completion of the telecoms cabling works is such that existing services cannot be abandoned to allow the manhole and sewer construction works to be undertaken for significant periods of time after all the ducts and other utility diversions are complete. This may result in sewer diversion works to be undertaken after all other MUDFA programmed works in Work Sections are complete. Works may be undertaken by either MUDFA or Infraco. | | | | | |
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| | DOC.NO. | | VERSION | | STATUS | | DATE | | SHEET |
| PRO-INFRACO-1399 | | | 4.0 | FOR ISSUE | | | 16/04/2008 | | 231 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|---------------------------|--|--|--|
| | Internal Refurbishment | Part of the advance diversion scope of MUDFA. | | |
| | External protection | Where crossing or short longitudinal – part of the advance diversion scope of MUDFA. | Where long longitudinal: would be relatively easy to incorporate into Infraco - for a section, excavation would be deeper with (e.g.) concrete placed - this would avoid double excavation by MUDFA and Infraco. | |
| | Connections to new sewers | Connections to new mains will be required before old main can be decommissioned. This is part of the advance diversion scope of MUDFA. | If any connections are missed by MUDFA and subsequently identified by Infraco, they must be carried out at the time of Infraco. However, this risk is small as missed connections would usually lead to immediate customer complaints or evidence of flooding when the old service was decommissioned. | This is not intended to be the primary mitigation of this risk: site investigation and planning should ensure that connections are identified and dealt with by MUDFA. |
| | Existing connections | An existing connection to an existing (and left in place) sewer may have to be repositioned. This would be part of the advance diversion scope of MUDFA. | A connection may not be identified at the time of MUDFA, and uncovered by Infraco. The connection must be repositioned at the time of Infraco. | |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 232 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|---|--|--|--|
| | Manhole access level change (eg raise height of access cover) | St Andrews Square and North & South St Davids Street will be undertaken by MUDFA as part of the road realignment and construction works required to accommodate the proposed Traffic Regulation Order (TRO). | Manhole access level changes must be adjusted at the time of Infraco. Manhole lids to be flush with the finished road surface. | It will also mean that new manholes installed by MUDFA may have to be modified by Infraco. |
| | New Gully connections | St Andrews Square and North & South St Davids Street will be undertaken by MUDFA as part of the road realignment and construction works required to accommodate the proposed Traffic Regulation Order (TRO). | Infraco shall install road gulleys. These will have to be installed at the same time as the road construction is carried out. | If a new road gully is required at a place where the road level is not to be changed, MUDFA could install it. However this situation is unlikely, and for consistency and avoidance of confusion Infraco should probably do all of this, |

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|------------------|---------|-----------|------------|-------|
| OCC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 233 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|----------|-------------|---|---|---|
| Telecoms | Protect | Where crossing or short longitudinal - part of the advance diversion scope of MUDFA. Where long longitudinal: would be part of the advance diversion scope of MUDFA allowing Infraco a "clear run". However would necessitate double - excavation of a long length of the tram foundation area. | | Where long longitudinal: would be relatively easy to incorporate into Infraco - for a section, excavation would be deeper with (e.g.) concrete placed - this would avoid double excavation by MUDFA and Infraco*. |
| | Slew/Lower | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, the diversion must be carried out as Infraco Works. Extensive site investigation has been carried out to reduce this risk, but it cannot practically be eliminated. | |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 234 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|---|--|---|--|
| | Divert (inc manhole construction) | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, the diversion must be carried out as Infraco Works. Extensive site investigation has been carried out to reduce this risk, but it cannot practically be eliminated. | |
| | Insurance Ducts | Part of the advance diversion scope of MUDFA. | | |
| | Manhole access level change (eg raise height of access cover) | St Andrews Square and North & South St Davids Street will be undertaken by MUDFA as part of the road realignment and construction works required to accommodate the proposed Traffic Regulation Order (TRO). | Manhole access level changes must be adjusted at the time of Infraco. Manhole lids to be flush with the finished road surface. | This will also mean that new manholes installed by MUDFA may have to be modified by Infraco. |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 235 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|-----------------|--|---|--|
| Gas | Divert | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, the diversion must be carried out as Infraco Works. Extensive site investigation has been carried out to reduce this risk, but it cannot practically be eliminated. | |
| | Protect | Part of the advance diversion scope of MUDFA. | | Long longitudinal protection would not be acceptable for gas mains |
| | Insurance Pipes | Part of the advance diversion scope of MUDFA. | | |
| | Connections | Connections to new mains will be required before old main can be decommissioned. This is part of the primary scope of MUDFA. | If any connections are missed by MUDFA and subsequently identified by Infraco, they must be carried out as part of Infraco Works. However, this risk is small as missed connections would usually lead to immediate customer complaints when the old service was decommissioned. | This is not intended to be the primary mitigation of this risk: site investigation and planning should ensure that connections are identified and dealt with by MUDFA. |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 236 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|-------------|-----------------|--|--|--|
| Electricity | Divert | Part of the advance diversion scope of MUDFA. | If any apparatus is discovered by Infraco that was not identified at the time of the utility advance diversion works, the diversion must be carried out as part of Infraco Works. Extensive site investigation has been / will be carried out to reduce this risk, but it cannot practically be eliminated. | |
| | Protect | Where crossing or short longitudinal - part of the advance diversion scope of MUDFA. | Where long longitudinal: would be relatively easy to incorporate into Infraco - for a section, excavation would be deeper with (e.g.) concrete placed - this would avoid double excavation by MUDFA and Infraco. | Where long longitudinal: would be part of the advance diversion scope of MUDFA allowing Infraco a "clear run". However would necessitate double - excavation of a long length of the tram foundation area. |
| | Insurance ducts | Part of the advance diversion scope of MUDFA. | | |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 237 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---|----------------------------------|--|--|--|
| | Domestic + Business connections | Connections to new cables will be required before old cable can be decommissioned. This is part of the primary scope of MUDFA. | If any connections are missed by MUDFA and subsequently identified by Infraco, they must be carried out as part of Infraco Works. However, this risk is small as missed connections would usually lead to immediate customer complaints when the old service was decommissioned. | This is not intended to be the primary mitigation of this risk: site investigation and planning should ensure that connections are identified and dealt with by MUDFA. |
| Street Furniture (eg street lighting, traffic lights, lighted bollards, bus stops, etc) | Existing power & telecoms Diverf | St Andrews Square and North & South St Davids Street will be undertaken by MUDFA as part of the road realignment and construction works required to accommodate the proposed Traffic Regulation Order (TRO). | All existing power and telecoms diversions required must be carried out by (or at the same time as) Infraco. Depth of cover and the final road infrastructure alignment and construction to be finalised by and carried out by Infraco. | Extensive site investigation has been / will be carried out to reduce this risk, but it cannot practically be eliminated. |
| | Protect | St Andrews Square and North & South St Davids Street will be undertaken by MUDFA as part of the road realignment and construction works required to accommodate the proposed Traffic Regulation Order (TRO). | All existing power and telecoms diversions required must be carried out by (or at the same time as) Infraco. Depth of cover and the final road infrastructure alignment and construction to be finalised by and carried out by Infraco. | - |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 238 |
|----------------------------|----------------|---------------------|--------------------|--------------|



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|------------------------|--|---|---|
| | New connections | For future street furniture, appropriate ducting would be installed by MUDFA where (1) design details are available sufficiently in advance, (2) the road/tram alignment is formally finalised and (3) the future ground levels are such that new ducts can be buried beneath the existing ground level, without either excessively deep excavation or inadequate (or no) cover. | Where design is not available in time for MUDFA, or where future road levels do not facilitate advance installation, duct installation work must be carried out as part of Infraco Works. | |
| Other | SP transmission cables | If the design agreed with Scottish Power requires external protection beyond that provided by the track slab in that area, and if the design is available in good time, then MUDFA could undertake these works if required. | Infrastructure design will have to take account of the specific requirements to avoid diverting these cables. This will include special track slab construction (for Leith Walk) and careful bridge abutment/pier design (for 3 other areas). Should this design be impossible, the diversion work would be carried out by Scottish Power directly. | This would not be possible before 2008 (at the time of writing; lead time requires a notification before October in one year for work in the summer of the following year). Consultation between utilities and infrastructure design teams should facilitate this design. |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 239 |



Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|--------------------------|-------------|---|--|
| | BT cables at A8 by Gogar | | Infrastructure designs shall take account of the specific requirements to avoid diverting these cables. | This may include a deeper excavation for the tunnel under the A8 than had previously been envisaged, plus provision of temporary support for the cables during the construction of the tunnel. Should this design be impossible, the diversion work would be carried out under MUDFA terms and conditions. Consultation between utilities and infrastructure design teams should facilitate this design. Trial holes have been undertaken on behalf of BT to confirm the depth of the existing cables – the initial, informal, impression from BT is the cables are higher than anticipated which indicates the cables may not require diversion but incorporation into the infrastructure design. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 240 |

Edinburgh Tram Network - Employer's Requirements

Section 21 – Utilities / MUDFA

| Service | Description | MUDFA SCOPE | INFRACO SCOPE | NOTES |
|---------|--|-------------|---|---|
| | BT cables at Roseburn street | | Infrastructure design will have to take account of the specific requirements to accommodate these cables. Infraco shall consider the design solution for cabling installation as part of the Infraco Works. | This will include careful bridge abutment/pier design. The cabling element of this work is to be carried out by BT following diversion works, and may impact on the Infraco programme. Consultation between utilities and infrastructure design teams should facilitate this design. Note: a design solution for the cables as part of the Infraco works has been agreed with BT. |
| | Utility work dependent on prior structures work, eg cables in bridge decks | | Will require structures work to be completed before utility work can be started. Infraco shall complete any and all utility diversions, utility protections works etc. including design (by SDS) following (or at the same time as) the Structures are completed. | |

Table 42a – Table showing the responsibility for diversion/protection work on the utilities for the Edinburgh Tram project

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 241 |

22 Locks and Key Suiting

22.1 General

The Edinburgh Tram Network will have many locks installed to provide a suitable level of secure access to equipment and rooms. The locks and keys used shall be integrated into appropriate key suiting families. The philosophy is to strike an appropriate balance between the following two extremes:

- A single fully integrated key suiting arrangement for the whole of the Edinburgh Tram Network;
- No suiting, with every lock needing a different key;

The Infraco shall propose key suiting arrangements that are subject to approval by tie. In developing the proposals, Infraco shall consider:

- The need for staff to be able to undertake their duties without having to carry large numbers of keys with them to access the places that their duties require;
- Future expansion of the Edinburgh Tram Network;
- Changes to the key suiting that are likely to be needed as the system matures, and any key suiting must be sufficiently flexible to enable such changes to be made; and
- The ongoing costs of providing keys to staff during the life of the Edinburgh Tram Network;

22.2 Key Suiting System

A key suiting system that is based by the Infraco on the following is likely to be acceptable to tie.

A stand alone suite of keys, hierarchically structured to provide access to equipment such as:

The suiting documentation will list all locks to be installed on the Edinburgh Tram Network, including any locks that are not proposed to be included in the suites. There should be 4 completely separate suiting systems, as set out below:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 242 |

22.2.1 Tram

- The Infraco shall procure all keys that are required for operating each tram. It is anticipated that each tram driver will need to carry no more than two keys for each Tram in order to undertake their duties. One key would permit access onto the tram, into the cab, and enable the Tram to be driven. The second key would open any panels that the driver may need to access and may also provide for such tasks as locking doors out of use;
- A different key would permit staff such as cleaners to access the inside of the Tram and the Tram cabs, but would not enable the Tram to be driven;
- Tram Maintenance staff may also need additional keys to access sensitive or potentially dangerous equipment.

22.2.2 Substations and Power

A stand alone suite of keys, hierarchically structured to provide access to equipment such as:

- Isolator cabinets, to check the position of isolators and to fit isolation padlocks;
- Substation LV areas;
- Substation HV areas in substations;
- Isolators, to permit hand operation;
- Equipment within the substations may also have a multitude of locks that may be suited, depending on the Infraco maintenance philosophy.

Separate individual locks with a single key will be used for securing isolations. There will be no suiting whatsoever for these.

22.2.3 Depot and buildings

A stand alone suite of keys, hierarchically structured to provide access at doors in the Depot building and other buildings in the Depot area such as the Depot plant building. A low level key in this structure could be used for any trackside gates that are required along the alignment.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 243 |

22.2.4 Signalling and Communication Equipment

A stand alone suite of keys, hierarchically structured, to provide access to all trackside cabinets, including:

- Points control;
- Points heating;
- Signalling and;
- Tramstop.

Isolator cabinets are substations are excluded from this suite because they are included in the substations and power suite of keys.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 244 |

23 Testing and Commissioning

23.1 Systems Acceptance

23.1.1 Scope

This section of the Employer's Requirements is to define the systems acceptance requirements applicable to the Edinburgh Tram Network (ETN) which the Infraco must comply with.

23.1.2 General Description and Principles

The process for acceptance of the Edinburgh Tram Network set out in this document is designed to ensure that the ETN is delivered in an acceptably safe, compliant, and efficient manner. The objectives of the process are to ensure that system performance, integrity, reliability, availability, and safety are rigorously tested and that throughout all stages of the delivery process the many sub-systems and the overall System are validated and verified against tie's requirements and applicable standards. The detailed sequence and scope of infrastructure testing and commissioning prior to System Acceptance Testing shall be programmed out and proposed by the Infraco.

The acceptance process is heavily dependent on the delivery of the planned service timetables, the Operational Timetable (see 2.8 of these Employer's Requirements) and the Enhanced Timetable (see 2.8 of these Employer's Requirements). Details regarding the tram service frequency, number of trams and the phased opening of the Edinburgh Tram Network are contained in 2.8 of these Employer's Requirements.

Pre-system acceptance testing includes both Factory Acceptance Tests (FATs), Site Acceptance Tests (SATs), Sub-system Integration Tests (SITs) and System Commissioning Tests (SCTs).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 245 |

Once a Section of the ETN is physically completed and the System Integration Tests are satisfactorily completed then the formal acceptance process requires the Infraco to carry out and pass a series of System Acceptance Tests (SATS) in order to achieve Sectional Completion. These tests are:

Table 43 - Description of the Acceptance Tests

| Test | Test Name | Test Description | Programme |
|------|--------------------------|---|--|
| T1 | Post Commissioning Test | The test shall demonstrate and prove that each Section of the ETN in sequence is able to perform in an acceptably safe manner and deliver the required run times. Please refer to relevant section below. This is the gateway test to driver training. | Post Commissioning Test will immediately follow the successful commissioning of the nominated section and is a requirement for progressing into the Driver Training. |
| T2 | Performance Test 1 | After Section D has passed Test T1 then this test shall demonstrate and prove that Phase 1a of the ETN is able to perform satisfactorily to move into the three-month Shadow Running period. Please refer to relevant section below. This is the gateway test to shadow running. | Performance Test 1 will immediately precede the Shadow Running period and is a requirement for progressing to this phase of the programme. |
| T3 | Pre-operations Test | The test shall cover a seven day period during the latter part of the Shadow Running phase of the programme. The Test is the operation of the initial entry into service timetable and includes infrastructure, trams, and operations systems – Please refer to relevant section below. | Pre-operations Test shall immediately precede the Service Commencement Date. |
| T4 | Network Performance Test | The Test shall be carried out over a 28 day period in Passenger Service to establish that the ETN can reliably operate the Operational Timetable – please refer to relevant section below. | To be completed within twelve months of the Service Commencement Date. |
| T5 | Network Reliability Test | Reliability Testing of certain sub-systems in Passenger Service – please | To be completed within twelve months of the Service |

| | | | | |
|-------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 246 |



Edinburgh Tram Network – Employer's Requirements

Section 23 – Testing and Commissioning

| | | | |
|--|--|--|--------------------|
| | | refer to Please refer to relevant section below. | Commencement Date. |
|--|--|--|--------------------|

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 247 |

The Post Commissioning Test (T1), Performance Test 1 (T2) and Pre-operations Test (T3) have to be passed before the Edinburgh Tram Network (or Sections thereof) can open for passenger carrying service and are therefore to be scheduled during the test running and driver training and shadow running phases.

The Post Commissioning Tests (T1) can be undertaken in isolation for each Section.

Performance Test 1 (T2) and the Pre-operations Test (T3) can only be undertaken for that/those section(s) that are to be opened for passenger carrying service immediately thereafter.

The Network Performance (T4) and Network Reliability Test (T5) shall not be carried out until Passenger carrying Service has commenced on the whole Edinburgh Tram Network.

The figure on the next page shows the structure of the tests.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 248 |

Edinburgh Tram Network – Employer's Requirements

Figure 10 - Edinburgh Tram Network: Extract from System Life Cycle Model

| Stage | Flow Chart | Tests | Description |
|-------|---------------------------------------|--|---|
| 8 | Passenger Service | Network Performance (T4) and Reliability Test (T5) | The date upon which the Edinburgh Tram Network starts in public service |
| | | | PASSENGER SERVICE COMMENCEMENT |
| 7 | Shadow Running | Pre-Operations Test (T3) | The period of Tram operations that simulates full public service operation including running to published timetable and calling / dwelling at Tramstops before the ETN enters public service |
| | | Performance Test 1 (T2) | ENERGISATION OF COMPLETED PHASE OF THE ETN |
| 6 | Test Running & Driver Familiarisation | | The period post-ETN commissioning used to complete driver and control room staff training and gain confidence to enter Shadow Running Phase |
| | | Post-Commissioning Test (T1) | |
| 5 | Commissioning | System Integration Test | All subsystems, including the tram, are fully-integrated to form the ETN and are tested to demonstrate that they work together successfully and meet the Employer's Requirements |
| | | | ENERGISATION OF SECTION OF THE ETN |
| 4 | Set to Work Tests | Site Tests | The point at which subsystems have been installed and then tested to prove they meet their requirements with both Type tests and Site Acceptance tests |
| | | | LIMITED ENERGISATION OF PART OF THE ETN |
| 3 | Installation / Construction | | Once the subsystem has successfully passed Factory Acceptance Tests installation / construction at site will take place and as appropriate a delivery test undertaken |
| | | | |
| 2 | Factory Acceptance Tests | FAT | Thorough demonstrable testing of the subsystem at Infraco's premises |
| | | | |
| 1 | Build / Manufacture | | Manufacture and assembly of the System by the Infraco |
| | | | |
| D | Design | | The scope of the works designed through Approval in Principle and Approved for Construction & Manufacturing Drawings; with associated verification and validation test and integration plans complete |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 249 |

23.2 Test Planning

The efficient programming of the tests is vital to the success of the system acceptance test process. Infraco shall, therefore, consider and incorporate, in a coordinated manner at each stage of the implementation of this process, the relevant documentation, the required tram availability and commissioning site availability and staff (from all concerned parties), into the overall Infraco test plan.

The Infraco shall prepare and present the Infraco test plan for review no later than six months after the Effective Date. The Infraco test plan shall describe how the Factory Acceptance Testing, Site Testing and Commissioning, Test Running and Driver Training and Shadow Running, as well as the Network Performance and Network Reliability tests are to be undertaken. The definition of these tests is shown in Figure 10. The programming of the tests shall be in accordance with the Programme as described in Section 39 of these Employer's Requirements. Infraco shall ensure that the PSSC and the Independent Competent Person (or the appropriate approval regime in force) are satisfied that the testing process is robust, comprehensive and satisfies all of the safety issues legislated and mandated for the system.

As the project evolves the Infraco Test Plan/Risk Register/Hazard Log shall be maintained by the Infraco. Infraco shall demonstrate that the issues raised in this log have been mitigated or that the tests have demonstrated the risk has been resolved. It is therefore important that the testing procedures and results are correlated with the Project Risk Register and Hazard Log.

23.3 Pre-Systems Acceptance Testing (before starting the systems acceptance process)

The following should be noted with regards to any tests to be undertaken:

- The individual test documentation / specifications shall be submitted to **tie** for acceptance in accordance with Schedule 14 (Review Procedure) and **tie**'s approval obtained before the test can take place;
- A notice period of at least seven working days shall be given to **tie** prior to any test in order that **tie**, and/or its representative(s), can arrange, at their option, to witness the test. The Operator's staff shall also be invited to witness all testing activities;
- Factory Acceptance Tests (FAT) and Site Acceptance Tests (SAT) test results shall be submitted to **tie** for review;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 250 |

- tie reserves the right to be present during any of the tests to be undertaken; and
- Any such review will be undertaken in accordance with Schedule 14 (Review Procedure).

The following tests shall be carried out in advance of the systems acceptance testing sequence.

23.4 Factory Acceptance Tests (FAT)

23.4.1 Overview

Factory Acceptance Tests consist of a series of progressive activities all of which are undertaken at the sub-system manufacturer's premises.

Initial testing at the component manufacturer's premises of components to be used as part of a sub-system shall be undertaken to verify that the components behave as predicted in the design and satisfies the Employer's Requirements for that component.

Initial testing undertaken at the manufacturer's premises shall be undertaken to verify that the sub-system or component behaves as predicted in the design and meets the requirements of the design specification and provides correct functionality.

Once sub-systems or components have been successfully tested they shall be incrementally integrated and tested to verify that the sub-systems behave as predicted in the design and meet the requirements of the design specification and provide correct functionality.

Part of the FATs are first article inspections or type tests. These shall be undertaken on the first production item. This inspection shall verify that the Quality and functionality of the product is acceptable and that the manufacturers' quality control processes and procedures have been implemented.

The test specification(s) shall be produced by Infraco and shall be subject to acceptance in accordance with the Review Procedure. tie agreement to all proposed component, sub-system and Factory Acceptance Test specifications is required at least ten business days prior to the date of the component, sub-system and FAT tests identified above and any additional tests required by Infraco.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 251 |

23.4.2 Pass Criteria

FAT testing shall demonstrate that the individual sub-systems or components and equipment fully meet the requirements and are suitable for the subsequent release from the factory environment, delivery to site and installation.

FATs demonstrate the integration of the modules and sub-systems under factory conditions and their reliable operation under cyclical testing.

As far as applicable the FAT will demonstrate that the sub-system or components has been successfully exercised through simulation, including a demonstration on how the alarm handling manages the worst case alarm flood. This test will be subject to tie approval.

23.5 Site Tests

23.5.1 Overview

The objective of site tests is to demonstrate that:

- (a) Construction/installation activities have been completed correctly by demonstrating that the design specification and functionality of these Employer's Requirements have been achieved;
- (b) The sub-systems, in isolation and before passengers are carried, function and behave at site as designed and tested in the FAT;
- (c) The infrastructure sub-systems and the tram will then be integrated with each other insofar as is possible to prove that they collectively function and behave at Site as designed and tested in the FAT; and
- (d) The ETN functions and behaves at Site as designed and tested in the FAT. This is defined as system commissioning tests and involves the integration of the infrastructure sub-systems and the tram.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 252 |

The Independent Competent Person as defined under the ROGS Regulations, other regulatory bodies and the PSCC shall need to be satisfied that the ETN is safe to operate before commencement of system commissioning activities. In order to verify this it shall be necessary for the Infraco to address the issues raised by the Independent Competent Person, PSCC, HMRI (or the appropriate approval regime in force) and Approval Bodies. This may necessitate defining specific tests or incorporating additional Network Performance Test details into the suite of verification commissioning tests. Often the areas of interest to these bodies do not become clear until the majority of issues on the risk register and hazard log have been closed out. Typically these may include items such as:

- pedestrian collision, and the risk of a person being "run over " by a tram;
- gauging and possible entrapment of people in pedestrian areas;
- failed tram recovery;
- control room operational procedures; and
- Recovery from derailments, including rerailing a tram.

It is assumed that tie shall procure all electrical power and that a supply is available for the complete on site test procedures until commencement of passenger service.

23.6 Sub-system Integration Tests (SIT)

23.6.1 Overview

Sub-system Integration Tests cover items 23.5.1 of these Employer's Requirements. They shall be undertaken on Sections.

The Infraco shall produce the suite of SIT testing specifications for acceptance by tie no later than three months prior to the commencement of the tests through the Review Procedure.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|----------------|---------|-----------|------------|-------|
| PRO-INFRA-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 253 |

23.6.2 Pass Criteria

The tests are passed when:

- Each sub-system, module or component of the system functions in isolation as designed and does not deviate from FAT results.
- All sub-systems for the given section of tramway are demonstrated to collectively perform in accordance with the operations and performance, and all of these Employer's Requirements.

23.7 System Commissioning and Integration Tests (SCT)

23.7.1 Overview

System Commissioning and Integration Tests shall be undertaken on Sections.

Such activities include the running of tram(s) over section(s) of the Edinburgh Tram Network for which Sub-system Integration Tests have been successfully completed. This will verify that the ETN behaves as predicted and as demonstrated as far as was practical in previous tests.

Infraco shall liaise with both tie and the Operator to ensure that sufficient competent operational personnel are available to conduct the required activities, including tram drivers and control room staff.

23.7.2 Pass Criteria

The tests are passed when:

- Each sub-system, module or component of the system functions collectively as designed and do not deviate from FAT results.

All sub-systems for the given section of tramway are demonstrated to collectively perform in accordance with the operations and performance, and all of the Employer's Requirements for a representative number of consecutive passes of a tram in each direction over the given section of the network.

- The integration testing shall include demonstrating that the control room systems and control centre equipment connected to a representative sample of the substation SCADA and other

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 254 |

equipment required for Tramstops can be effectively exercised under a robust simulation of trams progressing around the ETN.

23.8 System Acceptance Activities and System Acceptance Tests

The Infraco shall produce the suite of System Commissioning Test specifications for review by tie no later than three months before commencement of the tests. These will be reviewed in accordance with the Review Procedure

23.9 Operations and Maintenance Staff Training

The object of this series of activities is to complete driver, control room and maintenance staff training and provide said staff with greater system familiarisation, demonstrating competence to enter Shadow Running phase upon the passing both of the Post Commissioning and Performance Test 1 (T1 and T2). It therefore forms an integral part of the driver-route familiarisation and training programme.

Staff Training shall achieve the following objectives:

- Enables control room staff to gain experience running a tramway without passenger pressures;
- Allow operational staff to fulfil their duties; and
- Enables the drivers to gain route knowledge and familiarity with the trams and procedures without passenger pressures.

The activities undertaken during this phase are designed to demonstrate confidence in the system performance and system safety by means of passing the post commissioning test and performance test T1, and to gain approval of the Independent Competent Person, PSSC and HMRI. (or the appropriate approval regime in force) to progress to Shadow Running.

Infraco shall liaise with the Operator to undertake careful integration of the operational training programme and testing needs in order to avoid conflicts between operational requirements and the technical validation/verification. These comprise items 4, 5 and 6 of the system commissioning model in Figure 10 – Edinburgh Tram Network –Extract From System Lifecycle Model.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 255 |

23.10 Shadow Running

The Shadow Running phase will last three months and shall:

- Build and validate the operating pattern up to the Service Commencement Date;
- Carry out any further emergency exercises;
- Demonstrate that the ETN can be safely operated in a routine manner and can recover from emergency situations and emerging perturbations;
- Resolve any issues in respect of operating practices;
- Demonstrate that reliability growth is being monitored and corrective action taken as necessary;
- Allow mileage accumulation to be carried out on the trams;
- Permit infrastructure and tram maintenance staff to familiarise themselves with the procedures, practices and operations regimes and to demonstrate competence development;
- Ensure experience is gained in the gathering and evaluation of the performance monitoring regime data in accordance with Schedule 7 of this Agreement; and
- Allow minor adjustments and tuning of systems.

This comprises item 7 of the system commissioning Model in Figure 10 – Edinburgh Tram Network – Extract From System Lifecycle Model.

The evaluation of Shadow Running is the pre-operations test (T3), the passing of which is the gateway to moving into operation, provided all necessary HMRI (or the appropriate approval regime in force) consents are obtained.

23.11 Final System Acceptance Tests in the Operations and Maintenance Phase

Within twelve months of opening the ETN to passenger service Infraco shall undertake and pass the Network Performance (T4) and Network Reliability Test (T5) (as described in Sections 23.16 and 23.17).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 256 |

23.12 Emergency Exercises

The Infraco and the Operator shall prepare a plan for review by tie and the Competent Person and following approval of the plan, the Operator shall perform with support from the Infraco a series of exercises with the emergency services and other stakeholders such as Network Rail and BAA. The planning for these exercises will require close liaison by the Infraco and the Operator with the various emergency services. They will be planned to take place in the commissioning period, test running or in the shadow running phase. The nature of the exercises will require detailed planning with Fire, Police, and Ambulance services but are likely to include, as a minimum:

- A simulated road traffic accident at a major road junction;
- A major tram collision/derailment including emergency isolations; and
- A rescue of persons trapped underneath a tram.

23.13 Post Commissioning Test Specification – T1

This sub-section sets out the Performance Test assumptions applicable to all Performance Tests. Should the Infraco be able to prove to the reasonable satisfaction of tie's Representative that any of the Performance Test pass criteria have been exceeded by reason of a Performance exclusion then the test results will be amended to discount the effects of such Performance Test exclusions.

The following exclusions shall apply:

- Operator staff in the Control Room causing or significantly contributing to delays in the operation of the System;
- Failure to provide the correct number of trained Tram Drivers as defined in the DPOFA save where the failure is as a result of the Infraco's own failure in respect of its own obligations in the Agreement;
- Failure of the Tram Drivers to consistently drive the Trams to good industry practice;
- Failure to procure all electrical power that is required for the operation of the System. Periods when the electrical supply is not available will be discounted from the Test and the test period shall be extended by an equivalent period;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 257 |



- A failure by the Operator to comply with the relevant parts of the Operations and Maintenance Manuals; and
- Damage caused by the Operator.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 258 |

However, in no event shall any allowances or relief or Network Performance Test exclusion be granted to the Infraco where any delays or failure to pass the Network Performance Test has been caused or contributed by:

- (a) Any default, breach or omission by the Infraco or its subcontractors;
- (b) Infraco Defects or Snagging;
- (c) Equipment undergoing modification or rectification by the Infraco and;
- (d) TRAMCO's failure pursuant to the Tram Maintenance Contract.

The burden of proof shall be on the Infraco to show that such failures of the Operator were caused by reasons for which the Infraco was not responsible and for which the Operator should be properly accountable for by reason of the Operator's default, omission, negligence or breach of statutory duty. The Infraco shall develop and agree audit procedures with tie, and the Operator in respect of the Network Performance Test exclusions set out in this paragraph.

Dwell times at Tramstops shall be regulated; as set out in the Employer's Requirements.

23.13.1 Overview of Post Commissioning Test

This section describes the requirements for the Post Commissioning Tests, their execution, monitoring and completion. Post Commissioning Tests form part of the requirements for the final system acceptance.

23.13.2 Test Objectives

This Post Commissioning Test seeks to achieve the following objectives:

Prove that the system is capable of controlling an 'off-street' section of Edinburgh Tram Network in an acceptably safe manner; and

Prove that the system is capable of controlling an 'on-street' section of Edinburgh Tram Network in an acceptably safe manner.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 259 |



23.13.3 Network Performance Test Description

The Post Commissioning Test is a multi part test, with each part of the test required to be passed in sequence before the entirety of the Post Commissioning Test can be passed. It cannot be conducted until Phase 1a of the Edinburgh Tram Network has been successfully commissioned.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 260 |

23.13.4 Features

The Infraco shall demonstrate that Gogar Depot and Phase 1a of the Edinburgh Tram Network can be monitored and controlled in accordance with the Case for Safety.

Tests shall provide for:

- Demonstration of the run times as defined below.
- Forty end-to-end tram movements on the nominated section of which twenty are in each direction; and
- Trams will dwell at each Tramstop, and will exercise opening and closing of the doors at each Tramstop, the minimum period of doors being fully opened at each Tramstop will be 13 seconds.

The undertaking of the test shall essentially be an operational function led by Infraco but in conjunction with the Operator. Infraco shall manage the preparation for the tests with technical and maintenance support and monitoring by Infraco (along with representatives from tie).

For the demonstration of run time, the following conditions shall apply:

- Targets of the run time demonstrations shall be developed in accordance with Section 2.12 of the Employers Requirements and agreed between the parties from the agreed maximum journey times and associated assumptions detailed in Section 2.11 of the Employers Requirements during the design phase, as further details of tram performance and traffic lights are available;
- For avoiding of influences due to public traffic, run time demonstrations shall take place during night times only;
- tie will be responsible for the communication with local authorities like CEC, UTC or police;
- run time demonstration to be performed in both directions and shall include the following two demonstrations:
 - run allowing tram priority at each traffic junction along the route
 - run following the regulations and phasing of traffic lights under regular conditions
- Sufficient runs shall be carried out in both directions to provide a level of confidence that the target runtimes have been achieved as agreed in accordance with Section 2.12 of the Employers Requirements.
- Infraco shall undertake and pass the Post Commissioning Test (T1) before proceeding to the Performance Test 1 (T2).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 261 |

tie shall be given thirty working days advance notice of the finalisation of the Post Commissioning Test plan and seven working days written notice of the Test commencement date.

23.13.5 Pass Criteria

Subject to the exclusions defined in 23.13 above, the following shall define the pass criteria for the T1 test.

- All test results from previous tram and system and sub-system tests are to be available and signed off as accepted by tie, including all the closed out Snagging Rectification Certificates.
- The test shall have been successfully completed when:
 - At least 95% of the end-to-end tram movements are within the agreed target runtime; and
 - Acceptance of the Case for Safety and test results by the Independent Competent Person and where appropriate Her Majesty's Railway Inspectorate (or the appropriate approval regime in force) and approval or "No Objection to Proceed" respectively for full driver training has been obtained.

23.13.6 Monitoring and Reporting of Test Performance

Appropriate levels of observation by Infraco shall be conducted to satisfy tie that the auto-generation of reports from the systems is accurate.

23.14 Performance Test 1 Specification – T2

23.14.1 Overview

This section describes the requirements of Performance Test 1 and the proposals for its execution monitoring and completion. Performance Test 1 forms part of the requirements for the final System Acceptance.

23.14.2 Test Objectives

Performance Test 1 seeks to achieve the following objectives:

- Demonstrate that the Edinburgh Tram Network (or sections thereof) can be operated in an acceptably safe manner;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 262 |



- Demonstrate that the completed Operator training programme has achieved an adequate competency to proceed in Shadow Running; and
- Demonstrate the mobilisation and competency of the maintenance teams provided by the Infraco.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 263 |

23.14.3 Network Performance Test Description

Performance Test 1 builds upon Post Commissioning Test and cannot be undertaken until Post Commissioning Test has been passed.

23.14.4 Features

The Infraco shall demonstrate that the Edinburgh Tram Network can start Shadow Running and can be monitored and controlled in accordance with the Case for Safety.

Performance Test 1 shall provide for:

- Operation from 07:00 to 20:00 hrs on three consecutive days (none of which are Saturday, Sunday or Bank Holidays);
- The System will run to the Operational Timetable with headways extended by no more than 50%. For the avoidance of doubt, the trips scheduled for this test are the same as in the Operational Timetable as set out in Sections 2.11 and 2.12 of these Employer's Requirements; and
- Trams shall dwell at each Tramstop and shall exercise opening and closing of the doors at each Tramstop. The minimum period of doors being fully opened shall be 13 seconds at each Tramstop.
- The undertaking of the test shall be an operational function led by Infraco but in conjunction with the Operator. Infraco shall manage the preparation for the Tests with technical and maintenance support and monitoring by Infraco (along with representatives from tie).
- Infraco shall undertake and pass Test T2 before proceeding to the Shadow Running phase.
- tie shall be given twenty working days advance notice of the Performance Test 1 plan and seven working days written notice of the Test commencement date.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 264 |

23.14.5 Pass Criteria

The following define the pass criteria for the T2 test.

All test results from previous tram and system and sub-system tests are to be available and signed off as accepted by tie. Any Defect Correction lists shall be available and agreed as being programmed to be remedied.

The test shall have been successfully completed when:

- At least 95% of the end-to-end tram movements meet the requirements of the Performance Regime in terms of Punctuality Service Element as defined in 2.16.
- Acceptance of the Case for Safety and test results by the PSCC , the Independent Competent Person and where appropriate Her Majesty's Railway Inspectorate (or relevant approval body) and their approval or 'Letter of No Objection to proceed" into Shadow Running.

23.14.6 Monitoring and Reporting of Test Performance

The primary data used to evaluate the test shall be automatically generated from the Supervisory Control & Communications performance monitoring sub system and validated independently.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 265 |

23.15 Pre-Operations Test Specification – T3

23.15.1 Overview

This section describes the requirements of the Pre-Operations Test and the proposals for its execution monitoring and completion. The Pre-operations Test shall be conducted during the Shadow Running phase of the project and forms part of the requirements for the final System Acceptance.

23.15.2 Test Objectives

The Pre-operations Test seeks to prove that the Edinburgh Tram Network, or section thereof, in the event of sectional opening operates to a sustained level of performance determined by the Opening Timetable and the performance regime such that:

- The Operator can safely commence passenger carrying revenue earning service;
- The Infrastructure and Tram Maintainers can commence the Planned Maintenance proposed for passenger carrying revenue earning service; and
- The Edinburgh Tram Network passes the ride quality criteria in Tables 62 & 63 of the Employers Requirements.

23.15.3 Network Performance Test Description

Pre-operations Test is a four-part test upon successful completion of all parts of which the Edinburgh Tram Network or section(s) thereof can be opened to public service. The Pre-Operations test cannot be undertaken ahead of the successful completion and passing of the respective Performance Test 1.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 266 |

23.15.4 Features

The Infraco shall demonstrate that the entire Edinburgh Tram Network or section(s) thereof can be operated to the defined levels of performance, reliability and availability and in accordance with the operational Case for Safety.

The Part 1 test shall comprise:

- Five consecutive days (none of which are Saturday, Sunday or Bank Holidays) of testing in accordance with the Operational Timetable. This test is to be undertaken no sooner than two weeks after commencement of the Shadow Running phase;

The Part 2 test shall comprise:

- Five consecutive days (none of which are Saturday, Sunday or Bank Holidays) of testing in accordance with the Enhanced Timetable, which cannot commence until two weeks from successful completion of the Part 1 test, and must be completed at least two weeks prior to the end of the Shadow Running phase, unless agreed otherwise by tie.

For both the Part 1 and Part 2 tests, trams shall dwell at each non-terminus Tramstop for a nominal 25 seconds and the doors shall normally remain closed.

The Part 3 test (which can be undertaken at any time during shadow running) shall comprise:

- One of the fleet of trams shall be selected by tie to be instrumented and monitored. The selected tram shall provide results for 100 journeys of the selected tram consecutively over all sections of the ETN;
- Measurement of lateral, longitudinal and vertical accelerations to be taken on the floor of the trailing cab of the tram.
- All tram journeys during the test period that provide data for this test shall be completed within a tolerance of plus or minus 10% of the journey times that are set out in the Operational Timetable;
- Analysis to be performed as follows:
 - For each journey between Tramstops a root mean square average of the combined lateral, longitudinal and vertical accelerations (RSS addition) is to be determined in accordance with ISO 2631.

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 267 |

The Part 4 test shall comprise:

- One tram from the fleet will be loaded to AW0
- Measurement of lateral, longitudinal and vertical accelerations to be taken on the floor of the trailing cab of the tram
- Entire Edinburgh Tram Network to be covered within 10% of the journey times that are set out in the Operational Timetable
- Load the tram to AW2 and repeat steps above; and
- Analysis to be performed as follows:
 - Select the greater of the results (AW0 or AW2) for each of the journeys to be used as a benchmark for each individual tram for any particular journey.

The undertaking of the test shall essentially be an operational function led by Infraco but in conjunction with the Operator. Infraco shall manage the preparation for the Tests with technical and maintenance support and monitoring by Infraco (along with representatives from tie).

Infraco shall undertake and pass Pre-operations Test before proceeding to the Service Commencement Date.

tie must be given thirty working days advance notice of the Performance Test 1 plan and seven working days written notice of the Test commencement date.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 268 |

23.15.5 Pass Criteria

The following define the pass criteria for the T3 test.

All test results from previous tram and system and sub-system tests shall be available and signed off as accepted by tie including the clearance of all Defect Correction lists unless dispensation has been proposed by Infraco and agreed by tie acting reasonably.

23.15.6 Part 1 and 2 Pass Criteria

Each Pre-operations Test can only be successfully completed:

- As soon as 99% Punctuality Service Element as defined in chapter 2.16 has been achieved in accordance with the Infraco and Tram Maintainer performance regimes.

For the avoidance of doubt any delays caused by road traffic shall not be included in the delay measurement.

23.15.7 Part 3 and 4 Pass Criteria

Part 3 test can be deemed to be passed when none of the 100 journeys have an rms of the combined lateral, longitudinal and vertical accelerations exceeding 30mg.

Part 4 test can be deemed to have been passed when the instrumented tram from the fleet has attained a Ride Index equal to or less than as shown in the tables below in accordance with ISO 2631:

| Speed | Wz Vertical | Wz Lateral |
|---------|-------------|------------|
| 40 km/h | 2,32 | 1,58 |
| 70 km/h | 2,96 | 2,36 |

Table 44 - Ride Index in the Drivers Cab

| Speed | Wz Vertical | Wz Lateral |
|---------|-------------|------------|
| 40 km/h | 2,24 | 1,64 |
| 70 km/h | 2,82 | 2,28 |

Table 45 - Ride Index in the Passenger Compartment

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 269 |

23.15.8 Consents

This is in addition to passing the above tests.

All consents to achieve full passenger service must have been obtained and evidenced as part of Test T3.

23.15.9 Monitoring and Reporting of Test Performance

The primary data used to evaluate Parts 1 and 2 of this test shall be automatically generated from the Supervisory Control & Communications performance monitoring sub system and validated independently.

During the Pre-operations Test monitoring period Infraco will undertake audits, to the satisfaction of tie, of the collection and communication of fault and tram punctuality data against each of the performance indicators.

23.16 Network Performance Test Specification – T4

23.16.1 Overview

This section describes the requirements of Network Performance Test (T4) and the proposals for its execution monitoring and completion. Network Performance Test forms part of the requirements for the final System Acceptance.

The Test shall cover a 28 day consecutive period, which shall be undertaken after the Edinburgh Tram Network has entered Public Service until the Test is satisfactorily passed or, unless otherwise agreed by tie.

The Test is the operation of the complete ETN to the Operational Timetable each day for the duration of the test. The timetable used for the test shall be agreed with tie.

The undertaking of the test will be an operational function carried out by the Operator. Infraco shall manage the preparation for the Tests with technical and maintenance support and monitoring by Infraco (along with representatives from tie).

Infraco shall undertake and pass the Network Performance Test within twelve months after the Service Commencement Date of the whole Edinburgh Tram Network.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 270 |

tie shall be given thirty working days advance notice of the Network Performance Test plan and seven working days written notice of the Pre-operations Test commencement date.

23.16.2 Pass Criteria

The test will measure the Punctuality Service Element over twenty-eight days.

The test shall be passed once the criteria stated in the Employer's Requirements Operational and Performance Section (Section 2) have been demonstrated to be met.

The Infraco may discount any one day from the calculation but shall not be a day on which a Special Demonstration shall be planned.

For the avoidance of doubt the exclusions in Section 23.13 shall apply.

23.16.3 Special Demonstrations

During the Network Performance Test a number of demonstrations will be performed, these are described in the following two sub-sections.

23.16.4 Substation and UPS Demonstrations

Infraco shall demonstrate that the system can operate with two of the traction supplies from a substation taken out of use, one at a time, for a period of two hours during the peak service. The substations concerned and the times for their disconnection will be selected by **tie**.

The disconnection of the substations and placing them into bypass will be undertaken in accordance with the Operator's normal procedures for such switching.

Operation of the Uninterruptible Power Supplies (UPS) at two tram stops for four hours shall also be demonstrated. During this period the electrical supply to the chosen tram stop UPS's shall be disconnected. The tram stop UPS's concerned and the time for their disconnection shall be chosen by **tie**.

The Infraco shall prepare a plan detailing the programme for the above events and include this in the test arrangements that will be submitted to **tie** in accordance with the review procedure.

23.16.5 Tram Change Over

The Infraco shall demonstrate, during peak hours, a Tram changeover by which a Tram in service shall be substituted with the "hot spare".

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 271 |



tie will give Infraco thirty minutes notice of this test.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 272 |

23.16.6 Monitoring and Reporting of Test Performance

The Punctuality Service Element shall be obtained. The results for the previous day shall be ratified in accordance with the Performance Regime in Schedule 7 of this Agreement and the Operator Performance Regime under the DPOFA Agreement.

A meeting will take place daily where the performance up to that date is reviewed and any investigations concluded and data accepted. The meeting will be recorded and minutes distributed to each party by the meeting secretary within three working days.

During the Network Performance Test monitoring period tie may undertake audits of the collection and communication of fault data against each of the performance indicators.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 273 |

23.16.7 Network Performance Test Timetable

The Enhanced Timetable delivering the ultimate capacity of the ETN as contracted shall be prepared by the Operator as that which shall be the ultimate timetable to be used in Passenger Service, proposed by the Infraco, and agreed by tie.

23.17 Network Reliability Test Specification – T5

23.17.1 Overview

This sub-section describes the requirements of Network Reliability Test and the proposals for execution, monitoring and achievement of System Acceptance.

Network Reliability Test is a set of sub-system reliability tests each measured over a twenty-eight day period. Each specified sub-system has its own specified target detailed within 23.17.2. The tests may start on the same date as T4 (on or after Service Commencement Date) and as each subsystem is individually demonstrated to meet its contractual target that subsystem reliability test is then considered completed. Network Reliability Test is only passed when all the sub-systems meet their targets.

The undertaking of the test will essentially be a maintenance function carried out by the Infraco. However, it requires Infraco management of the preparation for the Tests with technical support and monitoring by Infraco, (along with representatives from tie during the Test).

Infraco shall undertake and pass Network Reliability Test within twelve months after the Service Commencement Date of the whole Edinburgh Tram Network to pass Network Reliability Test.

If any part of the works or part of the ETN fails to pass Network Reliability Test then rectification, repair, modification or reinstatement of that part shall be undertaken. The defect correction period on that part of the system or any sub-system which fails the test shall be extended a further twelve months beyond the time of rectification, repair or modification. Infraco will propose and undertake the necessary remedial action and retest to achieve acceptance.

tie must be given 20 working days advance notice of the Network Reliability Test plan and fourteen working days written notice of the test commencement date.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 274 |

23.17.2 Sub-Systems Subject to Network Reliability Test and Reliability targets

Table 46 - Network Reliability Test

| TEST | TARGET VALUE |
|--|---|
| Tram Reliability | Please refer to Tram Supply Agreement. |
| | |
| Passenger Information Display System | As set out in the Employer's Requirements 99.75% availability over six consecutive Periods. |
| Passenger Help/Emergency Help Point System | As set out in the Employer's Requirements 99.75% availability over six consecutive Periods. |
| On Street Track & Formation | Achieves 99.995% availability over six consecutive Periods. |
| Off Street Track & Formation | Achieves 99.995% availability over six consecutive Periods. |
| Point Machines | Achieves 99.995% availability over two consecutive Periods. |
| Traction Switchgear | Achieves 99.99% availability over two consecutive Periods. |
| OLE Equipment | Achieves 99.999% availability over two consecutive Periods. |
| Earthing & Bonding | No reported stray current instances, or rail to earth voltages that exceed 60 volts as defined in the EN50122/1, for four consecutive Periods |
| Operational Radio | Achieves 99.75% availability over two consecutive Periods. |
| Operational Data Network | Achieves 99.99% availability over two consecutive Periods. |
| UTC Interface | Achieves 99.75% availability over four consecutive Periods. |
| Wheel/Rail Interface | No proven instances of Noise and Vibration exceedence have occurred in a six month periods |
| CCTV System | Achieves 99.9% availability over two consecutive Periods. |
| Tram Position Detection System | Achieves 99.9% availability over two consecutive Periods. |
| Traction SCADA System | Achieves 99.75% availability over two consecutive Periods. |
| Tramstop Lighting | Achieves 98.5% availability over two consecutive Periods. |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 275 |

23.17.3 NOT USED

23.17.4 Assumptions and Exclusions

General Exclusions and Assumptions

Should the Infraco be able to prove to the satisfaction of tie that any of the reliability tests would have been exceeded by means of one or more of the following exclusions then, in consultation with tie, the test results shall be amended to discount the effects of such proven Network Reliability Test exclusions.

The Network Reliability Test exclusions and Network Reliability Test assumptions set out in this section relate only to the Network Reliability Test and shall not be used or relied upon in any circumstances in any connection with any other test.

When the tests have commenced, neither tie, the Operator or Third Parties shall be entitled to interfere, interrupt or influence the tram operation or service or the tests in such a way that it disadvantages Infraco, or has an impact on the testing process, the results, or causes the non acceptance of the tests.

Operator Influences

Defects caused by the Operator's failure to:

Provide properly trained staff as defined in the DPOFA, exercising a reasonable duty of care to good industry practice.

Exclusions

The Infraco must demonstrate by reasoned argument that failures or loss of availability resulting from Operator actions were caused by reasons for which the Infraco was not responsible (eg Operating Manuals and supplier training). The Infraco shall develop and agree audit procedures with tie and the Operator in respect of the Network Reliability Test exclusions set out in this paragraph.

However, in no event shall any allowances or relief or Reliability Network Reliability Test exclusion be granted to the Infraco where any delays or failure to pass Network Reliability Test has been caused or contributed to by:

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 276 |



Edinburgh Tram Network - Employer's Requirements

Section 23 – Testing and Commissioning

- Any default, breach or omission of the Infraco;
- Infraco defects; and
- Equipment undergoing repair, modification or rectification by the Infraco.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 277 |

Realistic long term response times to repair defects shall be provided by Infraco during the period of the test.

It is assumed that tie shall procure all electrical power and that a supply is available for the tests.

Any failures resulting from inappropriate actions or omissions by the Operator or his contracted staff shall be discounted, as set out in the DPOFA .

For the avoidance of doubt, the impact of third party vandalism shall be excluded.

23.17.5 Monitoring & Reporting of Test Performance

The scoring of faults should be achieved by first reviewing the fault logs and performance reports using them as a filter to establish which faults need to go forward into the review. The review meeting will then be used to discuss and allocate the responsibility of faults under the performance regime.

The review meeting will take place daily where the performance of each system will be reviewed for the previous day. Representatives of Infraco, Tramco, tie and the Operator will attend this meeting. Each sub-system will be reviewed and agreement reached on all failures. The meeting will be recorded and the resulting daily report distributed to each party within 3 Business Days.

23.17.6 Audit Procedures

During the Network Reliability Test monitoring period, tie may undertake audits of the collection and communication of fault data against each of the sub-system tests and also audit the response times to rectification of notified faults.

23.17.7 Services in Connection with the Operator

The Operator shall be appointed separately by tie to provide various services in conjunction with the construction, commissioning and operation of the Edinburgh Tram Network. The Operator's Scope of Supply shall include the following:

Provision of representatives during the Construction, Commissioning and Operation stages to provide the Operator's Services, including liaison with the Infraco.

Observing and reporting on the acceptability of the proposed design and the quality of infrastructure, trams and equipment;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 278 |

Supporting obtaining the necessary consents for commissioning and Public Operation;

Assisting Infraco in development of a Testing & Commissioning Plan (in conjunction with Infraco)

Appointment and training of staff in support of any commissioning process.

Notwithstanding the Operator's responsibilities described above, the Infraco responsibilities (associated with the interface with the Operator) shall include, but not be limited to, the following:

- providing support to obtain operational approvals and consents in respect of the Edinburgh Tram Network;
- providing technical support on systems integration
- providing technical support on the development of operational plans and management systems; and
- provide technical support with regard to operational interfaces with CEC traffic management systems. This shall include phasing sequence drawings of key junctions
- Preparing and submitting plans for driver training and the training of other operational staff. Undertaking training of the Operator's trainers (8-10 trainers) and control room staff (18-21 staff)
- Prepare and submit plans for maintenance and operations manuals
- Provide support required for System Acceptance, including the development of a Testing and Commissioning Plan;
- Work to mitigate any delays to the system construction and commissioning howsoever caused.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 279 |

| Comm. Model Ref | Infraco | Operator |
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| | <p>The following table represents a guide of the key responsibilities associated with the Infraco and the Operator during the various phases of the Life Cycle Model. Further details are provided within these Employer's Requirements and the DPOFA.</p> <p>The Infraco Contract (refer to the Code of Construction Practice) allows for the potential for Sectional Completion. Accordingly, where Sectional Completion was to apply, then it would follow that the (System Commissioning Model) stages for each Sectional Completion would apply at different times in the programme (e.g. possible to have "Shadow Running" ongoing for Section A, whilst "Commissioning" for Section B on-going). The listed responsibilities would equally apply to each Sectional stage.</p> <p>Items are listed under the most appropriate stage, but this does not exclude the associated activity from being required during other stages</p> | |
| | GENERAL OBLIGATIONS | |
| | <p>The general provision of all the technical and management services as defined within these Employer's Requirements. This shall include design, programming, installation, testing, system acceptance, training and maintenance. The Infraco shall be required to work closely with the Operator to successfully deliver the project.</p> | <p>Liaising and working closely (and timely) in partnership with the Infraco to meet the requirements of the Project associated with design, installation, system acceptance, delivery into service and maintenance, taking account of the Infraco's Scope of Supply. The Operator shall also be responsible for Operator Maintenance.</p> |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 280 |

| | | |
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| | Management and implementation of a liaison process, with the assistance of the Operator, to ensure that all parties are fully informed and resources arranged adequately. | Provision of staff resources during the Commissioning, Construction and Operation stages to provide the Operator's Services, including liaison with the Infraco. Provide and keep updated the training and recruitment plan describing the roles of each member of the Operations staff with specific instructions for the proper performance of their duties and training requirements. |
| | | Ensuring that all relevant operational and maintenance subcontracts are in place and that appropriate subcontractor staff training programmes are implemented. |
| | Responsibility for adherence to the programme | Monitoring Progress |
| | Responsibility for complying with the functional and non-functional requirements as defined within these Employers Requirements. | Observing and commenting on the acceptability of the design and installation. |
| | Production of risk deliverables and register in accordance with these Employer's Requirements. | Provision of risk advice (from the Operator's viewpoint) to Infraco and commenting / liaising on risk documentation produced by Infraco. |
| | <p>Under the CDM Regulations, the Infraco shall be responsible as Principal Contractor and shall comply with all associated CDM Responsibilities relating to the design and construction activities until Services Commencement Date (and beyond, where appropriate).</p> <p>Beyond the Services Commencement Date, the Infraco may be required to undertake certain elements of work (including maintenance) which fall within the remit of CDM Regulations. In such a scenario the Infraco would be responsible as Principal Contractor for the duration of such works.</p> | <p>As with any party working on a "CDM site", the Operator shall be responsible for complying with CDM Regulations and the Principal Contractors Safe Systems of working (e.g. permit to work system).</p> <p>Notwithstanding the Infraco's over-arching responsibility as Principal Contractor up to Services Commencement Date, once the network is energised (and trams begin to operate) the Operator shall have a key role in managing the "operational end" of systems (e.g. the Operator would be responsible for developing and managing a permit to isolate systems within the context of the over-arching Infraco's systems).</p> |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 281 |

Edinburgh Tram Network - Employer's Requirements

Section 23 – Testing and Commissioning

| | | |
|-----------|--|---|
| | There shall be a requirement for the Infraco to comply where appropriate with the Operators Systems and procedures associated with the Operator's responsibility to manage operational safety. | The Operator shall be responsible for Operational Safety. This shall include developing Operational Plans, timetables and Management Systems and Operating Procedures for the Operational Phase. Operational safety responsibilities shall, by definition, occur once any part of the system is energised (anticipated to be between Stages 4 and 5, "Set to Work Tests" and "Commissioning", respectively). |
| DD | DETAILED DESIGN STAGE | |
| | Completing the full design and meeting all the deliverables as defined within the SDS Providers Agreement with tie, which is being novated and which is included in Volume 7 of the Infraco ITN. | Observing and reporting on the acceptability of proposed designs against the Design Manual and the Employers Requirements and the ability of the proposals to meet operational objectives |
| | Obtaining all approvals and consents in respect of the Edinburgh Tram Network; | Supporting the obtaining of necessary consents for Commissioning and Public Operation (and any consents which are relevant to the Operator). |
| | Managing and undertaking all interfaces with CEC traffic management systems. | Assisting Infraco with the interfaces with CEC, which are relevant to the Operator. |
| | Developing and updating a Testing and Commissioning Plan (TCP) for each element of the System including programmes and procedures with controls and acceptance criteria. | Providing input to a Testing and Commissioning Plan (TCP) for each element of the System including programmes and procedures with controls and acceptance criteria. |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 282 |

| | | |
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| | Assisting the Operator with the development of a process for the handover for Operational purposes of the infrastructure and equipment from Infraco. | Developing a process for the handover for Operational purposes of the infrastructure and equipment from Infraco. |
| | Scheduling, and coordinating with the Operator, driver training, and the training of other operational and maintenance staff. The scope of the training shall cover all aspects of maintenance (as defined within these Employer's Requirements) and all operations. The Infraco shall be responsible for developing coordinated Training Plans in accordance with section 40 (Maintenance) of these Employer's Requirements. | Assisting the Infraco in the development of coordinated Training Plans and the specification of training documentation requirements from Infraco and Sub-suppliers. |
| | Complying with, and undertaking internal audits, associated with the Code of Construction Practice | Reviewing Infraco's compliance with the Code of Construction Practice, associated with any operator related issues. |
| 1 | BUILD / MANUFACTURE | |
| | Managing and implementing the manufacture and assembly of the System in accordance with the general provision of all the technical and management services as defined within these Employer's Requirements | Observing and reporting on the quality and functionality of Infrastructure and Equipment provision / manufacture and its compliance with Specifications where it affects the operational objectives. |
| | Liaising with the Operator to address any associated issues, and where necessary rectifying any works. | |
| 2 | FACTORY ACCEPTANCE TESTS | |
| | Managing and implementing the Testing process in accordance with the TCP. FAT tests (initial tests and integrated testing) shall be undertaken to verify that the components / system behave as planned in the design, meet the requirements of the design specification and provides correct functionality. | Assisting and providing advice to Infraco to manage the Testing process in accordance with the TCP. |
| | | Observation if necessary and appropriate of any factory acceptance tests on equipment to be provided. |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 283 |

| 3 | INSTALLATION / CONSTRUCTION | |
|---|---|--|
| | Managing and implementing the installation and construction at the Site in accordance with the general provision of all the technical and management services as defined within these Employer's Requirements. | Observing and reporting on the quality and functionality of Infrastructure and Equipment provision and installation, and its compliance with Specifications where it affects the operational objectives |
| | Liaising with the Operator to address any associated issues, and where necessary rectifying any works. | |
| 4 | SET TO WORK TESTS | |
| | Managing and implementing the Testing process in accordance with the TCP. These site tests (System Integration Tests) in accordance with section 6 of Part 1c – Tram Testing and Commissioning of the Employer's Requirements shall be undertaken to demonstrate that the construction / installation has been undertaken satisfactorily and that the systems behave as intended in the design. | Assisting and providing advice to Infraco to manage the Testing process in accordance with the TCP |
| | | In accordance with the TCP; witnessing and reporting on the implementation tests |
| | | Attending Tests |
| | | Managing the Operational Safety of the Testing and Commissioning process in support of Infraco once the system is energised and trams begin to operate. Develop a system of management of safety during testing and commissioning (including the training of staff and contingency provisions) |
| | Obtaining Consents and Approvals required to allow the system to be energised and trams to operate to the extent not the responsibility of tie under Clause 19. | Supporting the obtaining of Consents and Approvals for the system to be energised and trams to operate. |
| | Reviewing and commenting on the proposed Commissioning Phase Operating Procedures. | Developing Commissioning Phase Operating Procedures. |

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 284 |

| 5 | COMMISSIONING | |
|---|--|--|
| | Managing and implementing the Testing and Commissioning process in accordance with the TCP. This includes the site commissioning testing as defined within this Section at 23.20.1. | Assisting and providing advice to Infraco to manage the Testing and Commissioning process in accordance with the TCP |
| | | In accordance with the TCP; witnessing and reporting on the implementation tests |
| | | Attending Tests |
| | | Managing the Operational Safety of the Testing and Commissioning process in support of Infraco once the system is energised. Develop a system of management of safety during testing and commissioning (including the training of staff and contingency provisions) |
| | Providing technical support on the development of operational plans, timetables and management systems and Operating Procedures; and | Developing Operational Plans, timetables and Management Systems and Operating Procedures for Operational Phase |
| | preparing and submitting plans, manuals & procedures for maintenance and operations in accordance with these Employer's Requirements, in time for System Energisation. | Reviewing and commenting on the acceptability of plans, manuals & procedures for maintenance and operations. |
| 6 | TEST RUNNING AND DRIVER FAMILIARISATION | |
| | Scheduling, and coordinating with the Operator, driver training and the training of other operational staff as part of the Commissioning activities prior to the start of Shadow Running. Implementing training plans including the undertaking of training of the Operator's trainers (8-10 trainers) and control room staff (18-21 staff). | Appointing and training of Operator staff and Operational rules and procedures training for Infraco. The Operator shall be responsible for training the drivers (utilising the training plans / information developed by Infraco and the Operator Trainers, who shall have been assessed as competent by Infraco on the operation of their systems and equipment). |
| | Demonstrating that the completed Operator training programme has produced a level of adequate | Assisting Infraco to demonstrate that the completed Operator training programme has |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 285 |

| | | |
|----|--|--|
| | competency to proceed to shadow running. | produced a level of adequate competency to proceed to shadow running. |
| T1 | The implementation of the T1 Post Commissioning Test: follows successful commissioning of the nominated section, test to demonstrate and prove the system is able to perform in a safe manner and delivers the required end to end run times (these may be up to 5% greater than target runtimes). | Assisting and providing advice to Infraco to manage the Testing and Commissioning process in accordance with the TCP |
| T2 | The implementation of the T2 Performance Test: precedes Shadow Running: test to demonstrate and prove the system is able to perform satisfactorily to move into the 3 month Shadow Running Period (The T2 Performance Test is performed over 3 days and 95% of runtimes must be within target runtime; whilst service headways may be increased by up to 50% of those of the operating timetable). | |
| | | In accordance with the TCP; witnessing and reporting on the tests |
| | | Attending Tests |
| | | Managing the Operational Safety of the Testing and Commissioning process. Develop a system of management of safety during testing and commissioning (including the training of staff and contingency provisions) |
| | Infraco to review to prepare Go Live timetable to be tested during shadow running. | Operator to prepare the Operational Timetable to be tested during shadow running. |
| | Obtaining Consents and Approvals required to allow the system to start shadow running to the extent not the responsibility of tie under Clause 19. | Supporting the obtaining of Consents and Approvals for the system to commence shadow running. |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 286 |

| 7 | SHADOW RUNNING | |
|----|--|---|
| | Implementing the Shadow Running Phase to cover the requirements. Please refer to relevant section below. | |
| T3 | Implementing the T3 Pre-Operations Test: precedes Service Commencement, the test is undertaken during the Shadow Running Period, the test is the operation of the initial entry into service timetable and includes infrastructure, trams and operations systems (T3 is over 2 x 5 days and 99% performance must be achieved). | In accordance with the TCP; witnessing and reporting on the tests |
| | | Attending Tests |
| | | Managing the Operational Safety of the Testing and Commissioning process |
| | | Developing a system of management of safety during shadow running and public operation (including the training of staff and contingency provisions) |
| | Obtaining the necessary Consents and Approvals for Public Operation to the extent not the responsibility of tie under Clause 19. | Supporting the obtaining necessary consents for Public Operation |
| 8 | SERVICE COMMENCEMENT DATE | |
| | Infraco shall support the preparation for the T4 Network Performance Test with technical and maintenance support and monitoring. (T4 is over a 28 consecutive day period on a rolling basis in passenger service with the ultimate timetable in operation. 1 day in the period may be discounted. The test is to show that reliable operation is achieved.) | The Operator shall manage the preparation for the T4 Network Performance Test with technical and maintenance support and monitoring by the Infraco. The implementation of the T4 Network Performance Test. |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 287 |

| | | |
|--|--|--|
| | Demonstrations during the Network Performance Test e.g. sub-stations / UPS – demonstration of operation where a sub-station can be taken out of service for 2 hours during peak service. | |
| | Review, comment and provide support in preparation of the Test and Ultimate Timetables. | Preparation of an agreed Network Performance Test Operational Timetable and Enhanced Timetable as that which shall be the ultimate timetable to be used in Passenger Service. |
| | Infraco management for the preparation of the T5 Network Reliability Test with technical support and monitoring by Infraco. | The implementation of the T5 Network Reliability Test: the reliability testing of certain sub-systems in Passenger Service (within 12 months of opening). |
| | In accordance with the TCP; witness and report on the tests | Managing the Operational Safety of the Testing and Commissioning process. Develop a system of management of safety during testing and commissioning (including the training of staff and contingency provisions) |

Table 47 - Table showing a guide of the key responsibilities associated with the Infraco and the Operator during the various phases of the Life Cycle Model

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 288 |

23.18 Tram Testing and Commissioning

23.18.1 Document Scope

The scope of this section of the document is to define the Tram Testing & Commissioning requirements that are applicable to all elements of the Edinburgh Tram Network (ETN).

23.18.2 General Requirements

This document defines the process for the testing and commissioning of the ETN that shall be carried out by the Tram Supplier together with the requirements of the Tram Tests that must be carried out to meet the Employer's Requirements and all relevant regulatory bodies as to the quality, performance and compliance of the Trams. It also identifies the tests to be carried out to meet the requirements for System Acceptance testing (involving Trams) of the completed Edinburgh Tram Network.

For certain of the type tests it may be acceptable to reference relevant tests previously undertaken on similar systems. The Tram Supplier will justify to the Tram Inspector all instances where this approach is applicable. This approach will only be possible in areas where there has not been anything other than very minor design changes. Where this approach is proposed, the final test reports and supporting data must be provided to allow the information to be assessed and accepted or rejected. It will be the Tram Supplier's responsibility to obtain any necessary permissions for the use of the test results and data concerned.

23.18.3 Test Plan

The Tram Supplier shall create and adhere to a Test Plan, which will comply with the requirements of EN50215 and encompass a logical build up of testing that leads to acceptance of the vehicles. The Test Plan shall include sufficient testing to demonstrate that all the Employer's Requirements have been met and to ensure that all relevant consents for passenger operation can be achieved from all relevant bodies. It must also be created in such a way as to maximise off-site testing.

The Tram Supplier shall carry out the Tram tests in accordance with this document, the Test Plan and the Tram commissioning and delivery programme. The Tram Supplier shall submit the Test Plan for agreement by the Infraco. Detailed Test Specifications for all tests shall also be submitted for agreement as part of the design scrutiny process and not less than eight weeks prior to the commencement of the tests.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 289 |

The Test Plan shall be provided in Microsoft Project, together with any commentary, specifications and all results following completion of the Tram tests, in Microsoft Word/Excel format. The relevant supplied drawings shall be provided in electronic format and as hard copy. Test reports for each Tram Test shall be submitted, within two weeks following the completion of the Tram Test.

23.18.4 Tram Test Categories

The Tram Tests shall be divided into five discrete stages:

- Factory Acceptance Tests ("FAT")
- Delivery Acceptance Tests ("DAT")
- Site Commissioning Tests ("SCT")
- System Integration Tests ("SIT")
- System Acceptance Tests ("SAT")

With the exception of the Factory Acceptance Tests, which shall be carried out at the Tram Supplier's Factory, all other tests are to be carried out after the Trams are delivered to the Depot. All the tests are to be carried out by the Tram Supplier, except for the System Integration and System Acceptance Tests, which will be managed by Infraco.

Each category of Tram test can comprise two sub-categories:

- Type tests shall be performed to demonstrate that the vehicle design complies with the relevant section of these Employer's Requirements and all relevant Legislation and regulations;
- Routine tests shall be carried out on each vehicle prior to delivery/handover. The routine tests shall include the agreed measurements and checks to confirm the compliance of each Tram.

The Tram Supplier shall provide all necessary support to the Infraco during the testing and commissioning activities in Edinburgh, from the delivery of the first Tram and until the completion of the System Acceptance Tests. This will include input to the development of the necessary specifications and procedures. The support for the Tram tests to be undertaken in Edinburgh shall include, but be not be limited to, a testing manager and technicians (who will be based in Edinburgh throughout the delivery and testing of the trams), full logistics support for the despatch of urgent and routine spares during the testing process, documentation authors and administrative support for the production and control of test specifications, reports, and supporting documentation.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 290 |

23.18.5 Test Certificates

Upon the successful completion of each of the Tram tests the Tram Inspector will issue the following test certification:

- Factory Acceptance Type Test Certificate;
- Factory Acceptance Routine Test Certificate;
- Certificate of Tram Delivery; and
- Site Commissioning Type Test Certificate.

Upon successful completion of all the tests for any individual Tram the Tram Inspector will issue the following test certification:

- Certificate of Tram Commissioning.

23.19 Factory Acceptance Tests (FAT)

Factory Acceptance Tests– This group of tests shall be undertaken at the Tram Supplier's Factory and upon successful completion the Tram Supplier will be issued with a Factory Acceptance Type Test Certificate and/or Factory Acceptance Routine Test Certificate by the Tram Inspector. The Factory Acceptance Tests shall be conducted in accordance with the Tram Manufacturing, Delivery Programme and the Test Plan. The FAT will be broken down into Factory Acceptance Type Tests and a series of Factory Acceptance Routine Tests and will comprise both static inspections and dynamic tests. The Factory Acceptance Type Tests shall be undertaken on a single Tram. This shall be the first Tram unless agreed otherwise in writing by the Tram Inspector.

Static inspections and tests shall be conducted at the Tram Supplier's Factory or at the sub-suppliers' premises during normal working hours during which the Tram Inspector will be entitled to inspect, examine and witness testing of all major systems, sections, apparatus, equipment, components, internal seating, fixtures and fittings and devices, including all structural, electrical, hydraulic and other major components and assemblies (except where the items concerned have been previously tested to the Tram Inspector's satisfaction and the appropriate test certificate issued).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 291 |

Dynamic tests shall be conducted on the test track at the Tram Supplier's Factory or an alternative location subject to the Tram Inspectors agreement.

The Tram Inspector shall be given adequate prior notice of all tests. tie may, at its sole discretion, waive its right to attend or witness any test.

Whether or not the Tram Inspector is in attendance the Tram Supplier shall keep, and make available to the Tram Inspector on request, true and accurate records of the tests, the performance of the Tram during such tests, and any faults which developed or became apparent during the course of such tests.

The Tram Inspector may require evidence that the Tram has operated an agreed number of kilometres/hours in order to fulfil the requirements of the Test and Commissioning Plan under the agreed test track conditions without major faults or breakdown and has met the performance standards set out in this section throughout such period before issuing the Factory Acceptance Routine Test Certificate and/or Factory Acceptance Type Test Certificate. The distance travelled during the dynamic test on the test track will be limited and the main objective will be to check functions and performances not endurance, hence the distance travelled will relate to an agreed schedule to prove these functions.

The Factory Acceptance Routine Tests and the Factory Acceptance Type Tests referred to in the following tables shall include such examinations and tests as the Tram Inspector may reasonably require to satisfy himself that the Trams qualify or do not qualify for a Factory Acceptance Routine Test Certificate and/or and a Factory Acceptance Type Test Certificate. This will include but not be limited to; the checking of individual manufacturing and inspection records, module and sub-assembly tests including as-built dimensional checks where appropriate, for major items such as but not limited to bogie frames, wheel sets, traction and brake equipment.

The Tram Supplier shall make available to the Tram Inspector throughout the Factory Acceptance Routine Tests and/or Factory Acceptance Type Tests qualified staff and, where appropriate, its major sub-contractors to conduct, supervise and record the results of all such inspections, tests and examinations as are referred to in this document and to respond to all enquiries about the condition or performance of the Trams or its major sub-systems.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 292 |

Table 48 - Factory Acceptance Tests: Static Type Tests

| TEST | LOCATION | EN 50215 Reference | COMMENTS |
|---|---|--------------------|---|
| Overall dimensional checks | Static test, at the Tram Supplier's Factory | 8.1 | To include external static envelope, internal dimensions, door widths and openings. |
| General examination and security check. | Static test, at the Tram Supplier's Factory | | To establish accuracy and security of fixing of fixtures and fittings, |
| Coefficient of flexibility | Static test, at the Tram Supplier's Factory | 8.2 | Static test with a maximum cant of 100mm simulated. Horizontal and vertical flexibility. |
| Lifting ability | Static test, at the Tram Supplier's Factory | 8.3 | Body Lifting and major component removal. Bogie handling. |
| Tram weight | Static test, at the Tram Supplier's Factory | 8.4 | Tram and axle weights, including individual wheel and axle loading. Load testing of the complete vehicle and the checking of critical dimensions and clearances under a range of loading conditions. Suspension deflections and door entrance height measurement. |
| Sealing | Static test, at the Tram Supplier's Factory | 8.5 | Resistance of body structure to water ingress, humidity and snow. |
| Electrical insulation | Static test, at the Tram Supplier's Factory | 8.6 | High voltage insulation tests. Withstand and impedance of all cabling. |
| Bonding & return circuits | Static test, at the Tram Supplier's Factory | 8.7 | Continuity and integrity of all safety earth bonds and return current circuits. |
| Hydraulic system | Static test, at the Tram Supplier's Factory | 8.9 | Pumps and pipe-work. Pressure tests and leakage. |
| Braking System | Static test, at the Tram Supplier's Factory | 8.10 | Friction brake system |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 293 |

Edinburgh Tram Network - Employer's Requirements
Section 23 – Testing and Commissioning

| TEST | LOCATION | EN 50215 Reference | COMMENTS |
|--|---|--------------------|--|
| Parking brake | Static test, at the Tram Supplier's Factory | 8.11 | Clamping force measurement |
| Auxiliary Power Supply | Static test, at the Tram Supplier's Factory | 8.12 | Power supplies and associated equipment. |
| Battery charging system | Static test, at the Tram Supplier's Factory | 8.13.1 | Batteries, battery chargers and associated equipment. Battery capacity for emergency working. |
| Auxiliary and control system | Static test, at the Tram Supplier's Factory | 8.14 | Vehicle control and management system. Software validation. Drivers' controls and instruments. |
| Doors | Static test, at the Tram Supplier's Factory | 8.14.3 | Passenger Doors, driver's doors. Emergency access and egress. Operation and timing. |
| Heating, ventilation & air-conditioning | Static test, at the Tram Supplier's Factory | 8.14.4 | System operation and effectiveness at the ambient conditions of the test location Thermostats, air flows. Hot/cold areas. |
| Lighting | Static test, at the Tram Supplier's Factory | 8.14.5 | Interior and exterior lighting. |
| Monitoring equipment | Static test, at the Tram Supplier's Factory | 8.14.7 | CCTV System, cameras and displays. |
| Event recorder | Static test, at the Tram Supplier's Factory | 8.14.7 | OTMR, (as far as practicable at the test location). |
| Communications and passenger information systems | Static test, at the Tram Supplier's Factory | 8.14.7 | Radios, PA, emergency communications (as far as practicable at the test location). Warning tones. Passenger information system. Passenger Emergency Help Points. |
| Configuration control | Static test, at the Tram Supplier's Factory | 8.14.8 | Determination of defined software and firmware status for all sub-systems. Modification status for all major and critical components and others as appropriate. |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 294 |

Edinburgh Tram Network - Employer's Requirements

Section 23 – Testing and Commissioning

| TEST | LOCATION | EN 50215 Reference | COMMENTS |
|---|---|--------------------|--|
| Traction system | Static test, at the Tram Supplier's Factory | 8.16 | Motors, gearboxes, control equipment, power supplies and current collection. |
| Tram control system | Static test, at the Tram Supplier's Factory | 8.16 | Tram central control system and interfaces, fault monitoring and diagnostics. |
| Operability and maintainability | Static test, at the Tram Supplier's Factory | 8.17 | Verification of conformity with the proposed and agreed design. Operator and maintainer access to all appropriate areas. |
| Safety systems | Static test, at the Tram Supplier's Factory | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman system, door safety loop. Emergency pushbutton, Track brakes. Horns/warning devices. |
| Windscreen washers, wipers and demisters | Static test, at the Tram Supplier's Factory | 9.18 | System operation and effectiveness, demisters. |
| Pantograph | Static test, at the Tram Supplier's Factory | 9.12 | Operation. Contact forces. |
| Sanding system | Static test, at the Tram Supplier's Factory | | System operation. Sand delivery rate. Coherence between VTCU output and the correct sanding unit. |
| Flange lubrication system. | Static test, at the Tram Supplier's Factory | 9.11 | Set-up of equipment. |
| Visual examination of all client defined features | Static test, at the Tram Supplier's Factory | HMRI, RVAR | Interior layout, seating, livery and signage. |
| Emergency coupler | Static test, at the Tram Supplier's Factory | | Check of mountings / space envelope. manual operation. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 295 |

Table 49 - Factory Acceptance Tests: Dynamic Type Tests

| TEST | LOCATION | EN50215 Reference | COMMENTS |
|-----------------------------|---|-------------------|---|
| Traction system performance | Dynamic test, at the Tram Supplier's Factory test track | 9.1 | Dynamic performance, acceleration and braking rates. Jerk rates. Current collection. Degraded modes. Speed attainment. Power consumption. Wheelslip correction and sanding. Simulated locked axle detection |
| Braking system | Dynamic test, at the Tram Supplier's Factory test track | 9.3 | Friction brake system, service and emergency deceleration rates and stopping distances. Dynamic brake operation and blending with friction brake, jerk rates. Wheelslide correction and sanding. Track brake operation. |
| Thermal capacity | Dynamic test, at the Tram Supplier's Factory test track | 9.4 | Temperature rise monitoring of traction, braking & auxiliary equipment during repeated duty cycles. Including degraded modes and emergency duty. |
| Motion resistance | Dynamic test, at the Tram Supplier's Factory test track | 9.5 | Demonstration/derivation of Tram resistance to motion. |
| Coupling test | Dynamic test, at the Tram Supplier's Factory test track | 9.8 | Coupled Tram operation with emergency couplers, as far as practical and subject to availability of two Trams. |
| Ride quality | Dynamic test, at the Tram Supplier's Factory test track | 9.9 | Assessment of Tram ride quality, (providing that the test is meaningful at this location). |
| Flange lubrication system. | Dynamic test, at the Tram Supplier's Factory test track | 9.11 | System operation. |
| Pantograph | Dynamic test, at the Tram Supplier's Factory test track | 9.12 | Operation, Functional check. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 296 |

Edinburgh Tram Network - Employer's Requirements

Section 23 – Testing and Commissioning

| TEST | LOCATION | EN50215 Reference | COMMENTS |
|--|---|-------------------|--|
| Electromagnetic compatibility | Dynamic test, at the Tram Supplier's Factory test track | 9.14 | Electromagnetic radiation and susceptibility of vehicle systems. See also EN 50121, within the constraints of the test track. |
| Voltage interruption and jump | Dynamic test, at the Tram Supplier's Factory test track | 9.15 | Reaction of traction/dynamic brake/auxiliary power systems to supply voltage interruptions jumps. Operation over the full-specified voltage range covered by the type test certificate of the traction and auxiliary equipment (as far as practicable at the test location). |
| Windscreen washers, wipers and demisters | Dynamic test, at the Tram Supplier's Factory test track | 9.18 | System operation and effectiveness, including demisters. |
| Tram control system | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | Interfaces between traction, braking, auxiliary, control and safety systems. Tram management systems, displays and diagnostics. |
| Monitoring equipment | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | CCTV System, cameras and displays. |
| Event recorder | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | OTMR, (as far as practicable at the test location). |
| Communications & passenger information systems | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | Radios, PA, emergency communications. Warning tones. Passenger information system as far as practicable at the test location. |
| Safety systems | Dynamic test, at the Tram Supplier's Factory test track | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman system, door safety loop and speed inhibit. Emergency pushbutton, Track brakes. Horns/warning devices. Speedometer calibration. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 297 |

Edinburgh Tram Network - Employer's Requirements

Section 23 – Testing and Commissioning

| TEST | LOCATION | EN50215 Reference | COMMENTS |
|-------------------------------|---|----------------------|---|
| Operability & maintainability | Dynamic test, at the Tram Supplier's Factory test track | 8.17 | Demonstration of degraded modes |
| Parking brake | Dynamic test, at the Tram Supplier's Factory test track | 8.11 | System operation and pull away test |
| Noise and vibration | Dynamic test, at the Tram Supplier's Factory test track | 9.16 | Noise and vibration measurements, as far as practicable at the test location. |

Table 50 - Factory Acceptance Tests: Static Routine Tests

| TEST | LOCATION | EN 50215 Reference | COMMENTS |
|---|---|-----------------------|---|
| Overall dimensional checks | Static test, at the Tram Supplier's Factory | 8.1.2 | Reduced overall dimension check. |
| General examination and security check. | Static test, at the Tram Supplier's Factory | | To establish accuracy and security of fixing of fixtures and fittings. |
| Tram weight | Static test, at the Tram Supplier's Factory | 8.4.3 | Tram, and axle, weights. |
| Sealing | Static test, at the Tram Supplier's Factory | 8.5.2 | Resistance of body structure to water ingress |
| Electrical insulation | Static test, at the Tram Supplier's Factory | 8.6 | High voltage insulation tests. Withstand and impedance of all cabling. |
| Bonding and return circuits | Static test, at the Tram Supplier's Factory | 8.7 | Continuity & integrity of all safety earth bonds and return current circuits. |
| Hydraulic system | Static test, at the | 8.9 | Pumps and pipe-work. Pressure tests. Leakage. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 298 |

Edinburgh Tram Network - Employer's Requirements

Section 23 – Testing and Commissioning

| TEST | LOCATION | EN 50215 Reference | COMMENTS |
|--|---|--------------------|--|
| | Tram Supplier's Factory | | |
| Braking System | Static test, at the Tram Supplier's Factory | 8.10.2 | Friction brake system functional test including parking brake |
| Auxiliary power supply | Static test, at the Tram Supplier's Factory | 8.12.2 | Power supplies and associated equipment. |
| Battery charging system | Static test, at the Tram Supplier's Factory | 8.13.2 | Batteries, battery chargers and associated equipment. |
| Auxiliary and control system | Static test at the Tram Supplier's Factory | 8.14.1 | Tram control and management system. Drivers' controls and instruments. |
| Doors | Static test, at the Tram Supplier's Factory | 8.14.3 | Passenger doors, driver's doors. Emergency access and egress. Operation & timing |
| Heating, ventilation and air-conditioning | Static test, at the Tram Supplier's Factory | 8.14.4 | System operation and effectiveness. Thermostats, air flows. Hot/cold areas. Duct sealing. Functional check |
| Lighting | Static test, at the Tram Supplier's Factory | 8.14.5 | Interior and exterior lighting. Functional check. |
| Monitoring equipment | Static test, at the Tram Supplier's Factory | 8.14.7 | CCTV System, cameras and displays. |
| Event recorder | Static test, at the Tram Supplier's Factory | 8.14.7 | OTMR, (as far as practicable at the test location). |
| Communications and passenger information systems | Static test, at the Tram Supplier's Factory | 8.14.7 | Radio, PA, emergency communications (as far as practicable). Warning tones. Passenger information system. |
| Configuration control | Static test, at the Tram Supplier's Factory | 8.14.8 | Verification of defined software and firmware status for all sub-systems. Modification status for all major and critical components and others as appropriate. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 299 |

Edinburgh Tram Network - Employer's Requirements
Section 23 – Testing and Commissioning

| TEST | LOCATION | EN 50215 Reference | COMMENTS |
|---|---|--------------------|--|
| Traction system | Static test, at the Tram Supplier's Factory | 8.16 | Motors, gearboxes, control equipment, power supplies and current collection. |
| Tram control system | Static test, at the Tram Supplier's Factory | 8.16 | Tram central control system and interfaces, fault monitoring and diagnostics. |
| Operability and maintainability | Static test, at the Tram Supplier's Factory | 8.17 | Fault handling, diagnostics and indications. Safety isolations. |
| Safety systems | Static test, at the Tram Supplier's Factory | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman system, door safety loop. Emergency pushbutton, Track brakes. Horns/warning devices. |
| Windscreen washers, wipers and demisters | Static test, at the Tram Supplier's Factory | 9.18 | Functional check including demisters. |
| Pantograph | Static test, at the Tram Supplier's Factory | 9.12 | Operation. Contact forces |
| Sanding system | Static test, at the Tram Supplier's Factory | | System operation. Sand delivery rate. |
| Flange lubrication system. | Static test, at the Tram Supplier's Factory | 9.11 | Set-up of equipment. |
| Visual examination of all client defined features | Static test, at the Tram Supplier's Factory | | Interior layout, seating, livery and signage. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 300 |

Table 51 - Factory Acceptance Tests: Dynamic Routine Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|--|---|--------------------|---|
| Traction system performance | Dynamic test, at the Tram Supplier's Factory test track | 9.1.2 | Dynamic performance, acceleration and braking rates. Current collection. Speed attainment. Wheelslip correction and sanding. |
| Braking system | Dynamic test, at the Tram Supplier's Factory test track | 9.3.2 | Friction brake system, service and emergency deceleration rates and stopping distances. Dynamic brake operation and blending with friction brake, Wheelslide correction and sanding. Track brake operation. |
| Flange lubrication system. | Dynamic test, at the Tram Supplier's Factory test track | 9.11 | System operation, as far as practicable. |
| Tram control system | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | Interfaces between traction, braking, auxiliary, control and safety systems. Tram management systems, displays and diagnostics. |
| Monitoring equipment | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | CCTV System, cameras and displays. |
| Event recorder | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | OTMR, (as far as practicable at the test location). |
| Communications and passenger information systems | Dynamic test, at the Tram Supplier's Factory test track | 9.19 | PA, emergency communications. Warning tones. Passenger information system (as far as practicable at the test location). |
| Safety systems | Dynamic test, at the Tram Supplier's Factory test track | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman system, door safety loop and speed inhibit. Emergency pushbutton, Track brakes. Horns/warning devices. Speedometer calibration. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 301 |

23.20 Delivery Acceptance Tests (DAT)

These tests shall be carried out by the Tram Supplier upon the delivery of each Tram. They shall establish that the Tram has not been damaged or affected in any way by the delivery process and that it remains in the condition in which it was inspected prior to despatch from the Tram Supplier's factory. On satisfactory completion of the DAT the Tram Inspector will issue a Certificate of Tram Delivery.

| TEST | LOCATION | EN 50215 Reference | Comments |
|---|---------------------------|--------------------|--|
| Overall dimensional checks | Static test, at the Depot | | Reduced to any parts or components which will be adjusted/removed during the transport. |
| General examination and security check. | Static test, at the Depot | | To establish accuracy and security of fixing of all fixtures and fittings, transit damage. Visual inspection |
| Hydraulic system | Static test, at the Depot | 8.9 | Pumps and pipe-work. Visual inspection and checks for leakage. |
| Tram weight | Static test, at the Depot | | Measurement of as-delivered tare weight, plus sand and fluids. |

Table 52 – Table showing Delivery Acceptance Tests

23.20.1 Site Commissioning Tests

The Site Commissioning Type Tests shall be undertaken on the Tram(s) as appropriate, when they are delivered to the Depot and following the completion of the DAT. Upon successful completion the Tram Supplier will be issued with a Site Commissioning Type Test Certificate by the Tram Inspector. The tests shall comprises Static and Dynamic tests and will include, but not be limited to, the tests referred to in the tables on the following page.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 302 |

For the avoidance of doubt the Tram Inspector shall not issue a Type Test Certificate even if by a lack or fault of the system infrastructure a test is failing or cannot be executed.

Table 53 – Site Commissioning Tests: Static Type Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|--|---------------------------|--------------------|--|
| Monitoring equipment | Static test, at the Depot | 8.14.7 | CCTV System, cameras and displays. |
| Tram location and detection system | Static test, at the Depot | 8.14.7 | Tram location and detection system. |
| Event recorder | Static test, at the Depot | 8.14.7 | OTMR |
| Communications and passenger information systems | Static test, at the Depot | 8.14.7 | Radios, PA, emergency communications. Warning tones. Passenger information system. |
| Noise. | Static test, at the Depot | 8.18 | Noise (outstanding from factory), internal & external. At same time as dynamic and performed on specified track section. |
| Safety systems | Static test, at the Depot | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's Deadman system, door safety loop. Emergency pushbutton, Track brakes. Horns/warning devices. Speedometer |
| Pantograph | Static test, at the Depot | 9.12 | Operation. Contact forces. |
| Electromagnetic compatibility | Static test, at the Depot | 9.14 | Electromagnetic radiation and susceptibility of Tram systems. Completion of the Tram FAT type test. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 303 |

Table 54 – Site Commissioning Tests: Dynamic Type Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|-----------------------------|---------------------------------------|--------------------|---|
| Traction system performance | Dynamic test, at designated test site | 9.1.1 | Dynamic performance, acceleration & braking rates. Jerk rates. Acceleration and control on gradients. Roll-back protection. Current collection. Speed attainment. Power consumption. Wheel-slip correction and sanding. Emergency duty. |
| Braking system | Dynamic test, at designated test site | 9.3.1 | Friction brake system, service and emergency deceleration rates and stopping distances. Dynamic brake operation and blending with friction brake, jerk rates. Wheel-slip correction and sanding. Track brake operation. |
| Thermal capacity | Dynamic test, at designated test site | 9.4 | Temperature rise monitoring of traction, braking and auxiliary equipment during repeated duty cycles. Including degraded modes and emergency duty. |
| Tram/track interaction | Dynamic test, at designated test site | 9.8 | Wheel rail interaction. Load testing of the complete vehicle and the checking of critical dimensions and clearances under a range of loading conditions. Suspension deflections and inter-vehicle clearances. Safety against derailment. Coupled Tram operation |
| Ride quality | Dynamic test, at designated test site | 9.9 | Assessment of Tram ride quality. |
| Kinematic gauging | Dynamic test, at designated test site | 9.10 | Dynamic performance, kinematics and gauging. Load testing of the complete vehicle and the checking of critical dimensions, swept path and clearances under load conditions. Suspension deflections. Pantograph sway, |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 304 |

Edinburgh Tram Network – Employer's Requirements

Section 23 – Testing and Commissioning

| TEST | LOCATION | EN 50215 Reference | Comments |
|------------------------------------|---------------------------------------|--------------------|--|
| Flange lubrication system. | Dynamic test, at designated test site | 9.11 | System operation. |
| Pantograph | Dynamic test, at designated test site | 9.12 | Included in Kinematic gauging |
| Electromagnetic compatibility | Dynamic test, at designated test site | 9.14 | Electromagnetic radiation and susceptibility of Tram systems. |
| Noise and vibration | Dynamic test, at designated test site | 9.16 | Noise and vibration tests performed on the specified section of track. |
| Safety Systems | Dynamic test, at designated test site | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman system, door safety loop and speed inhibit. Emergency pushbutton, Track brakes. Horns/warning devices. Speedometer. Event Recorder (OTMR). |
| Tram location and detection system | Dynamic test, at designated test site | 8.14.7 | Tram location and detection system. |
| Operability and maintainability | Dynamic test, at designated test site | 8.17 | Coupling test and recovery. |
| Parking brake | Dynamic test, at steepest gradient | 8.11 | System operation, effectiveness on steepest available gradient. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 305 |

The Site Commissioning Routine Tests shall be performed on each Tram and comprise static and dynamic tests. This shall comprise of a full functional test, both statically and dynamically, of the Tram, including inspection, examination or testing of all major systems, sections, apparatus, equipment, components, internal seating, fixtures and fittings and devices (including testing the same whilst in operation); with the further inclusion of electrical, hydraulic and other major components and assemblies, as far as practical, at the test location.

The Site Commissioning Routine Test will be designed to establish that each individual tram functions in accordance with the design. It is not intended that the routine test should be a full re-working of the either the type test or the factory tests merely confirmation through carefully targeted testing that the build was correct., It will confirm that it is in a suitable condition to operate safely on the system. Upon successful completion of the Routine Tests the Tram Supplier will be issued with a Certificate of Tram Commissioning by the Tram Inspector.

Whether or not the Tram Inspector is in attendance at a Site Commissioning Test, the Tram Supplier shall keep and make available to the Tram Inspector on request true and accurate records of the Site Commissioning Test conducted, the performance of the Tram during such tests and any faults which developed or became apparent during the course of such tests.

23.20.2 Re-Testing

The Tram Supplier shall, if requested by the Tram Inspector, undertake such further examinations and tests as the Tram Inspector may reasonably require to satisfy himself that a Tram and/or the Trams qualify for a Certificate of Tram Commissioning

23.20.3 Testing Support

The Operator shall make the following available where required by the Testing and Commissioning Plan, (and agreed by Infraco):

- Depot and workshop facilities at the Depot;
- Reasonable assistance from its drivers, maintenance and other staff; and
- Track, power supplies and other facilities, as agreed, to meet the needs of the Tram Testing and Commissioning Plan.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 306 |

All parties involved and their respective representatives and staff shall:

- Observe such reasonable requirements as may be notified in writing by the Operator or to preserve health and safety, protect the Trams against damage and avoid unnecessary disruption to the Operator's operations.
- Use all reasonable endeavours to avoid risks to health and safety, damage to the Trams or unnecessary disruption to the Operator's operations.
- The Tram Supplier shall make available throughout the Tram Commissioning Tests qualified staff from the Tram Supplier's organisation and, where appropriate, its major sub-contractors to:
 - Conduct, supervise and record the results of all such inspections, tests and examinations as are referred to in this document; and
- Respond to all reasonable enquiries about the condition or performance of the Trams or the major systems, sections, apparatus, equipment, components, internal seating, fixtures and fittings and devices, including all structural, electrical, hydraulic and other major components and assemblies and to rectify any failures of the same.

Table 55 – Site Commissioning Tests: Static Routine Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|--|---------------------------------|-----------------------|--|
| Braking system | Static test, at the Depot | 8.10.2 | Friction brake system, including parking brake |
| Monitoring equipment | Static test, at the Depot | 8.14.7 | CCTV System, cameras and displays. |
| Event recorder | Static test, at the Depot | 8.14.7 | OTMR, |
| Tram location and detection system | Static test, at the Depot | 8.14.7 | Tram Location and Detection equipment. |
| Communications and passenger information | Static test, at the Depot | 8.14.7 | Radios, PA, emergency communications. Warning tones. Passenger information system. |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 307 |

Edinburgh Tram Network – Employer's Requirements

Section 23 – Testing and Commissioning

| TEST | LOCATION | EN 50215 Reference | Comments |
|---|---------------------------|--------------------|---|
| systems | | | |
| Configuration control | Static test, at the Depot | 8.14.8 | Verification of defined software and firmware status for all sub-systems. Modification status for all major and critical components and others as appropriate. |
| Traction system | Static test, at the Depot | 8.16 | Motors, gearboxes, control equipment, power supplies and current collection. |
| Safety systems | Static test, at the Depot | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman system, door safety loop. Emergency pushbutton, Track brakes. Horns/warning devices. Speedometer. |
| Windscreen washers, wipers and demisters | Static test, at the Depot | 9.18 | System function |
| Pantograph | Static test at the Depot | | Contact forces and operation. |
| Sanding system | Static test, at the Depot | | System function. |
| Doors | Static test at the Depot | | Cycle times. |
| Heating, ventilation and air-conditioning | Static test, at the Depot | 8.14.4 | Functional check |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 308 |

Table 56 – Site Commissioning Tests: Dynamic Routine Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|-----------------------------|---------------------------------------|--------------------|---|
| Traction system performance | Dynamic test, at designated test site | 9.1.2 | Dynamic performance, acceleration & braking rates. Speed attainment. Operation through supply interruptions and at varying line voltages. |
| Braking system | Dynamic test, at designated test site | 9.3.2 | Friction brake system, service and emergency deceleration rates and stopping distances. Dynamic brake operation and blending with friction brake, sanding. Track brake operation. |
| Ride quality | Dynamic test, at designated test site | 9.9.2 | Subjective ride test to discern any obvious ride irregularity. |
| Flange lubrication system. | Dynamic test, at designated test site | 9.11 | System function. |
| Noise and vibration | Dynamic test, at designated test site | 9.16.2 | Subjective noise and vibration assessment to discern any obvious irregularity. |
| Tram control system | Dynamic test, at designated test site | 9.19 | Interfaces between traction, braking, auxiliary, control and safety systems. Tram management systems, displays and diagnostics. |
| Monitoring equipment | Dynamic test, at designated test site | 9.19 | CCTV System, cameras and displays. |
| Event recorder | Dynamic test, at designated test site | 9.19 | OTMR |
| Tram location and | Dynamic | 9.19 | Tram location equipment |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 309 |

| TEST | LOCATION | EN 50215 Reference | Comments |
|--|---------------------------------------|--------------------|---|
| detection system | test, at designated test site | | |
| Communications and passenger information systems | Dynamic test, at designated test site | 9.19 | Radios, PA, emergency communications. Warning tones. Passenger information system (as appropriate). |
| Safety systems | Dynamic test, at designated test site | 8.19 | Brake control systems, emergency brake, passenger emergency. Driver's deadman's system, door safety loop and speed inhibit. Emergency pushbutton, Track brakes. Horns/warning devices. Speedometer calibration. |
| Parking brake | Dynamic test, at designated test site | 8.11 | System function Part of braking test |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 310 |

23.21 System Integration Tests (SIT)

The System Integration Tests consist of tests carried out to prove that the ETN as a whole can function as intended. All infrastructure, operation and control systems shall be exercised during these tests. The Tram Supplier will provide reasonable input to the development of the SAT specifications as well as participation in, and support to, the tests whenever reasonable technical support is needed in reference to the Trams.

The System Integration Tests will include, but will not be limited to, the following:

- Comprehensive gauging and dimensional checks under a range of loading conditions;
- Run time tests;
- Interface checks to all items of workshop plant and equipment including the wheel lathe, Tram washing machine, sanding plant, cranes and hoists;
- Access and handling checks for all major items of equipment, sub-assemblies and major capital spares items;
- Validation of the radio communication system; and
- Validation of the tram position detector system.

The System Integration Tests will involve carrying out gauging runs over all parts of the ETN in order to establish that the Trams (when operating individually or in conjunction with other Trams) accord with the Tram Section and the agreed detailed interface arrangements in terms of the alignment geometry, clearances, loads, pantograph dynamics, wheel rail interface, traction power system, communications and route setting equipment, compliance with operational procedures and Tram performance values. In particular it shall be demonstrated that there is sufficient clearance between passing Trams on the Network and between Trams and other Network equipment and installations to ensure that the Trams can be operated safely and without damage to themselves and to the other parts of the System.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 311 |

There shall be static and dynamic tests to verify that the pantograph conforms to the requirements of the Employer's Requirements.

There shall be a series of tests to demonstrate the ability of one Tram to recover another failed Tram, including on the most severe gradient on the ETN and potentially in a degraded mode.

The testing of the systems, including but not limited to; power supplies, overhead line, Depot equipment, and EMC tests will require the use of a number of Trams running at the same time.

Table 57 – System Integration Tests: Static Type Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|--|---------------------------|--------------------|--|
| Lifting ability | Static test, at the Depot | 8.3 | Body Lifting and major component removal. Bogie handling. |
| Battery charging system | Static test, at the Depot | 8.13 | Battery access for maintenance and topping up. Operation and suitability of external battery chargers. |
| Monitoring equipment | Static test, at the Depot | 8.14.7 | CCTV System, Interface with the Depot systems. |
| Event recorder | Static test, at the Depot | 8.14.7 | OTMR, Interface with the Depot systems. |
| Tram location and detection system | Static test, at the Depot | 8.14.7 | Tram location equipment. |
| Communications and passenger information systems | Static test, at the Depot | 8.14.7 | Radios, PA, emergency communications. Warning tones. Passenger information system. Interface with the Depot systems. |
| Traction system | Static test, at the Depot | 8.16 | Power supply interaction. |
| Operability and maintainability | Static test, at the Depot | 8.17 | Review and demonstration of accessibility and removal of components. Fault handling, diagnostics and indications. Safety issues. |
| Noise and vibration. | Static test, at the Depot | 8.18 | Noise and vibration levels, internal and external. |
| Pantograph | Static test, at | 9.12 | Operation. Contact forces. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 312 |

| TEST | LOCATION | EN 50215 Reference | Comments |
|---|---------------------------|--------------------|--|
| | the Depot | | |
| Sanding system | Static test, at the Depot | | Refilling system. Verification that the fill level can be observed from inside the tram. |
| Flange lubrication system. | Static test, at the Depot | 9.11 | Refilling. |
| Visual examination of all client defined features | Static test, at the Depot | HMRI, RVAR | Interior layout, seating, livery and signage |
| Electromagnetic compatibility | Static test, at the Depot | 9.14 | Electromagnetic radiation and susceptibility of vehicle systems. |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 313 |

Table 58 – System Integration Tests: Dynamic Tests

| TEST | LOCATION | EN 50215 Reference | Comments |
|-------------------------------|---------------------------------------|--------------------|---|
| Tram/track interaction | Dynamic test, at designated test site | 9.8 | Wheel rail interaction. Load testing of the complete vehicle and the checking of critical dimensions and clearances under a range of loading conditions. Suspension deflections and inter-vehicle clearances. |
| Kinematic gauging | Dynamic test, at designated test site | 9.10 | Dynamic performance, kinematics and gauging. Load testing of the complete vehicle and the checking of critical dimensions, swept path and clearances under a range of loading conditions. Suspension deflections. RVAR and HMRI requirements. |
| Platform gauging | Dynamic test, at designated test site | 9.10 | Platform stepping distance and heights, tare and loaded conditions. RVAR requirements. |
| Flange lubrication system. | Dynamic test, at designated test site | 9.11 | Effectiveness. |
| Pantograph | Dynamic test, at designated test site | 9.12 | Operation, contact forces, sway. OLE deflection. |
| Electromagnetic compatibility | Dynamic test, at designated test site | 9.14 | Electromagnetic radiation and susceptibility of vehicle systems. |
| Voltage interruption and jump | Dynamic test, at designated test site | 9.15 | Reaction of traction/dynamic brake/auxiliary power systems to supply voltage interruptions, jumps and short circuits. Operation over full-specified voltage range. |
| Noise and vibration. | Dynamic test, at designated test site | 9.16 | Noise and vibration levels. |
| Monitoring equipment | Dynamic test, at designated | 9.19 | CCTV System, cameras and displays. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 314 |

| TEST | LOCATION | EN 50215 Reference | Comments |
|--|---------------------------------------|--------------------|--|
| | test site | | |
| Tram location and detection system | Dynamic test, at designated test site | 9.19 | Tram location equipment, throughout the available route. Road junction and point motor control. |
| Communications and passenger information systems | Dynamic test, at designated test site | 9.19 | Radios, PA, emergency communications. Reception and effective communication with the Depot throughout the available route. Warning tones. Passenger information system |
| Operability and maintainability | Dynamic test, at designated test site | 8.17 | Review of all systems as required. Demonstration of degraded modes and recovery practices. Coupling test |
| Traction supply | Dynamic test, at designated test site | | Sub-station load tests, sub-station outages. Regeneration. Overload protection, touch voltage and stray current tests. |
| Section run times | Dynamic test, throughout the System | | Proving of the System infrastructure in stages as it becomes available to operate. |

23.21.1 System Acceptance Testing

Tram testing will be undertaken in support of the system acceptance testing set out in these Employer's Requirements.

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 315 |

24 Trams

24.1 Scope

This section defines the requirements for Trams that are applicable to the Edinburgh Tram Network and with which the Infraco must comply.

24.2 General Technical Specification

The Trams shall be of a high quality in design and construction and comply with the following general design criteria:

- High safety standards including, but not limited to:
 - Compliance with Railway Safety Publication 2 - Guidance on Tramways, issued by the Office of the Rail Regulator;
 - Compliance with Rail Vehicle Accessibility Regulations, 1998;
- High reliability, minimum maintenance requirement and ease of repair;
- Proven design and technology;
- Low floor access;
- Easy to clean;
- Modern and attractive appearance;
- Low weight;
- Low environmental impact;
- Meets access requirements for the disabled;
- Minimum use of energy;
- The Trams will be required to have a minimum operating capability of at least 100,000 km per year; and

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 316 |

The Trams shall be designed to have a minimum service life in accordance with Section 6 of these Employer's Requirements.

The Trams shall be articulated in order to negotiate the track alignment. They will be fully bi-directional and capable of being driven from either end and shall have passenger doors on both sides. They will be capable of being operated by one person.

Normal service Trams shall comprise one vehicle, but shall be capable of running coupled together for the purpose of one Tram recovering another failed Tram from any point on the system.

The Tram should be designed and constructed in accordance with a Quality Plan (as prescribed under ISO9001), which should also include a delivery plan and a Test Plan.

A full-scale Tram mock-up shall be provided to demonstrate areas critical to operation and access as part of the formal design process and for use in public consultation. The mock-up shall include the entire cab and a representative portion of one saloon, including a vestibule with at least one operational pair of bi-parting doors and space reserved for wheelchair use. The mock-up shall show the exterior form and livery. The mock-up shall be weatherproof and shall be delivered to a location in Edinburgh designated by tie.

24.3 Wheel / Rail Interface

The Trams shall have a wheel profile and suspension characteristic that is compatible with the rail profiles used throughout the System in terms of risk of derailment, noise, wear and vibration. The wheel profile shall allow for flange running at crossings. The Tram will be designed to operate in conjunction with a track gauge of 1,435mm and a flange back-to-back dimension consistent with the rail types to be used on the Edinburgh Tram Network.

24.4 Tramway Path

Trams shall be compatible with the System track alignment and the geometric constraints as outlined in Section 26 of these Employer's Requirements, which gives the alignment criteria and the assumed Tram characteristics. From this the developed kinematic envelope ("DKE") calculations and any other information, to show compatibility with the alignment, shall be provided by the Infraco. The Trams shall negotiate the minimum radius horizontal and vertical curves, and maintain acceptable wheel flange wear.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 317 |

Minimum clearances to existing structures, Tramstops, overhead line equipment structures and all other road furniture shall be maintained in accordance with the agreed DKE and it shall always be possible for one Tram to pass another, at any point on the system. The Infraco shall ensure that the Tram Supplier shall provide supporting information to enable a reduced DKE to be developed for use in locations where restricted speeds are or may require to be applied.

24.5 Supervisory, Control & Communications Systems

The Trams shall be fitted with equipment to automatically indicate their position to, and communicate with, a central control centre.

Additionally, a bus tracker box will be fitted.

A voice radio system will be permanently available between the driver and the central control centre. This equipment will be supplied by Infraco and will be free-issue to the Tram Supplier, to be installed and tested as part of the Tram manufacturing process.

The supply and integration of the free-issue equipment will be controlled through a system interface register, to be developed from Schedule 22 of the TSA and managed by Infraco.

All on-board systems with real-time clocks shall be updated and synchronised from a common source, throughout the working life of the Tram.

24.6 Depot Facilities

The Trams shall be maintained at the Depot and a system interface register shall be used to ensure that the Trams and the equipment provided for their routine maintenance and operation are compatible.

The Trams shall be compatible with a mechanised sand filling system at the Depot (see Section 29 of these Employer's Requirements), enabling the sand system on the Trams to be replenished within five minutes and by one driver alone. The Infraco shall ensure that the Tram Supplier shall provide a specification for the sand, and contact details for a UK-based commercial supplier of this sand.

The Trams shall have a key suiting system that provides a logical hierarchy of access to cleaners, inspectors, drivers and maintenance staff. It shall not be part of the same suite as detailed in Section 22 of these Employer's Requirements.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 318 |

The Trams shall be supplied with a nominal 24VDC shore supply, socket compatible with battery charging equipment in the depot.

24.7 Electro-Magnetic Compatibility

The Trams and their sub-systems shall not generate excessive, nor be susceptible to, electro-magnetic interference and shall comply with EN 55013, EN 50121 and EN 50122 as appropriate. the requirements of the specification as detailed in section 16 of these Employer's Requirements.

24.8 Climate and Environment

The Trams shall operate normally in all climatic and environmental conditions found in the Edinburgh area on the proposed route, including operation in a marine environment having a saline atmosphere and being subject to fine wind-blown sand. This shall also include conditions where ice forms on the overhead line and wind speeds of up to 120km/h.

The Trams shall function, without deterioration in performance and for their whole design working life, within the weather conditions anticipated within the Edinburgh area as described elsewhere in Section 3.6.4 of these Employer's Requirements - taking into account the previously quoted wind speed. All equipment housings/enclosures that contain electronic equipment shall be so equipped to avoid the occurrence of condensation. The Trams shall be capable of being started up normally under the range of weather conditions as outlined above after no less than 72 hours of being left in the open in a shutdown condition.

24.9 Interface Management

The Infraco shall procure that the Tram Supplier participates in the interface engineering process. The Tram interfaces are identified in the TSA. The management of the interfaces will be carried out by Infraco using the system interface register.

24.10 Systems Assurance

The Infraco shall ensure that the Tram Supplier shall implement a System Assurance engineering process in accordance with the requirements of the Edinburgh Tram Network. This process shall cover all aspects of design, manufacture, integration, testing and commissioning of the Tram, and all interfaces with the system, to demonstrate compliance with the reliability, availability, maintainability and safety requirements of tie.

The Infraco shall ensure that the Tram Supplier shall follow the approach of BS EN 50126:1999 "Railway Applications – The specification and demonstration of RAMS".

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 319 |

The Infraco shall ensure that the Tram Supplier shall implement a reliability, availability and maintainability management process and will detail it in a Reliability, Availability and Maintainability Plan (RAMP).

The Infraco shall ensure that the Tram Supplier shall implement a System Safety Management Plan (SSMP), which shall define the process, activities and requirements for the preparation of a 'Case for Safety' during the design and handover stages of the project. The plan shall also define the system safety management organisation and the strategy to achieve the individual hazard system safety targets.

All foreseeable system safety hazards are to be identified, evaluated and recorded in a Hazard Log that will be managed and maintained throughout the project lifecycle. The Infraco shall ensure that the Tram Supplier shall implement a hazard management process to identify hazards through hazard analysis and the means to mitigate these hazards.

24.11 Noise and Vibration

Trams shall at all times meet the requirements of the tie Noise and Vibration Policy (NVP/001/V1.01). Trams shall operate as quietly as is reasonably possible. The proposed design shall incorporate wheel damping, side skirts with sound-deadening linings and resilient mounting of electrical equipment likely to generate noise. The Infraco shall ensure that the Tram Supplier shall provide the anticipated noise levels of the proposed Tram. Noise tests shall be carried out in Edinburgh to determine the frequency peaks generated, in particular by the wheels. The results of these tests shall be used to determine the type and extent of any tuned vibration dampers that should be fitted to the wheels.

24.12 Specific Technical Requirements

The Tram body shall be a nominal width of 2.65m externally. Note that external door sills may be required in order to comply with Rail Vehicle Accessibility Regulations.

The total Tram length shall be a nominal value of up to 44m.

The following loading conditions shall apply in this document:

- AW0 = Tram tare weight (empty car)
- AW1 = AW0 + full load of seated passengers
- AW2 = AW1 + weight of standing passengers at 4 persons/m²

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 320 |

- $AW3 = AW1 + \text{weight of standing passengers at } 5 \text{ persons/m}_2$
- $AW4 = AW1 + \text{weight of standing passengers at } 6 \text{ persons/m}_2$
- $AW5 = AW1 + \text{weight of standing passengers at } 8 \text{ persons/m}^2$

Where the mean passenger weight is taken to be 70.5kg.

The passenger capacity of the tram shall be at least 230 persons, of which a minimum of 80 shall be seated, on fixed seats. There shall in addition be provision for wheelchairs in accordance with Rail Vehicle Accessibility Regulations. There shall also be provision for luggage racks.

At least 66% of the floor area available for standing must be low-floor, with a height above rail level of between 300mm and 400mm. High floor areas shall be minimised. All doorways shall allow level boarding access at a height between 300-350mm above the top of the rail. The slope of the floor at the entrance shall be in accordance with disabled access regulations. Suitable means of adjustment shall be provided to compensate for wheel wear in order to remain within these limits.

The Tram shall have a maximum operating speed of up to 70km/h. However, a speed of 80km/h must be achievable, though not sustainable for a prolonged period.

The Tram structure will incorporate a strong and stiff underframe capable of supporting a buffing load in compliance with EN 12663 category V without permanent deformation. The structure shall not deform, crack, fracture, corrode or suffer loosening of rivets or bonding during the normal service life of the vehicle. It shall be, and remain, watertight against rain, passing through standing water and passing through the washing plant throughout its working life.

The tram structure shall be designed and tested to accommodate a passenger loading of AW5 as defined earlier in this clause.

All cavities in the floor structure, body sides and ceiling will be well drained and constructed in such a way that water does not collect and corrosion does not occur. Insulation material will fill all void spaces to minimise noise, vibration and heat loss.

The articulated joints will provide a wide gangway and resistance to vehicle climbing in the event of a collision. The articulation will require minimum maintenance and be capable of being dismantled to separate the Tram bodies with a minimum of equipment.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 321 |

Where different metals are in contact, due regard shall be given to preventing the effects of dissimilar metal corrosion. All metal surfaces shall be treated to resist corrosion. All body panels will be interchangeable between vehicles and all exterior panels will be lined with water resistant, sound absorbing and heat insulating materials to minimise the possibility of resonance.

Easily replaceable energy absorption devices shall be provided at both ends of the Tram such that frontal and rearward collisions, at speeds up to 5 km/hr shall be fully absorbed without causing permanent deformation of the body structure. The front skirts and lower body side panels shall be mechanically fastened so as to allow easy replacement and shall be interchangeable between Trams. Each panel must be able to be replaced by one person in ten minutes.

The Trams shall be designed to be resistant to fire in accordance with the standard BS6853 Category 2, or the equivalent European Standard.

The maximum axle load at AW4 loading, and including all consumables, shall be 11.5 tonnes.

The windscreen shall be compliant to the equivalent International Regulation ECE 43 (Uniform Provisions Concerning the Approval of Safety Glazing and Glazing Materials (Rev1 08.1990). The windscreen and cab side windows shall consist of laminated glass panes made of safety glass. There should be no diffraction effects or colour distortions in the cab windows. Any glass screens dividing the driver's cab from the saloon shall be treated to minimise reflections. All internal glazing shall be made from safety glass.

The side windows (including the door windows) will be made from heat reflecting safety glass. The glazed area shall be maximised within the limits set by structural integrity, solar gain and passenger modesty. Passengers must have a clear view to the exterior whether seated or standing. Tinted windows shall be used to minimise dazzling.

The windows shall allow permeability for radio waves with frequencies for Global System for Mobile telecommunications, and other public-domain transmissions.

All windows, (including the driver's windscreen) shall be easily replaceable using standard methods and tooling available in the Depot. All glass surfaces must be replaceable within two hours and should be secured so as to be watertight and draught-proof. Bonded glass is not preferred, unless it can be demonstrated that the bonded glazed units can be easily interchanged in less than two hours. Bonding to a mechanically-fixed window frame, or securing using a rubber section, is preferred.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 322 |

If the windows used are bonded, they should have a black, printed ceramic silk screen print to cover the bonding zone and protect the bonding material from ultra violet transmission, on which the ultra violet -Transmission should be less than 0,1% at 400-600 nm.

Opening hopper windows will be fitted throughout the passenger compartment. All interior glass surfaces in the Tram passenger compartments shall be fitted with Ultra Violet light reducing and shatter resisting film on the inside surface, which shall be easily replaceable as a maintenance task when required yet give good visibility when in place. This film shall also provide effective protection against damage to the glass by 'etching'-type graffiti.

24.13 Driver's Cab

The driver's cab shall be arranged so that at least 95% of adult persons can comfortably access the cab desk and all the controls located within the cab, whilst retaining the appropriate field of view out of the cab. The design of the cab shall be undertaken to good human factors practice.

The driver's cabs shall be air-conditioned and the temperature shall be thermostatically controllable by the driver. Air conditioning in both cabs shall be switched on or off from either cab. Temperature selection shall be only available from the cab in use.

An effective windscreen demisting system shall be fitted, suitable for the climatic conditions encountered in Edinburgh. The demisting system shall be able to clear the windows of condensation within ninety seconds of a cab being made operational.

The cab may extend to the full width of the Tram, and be separated from the passenger area by a glazed partition providing good passenger visibility through the cab windscreen. A mirror providing the driver with a view into the saloon (when sat at the controls) shall be provided.

An internal cab to saloon door is required, which must be lockable from the saloon side and cab side but capable of being opened at any time from inside the cab. The door must latch automatically when closed.

An inward opening, hinged and lockable external cab door may be provided. It shall be capable of being locked and unlocked from both inside and outside the cab.

The cab lighting level shall be 250-300 LUX at 1.0m above floor level. The driver shall have the control of switching this lighting on or off,

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 323 |

A generally translucent mesh fabric sunblind shall be provided, with an opaque strip extending 150mm up from the bottom edge. The blind must be able to be deployed by the driver whilst in the driving position. It need only be retractable at stops.

Cab windscreens and cab windows shall maximise the degree of all round vision available to the driver. A clear unobstructed view of the road/track ahead shall be provided with clear and unrestricted sight lines, particularly low down in front of the cab.

The partition between the Cab and Saloon and other glazing surfaces shall minimise the incidence of reflections at all times and in all expected environmental conditions. Blinds or curtains shall be provided to screen the saloon lighting from the cab at night.

The following features that relate to instruction of Tram drivers shall be provided:

- A Tram driver can be under instruction when a Tram is in passenger service, consequently it must be possible for an instructor and a driver to be inside the cab with the cab/saloon door closed, and the instructor must be comfortably and safely located in the cab.
- The instructor must be able to apply the Tram security brakes quickly.
- The instructor must be seated and secure in the cab to the extent that he can apply the brakes even when the Tram is performing unpredictably.
- The instructor's seat may be a portable item, supplied with the Tram.

The driver's seat, unless purpose-designed for a Tram, shall be a seat specifically designed for bus applications rather than for other vehicles such as heavy rail or heavy goods vehicles, as it must be capable of being adjusted frequently without any damage. The seat must be of ergonomic design, easy to clean and easily removable from the cab. The seat cushions shall be easily removable for cleaning.

The driver's seat must be easily adjustable so that 95% of adult persons may be seated comfortably with effective reach to the drivers' controls, and maintain unrestricted lines of sight through the windscreen.

Both cabs on each Tram shall provide stowage for:

- A points handle, typically a steel bar about 1m long (supplied by others). This must be placed so the driver can easily take it with him when leaving the cab, and so it must be stowed and un-

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 324 |

stowed without risk of damage to the cab finishes or equipment. When not in use it must be secured so as to prevent becoming a hazard in the event of an emergency stop or a collision.

- A first-aid box (supplied by others)
- A fire extinguisher to be supplied with the Tram.
- A place to hang a driver's coat, where it will not interrupt the view in any direction.
- A place to hold two A5 ring binders of timetables, information and procedures.
- A place to clip an A5 sheet of paper, which can be conveniently referred to by the driver (whilst at a Tram stop), and which does not obscure any controls or gauges.
- A hand lamp (supplied by others)

Provision shall be made within each cab to allow two operational personnel to separately and securely store personal effects

There shall be provision in each cab for a secure cash box (supplied by others). The dimensions of this are to be provided by tie.

There shall be charging points in each cab for a portable radio and a hand-held ticket machine.

The tram shall be fitted with holders in each cab for a destination board, for the purpose of indicating additional destinations of public interest. This board is to be placed in position by the driver so as to be seen from in front of the tram. The dimensions of the board are to be provided by tie.

24.14 Tram Controls

The layout of controls, switches and instrumentation shall be agreed with tie on the mock-up, by use of design submittals and the use of the mock-up. The desk panels shall be made of material that is wear resistant and free from reflections.

It shall be possible to drive the Tram from each cab. Insertion of the driver's key and the operation of one switch in either cab shall switch on all of the equipment needed to enable the Tram to be driven from that cab. Essential sub-systems shall not be separately switched.

The Tram acceleration and braking shall be controlled from a combined controller handle, incorporating a dead man safety device. This shall normally be locked out of use until released by the driver's key, which shall remain captive in the controller until the controller is placed in the off

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 325 |

position. It shall not be possible to operate the Tram with more than one controller in use at any one time.

The controller shall include a slow speed mode, for driving through the Tram washing plant.

The following controls shall be conveniently placed for the driver's free hand when the Tram is in motion:

First priority

- Audible warnings (bell, horn);
- Track brake (in addition to the emergency brake on the driver's controller);
- Indicators;
- Pantograph emergency drop.

Second priority

- Manual sand (in addition to the automatic sanding system);
- Windscreen washer and wiper controls;
- Headlamp dip/main beam;
- Panic Alarm;
- Tram punctuality display against timetable or headway.

The following controls shall be conveniently placed for use when the Tram is at a Tram stop:

- Door controls;
- Rear-view normal mode push-button;
- Tram Ready To Start (junction calling when at a Tramstop close to the junction);
- Hazard and marker lights;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 326 |

- Air-conditioning and temperature controls;
- Saloon heating control;
- Fault reset push-button;
- Public Address controls;
- Radio controls;
- Cab light switch;
- Saloon lighting;
- Pantograph control;
- Windscreen demister.

At least one cab shall display an odometer calibrated in km. Both cabs shall display a speedometer calibrated in km/h and mph.

Windscreen wiper control shall be by means of a multi-position switch having intermittent, continuous slow and continuous fast positions. Wipers shall be self-parking to a position close to and parallel with the edge of the windscreen.

There shall also be a separate push button, which operates wipers and windscreen washers for as long as it is held down, and provides one additional sweep of the wipers after it is released.

Each cab shall be equipped with an indicator to inform the driver whether the Tram is running early or late, and by how much.

24.15 Rear View Equipment

Rear-views shall be provided by close circuit television equipment which shall function as follows:

The 'normal' view, displayed whenever the Tram is in motion, shall have two screens in the cab integrated into the desk: one on the left side of the desk and one its right. The images in them shall be the same as would be seen in mirrors.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 327 |

The 'Tram stop' view shall be displayed in the time between the doors being enabled at a stop and all doors being proved closed. In this view, the monitor on the platform side (the side on which the doors are enabled) shall show the same as in normal view. The other monitor shall display the image from the rear camera on the platform side, to enable the driver to view passengers disembarking and embarking and to ensure that doors are clear before they are closed.

Note that the images of views back from the cab will be laterally inverted and those forward from the rear of the Tram will not.

A separate push button conveniently located on the cab desk shall provide the driver with a changeover facility from 'Tram stop' to 'normal mode' for as long as it is held down, to allow a driver to check that nothing is overtaking the Tram at an on-street stop whilst the doors are closing.

Closed circuit television images must remain clear enough to see a cyclist overtaking the Tram before the Tram sets off from an in-street Tram stop, even whilst it is raining, dark, under street lighting and there are car headlamps shining towards the cameras. The tram supplier will be required to demonstrate that the CCTV coverage allows drivers to effectively see all passengers boarding and alighting, as well as being sufficient for the needs of driving the tram on street.

The images from the cameras shall be displayed in the cab to the driver on colour flat-screens with manually adjustable brightness. Images on these screens shall be viewable by the driver under all ambient lighting and weather conditions and at as wide an angle as possible. Care shall be taken to ensure that 'flaring' of the image from brightly lit, wet, road surfaces is avoided. Special consideration shall be given to the use of this equipment in wet weather and poor lighting conditions, when it may be necessary to remove rain droplets or prevent them from forming on the camera lens.

Rain affects closed circuit television both by creating additional reflections from wet road surfaces and by settling on the camera housings themselves. The system must cope adequately with both.

24.16 Interior

Care and attention shall be given to provide a safe passenger environment. Passenger movement within the Tram shall be made as safe as practicable, and able-bodied passengers shall be able to move along the entire length of the passenger saloon of the Tram.

The free and safe movement and loading of passengers shall be facilitated by the incorporation of handrails, grab-poles and an interior free of tripping hazards and sharp corners throughout the Tram. The gangway width between seats shall be not less than 650mm. Hand-holds will be provided to maximise the use of standing space, particularly in vestibules and articulations.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 328 |

Steps may be included to permit the movement of passenger's to or from areas where there is a difference in the height of the floor of the Tram. Steps shall not exceed 200mm in height and the quantity should be as few as possible. There shall be a minimum of 16 seats accessible to passengers without using steps.

All seats shall be at least 450mm wide, ergonomically designed, resistant to damage and soiling and have easily replaceable covers. The seats shall as far as possible not be placed on pedestals, i.e. shall not require a step up for passengers when taking a seat. Wherever practicable seats should be cantilevered from the vehicle side so as to leave a clear floor area to facilitate cleaning. Seat rows shall be pitched no closer than 752mm.

The non-slip, easy clean floor covering shall also continue up the vehicle sides and seat pedestals so that there are no corners that can act as dirt traps. The floor covering shall be hardwearing with minimal openings and continuous welded or seamless glued joints. The edges of the floor covering shall be sealed to prevent water penetration to the structure of the Tram.

The floor covering shall be highly resistant to staining from any source.

The actual floor area available for standing passengers shall be clearly identified. From this the total standing capacity shall be calculated, respecting Rail Vehicle Accessibility Regulations and the limitations of standing room in areas such as articulations. Seating shall generally be arranged transversely with minimum longitudinal seating.

The tram shall be fitted with luggage racks, distributed evenly about the vehicle and situated as close as practicable to the vestibules. The luggage racks shall occupy a floor space of up to 10m² and extend the full height of the interior and have two intermediate shelves. At floor level a horizontal bar shall extend across the opening into the saloon to prevent objects rolling out of the luggage space. Luggage shall be effectively prevented from excessive movement out of the racks, either under high rates of braking or lateral acceleration. The luggage racks should be easily replaced by seating (or standing areas if appropriate) should tie require to do so.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 329 |

The tram is to be provided with information screens so as to be visible from within most parts of the saloon. The screen should be able to display video information for events and places of public interest, and should also be able to display selected views from the closed-circuit television system. All passenger areas of Trams shall be provided with windows in all sidewalls to maximise visibility for passengers. This requirement shall also apply to draught screens and separation walls to the driver's cabs.

The Tram shall provide data on the number of passengers boarding and disembarking at each Tramstop. This data shall be easily downloaded each day when the tram returns to the Depot. Software to allow analysis of the data shall be provided.

The passenger counting facility shall be incorporated on 6 of the trams in the fleet only. It shall be possible, with minimum disruption to wiring looms, body panels and major equipment, to retro-fit passenger counting equipment should this be required after the vehicles have been delivered.

Passenger stop request buttons shall be provided in the saloon area in accordance with Rail Vehicle Accessibility Regulations.

Interior saloon lighting shall provide glare free, uniformly distributed illumination in passenger areas, to a level of between 280-350 lux. The lighting diffusers shall be easily cleanable.

Emergency internal lights must function after disconnection from the overhead power supply (at all operating temperatures) in accordance with the battery back-up and load-shedding requirements below. Emergency internal lighting shall provide a minimum illumination of 30 lux at floor level and shall be evenly distributed in each passenger area of the Tram. The operation shall be independent from the overhead line power supply. Uniformity of illumination shall not be less than a factor of 0.4 Headroom throughout the seating areas shall be at least 2.1m to ceiling.

There shall be litter bins provided at each vestibule on both sides of the tram, each being able to be filled with typical soft drink cans. The litter bins shall be easily emptied.

All passenger areas of Trams shall be provided with a heating and ventilation system that maintains a constant acceptable ambient temperature during transit between Tram stops and during boarding and alighting at Tram stops when operating in all prevailing climatic and environmental conditions on the proposed route.

The arrangement of heating devices shall prevent excessive draughts caused by high airflow rates, due to the even warm air distribution inside the Tram. With the appropriate arrangement of the

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 330 |

vents, the air inside the Tram shall be heated and distributed over a large area through natural convection. Pockets of hot and cold air shall be avoided.

The interior of each Tram shall be fitted with reserved spaces for on-board advertising and passenger information notices. These spaces shall allow cardboard panels, 210mm deep, to fit snugly into retaining grooves. A clear smooth surface at least 160mm deep shall be available between the grooves to allow for the fixing of vinyls. There shall be a route map above the inside of every passenger doorway. The Infraco shall ensure that the Tram Supplier shall produce and fix all notices required by law or the Safety Management System, and fix free-issue logos, route maps and other notices, using appropriate materials and attachment methods, against a schedule which shall be agreed by tie on the mock-up.

Trams shall be fitted with racks close to the vestibule areas for holding information leaflets and newspapers. The arrangement and design of these racks is to be agreed by tie on the mock-up.

Two night partitions shall be provided which are fully retractable and can be securely stowed when not in use. These partitions shall be located adjacent to the articulations on either side of the wheelchair area towards the centre of the tram.

This night partition should be included in the mock-up.

The function of these partitions shall be to enable the rearmost portion of the tram to be securely locked out of use by the on-board inspector in order to enable him to more closely supervise the passengers in the forward portion of the tram whilst retaining the wheelchair facilities, as required by RVAR.

The partitions themselves shall be simple to operate by one person in the range of 5th percentile female to 95th percentile male. It shall be possible to lock the partitions in either the stowed or fully deployed position using a key which is carried by the on-board inspector as part of his normal duties. It shall be possible to deploy and stow the partition within 2 minutes. When deployed or stowed the partition shall be robust enough to withstand a person falling against it without sustaining damage.

A key operated control, located such that it may be conveniently operated by the on-board inspector with the partition deployed, from either side of the partition, shall cause the lights in the rearmost (isolated) portion of the tram to be reduced to emergency lighting levels, and disable the external door pushbuttons in order to prevent passengers accessing this portion of the tram. Under all circumstances the crew entry functionality at the single end doors shall remain operable and it shall be possible to operate the emergency door release throughout the tram. Additionally the Passenger

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 331 |

Emergency Communication Units shall remain active in all parts of the tram. The activation of the key operated control shall be indicated in the active driving cab but shall not cause a fault alarm.

In order to assist with the design the following information gives the anticipated normal method of operation.

At a terminus where the partition is to be put in place:

- The passenger doors will be opened in the normal way to allow passengers to exit and enter the tram (at this point they may board at any point in the tram);
- The driver will close and remove the enable command from all doors before closing down the cab and walk to the other cab;
- The on-board inspector will move any passengers in the area to be closed off to the portion of the tram forward of the partition;
- The inspector will then secure the partition in place and operate the key switch to deactivate the rearmost door controls and dim the lights;
- The driver will activate the forward cab and enable the doors for passenger boarding in the normal manner prior to departing.

Consideration should be given to providing an indication on the side passenger information displays to indicate to intending passengers that boarding is at the forward end of the tram only.

Tram loading will be uneven when the partition is deployed. The implications on load compensation in traction and braking control of the tram shall be considered and should continue to function appropriately when this condition is in force.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 332 |

Interior ceiling and coving panels should be securely retained, so that they do not fall onto the maintainer when the catch is released. All interior panels should be small enough to be handled and lifted by one person unaided.

The interior livery shall be developed as part of the system identity and branding package and is to incorporate the features set out in the Design Guidelines. Typically this shall include the following factors:

- Paint finishes should use the same colours as for the exterior;
- GRP interior panels / door interiors / lower finisher trim for bonded glazing shall be Blue RAL 5005;
- Roof / coves / sides laminates shall be the same colour as Perstorp PP5650U Cezanne;
- Seats and wheelchair backrests shall be covered in Holdsworth Edinburgh Tartan – W218ET (including priority moquette);
- Driver's seat covering shall be Black hide material;
- Floor colours shall be as per Taraflex Luna NT Lewis (Taraflex Red BEF 53/01) and Taraflex Polaris NT Arran (Taraflex Blue BEF 33/01);
- Floor covering weld cord – Yellow;
- Seat backs shall be in Lothian Blue; and
- Hand rails and stanchions shall be in Red RAL 3020.

Passenger seats shall be of a similar style to the Grammar Pratico 2845 Low backrest, as currently deployed on Lothian Buses.

24.17 Bogies

The vehicle will have a minimum of 66% adhesive weight on motored axles.

The bogies shall be of proven design and have been used successfully in another Tram project. The bogies will incorporate suspension systems to give a high-quality ride characteristic. The suspension system will be self-adjusting or adjustable for wheel wear so that ride heights can be closely maintained.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 333 |

The ground clearance (from top of rail) fully laden with worn wheels shall not be less than 50mm to any part of the bogie structure except a track guard.

Each axle on the motor bogies will have a spring-applied friction brake. It shall be possible to release the spring-applied brake manually in the event of failure of the actuation system. Under normal operation the parking brake will release and apply automatically when the driver's controller is activated.

Each bogie shall have two electro-magnetic track-brakes, one suspended over each rail between the wheels.

The wheels shall incorporate resilience and damping in order to minimise noise and vibration. Tuned vibration absorbers will be fitted after carrying out tests to determine their most effective parameters.

Effective under-run protection arrangements shall be provided. The end bogies will carry adjustable track guards on their outer ends, to conform to Railway Safety Publication 2 – Guidance on Tramways, issued by the Office of the Rail Regulator requirements for under-run protection. The motor bogies will be interchangeable with each other.

Removal of components such as brake actuators, suspension units, etc. will be facilitated to allow on-site repair and replacement of major items such as motors or wheels to take place with the minimum of Tram down-time.

The ride comfort levels measured according to the ISO 2631 Standard on a ballasted straight and level track in good condition shall be no worse than:

| Speed | Wz vertical | Wz lateral |
|---------|-------------|------------|
| 40 km/h | 2,32 | 1,58 |
| 70 km/h | 2,96 | 2,36 |

Table 59 - Ride Comfort in the Driver's Cab

| Speed | Wz vertical | Wz lateral |
|---------|-------------|------------|
| 40 km/h | 2,24 | 1,64 |
| 70 km/h | 2,82 | 2,28 |

Table 60 - Ride Comfort in Passenger Compartment

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 334 |

At least two wheelsets of the Tram shall be equipped with flange lubrication equipment on all wheels. Both sides of the flange shall be lubricated. It shall be capable of being programmed to operate on the basis of either location, or of a time interval, or a combination of these.

24.18 Re-Railing

The Trams shall be capable of being returned to the running track in case of derailment with the minimum amount of equipment and in the shortest possible time. The Infraco ensure that the Tram Supplier shall indicate the best methods for re-railing and the equipment required, for all track forms used on the system.

If the Tram design includes suspended body sections, then articulation locks shall be procured by the Infraco from the Tram Supplier.

24.19 Propulsion Equipment

The Tram shall not export additional risk onto Network Rail infrastructure. In particular, the harmonic generation from the propulsion and control equipment shall not interfere with train-borne or trackside systems or other third party systems and infrastructure.

The traction equipment shall detect and automatically manage wheel slip and wheel slide, so as to maintain performance and stopping distances in all track conditions and without damage to the wheel treads. When slip or slide is detected sand will automatically be applied to the rails in front of the leading axle. Sanding must not take place due to spurious wheelslip/slide detected at flange running crossings, pointwork or sharply curved or transitional track. The traction equipment shall tolerate variations in wheel diameter.

The Trams will have the following performance when motoring, on straight and level track and with a nominal line voltage of 750V dc:

| Speed (km/h) | Load | Performance | Notes |
|--------------|-----------|----------------------|---------------|
| 0 -> 30 | Up to AW4 | 1.2 m/s ² | Instantaneous |
| 0 -> 70 | Up to AW4 | 0.8 m/s ² | Average |

Table 61 - Tram Performance Levels

The effect of variation of the line voltage (within the prescribed system limits) on the Tram performance, shall be provided by the Tram Supplier on behalf of the Infraco. The maximum line current, and the conditions when it shall be demanded by the Tram, shall also be provided by the Tram Supplier on behalf of the Infraco.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 335 |

The Trams shall provide safe operation on all gradients under degraded performance modes as imposed by the traction equipment. In particular, the Trams shall be able to complete any journey on the System with one complete traction drive unit isolated.

The traction and braking control system shall be optimised to provide smooth and low jerk values in starting from rest, acceleration, braking and stopping, on level track and on all gradients that are encountered, under all loading and environmental conditions, while protecting against unintended downhill movement.

The Tram may be fitted with a short-time rated emergency mode, with a higher tractive effort, to assist in recovering other Trams.

24.20 Braking Equipment

The Tram Braking Equipment shall be designed to comply with BS EN 13452 Part 1 except where stated below.

The service brake application shall be capable of retardation at an acceptable rate (as defined in Tables 3 and 4 of BS EN 13452 Part 1) at all specified laden conditions and the jerk rate shall be limited so as to not cause discomfort to standing passengers. The service brake shall normally consist of a regenerative electro-dynamic brake, (that as far as is practicable shall return the braking energy to the overhead line) and a friction brake. The electro-dynamic brake shall normally take precedence over the friction brake.

The regenerated voltage shall not exceed 900V. Should the overhead line become unreceptive, the braking energy shall be dissipated in naturally cooled resistors. Transition between regenerative and rheostatic modes shall be automatic, instantaneous and free from jerk. Braking distances and deceleration rates shall be unaffected by transitions during braking.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 336 |

The brake resistors shall be protected from overheating. Malfunction of the dynamic brake system must be detected and recorded by the fault monitoring system.

Electro-dynamic and friction brakes shall be blended. In normal operation the friction brake will take over from the electric brake at a low speed. In addition, sand will be applied automatically during braking when triggered by the wheel slip/slide control system. Should the electro-dynamic brake be unavailable on any particular traction drive then the friction brake will be automatically applied to compensate, without jerk or loss of performance.

For emergency braking applications the jerk rate shall be limited without compromising emergency braking performance. The friction braking system should be capable of repeated full service or emergency brake applications.

The Tram parking brake shall be of sufficient performance for a Tram (whether laden or unladen) to hold without movement and for an indefinite period another unladen Tram without brakes on the steepest gradient on the Edinburgh Tram Network under all adhesion conditions.

The braking function and performance of the Tram shall be in accordance with Tables 3 and 4 of BS EN 13452 Part 1. The definitions of the braking modes given in these tables are as defined at Section 3.2 of the Standard.

When the Emergency brake is applied, the track brakes should be released immediately before the Tram comes to rest in order to minimise jerk to passengers.

All braking and jerk rates shall comply with the requirements defined in Standard EN 13452.

24.21 Run Time

The Trams will be capable of being operated continuously for twenty hours in each day.

A runtime simulation will be carried out by the Infraco to demonstrate the required end-to-end journey times. The Trams shall have sufficient performance and ratings to meet the requirements for these run times and end to end journey times. The inputs to the simulation shall be based on theoretical Tram performance validated by type test measurements with similar Trams in service elsewhere. The infrastructure and operational assumptions for the runtime shall include, but not be limited to:

- Alignment information, including speed restrictions due to geometry and sighting restrictions;
- Location of Tram stops and assumed dwell times;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 337 |

- Speed restrictions due to the presence of pointwork;
- Service brake rates including agreed allowances for driver variation and technique, and varying adhesion conditions;
- Jerk rate and acceleration compliant with the requirements;
- Assumed delays due to operation in mixed traffic, which may be in the form of assumed speeds or time delays;
- Assumed delays due to the operation of the traffic-signal-controlled junctions, which may be in the form of assumed speeds or time delays;
- Tram loading;
- Wheel wear; and
- Traction system supply voltage.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 338 |

24.22 High-Voltage Equipment

All Tram-borne high voltage equipment shall be adequately rated for operation at the line voltage. All high voltage equipment other than the pantograph will be securely enclosed in rigid, metal and earthed equipment cases.

The high-voltage sub-systems will be protected by high-speed circuit-breakers or fuses, which shall be enclosed so that their operation does not cause alarm or danger to persons standing near to the Tram. The length of electrically unprotected cabling between the pantograph and the protection devices shall be minimised.

Wherever feasible, there will be duplication of primary assemblies in order to minimise the potential for single-point failures. There will be a minimum of two self-contained traction groups, so that failure of a traction drive on one bogie does not immobilise the Tram.

24.23 Auxiliary Power Supply Systems

The auxiliary supply converter(s) shall start when fed from the overhead line, irrespective of the state of charge of the batteries.

The converter outputs for auxiliary supplies and battery charging derived from the overhead supply shall be isolated from the overhead supply to prevent any possibility of excessive voltages appearing on the low-voltage circuits.

The saloon heating units (if mounted in the saloon area) shall be provided with appropriate protection and insulation for the heating elements and their terminal connections.

The charging system for the batteries will be appropriate to the type and size of battery provided.

A suitable socket for connecting a 24V battery charging supply shall be provided.

The batteries shall be of a low maintenance type suitable for traction applications and enclosed in electrolyte-proof containers to contain environmental pollution in case of damage. There shall be absolutely no possibility of spillage from the batteries entering the passenger saloon or the cab. The battery enclosure shall be vented to prevent the build-up of gases.

In the event of loss of the 750V overhead supply, the batteries will allow all essential systems to operate for a minimum of thirty minutes. Certain critical functions will continue to operate for up to one hour from battery supply:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 339 |

After ten minutes:

- The saloon lighting system shall revert to emergency lighting only.

For up to thirty minutes, the following systems shall remain in operation:

- Brake system;
- Public Address system ;
- Emergency lighting; and
- Door system.

For up to one hour the following systems shall remain operational:

- Pantograph;
- Minimum exterior lighting; and
- Radio communication system.

24.24 Faults and Diagnostic System

The Trams will have a condition and fault monitoring system integral with the vehicle control system, to give indication to the driver of the status of equipment and to allow control of degraded modes. Failures or events requiring maintenance intervention shall be recorded by an on-board system that shall retain all pertinent details after the Tram has been shut down, for downloading and analysis by maintenance staff. This system will have sufficient capacity to store such information at least for the interval between scheduled maintenance examinations, on a first-in, first-out basis. There shall be a visible indication that at least one day's worth of recording remains available.

The downloading of data shall be accomplished using a commonly available lap-top computer or related portable device. Any software or special equipment or licences required to download or analyse the data from the Trams shall be provided by the Tram Supplier.

The display for the driver shall also provide unambiguous information of the status of the Tram, and the severity of any faults present. In particular, the system shall continuously indicate one of the following fault states according to the condition of the Tram:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 340 |

- Tram OK;
- Minor fault, report to control and continue;
- Major fault, report to control and continue in degraded mode;
- Major fault, Tram must be immediately taken out of service; and
- Major fault, Tram inoperative.

The Tram shall perform a self-check automatically whenever it is started up from a shut-down condition.

24.25 Sanding System

The Tram shall be equipped with a system, which deposits sand immediately ahead of the driven wheels in the direction of travel to rectify any poor adhesion conditions at the wheel/rail interface. The system shall be activated both automatically whenever wheelslip or wheelslide is detected, and manually when under control of the driver. Sand will also be automatically applied whenever the emergency or security brakes are used.

Sand shall be deposited on at least two locations on each rail per direction of travel. The rate of sand deposition shall be no more than that required to correct the poor adhesion. The automatic sanding system shall be inhibited when the Tram is stationary, unless activated manually. The sanding unit response time shall be effectively instantaneous.

The Tram-mounted sand boxes shall have sufficient capacity for a full day's service under all conditions of weather and loading.

The sand filler covers shall have seals to keep the sand content dry under all weather conditions, and when the vehicle is being washed.

A means of ascertaining the sand level in the sandboxes shall be provided, visible from within the Tram.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 341 |

The Tram sandboxes shall be filled from outside of the Tram using a sand dispensing plant at the Depot. The sandbox arrangement will be compatible with the sand dispensing plant such that it is possible for the driver of the Tram to completely fill all the sandboxes in five minutes. In the event of failure of the plant, it shall also be possible to fill the sandboxes manually, and if any special equipment is required for this, the Infraco shall ensure that the Tram Supplier shall provide it.

24.26 Passenger Doors

The Tram will be equipped with at least four pairs of bi-parting sliding-plug doors, plus two single doors, on each side of the vehicle for the passenger saloon and one internal cab door per cab with a clear opening of not less than 610mm. The doors shall be equipped so that rainwater does not drip onto passengers when the doors are opened.

The passenger saloon doors shall be fitted on both sides of the vehicle in the low-floor area. The doors will be of the following characteristics:

- The double door clearance width shall not be less than: 1300 mm
- The double door clearance height shall not be less than: 2025 mm
- The closing force shall be: <200N
- The opening force shall be: <250N

The doors will be opened and closed by the driver or simply released by the driver so that the passengers will be able to open the doors themselves using door push buttons. The push buttons will be illuminated when they are activated. The doors shall stay open for a fixed time before closing automatically. A warning tone shall be sounded when the doors are released and a different tone shall sound to give warning of door closure.

Devices will be incorporated into the individual door control mechanisms, or in the leading edge of the door, to detect and protect against door obstruction. Slow or defective door mechanisms will be indicated to the driver by the vehicle fault management system. The driver shall be able to isolate any door by using the driver's key to operate an isolation switch local to each door. Such a door shall be secured from all forms of operation other than emergency release.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 342 |

It shall be possible to open each door manually in case of emergency (including any door that has been isolated). An internal emergency handle will be provided at each door entrance. Operation of the handle shall cause an immediate application of the emergency brake and unlock the door such that it can then be moved open by hand after the vehicle is stationary. The emergency handle will only be able to be reset using the driver's key.

The door edges shall be fitted with weather-proof seals that are soft enough to allow a person's fingers to be withdrawn after the doors have closed. The seals shall be effective against all likely weather conditions and in the Tram washing plant and shall not offer a hand-hold to allow persons to ride on the outside of the Tram.

The Tram shall accept a door enable command from the driver when the Tram speed is below 10km/h, but the doors shall not become enabled until the Tram is at a standstill. If, having been enabled, the Tram speed then rises above 10km/h, the enable command shall automatically be cancelled.

The time from the Tram coming to rest to doors being fully open in response to a prompt passenger demand, plus the time from the driver pressing the door close button to the Tram moving off, shall be less than 12 seconds. This time shall include all necessary delays for RVAR-required tones. The doors themselves shall move from closed to fully open or vice versa in 3.5 seconds or less.

The door guidance mechanism shall not be a swing plug mechanism nor a folding door.

The following controls shall be fitted in each cab for driver control of the doors:

- Separate door-enable controls for the left and right sides. It must be possible to enable both sides simultaneously. The 'enable' buttons of the Tram should each be located on the appropriate side of the cab desk.
- One door 'open' button, which will open any doors previously enabled, but not opened by passengers, provided the Tram is at a stand still.
- One door 'close' button, which will close all doors that are open. This will be the normal mode of door closing at Tram stops other than termini.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 343 |

- To prevent the doors being enabled on the wrong side, the door enable shall be interlocked and programmed with the correct side for the platform at each Tram stop along the route. This feature shall be capable of being over-ridden by the driver (for example, if the Tram uses an unusual platform at a terminus), but such over-ride shall require the driver to press at least one additional button, which shall not be located adjacent to the other door controls in the cab. It shall be possible to open all the doors when the Tram is in the Depot.

The door enabled indicator lights at the doors shall illuminate and the door enabled tone start, simultaneously with the door actually becoming available.

A door shall re-close automatically, with warning tone, if no obstacle is detected for twenty seconds (configurable). This will be the normal mode of door closing at termini.

When all doors are closed and traction is available, an audible signal, distinct from all other tones and quieter and less offensive than any alarm tone, shall sound in the cab in use. This is preferred to a lamp or other visual signal as the driver already has to view the platform and check ahead before moving off.

Unless a separate external cab door is provided, the door nearest each cab on each side (four doors in total) of the Tram shall be provided with local internal and external 'door open' and 'door close' switches operated by the driver's key. These shall be spring-loaded centre-off, turned one way to open and the other to close. Any door opened using a local switch shall be capable of being closed either using the appropriate local switch or the 'door close' button in any active cab. The purpose of these switches is to allow local control of the door by a driver who needs to leave and re-enter a passenger-carrying Tram, for example to operate points, at a place which is not a Tramstop. In addition, unless a separate cab door is provided, a separate control shall be provided in the cab to allow the Tram driver to open and close the nearside front passenger door separately from the cab. This is to allow the driver to open and close this door separately at the crew change halt at the Depot. An exterior emergency door release shall be incorporated to comply with the requirements of Railway Safety Publication 2,

The door-enabled tone required by Rail Vehicle Accessibility Regulations 1998 (as amended) shall be audible from both inside the Tram and on the platform. This may require an additional external sounder if, in order to be heard outside, the internal one is uncomfortably loud for passengers on the Tram.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 344 |

24.27 Communication and Monitoring Systems (CCTV)

Spatial provision shall be made in the most appropriate part of the Tram for the operational radio system, driver control units and tram position and detection system equipment, including the associated cabling, support equipment, microphones, speakers, antennae and power supplies. The cabling shall be installed and tested by the Tram Supplier.

These sub-systems will be supplied by the Infraco as free-issue items to the Tram Supplier, and shall be installed and functionally tested during the Tram manufacturing process. The Infraco and Tram Supplier shall work with the suppliers of these sub-systems to define and agree the interface requirements.

The Tram shall be fitted with cab-to-cab intercom facilities. The intercom facility will also provide communication between all four cabs when two Trams are coupled during the recovery of a defective Tram. This facility shall be fully duplex and hands-free.

The Tram shall be fitted with internal cameras that record digital images covering:

- The whole of the saloon, (including the passenger help points) with sufficient clarity to enable individuals to be identified for evidential purposes; and
- The views ahead/back from the cabs.

The resolution of recorded images and recording speed of images shall be of a quality from which it would be capable of being reliably used as part of an accident investigation, and in respect of the saloon images shall be of a quality to enable a conviction in the event of illegal activity. Appropriate labelling in accordance with regulations governing the use of such equipment shall be put in place.

The cameras shall be of a hemispherical type without any detectable direction of the camera view. Additional information, i.e. time, date, camera number and the Tram number will be added to every image recorded.

The recorded Closed Circuit Television images will be capable of being retained on the Tram for not less than 72 hours at which point the system will restart recording and erase the retained image. Minimum frame rate shall be 16fps, per camera. Consideration should be given to providing a push-button in the cab to enable the driver to add an index-point to the recorded images.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 345 |

Closed Circuit Television images shall be taken from the Tram for subsequent retention and analysis. This shall be done using a removable data storage medium rather than by data transfer. It shall be readily apparent to the Tram driver and to maintenance staff when the storage medium is not present on the Tram. The data storage medium shall be retained by a secure locking device, that is not released by a Tram system key. All data storage devices shall be interchangeable between trams.

All software required for off-Tram viewing, editing and analysis, shall be procured by the Infraco from the Tram Supplier. This shall include any non-standard supporting hardware and any associated licences.

24.28 Event Recorder

The Tram shall include a data recorder capable of providing time, speed and distance information at 1.0m resolution or better for the last day's operations, and at 10.0m resolution or better for the last seven days' operations. Additionally, the start and end of the following events shall be recorded:

- Horn;
- Bell;
- Traction;
- Brake;
- Hazard brake;
- Safety brake;
- Track brake;
- Driver's Safety Device;
- Door enable left present;
- Door enable right present;
- Manual sand command present;
- Tram Ready to Start;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 346 |

- Hazard lights;
- Left indicator;
- Right Indicator; and
- Passenger Help Point.

Software enabling event recorder download data to be interrogated and displayed in both graphical and tabular format shall be provided. The software shall also enable all of the data to be exported into Microsoft Excel for further analysis.

The data shall be recorded onto a secure, removable data storage medium. The data recorded shall include the Tram number and date. The data shall be retained and be retrievable at least until 48 hours after the Tram has been shut down. The data storage medium shall be retained by a secure locking device, that is not released by a Tram system key. All data storage devices shall be interchangeable between trams.

The Infraco shall ensure that the Tram Supplier shall indicate how the distance base of the recorder shall be recalibrated in normal usage.

24.29 Public Address System

Automatic, audible announcements for destination and stops shall be made by means of a digital voice announcement system. The Tram Supplier shall supply a copy of any necessary equipment and software needed to upload new and amended announcements or to alter the times and places at which announcements are made. The system should allow for a sound quality of RASTI 0.7, or better.

Additionally, the Tram shall be fitted with both internal and external public address systems, selectable individually by the driver, to allow the driver to make direct announcements.

The following are additional to the requirements of the Rail Vehicle Accessibility Regulations 1998 (as amended):

- Rail Vehicle Accessibility Regulations permit audible announcements between stops to be omitted where the run time between stops is less than two minutes. This option is to be used wherever possible.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 347 |

- Where stops are omitted the system shall automatically allow for this without intervention of the driver.
- At a stop, in addition to the Rail Vehicle Accessibility Regulations requirement of announcing the next stop and destination, the equipment must also be capable of announcing the current stop. The form of the announcement to be provided initially shall be:

"This is <name of current stop>. This Tram is for <name of destination>. The next stop is <name of next stop>."

It shall be initiated by the door enable, and there shall be a short delay so that the door-enable tone is finished before the announcement starts.

24.30 Passenger Information System

The Tram shall be fitted with six external destination displays, one at each end above the cab and two on each side, one near each end. The side displays should not be obscured by open doors. These displays shall be capable of displaying as a minimum a service number and the ultimate destination of the Tram. The displays should be legible from an oblique viewing angle.

In addition to the text indicating the destination of a tram on both the side and cab exterior displays an area immediately preceding the text shall be reserved for a single symbol. This symbol shall be displayed in an array of LEDs of the same size and resolution as that of a text character. The symbol shall be in a single colour which is the same as that of the text display. It shall be possible to display a variety of characters including simple geometric shapes and representative symbols (e.g. an aeroplane to indicate AIRPORT as the destination). It shall be possible to select an appropriate symbol during the programming of the system which will then appear on the display when the driver selects his route.

The purpose of this feature is to assist passengers with reading difficulties to ensure that they board a tram on the correct route for their requirements.

Internal saloon displays shall be used to show information concerning the next stop and additionally a "Tram Stopping" sign. They shall also display the local time, and should also be able to display public service information. The number and location of these displays shall be such that the information shall be easily visible to passengers within any part of the Tram.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 348 |

The internal visual displays shall display, successively:

- Screen 1: Tram to
- Screen 2: <Destination>
- Screen 3: Next Stop
- Screen 4: <Next Stop>

Stepping to the next stop name shall take place on arrival at a stop once the doors are enabled. Where stops are omitted, the displays shall take account of this automatically without the intervention of the driver.

The size of the Passenger Information Display font shall conform to the requirements of the Rail Vehicle Access Regulations 1998 (as amended). The brightness of the displays shall compensate for ambient light quality.

After leaving the stop before a terminus, the external destination indicators shall change to show the destination of the next trip, so that the Tram arrives at the terminus with the correct next destination already displayed.

24.31 Passenger and Inspector Alarm System

Passenger alarm devices shall be located in the saloon area, at every door area and at the disabled passengers area. These devices shall allow communication with the driver and the location of the active device shall be indicated on the driver's display. The communication system shall be fully duplex.

Request 'Stop' buttons shall be provided and shall be compliant with Rail Vehicle Accessibility Regulations 1998 (as amended) and shall:

- Become operable when doors are proved closed at a Tramstop;
- When the first one is pressed, sound a single audible warning in the cab, illuminate a warning light in the cab and illuminate the Tram stopping indicators (required by the Rail Vehicle Accessibility Regulations) 1998 (as amended) in the saloon;
- No further audible warning in the cab from subsequent button pushes; and

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 349 |

- Be positioned such that they can be easily activated by any passenger intending to disembark, but should not be positioned such that they can be inadvertently activated by standing passengers.

Request stop from the wheelchair spaces shall:

- Illuminate a different warning light in the cab.
- Create a door open request for the nearest door, so it opens as soon as enabled.
- Override the automatic close on that door for the next opening.

All request stop indications shall be cancelled by the next door enable command.

Devices shall be provided that enable the on-board inspector, working within the saloon or on an adjacent platform, to alert the tram driver to an incident.

The handheld, pocket sized device to be carried by the on-board inspector shall have 2 modes of operation. Mode 1 will provide an alarm to the driver to indicate that the inspector is experiencing difficulties or feels under threat. Mode 2 will alert the driver to an immediate emergency e.g. the inspector is under physical attack.

When the inspector initiates a Mode 1 alarm the handheld device will operate silently. If a Mode 2 alarm is initiated a loud 'panic alarm' sound will be emitted from the handheld device in order to deter the attacker.

The inspector's device shall be stored in a charger/holder in the Depot Duty Room for Drivers and Inspectors and picked up by the inspector as he begins his duty on the tram. The Inspector's device shall be equipped with a mounting device and sized such that it can be conveniently and comfortably be carried on the ticket issuing machine shoulder strap. Each cab of the tram shall be equipped with a receiver capable of responding to all alarm Modes transmitted within range. It shall be possible to replace either the handset or the receiver with a spare in the event of failure or loss.

The handheld device and related system shall operate satisfactorily in the electromagnetic environment which will be encountered on the Edinburgh Tram Network.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 350 |

24.32 Hauling or Propelling a Defective Tram

An emergency coupler will be provided at each end of each Tram. It will be used only for hauling or propelling a defective Tram. The couplers will normally be concealed behind a removable cover. Coupling must be possible at all locations on the Edinburgh Tram Network.

An empty Tram shall be capable of both hauling and propelling (but not both simultaneously) another empty Tram, which is incapable of movement under its own power, between any two points.

As well as mechanical coupling, the following control facilities shall be provided on a coupled pair of Trams:

- Track brake control of both Trams from the cab in use, assuming that each Tram's batteries have sufficient charge;
- Through intercom between all cabs; and
- Through control and power to hazard lights, brake lights and marker lights.
- The intercom, marker lights, brake lights and hazard lights shall be operational on both Trams even if the Tram being assisted has no battery power available.
- The Tram will have a true reverse direction capability from a leading cab, to allow the uncoupling of one Tram from another. This will be enabled with the use of a sealed switch.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 351 |

24.33 Exterior Details and Livery

The exterior livery shall be as set out in Section 5 of these Employer's Requirements.

The paint shall typically be water based and should allow for the application and removal of advertising vinyl coverings without damage.

The Infraco shall ensure that the repair methods for the Tram shall be defined by the Tram Supplier and shall not import undue risk with regard to the processes and materials used.

The external lighting shall comply with Her Majesty's Railway Inspectorate Railway Safety Publication, Part 2, The Road Vehicles Lighting Regulations, 1989 and the amendment 1994.

The external lighting shall consist of Light Emitting Diode (LED) arrays wherever practicable, and shall be composed of:

Facing forward

- Two white dip-able symmetric headlights;
- Two white front position lights (integrated in the headlight cluster)(side lights);
- One fixed white centre headlight located centrally above the windscreen;
- Two amber direction indicators; and
- Two end outline marker light (white, at high level).

Facing rearward

- Two red rear position lights (tail lights);
- Two red brake lights;
- Two high intensity rear fog lights (red);
- Two amber direction indicators; and
- Two end outline marker lights (red) (at high level).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 352 |

Side Markers. Four, or more, amber LED combination lights down both sides working as:

- Side marker lights;
- Direction indicators; and
- Side reflectors.

The Tram exterior shall be designed so as to prevent surfing by any individual.

The Tram exterior finish shall allow for easy repair to accidental damage and severe attacks of graffiti. The finish shall allow for the easy application and removal, if required in the future, of special finishes for advertising, such as self-adhesive vinyl.

24.34 Roof-Mounted Equipment

Much of the electrical traction and auxiliary equipment will be housed in equipment cases located on the roof of the Tram. The equipment cases will be robust, weatherproof and suitable for storage and operation in an exposed position. All enclosures will minimise the risk of condensation, and provide adequate and effective ventilation for cooling where required. The normal working of the roof-mounted equipment shall not be adversely affected by dust, wind, rain, snow or ice.

Access to the equipment within the equipment cases will be quick and straight-forward for suitably qualified and trained staff, working from high-level platforms. Standing areas shall have non-slip surfaces. Due regard will be given to the safety requirements considering the location at height and the working voltage. Specific measures will be required to mitigate the risk from charged capacitors and batteries, and equipment likely to be at high temperature. All metal enclosures shall be suitably earthed to the vehicle structure.

All the roof-mounted assemblies shall be easily removable with the minimum amount of disruption to the Tram, to allow repair by replacement. The use of plugs and sockets to allow quick connection and disconnection of assemblies is preferred. Cabling and piping shall be protected from accidental damage.

As far as is practicable, the equipment will be equally divided between the two end sections of the Tram to equalise weight distribution.

The location of the pantograph will be determined by the layout of the Tram and shall be mounted above a bogie and as near to the centre of the Tram as possible.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 353 |

24.35 Pantograph

Infraco shall ensure that the pantograph for the tram fleet shall be supplied by Tramco.

The governing specifications for the pantograph shall be BS EN 50206-2, BS EN 50119 and Railway Safety Publication 2 - Guidance on Tramways, issued by the Office of the Rail Regulator.

The wire height requirements shall be confirmed, including the operational wire heights within the depot buildings, over-bridges and high load route areas.

A single roof mounted pantograph shall be provided compatible with the Edinburgh Tram Network OLE.

Failure of any porcelain insulators on the lightning protection or other equipment shall not allow flexible cables to fall onto the vehicle roof.

The pantograph mechanism shall raise and lower using an electric drive system. In the event of failure or emergency situation, it shall be possible to lower the pantograph using a hand-crank operated from inside the Tram.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 354 |

In developing the OLE design, the following pantograph / OLE characteristics have been assumed.

- Maximum wire height 6.8 m
- Minimum wire height 4.3 m
- Profile to be developed
- Overall Collector Head width 1850mm assumed
- Carbon length 1000mm minimum
- Collector Head Depth 250mm
- Along track length to be developed
- Head mass (to be as low as reasonably achievable)
 - (a) Carbon 13.0 kg assumed
 - (b) Metallised Carbon 15.0 kg assumed
- Articulation (frame) dynamic mass 12.0 / 16.0 kg
- Head suspension 12000 N / m
- Frame damping raising 60 / 100 N sec / m
- Frame damping lowering 60 / 100 N sec / m
- Head suspension damping 8 / 12 N sec / m
- Quasi-static contact force 90 N / 180 N
- Friction frame hinge 8 N / 10 N

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 355 |

25 Tramstops

This Section of the Employer's Requirements defines the Tramstop requirements applicable to the Edinburgh Tram Network which the Infraco must comply with.

25.1 General

The Edinburgh Tram Network shall have Tramstops provided at the locations shown in Figure 1 – Edinburgh Tram Phases 1a and 1b Network Diagram of these Employer's Requirements.

All elements of the Edinburgh Tram Network infrastructure shall be designed, manufactured and installed to provide a layout and a suite of furnishings reflecting a fully integrated system and shall be of an economical design and construction that shall reflect economy of use, maintenance, overhaul and renewal.

Provision shall be made, in the form of space, agreed fixing details, local cable routes for data, power and lighting (where appropriate) for a local termination point (Tramstop equipment cabinet), to be provided at all Tramstops.

The Tramstop design aesthetic shall extend to the design of the associated street furniture cabinets, trackside isolator cabinets, point control, point heater cubicles, road junction control cabinets, detector loop cabinets, etc. which shall be visually compatible with the Tramstop furniture. Particular note shall be paid to the requirements laid down in the Tram Design Manual to ensure compliance.

The emphasis on this co-ordination shall ensure an integrated design approach within the urban environment.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 356 |

25.2 Tramstop Definition

Tramstops shall provide passengers waiting for, entering or leaving the tram system with safe, comfortable, environmentally friendly, informative, high quality access and egress facilities.

Tramstops shall be of the following three types:

- Island platform stops;
- Side platform stops; and
- Combined side and island platform stops.

Platforms shall be long enough to cater for nominal tram vehicles with the extreme distance between the outer edges of the end passenger doors of the vehicle of up to 38.13 m.

Side platform stops shall provide passengers with an effective circulation area and shall be a minimum of 3.0 metres wide. Island platform stops shall be a minimum of 4.0 metres wide unless otherwise agreed with tie. A stopping tolerance of plus/minus 2.0m shall be allowed for in the platform length.

All platforms shall contain a minimum clear unobstructed envelope.

The platform height shall match the requirements of the tram to ensure level access in accordance with RVAR (Rail Vehicle Accessibility Regulations).

The layout of architectural elements on the platform shall be arranged to provide the user with ease of access and passage on / off the trams.

Access routes serving the platform shall be appropriate for the level of pedestrian activity and be, where practical, a direct route from key passenger generators.

Key views and vistas of the City of Edinburgh shall not be unnecessarily interrupted.

Platforms shall provide passengers with a clear view of approaching trams.

Tramstops shall maintain consistency of alignment with the track.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 357 |

A Tramstop shall be defined as:

- That area bounded by the rear of any platform structure and the track crossing points at either end; (or for central stops the external track edge between the track crossing points at either end);
- Including any underground service ductwork and cabinet specifically associated with the stop, outside this zone in the immediate vicinity;
- Including all dedicated access routes to the nearest public road or key passenger generator; and
- Including all structures, systems (including cabinet), finishes etc required to deliver the functionality of the Tramstop.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 358 |

25.3 Tramstop Requirements

25.3.1 General

Tramstop architecture shall reflect a coordinated design consistent with the overall design aspirations as outlined in the Tram Design Manual and in the CEC Code of Practice for Access and Mobility and shall be subject to the approval of tie.

All components used in the construction of the Tramstop shall comply fully with relevant British and European Standards.

Tramstops shall be compliant with amongst others:

- The requirements of the Tram Design Manual;
- Railway Safety Publication 2 – Guidance on Tramways, issued by the Office of the Rail Regulator;
- Disability Discrimination Act requirements;
- The outcome of consultation with the Mobility and Access Committee for Scotland (MACS);
- The Department for Transport Inclusive Mobility Guide to Best Practice on Access on Pedestrian and Transport Infrastructure; and
- The Building Regulations (Part M).

Reference should also be made to:

- Mobility-impaired access and egress to and from each platform, the minimum width of ramps provided on the Edinburgh Tram Network System shall be 2.0m between handrails;
- Ramps, if required, shall have a maximum gradient of 1 in 20;
- No ramp shall be longer than 10m without the incorporation of a landing;
- Landings shall be no shorter than the width of the ramp; and

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 359 |

- Mobility impaired tram access/egress points shall be clearly defined within the platform finish if required by the tram design and consistent with tram stopping tolerances.

Tramstops shall be of a design that ensures the mobility impaired are able to use them and all parts thereof without hindrance or confusion. All walking routes approaching or within the Tramstop area shall be clear of any form of obstruction.

Provision shall be made for those who require to use canes e.g. inclusion of tapping rails. Guardrails shall be provided with handrails.

Where appropriate, Tramstops shall be provided with handrails, balustrades, and general platform furniture, other than seating, of a design that inhibits their use as seating or as a climbing medium.

Tactile surfacing shall be provided as appropriate e.g. at platform edges, stairs or ramps (if applicable), and at dropped kerbs.

25.3.2 Platform Surface

The general platform surface shall be in accordance with the Tram Design Manual and will vary dependant upon location, but in all instances provision shall be made for tactile strips (400mm wide) to assist the visually impaired along the platform edge. The platform edge shall have a suitable 65mm wide delineation of the white or alternative inset line to the leading edge of the line-side coping, or other equivalent visual feature.

Disabled boarding points shall be indicated, if required, by use of tactile material indicating the position of the relevant tram doors.

Platform surfaces shall have a nominal cross fall away from the platform edge of 1:40 to a slot drainage system. Platform drainage will be dependant upon local topographical criteria.

The platform top surfaces shall be slip resistant and durable. Transition zones shall be provided, free of trip hazards, which can be clearly differentiated by those who are visually impaired.

25.3.3 Tramstop Furniture and Equipment

All Tramstop furniture and equipment on the platforms shall be constructed of materials and finishes that are resistant to scratching and ensure the easy removal of graffiti.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 360 |

Emphasis shall be given to the reduction of 'clutter' and where possible elements shall be combined to provide a dual functionality.

The Tramstop furniture and equipment shall be designed to allow easy replacement of damaged components without affecting equipment, lighting and seating.

Tramstop furniture and equipment shall be designed to support the passenger service without maintenance intervention that results in any form of disruption to the service during service hours. The equipment provided at each location shall be appropriate to that location to limit any unnecessary clutter at Tramstops.

Tramstop furniture and equipment shall be of a modular design based around simple geometric shapes and of modular construction to enable their rapid replacement.

Components and materials shall be of a quality suitable for use in a densely populated and marine environment.

The design of the Tramstop furniture and equipment shall ensure that minor inspection, repairs and maintenance, including lamp replacement, can be carried out during the operational day with the minimum of disruption to passengers, and without disruption to passenger services.

25.4 Description of Tramstop and Street Furniture

25.4.1 General

Each Tramstop shall include the following components:

- Passenger Shelter / Canopied Waiting Area;
- Passenger Help Point;
- Passenger Emergency Call Point;
- Closed Circuit Television Cameras;
- Real Time Passenger Information Display Bus Tracker Reporting (where identified);
- Braille assistance;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 361 |

- Public Address;
- Information Panel;
- System Logo and Stop Name;
- A perch rail/seat; and
- Advertising panel (6 sheet) - if permitted by Planning Authority;
- Ticket Vending Machines;
- Lighting;
- Litter bins.

Equipment placed on platforms shall not prohibit passengers from having a clear view of an arriving tram.

25.4.2 Shelters and Canopied Waiting Areas

Each platform shall contain facilities to provide passengers with weather protection (e.g., wind, snow and rain) in the form of a canopy or shelter designed and constructed to provide maximum visual transparency with minimum visual impact, consistent with offering the required protection.

Tramstop shelters shall be of a modular design based around simple geometric shapes, providing the necessary requirements for passenger use and comfort. A clear uninhibited view of arriving trams shall be available to passengers from within the shelter area.

Tramstop shelters shall permit future easy alteration to the capacity in terms of volume of passengers and equipment to meet emerging needs.

Lighting within the shelter shall provide a minimum of 50 Lux evenly distributed (controlled by sensor).

All shelters shall be provided with adequate drainage facilities to ensure all rainwater is carried away into the Tramstop drainage system.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 362 |

Side infill panels together with back panels shall be of toughened transparent glass to provide a light visual appearance and with the Roof panel of complementary quality to provide passengers with protection from the weather. The design shall be such that it provides a safe environment for passengers in the event that glass panels are missing from the shelter as a result of breakage. The design of the shelter shall also take account of access requirements for maintenance and repair purposes.

Side panels shall provide sufficient depth to give weather protection but not obstruct the safe use of the Passenger Emergency Call and Help Points and shall meet the requirements of the visually impaired.

Shelter roofs shall be profiled to prevent build up of litter / debris on the top surface. The shelter structure, roof and wall panels shall, as far as is possible, be made from proprietary components in order to facilitate ease of replacement and repair.

25.4.3 Tramstop Lighting Columns

Platforms shall be provided with a minimum illumination level of 30 Lux.

Lighting shall be low energy, avoid glare to tram drivers and road users, have good colour rendition and be provided throughout the whole of the area occupied by the Tramstop.

The Tramstop lighting shall differ from the adjacent urban and or city lighting and shall emphasise the presence of the Tramstop to enable passengers to identify the Tramstop from a distance. Consideration should be given to the requirement to make use of local ambient lighting (which may need to be enhanced) to avoid additional clutter at the Tramstop.

Access routes to the stops shall, wherever practical, use existing street lighting as the sole or primary means of illumination. Where this is not possible then lighting of a similar level to the local road lighting shall be provided.

All platform shelter / canopy lighting shall enhance security in the waiting area.

Tramstop lighting shall not conflict with the requirements for Closed Circuit Television coverage and shall permit the attachment of other stop furniture or equipments as required.

Hinged columns, hinging parallel to the track, shall be provided for ease of maintenance.

Tramstop emergency lighting facilities shall be provided in all shelters where the adjacent road lighting would be inadequate in the event of a Tramstop power supply failure.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 363 |

25.4.4 Tramstop Name Signs

Each Tramstop shall include an illuminated pole mounted Logo, or more than one if there are more than one access points from a public road, or a sign incorporating the Edinburgh Tram Network corporate identity visible from a distance of 50m.

Each Tramstop shall be provided with Tramstop name signage as part of the general furniture arrangement on each platform.

Tramstop name signs shall be legible to tram-borne passengers as early as possible on their approach to the platform.

An appropriate number of stand-alone Tramstop name signs shall be provided along the length of each platform. The construction and materials shall form part of the "family" of components forming the Tramstop furniture.

The Tramstop name sign support structures shall be incorporated within the line of any guardrails, should these be provided, and into the advertising / information display.

The Tramstop name signs and Logo shall be illuminated and shall be displayed on the tram arrival side of the shelter as well as along the platform.

25.4.5 Advertising / Information Signs and Displays

A Real Time Passenger Information Display (double sided) shall be provided at each platform.

This shall take the form of a dynamic multi line visual display which is legible in all weather conditions to passengers having normal vision and standing at a distance of 10.0m away.

The Real Time Passenger Information Display shall comply with the requirements described in the Employer's Requirements.

Passenger information regarding the tram service and safety notices shall be provided at all Tramstops in both writing and Braille.

All passenger-operated equipment shall be provided with clear unambiguous operating instructions in both writing and Braille.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 364 |

A suitably enclosed weatherproof map (part of the Tramstop furniture) of the local area, bearing the words 'You are Here', shall be located in each platform shelter.

A suitably enclosed weatherproof information display or displays (indicating the locations of adjacent bus stops and bus related information, hospitals, local amenities and places of interest) shall also be located at each platform access/egress position.

At appropriate key interchange locations (refer to 35.4.1 - Overview to the Passenger Information Display System), provision shall be made within the Tramstop layout to provide a bus tracker information panel, which shall be provided and installed by others.

25.4.6 Litter Bins

Litter bins, where provided, shall be stainless steel (Minimum Grade 304 to BS 5135) to facilitate easy cleaning and shall have a lockable removable bin liner.

The location of bins shall not obstruct the main passenger circulation routes and shall ensure convenience of use.

A minimum of two litter bins per platform shall be provided each positioned mid-point between the shelter and the end of the platforms.

Lockable access covers shall be provided and the bins shall be designed to limit entry and retention of liquids.

The bin size shall be determined on the basis of a single collection per day.

25.4.7 Public Address

Speakers shall be provided at each lighting pole location and within the shelter to enable passengers to receive messages without volume settings being high and causing nuisance outside the area of the platform.

Induction loops shall be provided within the central area around the shelter position.

Further details of the public address system are contained in Section 35.13.2 – Workstation Capabilities.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 365 |

25.4.8 Tramstop CCTV

Closed Circuit Television (pan, tilt and zoom) digital colour cameras shall be provided on each platform to enable colour pictures to be displayed at the Control Centre and other Closed Circuit Television monitoring authorities.

The canopies / shelters, stop lighting and publicity / information displays shall not inhibit the Closed Circuit Television coverage of the Tramstop or platform.

The total number of cameras on each Tramstop shall be dictated by the physical restraints associated with each individual Tramstop, however, a minimum of one per platform shall be provided.

25.4.9 Passenger Help Points and Passenger Emergency Help Points

Tramstops will be provided with one combined Passenger Help Point and one Passenger Emergency Help Point on each platform, providing two-way (duplex) audio communication between a person located on the platform and the operator located at the Control Centre.

The Passenger Help Points / Passenger Emergency Help Points detailed arrangements shall be in accordance with Section 35.13.2 – Workstation Capabilities.

25.4.10 Guardrails, Handrails and Cycle Racks

Platform guardrails shall be provided to the rear of any platform where there is a potentially dangerous interface with passing road vehicles, Network Rail or a significant change in level.

Splashguards shall be provided in vulnerable locations.

Where provided, guardrails shall be set at 1150mm above platform level and comply with the requirements for the mobility impaired.

Cycle parking frames will be provided at each Tramstop, where this is appropriate. These will be positioned within view of the Closed Circuit Television surveillance system.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 366 |

25.4.11 Seating

Bench seats (with integral arm rests and perforated seating structure) shall be positioned on each platform and within each shelter a perch rail / seat shall be provided, designed to prevent the retention of liquids. In all instances the under seat space shall be open to meet security requirements.

25.4.12 Ticket Vending Machines (TVMs)

Ticket vending machines shall be located within or adjacent to the shelters. The TVMs shall be positioned in an appropriately shaded location to assist users in reading the machine's visual display. Ticket vending machines will be supplied to the Infraco, as free issue, by TEL.

Infraco shall make provision for the power and communication cable routes, cables and draw wires from the Tramstop equipment cabinet to the proposed ticket vending machine locations.

Sufficient spare ways within the power and equipment cabinet to accommodate ticket vending machines and a local ticket vending machine network connection will be provided. Further details regarding ticket vending machines can be obtained in 36.5 of these Employer's Requirements.

25.5 Electrical (LV) and Communication Facilities

All Tramstop electrical (LV) and communication equipment shall be accommodated within a Tramstop equipment cabinet. LV supplies shall be provided to the equipment cabinet from which local electrical supplies to Tramstop equipment will be fed.

A 230V, 13A or equivalent socket shall be provided within the Tramstop equipment cabinet.

A 110V supply shall be provided at a suitable location on each platform for cleaning purposes.

All power requirements for the Tramstop infrastructure and adjacent infrastructure equipment will be sourced from the local Distribution Network Organisation supply. All power supplies shall be adequately rated to support the requirements of the Tramstop equipment.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 367 |



25.6 Layover Facilities

Layover facilities shall be provided in accordance with Section 2.15.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 368 |

26 Track

This Section of the Employer's Requirements defines the Track requirements applicable to the Edinburgh Tram Network which the Infraco must comply with.

26.1 Track Layout

The Infraco shall ensure that the track layout shall be in accordance with ETN Diagram at Figures 2 & 3 – Edinburgh Tram Phases 1a and 1b Network Diagram

26.2 Components

Trackwork components to be provided shall include, but are not limited to, the following:

- Rails (relate to Wheel / Rail interface: N.B. inc. hardness related to welding repair);
- Sleepers and points and crossing bearers;
- Turnouts;
- Points and points motors;
- Points baseplates and slippers;
- Points rollers;
- Crossings;
- Check rails and check rail fastening systems;
- Guard rails and guard rail fastening systems;
- Transition rails;
- Rail joints (fishplated and welded);
- Insulated rail joints;
- Isolatable rail joints and provisions for access to associated rail/cable connections;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 369 |

- Rail movement joints;
- Rail fastening systems;
- Rail pads;
- Baseplates;
- Resilient baseplate systems;
- Rail embedment for street running track;
- Paved trackbed and concrete trackbed systems;
- Grooved rail drainage systems (including boxes);
- Buffer stops and vehicle arrestor systems;
- Ballast;
- Granular filtering;
- Granular blanketing;
- Geotextile membranes;
- Plastics membranes;
- Geosynthetic reinforcement;
- Provision and installation of signs and markers; and
- Grasstrack.

26.3 General Requirements

Tracks shall be designed and constructed for left-hand running under line of sight operation.

The maximum design speed shall be 80 km/h.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 370 |

Where the Edinburgh Tram Network runs within an urban environment on non-segregated sections of tramway, the speed limit shall be the same as that for motor vehicle traffic.

The trackforms shall be applied as indicated at the documents System wide trackform Surface Finishes Version 3 ULE90130-SW-DRG-00069.PDF, ULE90130-SW-DRG-00070.PDF and ULE90130-SW-DRG-00071.PDF

The track shall facilitate ease of construction and minimise disruption to other road users and the public during the construction phase on all roads and across all junctions between Haymarket and Ocean Terminal via Princes Street.

The track shall minimise the potential for stray current and be in accordance with the requirements and codes of practice for stray current and the tie Earthing and Bonding Policy document. As the valid standard the EN 50122 shall be in force.

Ensure simplicity of overall maintenance and ease of rail replacement and relaying, minimising the disruption to other road users.

The track shall comply with the operational noise and vibration requirements as stated in the tie Noise and Vibration Policy. Detailed technical solutions will be determined during the Detailed Design Phase for areas identified as sensitive to Noise and Vibration. The assessment of these solutions shall be in line with the characteristics of the vehicles, the existing sub-structure and the structures adjacent to the track-bed.

The track shall integrate fully with roads, such that differences in roads surfaces, specifically finished levels and skid resistance, are minimised as far as is reasonably practicable.

The track shall integrate fully with surrounding area functionality and appearance, to ensure that hazards to pedestrians, the mobility impaired and cycle users are minimised as far as is reasonably practicable, and such that track surface finishes are in accordance with all design requirements, guidance and aspirations.

Adequate track formation shall be provided to facilitate the secure foundation for track installation.

The in-street track formation shall be of shallow design such that it permits minimum amount of public utility diversions and aids the high speed construction of the tramway.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 371 |

The surface at pedestrian crossing points shall be level with the top of the running rails and surfaced in non-slip materials. These materials shall be chosen to be reasonably consistent with the character of the locality whilst providing clear indication to all users (including the visually impaired) of the correct point to cross the track and the extent of the Edinburgh Tram Network environment.

Track shall be a standard tramway track with steel rails set to Standard Gauge (1.435m) and shall be compatible with the Edinburgh Tram Network trams.

On ballasted sections of the route, road/rail equipment will be used for maintenance tasks such as tamping. These machines shall be equipped with suitably profiled wheels.

26.4 **DKE, Structure Gauge and Clearances**

The DKE adopted shall be the "Assumed Tram for Design", as presently defined in the SDS design documents.

Structure gauge and clearance drawings shall include the standards for staff maintenance walkways and tram evacuation walkways.

Adequate walkways are required throughout the route off-street. Appropriate signing shall be included to indicate the walkway.

26.5 **Trackforms**

Various trackforms, as presently shown in the SDS design documents, are required to suit the different domains in which the track lies along the route and in the Depot and sidings. The different trackforms provided shall comprise, but not necessarily be limited to:

- Flush-finished track in road areas and at Tramstops, including mixed operation with traffic of various kinds, or not; and with a variety of surface finishes;
- Track with grass flush finish;
- Track with plain concrete flush finish (e.g. in the depot and for certain structures, e.g. the A8 Underpass);
- Direct fixation track on structures;
- Ballasted track; and

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 372 |

- Special trackforms in the depot or at Tramstops.

The trackforms shall be designed and installed to take full account of the requirements for future maintenance of components, e.g. life-extension of rails by welding in situ, and the adjustment of the levels of rails and the adjacent surfaces, and of sectional renewal.

26.6 Specific Technical Requirements

Retention of alignment on small radius curves in the case of ballasted track where rails are continuously welded shall be considered. A minimum radius shall be established for the application of ballasted track, with an appropriate alternative trackform applied elsewhere.

For in-street track construction, and in the absence of sleepers or similar, a means of retaining the lateral and rotational position, such as tie-bars of the rail together with the track gauge shall be provided.

A standard trackform shall be provided which shall comprise a slab that shall be suitable for any of the road, pavior / block / sett and grass surface finishes. In effect the surface finishes shall be interchangeable without having necessarily to redesign or reconstruct the whole slab.

A special track form shall be used at sensitive locations to mitigate against ground borne noise and vibration. These locations will be identified by the Infraco in agreement with tie.

At the end of all terminating tracks, provision shall be made for a device for arresting Trams. These devices may include sliding friction or fixed type buffer stops, sand drags, architectural features such as planters, wheels stops or other means. The choice of such device(s) shall be made through risk analysis of the location, taking into account the risk to passengers, pedestrians and staff and to the vehicles and surrounding environment.

Rail shall be continuously welded wherever possible. The use of fish-plated joints shall be avoided although fishplated track may be proposed in the Depot to avoid the requirement for rail movement joints at turnouts.

26.7 The Wheel / Rail Interface

A report has been produced by SDS (ref: ULE 90130-SW-REP-00130 v3) which shall form the basis of development of this critical interface. The key factors will be recorded here.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 373 |

26.8 Drainage

Drainage from trackwork shall be interfaced with the road and civils drainage systems. Adequate drainage within the trackwork system shall be provided such that the integrity of the installations is secure.

The Edinburgh Tram Network shall have a drainage system that, as a minimum, achieves accepted EU or BS standards and Good Industry Practice.

The drainage of all new bridge structures shall be positive and, unless otherwise required by the relevant local authority, all surface water shall be piped to the local storm water sewer systems by a defined drainage path.

Particular attention shall be paid to ensure that surface water drainage systems in the vicinity of traction substations and cable ducts are routed to avoid any risk of flooding of electrical equipment areas, point machine chambers, and the ducts themselves.

For on-street track, the track drainage system shall incorporate an insulated break from the storm water system.

Drainage proposals including any new flows into existing drains and the method of connection shall be approved by Scottish Water, SEPA and the City of Edinburgh Council Roads Department as appropriate.

26.9 Technical Requirements for Points and Crossings

All turnouts, crossings and interruptions to the continuity of the rail head shall be equipped with flange running sections or other design which minimises joint noise.

The design shall minimise flange squeal through tight radii and through junctions.

Points shall be provided with two movable blades so mounted to allow the use of magnetic track brakes and their safe passage through the point and crossing.

All points shall be freely trailable without damage to the blades or mechanism.

Points and crossings shall be designed so that they are capable of through stressing as required.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 374 |

All points on the main line, likely at some time or another to be taken in the facing direction (including trailing, emergency crossovers), shall be equipped with detection and indication. Indication of trailing points likely to be taken at high speed shall be considered.

All points, when operated by hand lever, shall be capable of being thrown fully, by one throw of the lever, by a male or female person of slight build, without undue effort or strain. To this end, the maximum required effort to change the points shall not normally exceed 230Nm.

Some form of indication shall be incorporated into the mechanism to indicate that the point has thrown fully. Lever mechanisms requiring repeated operation to throw the points are not acceptable.

Efforts should be made to reduce friction and the effort to throw the points. Flange relief of the point tongues is one such feature.

Point tongue profiles and movement on all points shall conform to the same dimensions and tolerances.

Design tolerances shall be maintained in service with a relatively low level of attention.

Designs with potential for high wear rates or other high maintenance features are not acceptable.

Designs with the potential for lengthy infrastructure replacement periods are not acceptable, particularly in on-street areas.

Adequate, functional drainage must be provided to ensure that rail grooves and point machine pits are kept clear of rainwater, sand and rubbish from the street etc.

Pointwork in the depot site area shall be installed in a flush-finished trackform for 9 turnouts and 1 crossing at the beginning of the depot area. This flush-finished trackform will be designed for re-railing purposes only.

26.10 Technical Requirements for Point Operation

26.10.1 Point Machines and Mechanisms in General

All point machines, whether powered or not, shall be from the same family of machines and provided by the same supplier.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 375 |

Point machines shall allow the points to be 'freely' trailable without damage to the blades or mechanism.

In street running track, point machines shall be installed between the rails of the track.

On ballasted track, in order to facilitate maintenance, they shall be installed to the side of the track, on the outside of a typical two track layout.

Point machines shall be capable of manual operation in a single throw by tram drivers using a removable point bar to be carried in the Tram drivers cab. Only one form of point bar shall be utilised on the system.

It shall be possible for the points to be changed by a male or female person of slight build, without undue effort or strain when the points are not affected by snow or ice. To this end, the maximum required effort to change the points shall not normally exceed 230Nm.

When operated by hand using the standard points operating bar, it shall not be possible to inadvertently partially throw the points, which shall always throw sufficiently to make the respective detection circuits at each lie of the points with a single movement of the lever.

A total number of 70 point operating bars shall be supplied.

All combinations of points and point machines shall be validated to demonstrate that:

- The machines shall exert sufficient force under all foreseeable circumstances to move the points blade into the required position;
- The points shall close and lock reliably under all foreseeable operating conditions;
- Detection settings shall have adequate maintenance tolerances to ensure that points detection setting testing shall be required no more than monthly on all points;
- The wheel/rail interface at the toes of the points shall be such that there is no derailment risk under all combinations of wheel wear, rail wear, and detection settings;
- Any tram driver shall be able to operate all points safely and without risk of injury; and

The enclosing case of the Point Machine shall be to Class IP 67 and be drained.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 376 |

Point Machines shall not be overstressed in performing its duty. Efforts should be made to minimise friction and the effort to throw the points. Flange relief of the point tongues is one such feature and there are others such as PTFE slides and supporting rollers.

The flangeway in advance of the point tips shall not be less than 41mm. It shall be consistent with the wheel/rail interface report.

The amount by which nominally 'closed' point tongues may be open at their tips whilst still providing detection, shall be agreed as a part of the wheel/rail interface criteria.

Each Point Machine shall be clearly identified and robustly labelled.

Point Machines of all types and their drive and detector rods shall be insulated from the running rails and from the surrounding earth. Separate earthing connections for the drive motor (where fitted) and the machine case shall be provided.

Point Machines of all types shall normally not require maintenance more frequently than at three-monthly intervals although inspection may be carried out more frequently.

All Point Mechanisms shall incorporate at least one volt-free change-over contact in both the 'Normal' and 'Reverse' positions, in addition to those required for detection purposes.

In the case of Point Machines incorporating an over-centre device, it shall not be possible for the machine to be set in the 'null' position during powered or sprung operation, as applicable.

26.10.2 Specific Requirements for Motorised Point Machines

The Point Machines will operate from a 230Vac supply.

The Point Machine shall be capable of operating the two point tongues for the full throw required to provide the standard 'blades open' gap, to clear the backs of the flanges of the wheels. However, the throw shall not be so great as to flex the tongues further than necessary, thereby introducing unnecessary stress in the track components and load on the operating machine mechanism. This dimension 50mm,+5/-0mm will be finalised after the wheelset profile has been determined and the Wheel-Rail Interface Report has been finalised in the Detailed Design Phase.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 377 |

26.10.3 Specific Requirements for Sprung Point Mechanisms

The Spring Point Mechanism shall be capable of being biased to effect a route to either lie of the points. The mechanism shall normally set the points in their 'Normal' position but by adjustment, they shall be capable of being set in the 'Reverse' position.

In both cases, it shall be possible to change the lie of the points using the standard points operating bar with an effort not exceeding 230Nm.

Only the incursion of a foreign body in the space between the point tongue and the stock rail shall prevent a satisfactory change in the lie of the points.

The lie of the points shall be continuously maintained in the 'Normal' (or if adjusted, 'Reverse') position by adequate spring pressure.

After having been forced across by the passage of a tram, the mechanism shall positively return the points to the 'Normal' position and provide the standard 'blades open' gap, to clear the backs of the flanges of the wheels.

If possible, by the rearrangement of components, the Spring Point Mechanism shall be convertible into a Bistable Point Mechanism for the avoidance of spares duplication.

26.10.4 Specific Requirements for Bistable (flip-flop) Point Mechanisms

The Bistable Point Mechanism shall be capable of being biased to effect a trailing route through either lie of the points, by use of a standard points operating bar. The mechanism shall normally retain the points in the position last trailed. However, by operation using the approved points operating bar, they shall be capable of being set in the alternative position.

Only the incursion of a foreign body in the space between the point tongue and the stock rail shall prevent a satisfactory change in the lie of the points.

The lie of the points will be continuously maintained in the position last trailed by adequate spring pressure.

After having been forced across by the passage of a tram, the mechanism shall positively leave both blades of the points held firmly across with the 'closed' point against the stock rail and provide the required 'blades open' gap, to clear the backs of the flanges of the wheels on the other side.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 378 |

The amount by which nominally 'closed' point tongues may be open at their tips shall be within the same tolerances specified for points operated by powered Point Machines.

If possible, by the rearrangement of components, the Bistable Point Mechanism shall be convertible into a Spring Point Mechanism for the avoidance of spares duplication.

26.10.5 Specific Requirements for Hand-Operated Point Mechanisms (Point Levers)

Points operated by Hand-Operated Point Mechanisms shall normally be traversed in the facing direction subject to a 10 km/h track speed limit.

One throw of the lever shall fully throw the points to either 'Normal' or 'Reverse' positions. Levers which require one or more attempts to complete the operation are not acceptable.

It shall not be possible to inadvertently partially throw the points, which shall always throw sufficiently to allow the respective 'points thrown' indication at each lie of the points to be given with a single movement of the lever.

Only the incursion of a foreign body in the space between the point tongue and the stock rail shall prevent a satisfactory change in the lie of the points.

After having been thrown, the mechanism shall positively leave both blades of the points held firmly across with the 'closed' point against the stock rail and provide the required 'blades open' gap to clear the backs of the flanges of the wheels on the other side.

The amount, by which nominally 'closed' point tongues may be open at their tips, shall be within the same tolerances specified for points operated by powered Point Machines.

26.11 Technical Requirements for Point Control and Indication

26.11.1 Detection

Where detection and indication is required, the mechanism shall be fitted with detection equipment capable of differentiating between a 'safe' and 'unsafe' gap. When closed, the detectors must be capable of detecting a minimum gap of 1.5mm although the 'unsafe' gap detection including a safety margin will be slightly greater than this at 2.5mm, +0/-0.5mm between the closed point tongue and the corresponding stock rail at each lie of the points. To be confirmed with wheel/rail interface criteria.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 379 |

Each point tongue shall be independently detected through a separate mechanical connection to the point tongues, independent of the drive rod connection and as close as practicable to the tip of the tongue. Totally enclosed proximity switches are preferred for this duty.

26.11.2 Control

The Point Controller shall receive information from the Tram Position and Detection System (TPDS) and set the Points and Point Indicators and shall be driven by the output from the point detection.

The Point Controller shall acknowledge the requests from TPDS and make all the necessary safety checks before commanding the point machine to move the points.

When the Point Controller causes the Point Machines to change the points, it shall monitor the detection contacts in the associated Point Machine(s) to determine whether the points have fully thrown.

Once the points have been satisfactorily operated (i.e. been fully thrown), the Point Indicator shall show a sloping row of lights (or LED clusters), corresponding to the lie of the point to approaching trams. If the points have not fully thrown, a horizontal row of lights (or LED clusters) shall be displayed.

If an appropriate command has been set by personnel in the Control Centre, the Point Controller shall block any associated points requested by the tram on-board computer from its route code.

The Point Controller shall report to the adjacent Tram Position and Detection System and or SCADA when any of the following conditions apply:

- Failure of the Point Machine supply;
- Failure of the Point Indicator supply;
- Receipt of an indication of faulty point detection; and
- Failure of the Point Heaters supply.

When the relevant track circuits or mass detectors detect the presence of a tram in a prescribed area, the Point Controller will lock the points against any further signals to change them until the tram has left the prescribed area.

The Point Controller shall also afford the facility to set and control the associated points locally.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 380 |

26.11.3 Indication

The lie of the points shall be indicated to trams approaching the toe of the points in a facing direction. Indication of trailing points likely to be taken at high speed shall also be considered. The specific requirements at each location are defined on the track layout diagram.

The basic technology and design of the point indicator shall be same as the tram signals. The colour shall not be white, red or green.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 381 |

Point indicators shall exhibit the following standard aspects to drivers:

- Points set to left hand route: diagonal row of lights sloping upwards towards the left;
- Points set to right hand route: diagonal row of lights sloping upwards towards the right; and
- Points not detected: horizontal bar

The indicator shall be placed for visibility to the tram driver in the same basis as tram signals.

The means of illumination shall be by LEDs.

A minimum of five clusters in each row shall be provided.

All Point Indicators shall be located in agreement with the Operator and shall be co-located where relevant with tramway signals.

Each Point Indicator shall be clearly identified and robustly labelled.

The aspect shall be clearly visible in all weather conditions.

The Point Indicators shall normally not require maintenance more frequently than at three-monthly intervals although inspection may be carried out more frequently.

26.11.4 Control Cabinet

Controls to set and control the associated points locally shall be provided in a cabinet. These shall be operable while the relevant points are in direct view of the person operating them.

The Point Controller cabinet shall contain the power supply for the operation of the associated points and to all associated Point Indicators.

The Point Controller cabinet shall contain and control with an input from the SCADA system, the power supply to the point heaters mounted on the associated points.

The Point Controller shall not require maintenance more frequently than at six-monthly intervals although inspection may be carried out more frequently.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 382 |

26.12 Indication of Hand Operated Point Mechanisms (Point Levers)

The lie of the points shall be indicated to trams approaching the toe of the points in a facing direction.

Upon the operating lever being thrown, a simple mechanical device will detect that the closing point tongue has closed to within the permitted tolerances specified above.

Detection of the fully thrown condition shall cause a mechanical indicator to display a corresponding indication to the tram driver. The indicator shall present an indication equivalent to that shown on lit indicators and be visible from the normal tram driver's operating position in the cab, when the tram is 5 metres to the rear of the point tips, in daylight and illuminated by the tram's headlights after dark. Failure to close the tongue to within this tolerance shall not allow the indicator to show a 'points thrown' indication. Both point tongues shall be detected, either individually or as a coupled pair.

26.13 Technical Requirements for Points Heating

Points heating systems will allow the efficient operation of points in low temperatures and shall be such that the components will not intrude into the surrounding infrastructure.

Points heating shall be electrically powered and shall be controlled automatically by sensing when the predefined temperatures for activation and deactivation have been reached.

Point Heating devices shall provide health status information via the SCADA to the Control Centre.

Point Heaters shall be capable of being manually activated and/or deactivated locally and from the Control Centre.

The locations at which point heating shall be provided will be agreed and shown on the track layout diagram.

Where more than one heater is controlled from a Point Controller, it shall energise each of them in sequence in order to limit the inrush current demanded.

The Point Controller shall monitor the local ambient temperature and humidity and control the supply to the point heaters accordingly.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 383 |

The settings at which the point heaters are energised shall be adjustable within the limits of 0°C to + 5°C.

26.14 Tolerances

The following definition of construction and maintenance tolerances shall be developed and agreed between Infracore and tie.

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|---------|--------------------|---------|------|---------|-----------------|----------------|----------------------------|
| Speed | Shared running | Maximum | kph | | 50 | 50 | 50 |
| Speed | Segregated running | Maximum | kph | | 80 | 80 | 80 |
| Speed | Depot | Maximum | kph | | 15 | 15 | 20 |

Table 62 - Speed assumptions and normal limitations

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-------------------|----------------|---------|------|---------|-----------------|----------------|----------------------------|
| Geometric element | Minimum length | | m | | 15 | 12 | 6 |

Table 63 - Geometric Elements - Element lengths are tied to the tram length, specifically distance between bogies

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-----------------------------|-----------------------------------|--|------|--|-----------------|----------------|----------------------------|
| Horizontal radius - Minimum | Running lines | Slab track | m | | 50 | 30 | 25 |
| Horizontal radius - Minimum | Depot lines | | m | | 50 | 40 | 20 |
| Horizontal radius curves | Distance between opposite flexure | Radii dependant - no transition curves | m | Considered minima dependant upon tram data | 15 | 10 | 6 |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 384 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|--------------------------|---|--|------|--|-----------------|----------------|----------------------------|
| Horizontal radius curves | Distance between opposite flexure | With transitions on adjacent opposite flexure curves | m | Exceptional to be considered individually (also refer wheelbase) | 10 | 8 | 6 |
| Horizontal radius curves | Distance between curves of opposite flexure | Turnouts - theoretical tangent points at switch toe to next tangent pt (of opposite flexure) | m | Considered minimums dependant upon tram data (wheelbase) | 10 | 8 | 6 |
| Horizontal radius curves | Distance between curves of opposite flexure | Turnouts - theoretical tan.pt. at switch toe to tan.pt. (of similar flexure) | m | Considered minimums dependant upon tram data (bogie axle ctrs) | 5 | 3 | 2 |
| Horizontal radius curves | Tramstops | | m | Absolute minimums | Infinity | 2000 | 1000 |

Table 64 - Horizontal Curves: Minimum requirements for horizontal curves including distances between similar and opposite flexure. Similar requirements also for horizontal curvature up to turnouts and through Tramstops.

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|---------|--------------------------|---------------------|------|-----------------|-----------------|----------------|----------------------------|
| Cant | Platforms | | mm | | 0 | 0 | 0 |
| Cant | Tangent track | Facilitate drainage | mm | | 0 | 15 | 15 |
| Cant | Fixed Obtuse crossings | | mm | | 0 | 15 | 30 |
| Cant | Curves | | mm | Subject to Tram | 75 | 75 | 100 |
| Cant | Plain line track – depot | | mm | | 0 | 0 | 15 |

Table 65 – Cant: Maximum cant values

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 385 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|---------------|------------|---|------|---------|-----------------|----------------|----------------------------|
| Negative cant | Plain line | | mm | | 0 | 15 | 15 |
| Negative cant | Turnouts | Turnouts – when turnout is facing downhill on a grade | mm | | 0 | 0 | 15 |
| Negative cant | Turnouts | Turnouts and acute diamond crossings | mm | | 0 | 0 | 15 |
| Negative cant | Turnouts | Obtuse crossings in diamonds | mm | | 0 | 0 | 0 |

Table 66 - Negative Cant: Maximum allowable values which are particularly important with regard to turnouts and obtuse crossings.

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-------------|-----------|---------|------|-----------------|-----------------|----------------|----------------------------|
| Cant excess | | | mm | Subject to Tram | 0 | 25 | 50 |

Table 67 - Cant Excess - Normally applied where slow speed running may be encountered, but does have some bearing in this concept.

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 386 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|------------------------|---|--|------------------|-----------------------------|-----------------|----------------|----------------------------|
| Cant deficiency | Plain line | | mm | Maximum | 40 | 60 | 75 |
| Cant deficiency | Plain line - Depot | | mm | | 40 | 75 | 100 |
| Cant deficiency | Through route of turnout | On tangent or curved track | mm | | 0 | 40 | 60 |
| Cant deficiency | Turnout route | | mm | | 40 | 60 | 75 |
| Cant deficiency | Based on theoretical radius at switch toe | Cant deficiency based on theoretical radius formed by shortest wheel-base placed centrally at switch toe | mm | | 40 | 40 | 50 |
| Cant deficiency - jerk | At switch toes Consider shortest wheelbase | Maximum permitted jerk rate at switch toes using theoretical radius formed by shortest wheel-base | m/s ³ | jerk = 0.2 m/s ³ | 0.3 | 0.4 | 0.5 |
| Cant deficiency - jerk | Plain line Consider shortest wheelbase | Maximum permitted jerk rate as a result of the geometry change and shortest wheel-base | m/s ³ | | 0.25 | 0.35 | 0.45 |

Table 68 - Cant Deficiency: Deficiency at the switch toe will require careful consideration, effectively setting speed restrictions. Particular impact on the criteria will be to assess jerk with reference to the shortest wheelbase.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 387 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-------------------|--------------------|----------------|------|-----------------|-----------------|----------------|----------------------------|
| Transition curves | Virtual Transition | Length basis | m | Subject to Tram | No use | 1.8 | 1.8 |
| Transition curves | Clothoid | Minimum length | m | Subject to Tram | 15 | 10 | 6 |

Table 69 - Transition Curves - Dimensional requirements with some relationship to the tram dimensions

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|---------------|-----------------------------------|---|------|---------------|-----------------|----------------|----------------------------|
| Cant gradient | Cant gradient - Maximum permitted | RoCC may be overwritten by other minimums | | Consider RoCC | RoCC | 600 | 300 |
| Cant gradient | Cant gradient - Minimum permitted | | | | 1500 | 2000 | 3000 |
| Cant gradient | Switch toes | | | | 0 | 0 | 0 |
| Cant gradient | Crossings and diamonds | | | | 0 | 0 | 0 |

Table 70 - Cant Gradient: Permitted maximums which, in effect, define twist parameters (dealt with later). Note: All the following apply only in the cases of applied cant on track on zero grade. For track on a grade or a vertical curve, where a twist in the track will arise from a horizontal curve, the maximum gradient that arises from applied cant must be less than the following limits (i.e. one in (value greater than following limits)) because an element of effective cant gradient will result from the combinations of horizontal curve and grade / vertical curve. In the latter cases the gradients that arise from applied cant are governed by the overall twist limits which are specified in table 78 below.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 388 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|----------------------------|-----------|--|------|-----------------|-----------------|----------------|----------------------------|
| Rates of change – cant | | Rate of change of cant | mm/s | Subject to Tram | 35 | 55 | 68 |
| Rates of change - cant def | | Rate of change of cant deficiency - plain line | mm/s | Subject to Tram | 35 | 55 | 68 |
| Rates of change - cant def | | Rate of change of cant deficiency - S&C | mm/s | Subject to Tram | 35 | 55 | 80 |

Table 71 - Rates of change of cant (RoCC) & Rates of change of cant deficiency (RoCCD) - Rate of change in lateral acceleration.

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|--------------------|-------------------------|---|--------|-----------------|-----------------|----------------|----------------------------|
| Vertical alignment | Sag | Vertical curve radius - minimum | m | Subject to Tram | 1000 | 625 | 500 |
| Vertical alignment | Hog | Vertical curve radius - minimum | m | Subject to Tram | 1000 | 625 | 500 |
| Vertical alignment | Vertical acceleration | | % of g | | 2 | 2 | 4 |
| Vertical alignment | Turnouts and diamonds | Vertical curve radius. Proximity of vertical curve tangent point to switch toe and crossing of turnouts and diamonds. | m | | 15 | 10 | 6 |
| Vertical alignment | Advance sws - xng & sws | Vertical curve radius | m | | 0 | 0 | 0 |
| Vertical alignment | | Minimum curve element length | m | | 20 | 15 | 10 |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 389 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|--------------------|--|---|------|---------|-----------------|----------------|----------------------------|
| Vertical alignment | Instantaneous change in grade | | % | | None | 0.1 | 0.2 |
| Vertical alignment | Grade distance between adjacent curves (similar flexure) | Preferred situation | m | | None | None | None |
| Vertical alignment | Grade distance between vertical curves of opposite flexure | With combined average radius less than 3125m | m | | 15 | 10 | 6 |
| Vertical alignment | Grade distance between vertical curves of opposite flexure | With combined average radius greater than 3125m. | m | | 15 | 10 | 0 |

Table 72 - Vertical Alignment - Some elements require consideration from the tram supplier, others refer again to element lengths

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-------------------|-----------|--|------|---------|-----------------|----------------|----------------------------|
| Vertical geometry | Tramstops | Radius through tramstops (without exceeding gradient criteria) | m | | Infinity | 2000 | 1000 |

Table 73 - Vertical Geometry: Tramstop requirements

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-----------|-----------|---------|------|---------|-----------------|----------------|----------------------------|
| Gradients | | | % | | 5.0 | 6.7 | 8.0 |
| Gradients | Tramstops | | % | | 1.0 | 2.0 | 2.5 |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 390 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|-----------|------------------------|--|------|---------|-----------------|----------------|----------------------------|
| Gradients | Stabling | Maximum – includes locations where tram driver is routinely required to leave driving position | % | | 0.0 | 0.1 | 0.2 |
| Gradients | Turnouts and junctions | Dependant upon twist and negative cant | % | | 0.2 | 3.0 | 6.5 |

Table 74 – Gradients: Maximum gradients in various locations

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|----------------------------------|--|---|------------------|-----------------|-----------------|----------------|----------------------------|
| Twist (as part of the design) | Short wave (over bogies) | | ‰ | Subject to Tram | 1.5 | 2.0 | 3.3 |
| Twist (as part of the design) | Long wave over length of vehicle | Project Tram geometric capability 10m @ 3mm $\text{‰}_{100} + 10\text{mm} -$ i.e. $30 + 10 = 40$ (or 4 ‰_{100}) | ‰_{100} | Subject to Tram | 1.5 | 2.0 | 3.3 |

Table 75 - Twist

The above represents the limits on the overall twist in the track that is a summation of: any gradient arising from applied cant; effective combinations of horizontal curves and grades / vertical curves; and other twisting effects (e.g. resulting from induced crossfalls for road drainage).

Twist is introduced into the track whenever cant is applied and when track with zero cross-level has a combination of horizontal curvature and vertical curvature or gradient.

Such geometry creates a twist, which has to be negotiated by the tram vehicle. Clearly the tram has to be capable of handling such geometric situations. Certain manufacturers may define these criteria in their own way, an interpretation of which is indicated below.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 391 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

Twist in the long wave is measured over the wheelbase (bogie centres); short wave being measured over the axle centres of the bogie. Short wave twist also leads to wheel un-loading, not, as yet, defined here.

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|------------------------|------------------------|--|------|-------------|-----------------|----------------|----------------------------|
| Vert / Horiz alignment | Horizontal radius - 25 | Vertical curve radius - minimum (product rule) | m | 40k,30k,25k | 1600 | 1200 | 1000 |
| Vert / Horiz alignment | Horizontal radius - 30 | Vertical curve radius - minimum (product rule) | m | 40k,30k,25k | 1333 | 1000 | 833 |
| Vert / Horiz alignment | Horizontal radius - 40 | Vertical curve radius - minimum (product rule) | m | 40k,30k,25k | 1000 | 750 | 625 |
| Vert / Horiz alignment | Horizontal radius - 50 | Vertical curve radius - minimum (product rule) | m | 40k,30k,25k | 800 | 600 | 500 |
| Vert / Horiz alignment | Horizontal radius - 60 | Vertical curve radius - minimum (product rule) | m | 40k,30k,25k | 667 | 500 | n/a |
| Vert / Horiz alignment | Horizontal radius - 80 | Vertical curve radius - minimum (product rule) | m | 40k,30k,25k | 500 | n/a | n/a |

Table 76 - Vertical/horizontal alignment combinations

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 392 |



Taking the comments above regarding twist, it can be seen the certain combinations of vertical and horizontal alignment can cause undesirable geometric situations. The tables below define, using a simple product rule, the limitations.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 393 |

Edinburgh Tram Network – Employer's Requirements

Section 26 – Track

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|---------------|------------------------|--|------|------------------------|-----------------|----------------|----------------------------|
| Track spacing | Plus allowance for DKE | Double track main line - track centres - side poles | mm | - 3100 | | | |
| Track spacing | Plus allowance for DKE | Double track main line - track centres - centre poles | mm | - 3600 | | | |
| Track spacing | Plus allowance for DKE | Depot tracks and sidings - track centres | | TBA Subject to Tram | | | |
| Track spacing | Plus allowance for DKE | Depot tracks and sidings - track centres - working space | | TBA Subject to Tram | | | |

Table 77 - Track Spacing. Note: straight track on radii larger than 350 metres on fixed non-ballasted trackform

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|---------|----------------------------|---------|------|------------------------|-----------------|----------------|----------------------------|
| Gauge | Track gauge | | | | 1435 | 1435 | 1435 |
| Gauge | Track gauge widening | | | | 0 | 0 | 0 |
| Gauge | Track gauge-flange-running | | | TBA Subject to Tram | | | |
| Gauge | Check flangeway | | | TBA Subject to Tram | | | |

Table 78 – Gauge: Standard data that requires further review/approval

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 394 |

| Element | Qualifier | Comment | Unit | Comment | Desirable Value | Limiting Value | Exceptional Limiting Value |
|------------------|-----------|--|------|------------------------|-----------------|----------------|----------------------------|
| Rail inclination | | Inclination - Vertical street grooved rail | | TBA | | | |
| Rail inclination | | Inclination - Non grooved rail | | TBA Subject to Tram | | | |

Table 79 - Rail Inclination

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 395 |

27 Roads and Utilities

This Section of the Employer's Requirements defines the roads and utilities requirements applicable to the Edinburgh Tram Network with which the Infraco must comply.

27.1 General

The roads works and utilities shall consist of all the necessary road works and associated accommodation works required to fully integrate the Edinburgh Tram Network into the urban road environment, including those relevant areas that are not trafficked.

The road works, utilities and associated accommodation works shall be provided in accordance with the Design Manual for Roads and Bridges (DMRB), except as amended by the requirements of, or otherwise agreed with, the relevant authority including where such requirements are more onerous.

The roads and utility works shall include but not be limited to the following:

- Road and junctions (including all necessary off-alignment works);
- Site clearance;
- Safety barriers and fencing;
- Drainage works including track drainage;
- Earthworks;
- Surfacing;
- Road lighting;
- Traffic signage and road markings;
- Traffic signals and tram signals;
- Landscaping;
- Temporary and permanent traffic measures;
- All associated cable ducting required for the works;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 396 |



- Depot access and utilities, including within the Depot;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 397 |

- Utility diversion works where not carried out by MUDFA; and
- Removal of all redundant services and apparatus affecting the works.

The works shall take account of MUDFA.

27.2 System-Wide Requirements

The tram network shall be segregated from the road wherever feasible using a variety of means as appropriate to the features and constraints of the individual locations. These include the use of road markings and varying surface types for visual or textural delineation. The design of the segregation details shall optimise their effectiveness without significantly compromising safety and operational factors, including the operation of junctions and emergency and maintenance access.

27.3 General Requirements

All works shall be carried out in accordance with the provisions of the Tram Legislation. All works on adopted roads shall be to a standard to allow subsequent re- adoption by the Roads Authority.

Wide-area modelling of traffic impacts consequent to the design shall be provided as a pre-requisite to approval, and prior agreement with the City of Edinburgh Council on the Traffic Regulation Orders and Temporary Traffic Regulation Orders necessary to implement the design and complete the works.

In addition to roads that have been adopted by the Roads Authority, the route for the tramway also uses roads that are currently in private ownership. In all cases the owners of private roads shall be consulted and their input and approval sought during the design process. Road works within these areas shall be to the same standard as that used for the roads adopted by City of Edinburgh Council (similarly, new and extended roads shall follow the same process). Where third parties are affected by a new or extended road their inputs and approvals where necessary shall be sought during the consultation process.

27.4 Stray Current

Refer to Stray Current of these Employer's Requirements at section 32.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 398 |

27.5 Roads

27.5.1 General

The general requirements for the design of the roadworks shall meet the relevant Standards set out in Section 3.6 of these Employer's Requirements with emphasis on the following:

- Design Manual for Roads and Bridges (DfT);
- City Development Transport – Development Quality Handbook – Movement and Development (CEC);
- Edinburgh Standards for Streets (CEC); and
- Tram Design Manual (CEC).

27.5.2 Roads Design

The roads and track alignment shall be integrated in a manner that best uses the available space and optimises the alignment of both systems. Horizontal clearances between kerb lines of roads and tram network structures shall be not less than those set out in the relevant Department for Transport technical memoranda and the Department for Transport publication "Roads and Traffic in Urban Areas" and shall meet the guidance in ORR RSP2.

The requirements for geographical sections of the design and construction shall be discussed and agreed with tie and the City of Edinburgh Council to determine the extent of the proposed re-modelling, roadworks and (temporary and/or permanent) traffic management.

All surfacing materials shall comply with the DMRB requirements and consider City of Edinburgh Council's preferences. The integration of the Edinburgh Tram Network alignment, road design and road markings shall minimise the risk of road vehicles skidding on the rails. The finished works shall meet the serviceability requirements, balanced with commercial, social and environmental considerations. In particular, the following factors shall be taken into account:

- Make the best use of existing infrastructure;
- The requirements of the promoter (tie and CEC);

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 399 |

- Minimise the disruption to traffic;
- Minimise the public perception of waste and unnecessary disruption;
- Minimise the construction cost;
- Maximise the maintainability;
- Minimise the construction time;
- Minimise the excavation, material usage and hence vehicle movements; and
- Meet the needs of properties fronting onto the route of the tramway.

The Roads Design shall include but not be limited to:

- Identification of constraints and provision of typical sections;
- Tram / road interface review in the light of outputs from the design process;
- Provision of integrated tram/road design model;
- Assessment of the impact of the track alignment on the road design and layout;
- Assessment of the impact of the OLE design on the road design and layout;
- Layout drawings including extent of the works;
- Drawings detailing discrete locations where the vertical track alignment deviates from existing ground levels, this will include cross-sections and contoured plans as required;
- Standard details;
- Drawings to show changes to existing car parking provisions along the route, for example at Rosebery House, Haymarket including new access;
- Access and general arrangement layout to the Depot at Gogar;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 400 |

- Consultation with City of Edinburgh Council, Scottish Environment Protection Agency and Scottish Water during the initial drainage design process identifying potential outfall locations and surface water treatment requirements for both roads and tram;
- Location of existing surface water drainage networks and outline routing of surface water from track and road drainage over the entire route;
- Standard details of drainage connections, sand traps, manholes, etc.;
- Pedestrian guardrails and boundary fencing;
- Interpretation of outputs from the traffic modelling process;
- Identification of junctions where existing traffic signals may need modification. Identification of locations where new traffic signals may require to be installed;
- Preparation of information to support the Traffic Regulation Orders and Temporary Traffic Regulation Orders. This will be based on the roads design, or the latest road design available. Prior to submission for the Statutory Process the TROs will be reviewed against the latest design;
- Safety audits for all stages;
- Compliance with the approvals process;
- Layout drawings for tram / road interface at 1:500 scale;
- Final junction register;
- Integration of traffic and tram signalling systems determined by the traffic model and tram run-time simulation;
- Three-dimensional MX model for all roads design;
- Details including any special measures at specific locations;
- Detailed General Arrangement of new access to car park at Haymarket including any modifications to car park layout;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 401 |

- General Arrangement and vertical alignment for new access road to the Depot at Gogar;
- 1:200 scale drawings for each junction;
- Detailed design of surface water drainage networks modelled using appropriate software;
- Detailed design of site clearance layout, boundary fencing, safety barrier and pedestrian guardrail, pavement, earthworks, signs and markings, kerbing, footways, traffic signal layouts and road lighting;
- Determination of the extent of modifications to existing traffic signals and new installation requirements. Preparation of a traffic signal equipment performance specification; and
- Links with the CEC UTC;
- Compliance with all side agreements entered into by CEC (whether final or in draft) with respect to the Parliamentary Tram Acts.

27.5.3 Road User Safety Audit

Road User Safety Audits shall be carried out as required by The City of Edinburgh Council and sufficient to demonstrate the integrity of the design process to HMRI (or the appropriate regime in force).

27.5.4 Cycleways

Where it is required that cycleways are provided as part of the Infraco Works these shall be designed and constructed in accordance with the relevant guidelines including:

- Design Manual for Roads and Bridges;
- City of Edinburgh Council "Roads Development Guidelines";
- Scottish Executive's "Cycle by Design"; and
- Sustrans "Cycle Friendly Infrastructure Guidelines for Planning and Design".

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 402 |

27.6 Drainage Including Track Drainage

All roads drainage shall be designed and constructed in accordance with The Design Manual for Roads and Bridges, Volume 4 and comply with The City of Edinburgh Council's requirements and the Scottish Environment Protection Agency standards. Where appropriate during the design process Scottish Water shall be consulted. The design parameters defined by these design codes and agreed by tie / CEC / SEPA / Scottish Water as being appropriate for the area and system shall be accommodated within the finished works.

At locations where the tramway drainage is connected to any other drainage system measures shall be taken to ensure that any by-products of the tram system are accounted for (e.g. provision of sand interceptors). Where necessary early involvement of the Scottish Environmental Protection Agency (SEPA) shall be sought to define and agree surface water outfall locations.

Provisions shall be included for the proper and effective drainage of grooved rails and point machine pits in road running track detailed in the relevant section of these Employer's Requirements.

Provision shall be made in trackwork for the interception of entrained debris in the system that drains surface water from grooved rails, to enable the easy collection and removal of detritus by means of planned maintenance.

Outlets from the grooved rail and point machine pit drains shall be connected directly to the roads drainage system. For on-street track, the track drainage system shall incorporate an insulated break from the storm water system.

Provision shall be made in trackwork for the effective drainage of the track structure on grass track, ballasted and other off-road running sections (except on bridges, viaducts and the like). Outlets from these drainage systems shall be connected to collector drains running alongside the track. Chambers for access to clean and maintain the collector drain pipes and for the interception and removal of entrained debris and detritus shall be incorporated in the collector system. Collector drain systems shall be connected to other systems or outfalls as appropriate for the local regime and existing drainage systems, and in accordance with the requirements of the relevant water utility, the Scottish Environmental Protection Agency, the roads authorities and all other authorities as appropriate.

The drainage of all new bridge structures shall be positive and, unless otherwise required by the relevant local authority, all surface water shall be piped to the local storm water sewer systems by a defined drainage path.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 403 |

Particular attention shall be paid to ensure that surface water drainage systems in the vicinity of traction substations and cable ducts are routed to avoid any risk of flooding of electrical equipment areas, point machine chambers, and the ducts themselves.

27.7 Road Signs, Traffic Signals and Urban Traffic Control

Road signs shall comply with the Traffic Signs Regulations and General Directions 2002 and the Traffic Signs Manual. The works shall be consistent with the requirements stated in the Edinburgh Standards for Streets (CEC). The signage provided for the tramway and the mandatory road signs shall be considered holistically and measures shall be taken to avoid clutter that could lead to a confusing environment for road users.

The traffic and tram signalling systems shall support the run-time of the tramway whilst minimising the impact on other road users. It shall be fully integrated with the City of Edinburgh Council's urban traffic control system. A protocol will require to be developed with the City of Edinburgh Council regarding the installation and integration of the traffic and tram signals. The signalling system shall incorporate recent/current technological developments, as appropriate, to optimise the combined efficiency of the tram and traffic signals.

The traffic management system shall accommodate the direct and consequential impacts of the Tram system and will be subject to approval by tie and CEC Wide-area modelling of traffic impacts consequent to the design shall be provided as a pre-requisite to approval, and prior agreement with the City of Edinburgh Council to implement the design and complete the works.

27.8 Road Lighting and Road Furniture

The road lighting shall conform to the Council strategy on lighting applying current street lighting standards and the Tram Design Manual. The lighting columns and Overhead Line Equipment (OLE) poles shall be rationalised to minimise road clutter and ensure safety of all users. Similarly, the quantity and disposition of road furniture shall also be rationalised for visual and safety reasons. OLE is subject to prior approval of the CEC planning authority and is to be obtained through the design process.

Lighting and road furniture will require to conform with safety guidelines and pass all relevant stages of road safety audit which are to be undertaken within the road design for tram implementation.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 404 |

27.9 Utilities

The Edinburgh Tram Network shall be designed and constructed such that there is a minimal requirement to divert existing public utilities.

The final alignment shall take cognisance of the need to avoid the diversion of utilities' system-critical apparatus such as high-voltage oil-filled cables, fibre-optic communication cables, and high-pressure gas mains, wherever possible. Any protection required to such utilities shall be instructed as a **tie** Change and follow the principles of Section 21.

Utility diversions that are not covered under the advance Multi Utilities Diversion Framework Agreement (MUDFA) including unknown apparatus that is found during the Infraco Works shall be instructed as a **tie** Change and follow the principles of Section 21.

27.10 OLE Poles

Location of Overhead Line Equipment poles will be designed so as to minimise the risk of traffic impact. Collision barriers shall be provided where there is a reasonably foreseeable risk of a collision between a road vehicle and an OLE pole. However, collision barriers are not the preferred solution and all reasonable mitigation efforts shall be made, and careful consideration given, in the location of poles to avoid the necessity for collision barriers. Should this not be achievable, the collision barriers shall be functional, practical and maintenance free with anti-climbing measures to prevent the public from climbing and standing on top of barriers. Details of such barriers shall be approved by the City of Edinburgh Council in their capacity as Roads Authority as well as for visual impact through the prior approvals process.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 405 |

28 Structures

28.1 General

The Edinburgh Tram Network requires the construction, or modification to, a number of structures throughout its length. The work involved in the Edinburgh Tram Network will impact on bridges and retaining structures. This Section 28 sets out the requirements which the Infraco must comply with in relation to structures.

28.2 Structures List

The following is a list of the principal structures along the Edinburgh Tram Network.

Table 80 - Structures Schedule

| Structure Ref. | Section | Structure Name | Description |
|----------------|---------|----------------------------------|--|
| S19 | 2A | Haymarket Station Viaduct | New underbridge |
| S18 | 1D | Leith Walk Railway Bridge | Existing underbridge over single railway line |
| S1 | 3A | Roseburn Terrace Bridge | Existing single span plate girder underbridge. |
| S2 | 3A | Coltbridge Viaduct | Existing three span masonry arch underbridge |
| S3 | 3A | St George's School Access Bridge | Existing single span masonry arch overbridge. |
| S4 | 3A | St George's School Footbridge | Single span steel truss footbridge |
| S5 | 3A | Ravelston Dykes Bridge | Existing single span masonry arch overbridge. |
| S6 | 3A | Craigleith Drive Bridge | Existing single span masonry arch underbridge. |
| S7 | 3A | Holiday Inn Access Bridge | Existing three span composite overbridge |
| S8 | 3A | Queensferry Road Bridge | Existing single span masonry arch overbridge. |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 406 |

Edinburgh Tram Network – Employer's Requirements

Section 28 – Structures

| Structure Ref. | Section | Structure Name | Description |
|----------------|---------|---|--|
| S9 | 3A | Groathill Road South Bridge | Existing single span masonry arch underbridge. |
| S10 | 3A | Telford Road Bridge | Existing single span overbridge. |
| S12 | 3B | Crewe Road Gardens Bridge | Existing single span RC structure |
| S20 | 2A | Russell Road Bridge | New underbridge at Russell Road delta |
| W3 | 5A | Russell Road Retaining Wall One | New retaining wall required due to level difference. |
| W4 | 5A | Russell Road Retaining Wall Two | New retaining wall required due to level difference. |
| W18 | 5A | Murrayfield Tramstop Retaining Wall | |
| S21A | 5A | Roseburn Street Bridge | New underbridge |
| S21B | 5A | Murrayfield Stadium Retaining Wall | New retaining wall required due to level difference. |
| S21C | 5A | Murrayfield Stadium Underpass | New underbridge |
| S21D | 5A | Murrayfield Training Pitches Retaining Wall | New retaining wall required due to level difference. |
| S21E | 5A | Water of Leith Bridge | New underbridge |
| S23 | 5B | Carrick Knowe Underbridge | New underbridge (Intersection Bridge) |
| S24 | 5B | Existing Saughton Road Bridge | Existing WEBS structure |
| S25 | 5B | Existing Broomhouse Road Bridge | Existing WEBS structure |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 407 |

Edinburgh Tram Network – Employer's Requirements

Section 28 – Structures

| Structure Ref. | Section | Structure Name | Description |
|----------------|---------|-----------------------------------|---|
| S26 | 5B | South Gyle Access Road Bridge | New underbridge |
| W11 | 5B | Bankhead Drive Retaining Wall | New retaining wall required due to level difference. |
| S27 | 5C | Edinburgh Park Station Bridge | New underbridge (Intersection Bridge) |
| S28 | 5C | A8 Underpass | New underpass |
| W16 | 5C | A8 Retaining Wall | Now replaced by a slope. |
| W19 | 5C | Gyle Stop Retaining Wall | New retaining wall required due to level difference. |
| S32 | 6 | Depot Access Bridge | New structure required to provide vehicular access from Gogar Burn roundabout to the new depot. |
| S29 | 7A | Gogar Burn Bridge | New underbridge |
| S33 | 7A | EARL Underbridge | No longer required. |
| W14 | 7A | Gogar Burn Retaining Wall One | New retaining wall required due to level difference. |
| W15 | 7A | Gogar Burn Retaining Wall Two | New retaining wall required due to level difference. |
| W100 | 3A | Roseburn Corridor Retaining Walls | |
| S17 | 1D | Tower Place Bridge | Existing underbridge at Leith Docks |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 408 |

Edinburgh Tram Network – Employer's Requirements

Section 28 – Structures

| Structure Ref. | Section | Structure Name | Description |
|----------------|---------|----------------------------------|---|
| S16 | 1D | Victoria Dock Entrance Bridge | Existing underbridge at Leith Docks |
| W1 | 1D | Lindsay Road Retaining Wall | Existing modular retaining wall adjacent to Lindsay Road. |
| S30 | 7A | Gogar Culvert One | New culvert |
| S31 | 7A | Gogar Culvert Two | New culvert |
| S34 | 7A | Gogar Culvert Three | New culvert |
| W8 | 5A | Baird Drive Retaining Wall | New retaining wall required due to level difference. |
| S22 | 5A | Balgreen Road Bridge | New underbridge |
| W9 | 5A | Balgreen Road Retaining Wall One | New retaining wall required due to level difference. |

28.3 Proposed Structural Form

The approval for all structures and civil engineering works shall be in accordance with the Consents Programme and Schedule 14 (Design Management Plan). The proposals at all structures listed above shall be subject to review/acceptance by tie prior to application for consent being made to the City of Edinburgh Council, or Approval to Network Rail as appropriate.

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 409 |

28.4 Listed Structures

Due cognisance shall be taken by the Infraco of the historical status of any of the structures affected by the Infraco Works. Work on such structures will be subject to the relevant approval process, as described in the Consents Programme and Schedule 14 (Design Management Plan).

28.5 Vibration and Noise

Structures and civil engineering works shall be designed in accordance with tie's Noise and Vibration Policy at 10.1.5.

28.6 Bearings and Movement Joints

The design shall minimise the need for bearings and movement joints within all the structures. Integral structures shall be adopted where feasible.

Where bearings are required, either elastomeric or pot type bearings shall be used to accommodate the longitudinal and transverse translations and rotations while minimising lateral loads on sub-structures.

All bearings shall be replaceable under full live loading.

The use of movement joints shall be minimised, but where proposed they shall be easily maintainable and replaceable.

28.7 Design Life

The design life of all structures is set out in Section 6 (Design Life) of these Employer's Requirements.

28.8 Design Standards

All structures shall be designed in accordance with the appropriate design standards – See Section 8 (Standards) of these Employer's Requirements. Adopted design standards should be listed by the Infraco in the Approval in Principle Form 'A', or equivalent, submitted to tie for individual structures.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 410 |

28.9 Structure Loading

Structures supporting the ETN shall be designed to carry 0.5RL loading as defined in the Design Manual for Roads and Bridges (DMRB and BS5400 Part 2). The maximum allowable tram axle load is determined in 24.12 of these Employer's Requirements.

During the design of structures due cognisance shall be given to the loadings imposed by construction and maintenance vehicles. Any constraints upon the operation of construction and maintenance vehicles shall be identified and advised to tie.

28.10 Rail Break

All elements shall be designed and provided to cater for tensile breakage of one rail at any location at ultimate limit state only. The other unbroken rails and the supporting structure shall resist the unbalanced force from a broken rail. The force resisted by any element shall be the lesser of:

- The force resulting from the rail and concrete deck temperatures and shrinkage, or
- The sum of the clip resistances between the movement joints bounding the break.

The effect of rail break shall be considered in conjunction with rail tensile temperature effects and the tram dynamic weight, centrifugal, nosing and braking and/or traction effects. The partial load factor shall be taken as 1.0.

28.11 Clearances

As a minimum, clearances shall be to RSPG 2 Tramways requirements.

Structural designs shall take due cognisance of the potential developed kinematic envelope of Trams that may be operated on the ETN.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 411 |

28.12 Finishes

Finishes to all concrete components of the Infraco Works shall comply with the following:

- | | |
|---|--------|
| ▪ All buried and permanently submerged surfaces | F1, U1 |
| ▪ Pier tops, bearing shelves and hidden surfaces | F2, U2 |
| ▪ Parapet Coping, Exposed surfaces | F3, U3 |
| ▪ Main bridge deck | U4 |
| ▪ Special finishes – where deemed appropriate these are to be agreed with tie and all relevant authorities (e.g. CEC structures department) taking cognisance of all cost and construction impacts. | Note |

Table 81 - Finishes

28.13 Protection

Structural steelwork shall be protected by a paint system in accordance with the appropriate standard. Steel surface preparation and the application of high performance paint coatings shall provide a design life to the first maintenance intervention in excess of twenty years. This requirement takes precedent over other standards.

The top surface of the any bridge deck shall be protected with a proprietary sprayed waterproofing system in accordance with BD 47/99.

All buried concrete surfaces shall receive two coats of bitumen; and Pavix (or equivalent) is to be applied to all concrete surfaces exposed to salt spray. A risk based assessment is to be undertaken for approval by tie to identify the extent of anti-graffiti treatment to be applied to exposed concrete surfaces.

28.14 Infrastructure Maintainability

The infrastructure shall be designed to minimise maintenance requirements. In particular the design should allow access which will not adversely impact systems operation of the Edinburgh Tram Network for the completion of routine work.

Structures will be subject to regular general inspections and a principal inspection at a frequency of every six years. The principal inspection shall entail amongst others a close visual inspection of all

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 412 |

elements of a structure. Details of the inspection and maintenance regimes are to be developed by Infraco and approved by tie. Maintenance Requirements are detailed further in Table 92 – Structures at Section 40 of these Employer's Requirements.

28.15 Provision for Inspection and Maintenance

Access to the underside of decks for inspection and maintenance shall be via vehicular-mounted inspection platforms operating from ground level, where access is feasible within contracted design parameters. For maintenance of metal parapets, for example, access shall be from the walkways. For bridges across Network Rail infrastructure it will be necessary to undertake such inspections in accordance with Network Rail requirements.

28.16 Bearings

Mechanical bearings shall be replaceable by jacking up the structure's deck a nominal amount, which minimises disruption and physical works. Where this is required, track will be designed such that only the bridge track is displaced. The bearings shall not require replacement for at least 50 years. Where bearings are provided, suitable inspection and maintenance galleries shall be provided.

Unauthorised access to these galleries shall be prevented through the incorporation of suitable measures.

No specific provisions shall be made for inspection and maintenance of the bearings on piers. Access to these bearings will be via a hydraulic access platform.

28.17 Expansion Joints

Bridge expansion joints shall be of the sealed type and provision shall be made to carry any water seeping through the joint into the deck drainage system. Expansion joints shall be easily maintained and replaced.

28.18 Earthing and Bonding

Structures shall be designed to comply with the Earthing and Bonding Policy at Earthing and Bonding of these Employer's Requirements.

28.19 Protection against Stray Current

Where trackform is an integral part of the structures, it shall be designed to comply with Stray Current Section 32 of these Employer's Requirements.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 413 |

28.20 Third Party Relationships

28.20.1 Road Closure and Traffic Management

All Infraco Works affecting road traffic will be subject to the granting of permissions from relevant parties and may involve road closures or traffic management measures approved by CEC or the owner of the affected road. All such approvals are to be in place in advance of any traffic impacts and comply with the requirements of Project Management Processes

In particular, the following works are expected to have a significant effect on traffic movements and may require particular consideration:

- Groathill Road Bridge and Craigleith Drive Bridge may require road closures for the duration of the Infraco Works;
- Construction of the abutments and new deck for Roseburn Terrace Bridge will require temporary closure of the A8 and partial workings within the carriageway;
- The construction of a structure, passing under the A8 to the east of Gogar roundabout, shall require significant traffic management to minimise disruption to traffic during construction. Additionally consideration will be required for the traffic impacts to the construction of the Depot Access Bridge and A8 retaining wall structures;
- Ocean Drive Bridge widening may require road closure for the duration of the Infraco Works;
- Roseburn Corridor Structures will be impacted and may require temporary traffic constraints (Ravelston Dykes Bridge, Holiday Inn Access Bridge, Queensferry Road Bridge, Telford Road Bridge, Crew Road Gardens Bridge;
- Tram bridges to be constructed over live roads may require some traffic constraints including Haymarket Station viaduct, Russell Road Bridge, Roseburn Street Viaduct, Balgreen Road Bridge, South Gyle Access Bridge.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 414 |

28.20.2 Other Interested Parties

All relevant third parties shall be consulted by Infraco as required during the course of. In particular, this will include in relation to structures:

- Network Rail – noting particularly the Carricknowe and Edinburgh Park Bridges;
- Forth Ports;
- Edinburgh Airport Limited;
- Edinburgh Park Management Limited / New Edinburgh Limited; and
- Scottish Rugby Union.

28.20.3 Landscaping and Boundary Treatment

The Design Manual sets out the parameters of the design elements of the environmental mitigation measures to be implemented. The design guidance and requirements contained within the Design Manual shall be considered by the Infraco taking into account the CEC's own Development Quality Guidelines. (They include: Quality of Landscaping in New Developments, Biodiversity, Tree protection and Urban Forestry.)

A Landscape and Habitat Management Plan (LHMP) shall also be identified and prepared for the approval of tie and subsequent presentation to the CEC. It should be noted that there is a requirement for the LHMP applicable to the Roseburn Corridor to be specifically approved by the CEC Planning Committee.

A Boundaries Treatment Management Plan shall be created and updated by the Infraco to reflect emerging issues regarding boundary interface design matters between the track and adjoining ownerships. In general, all landscaping and boundary measures shall be in keeping with the surrounding environment and shall be consistent with the local character of the relevant area.

Where it is determined that fencing is required either to physically segregate the tram track or to separate the tram from other parties (for example Network Rail) the fencing shall be of a type and standard that provides the necessary separation and satisfy the requirements of the other party. In the case of Network Rail it must conform to their Group and Company Standards. The design will take into account concerns with respect to an individual having safety space in a fenced route.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 415 |



Edinburgh Tram Network – Employer's Requirements

Section 28 – Structures

Boundary treatments shall take cognisance of the need for appropriate noise mitigation measures, as well as other appropriate ecological works (e.g. badger mitigation) ensuring all Infraco Works have achieved all relevant approvals. In particular it is required that such boundary treatment and noise mitigation measures meet with the requirement to provide an end result which is no worse than the environmental impact assessment and presented in the Environmental Statement which was presented as part of the parliamentary submission.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 416 |

29 Depot

29.1 Scope

This Section of the Employer's Requirements defines the Depot requirements applicable to the Edinburgh Tram Network (ETN) which the Infraco must comply with.

29.2 Depot, Buildings and Associated External Works

The Depot shall be of an economical design which reflects economy of use and maintenance in providing all the functionality required by tie.

The Depot shall provide the facilities to operate, service, repair and maintain a reliable passenger service.

29.3 The Site

The Depot site in Gogar is located in the vicinity of Edinburgh International Airport and has constraints imposed upon its design by the Civil Aviation Authority due to the proximity of the emergency runway at the airport. Factors to be accommodated in the design and construction of the Depot include height restrictions that shall necessitate detailed discussions with the aviation authorities.

29.4 Staff Halt

At a location to be agreed by tie, shelters shall be provided for the sole use of tram crew and other staff working on the Edinburgh Tram Network so as they can board the Trams. The staff halt shall comprise of shelters not less than 2.5m x 2m which shall provide weather protection. The staff halt will be linked to the Depot by a designated walking route leading to a controlled gate in the Depot boundary fence. The shelters shall be monitored by CCTV cameras, if they are not visible from the Depot Control Centre. The shelters will be provided with telephones providing a dedicated link to the Depot Control Centre.

The staff halt shall not introduce any speed restriction to the passage of Trams.

29.5 Drainage

The general site area shall be lowered to ensure that all structures are below the flight path. As a result of this excavation, both foul and surface water drainage may need to be pumped from the permanent works to off-site outfalls.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 417 |

29.6 Access

Road access from the A8 Gogar roundabout link road shall provide both entry and exit for normal Depot operations traffic and also for delivery and egress of Trams with the minimum of impact on other facilities. Height restrictions on vehicle loads shall be verified in relation to the Airport operations. The link road giving access to the Depot may be extended by others and will cross the Tram route to the Airport, and the Depot entry track.

29.7 Utilities

Existing utilities and sewers crossing the Depot Site site shall be protected or re-located as appropriate and shall be instructed as a tie Change and follow the principles of Section 21.

29.8 Depot Site Layout

The configuration of the Depot and the use of the equipment contained therein shall minimise disturbance to neighbours.

Allowance shall be made in the site layout adjacent to the Depot building to accommodate temporary office facilities that may be needed during the construction, testing and commissioning phases of the Infraco Works. This shall include the provision of temporary electricity and water services.

The Depot site shall accommodate a zone within which the required accommodation can be located.

The Depot shall be secure and be provided with security systems as appropriate.

- The Depot shall have a suitably robust security fence 2.4m high shall enclose the Depot site with controlled entry points for Trams, vehicles and pedestrians. The security entry points shall be unmanned with security control systems providing the means of operation. These shall be centred on the Depot reception during normal office hours with transfer to the Control Centre at other times.
- The Depot shall incorporate two separate access points to the running lines.
- The entire Depot external operating area within the perimeter fence shall be provided with a comprehensive CCTV surveillance system, the images from which shall be displayed in real-time in the Control Centre. The cameras shall form part of the network CCTV system (refer to Section 35 (Supervisory Control and Communications Systems) of these Employer's Requirements. In particular a CCTV system shall be provided to view the Depot vehicular and

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 418 |

pedestrian entrances. It shall be integrated with the entry systems and shall be centred on the Depot reception during normal office hours with transfer to the Control Centre at other times.

The current reference design sets the Depot site below existing ground level and retaining structures shall be constructed as necessary along the A8 site boundary. These structures shall also form the ramp for the through track of the tram system to the Airport.

- The stabling area and its configuration shall be established by the combination of track requirements and the Depot building footprint. The Depot layout shall accommodate a minimum of 36 berths. The stabling facility shall be built to accommodate an initial 27 x 44m Trams. Adequate provision shall be made to allow cleaning personnel to move around berthed Trams.
- Set between the stabling roads shall be access paths alternately at least 1.0m and 2.0m wide with service points to provide facilities for Tram cleaning and minor maintenance on the 2.0m width paths.
- The desirable longitudinal gradient of all tracks within the Depot shall be zero. The absolute maximum longitudinal gradient shall be 0.4%. Cross-level gradient (cant) of all tracks shall be zero (see Section 26 (Track) of these Employer's Requirements).
- At the ends of any tracks that terminate, a Tram-arresting device shall be provided.
- A track shall be provided to enable Trams to be loaded and off loaded onto/from road transportation.
- A servicing track shall be provided complete with a tram wash plant and hand windscreen cleaning points. Road access shall be provided for detergent deliveries to the wash plant.
- The wash plant shall be located inside a shelter (the shelter need not extend the full length of the Tram being washed) – see Table 83 - Depot Plant and Equipment to be Provided of these Employer's Requirements, where the operating temperature range is set out. The facility will be provided with suitable devices to remove excess moisture from the washed vehicles. High quality results, at least as good as those achieved by Lothian Buses on their fleet, shall be delivered by this facility.
- Sand filling points within an enclosed structure shall be installed on the servicing track. The bulk sand silo (capacity at least 30t) and associated feeder equipment shall be located close by, along with the provision of road access for sand deliveries.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 419 |

- A suitably drained bogie wash point shall be provided in the apron at the front of a Tram entry point to the workshop which allows demounted bogies to be easily manoeuvred in and out of the workshop. Plant used for this operation shall be transportable and housed within the main workshop. Power and water shall be provided to allow the tram pressure washer to be utilised at this location. Treatment of wastewater, to meet appropriate standards prior to connecting to the site drainage system, shall be provided.
- Car parking shall be provided for one third of the personnel employed on the Depot site. Within this provision, visitor car parking shall be provided close to the Depot entrance for no less than six vehicles.
- Servicing areas for external stores and containment of waste shall be provided.
- A sub-station for both traction power (main line and depot feeds) and domestic Depot supplies shall be provided.
- Due to the proximity of the Airport runway, planting and landscaping within the Depot site shall be restricted and consistent with CAA guidance to prevent bird strikes. Native species of plants shall be used where possible and shall be compatible with Tram operations.
- The Depot site shall be appropriately lit.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 420 |

29.9 Depot Building

The following identify the principal features of the Depot building:

- The main Tram workshop, other workshops, stores, management, administration, operations and maintenance offices, staff welfare facilities (support accommodation) and the Control Centre for the complete Edinburgh Tram Network, shall be contained within a steel framed building clad in an insulated panel cladding system. The roof of the building shall be insulated to a suitable standard with the minimum number of penetrations.
- The building workshop shall accommodate a minimum of two tram maintenance roads, a wheel lathe road and a further tram service road.
- The support accommodation shall be arranged on two floors set to one side of the main tram maintenance workshop. The Control Centre shall be located at first floor level with the equipment room set below. A view of the depot external stabling area and tram entry/exit point shall be provided to Control Centre staff from within the Control Centre.
- The Depot shall be provided with the appropriate electricity supplies including 400V for individual items of workshop equipment both inside and outside the building, 230V for internal domestic use and 110V for small tools.
- Natural light in offices shall be maximised and all rooms shall be placed within the building in locations appropriate to their function. This shall be supplemented by artificial lighting consistent with the tasks undertaken and the hours of operation of the facility.
- Additional service space shall be provided for the accommodation of domestic services as well as for the accommodation and systems directly linked to the Tram operations.
- Full heating and ventilation will be provided throughout the building with air conditioning to the cControl Centre, equipment room, training and meeting rooms.
- Fire alarms and fire extinguishing systems shall be provided throughout the Depot building. Fire suppression shall be provided in the technical equipment room(s).
- Suitable office furniture shall be provided for all areas within the Depot building.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 421 |

The following schedule of accommodation shall form the basis of the design for the office and welfare facilities attached to the Depot.

29.10 Schedule of Staff Numbers

The Depot shall accommodate the number of staff identified in the "Establishment with Expansion" column set out below.

| Note: The locker rooms should have sufficient capacity for approximately 5% spare capacity on these numbers to cope with staff turnover and associated training overlap. | | | Max Number on duty in the Depot at one time | |
|--|-------------------------------|------------------------------|--|---------------------------|
| Anticipated Job Title | Establishment for Phase 1a/1b | Establishment with Expansion | Phase 1a/1b | With Expansion ratioed up |
| OPERATIONS | | | | |
| CORPORATE MANAGEMENT | | | | |
| General Manager | 1 | 1 | 1 | 1 |
| Operations Manager | 1 | 1 | 1 | 1 |
| Commercial Manager | 1 | 1 | 1 | 1 |
| | | | | |
| OPERATIONS | | | | |
| Duty Managers | 11 | 12 | 4 | 4 |
| Operations Supervisor | 9 | 9 | 2 | 2 |
| Operations Assistant | 1 | 1 | 1 | 1 |
| Drivers | 112 | 126 | 11 | 12 |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 422 |

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| Anticipated Job Title | Establishment for Phase 1a/1b | Establishment with Expansion | Phase 1a/1b | With Expansion ratioed up |
|------------------------------|-------------------------------|------------------------------|-------------|---------------------------|
| OPERATIONS | | | | |
| Engineering Manager | 1 | 1 | 1 | 1 |
| Vehicle Engineer | 1 | 1 | 1 | 1 |
| Infrastructure Engineer | 3 | 3 | 3 | 3 |
| Safety and Standards Manager | 1 | 1 | 1 | 1 |
| Performance Regime Manager | 1 | 1 | 1 | 1 |
| Clerk | 1 | 1 | 1 | 1 |
| | | | | |
| FINANCE | | | | |
| Finance Manager | 1 | 1 | 1 | 1 |
| Accounts Assistant | 2 | 2 | 2 | 2 |
| | | | | |
| Administration | | | | |
| Secretaries | 1 | 1 | 1 | 1 |
| Admin. Staff | 2 | 2 | 2 | 2 |

| | | | | |
|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 423 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

| Anticipated Job Title | Establishment for Phase 1a/1b | Establishment with Expansion | Phase 1a/1b | With Expansion ratioed up |
|--|-------------------------------|------------------------------|-------------|---------------------------|
| REVENUE PROTECTION STAFF | | | | |
| Inspectors | 112 | 126 | 11 | 11 |
| Cashiers | 1 | 1 | 1 | 1 |
| Revenue Protection Manager | 1 | 1 | 1 | 1 |
| | | | | |
| INFRASTRUCTURE / VEHICLE CLEANING | | | | |
| Cleaning Manager | 1 | 1 | 1 | 1 |
| Cleaners | 20 | 23 | 10 | 11 |
| SUB TOTAL | 285 | 318 | 59 | 67 |
| | | | | |
| TRAM MAINTENANCE | | | | |
| Office Staff | 3 | 3 | 3 | 3 |
| Storeman | 1 | 1 | 1 | 1 |
| Technicians | 30 | 34 | 15 | 16 |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 424 |

| Anticipated Job Title | Establishment for Phase 1a/1b | Establishment with Expansion | Phase 1a/1b | With Expansion ratioed up |
|---------------------------------------|-------------------------------------|---------------------------------|----------------|---------------------------------|
| SUB TOTAL | 34 | 38 | 19 | 21 |
| | | | | |
| INFRASTRUCTURE MAINTENANCE | | | | |
| Office Staff | 4 | 4 | 4 | 4 |
| Storeman | 1 | 1 | 1 | 1 |
| Technicians | 37 | 42 | 18 | 20 |
| SUB TOTAL | 42 | 47 | 23 | 25 |
| | | | | |
| SUMMARY | | | | |
| Operations | 285 | 318 | 59 | 67 |
| Tram Maintenance | 34 | 38 | 19 | 21 |
| Infrastructure Maintenance | 42 | 47 | 23 | 25 |

Table 82 – Schedule of Staff Numbers

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 425 |

29.11 Accommodation (First floor)

The first floor is to be occupied by the Operator. The accommodation set out below is required as a minimum and must be related in all respects to the numbers of staff to be employed and based at the Depot as set out in Table 82 – Schedule of Staff Numbers, where not otherwise specified. Appropriate account is also to be taken by the Infraco of the maximum numbers of staff indicated as being on the premises at any one time in sizing toilets, messing facilities etc.

- A Control Centre to include the equipment as defined in paragraph 35.13 and allow a good ergonomic layout for the functions carried out therein.
- A room adjacent to the Control Centre, with sufficient space for the incorporation of the necessary furniture and technical equipment used to store and manage the handheld radios and ticketing equipment and their batteries, together with one desk space.
- A cash office adjacent to the Control Centre, with adequate space for two staff members and the associated equipment for cash counting and sorting, as well as a safe of an appropriate size.
- A viewing area shall be provided for visitors to view the Control Centre without disrupting the activity within.
- Windows shall be provided to provide a view into the tram workshop from the first floor. Suggested locations are adjacent to the Control Centre (if not inside, then integrated with the viewing area referred to above), adjacent to the engineering office, and in the viewing area.
- Adequate toilets and showers (Male, Female, Disabled).
- Access from the ground floor with at least two staircases and one lift (for disabled access and, unless other arrangements are available, for the lifting of equipment and furniture required on the first floor).
- One set of stairs is to give direct access between an external door (itself adjacent to the visitor's parking spaces) and the first floor. A reception area is to be provided at the first floor landing including an allowance for a reception desk and a minimum of four waiting chairs. A second set of stairs is to be adjacent to the Control Centre and provide a direct link, to a route from the staff parking/external access gate and the locker rooms, and to the walking routes onwards into the stabling sidings and to the access gate in the Depot fence to the staff halt on the main line.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 426 |

- Office for the General Manager, sized for one person with meeting table for six people.
- Office for the Operations Manager, sized for two people. To be situated close to the Control Centre.
- Office for the Safety and Performance Managers, sized for two people.
- Engineering office, sized for three people, with meeting area for four people.
- Office for the Duty Manager and Supervisors, sized for three people.
- Office for the Finance and Commercial Managers, sized for two people.
- General office, sized for eight people.
- Messing facility, including limited self-service kitchen facility.
- Cleaning office and store.
- Interview room, close to the office of the Operations Manager.
- Meeting room for 10 people, close to the Reception.
- Two training rooms, one sized for 30 people and one for 15 people. The larger should be able to be subdivided, broadly in half. Note that this may be required to be on a permanent basis once the complete system is open for service.
- Space to locate the PABX and a computer server for the Operator.
- Locker Rooms, male and female in suitable proportion for the total relevant staff numbers and with an allowance for flexibility in recruitment. The design shall allow for flexibility in the division to allow for long-term changes in the proportions. The locker rooms should be placed conveniently for the Control Centre and messing facility. The space allowance for lockers should be based on two-thirds height/interleaved lockers.
- A store for uniforms and other small operational equipment.
- A records store.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 427 |

- A location for photocopying.

29.12 Workshop General Requirements

- In the main workshop, all roads shall have traction power. The wheel lathe shall be placed in a central position to enable the workshop doors to be closed whilst the lathe is in operation;
- Gantry structures, for access to the Tram roof area from both sides, shall be provided for a minimum of two berths;
- Under-track pits shall be provided on no fewer than four tram maintenance berths incorporating access and egress stairs. Pits shall have adequate lighting, drainage and power tool sockets;
- 'Built-in' jacking points (i.e. lifting under the Tram bogies) shall be provided to one of the roads, which shall be provided with traction power, the pits containing this equipment shall be adequately drained;
- Battery charging equipment shall be provided for Tram batteries, fork lift trucks and all other battery powered equipment with associated ventilation equipment, in a dedicated area off the main workshop;
- Hydraulic and electronic workshop facilities, including bespoke test benches, shall be provided appropriate to the Trams. Fixed equipment, for the servicing and testing of hydraulic and electronic equipment shall be provided. The areas shall be capable of being separated from the main workshop area by closure of an industrial door; and
- Both heavy and light stores areas shall be provided complete with the necessary racking systems to suit the storage requirements of the spare parts required for all systems, equipment and Trams being supplied. Forklift truck access to these areas shall be provided. Stores are to be segregated between those required for the Tram Maintainer and those for Infraco.

29.13 Accommodation on Ground Floor

29.13.1 General Facilities

The ground floor is to be principally occupied by the Infraco. The accommodation requirements set out below is required as a minimum.

The design of the accommodation must be related in all respects to the numbers of relevant staff to be employed and based at the Depot as set out in Table 82 – Schedule of Staff Numbers, where not

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 428 |

otherwise specified. Appropriate account is also to be taken by the Infraco of the maximum numbers of staff indicated as being on the premises at any one time in sizing toilets, messing facilities etc.

The different spaces should be arranged grouped logically together and with respect to accesses etc. The workshop areas must also accommodate all relevant equipment listed in the Plant and Equipment Schedule – see Table 83 - Depot Plant and Equipment to be Provided.

- The equipment room shall be underneath the Control Centre. Necessary domestic plant rooms.
- A store for tram and infrastructure cleaning equipment.
- First aid room (suitable for all staff at the depot, accessible from the first floor and to an external vehicle access).

29.13.2 Facilities

- Staff access shall be arranged preferably, adjacent to the locker rooms and convenient for external access and with appropriate security.
- Adequate toilets and showers shall be provided (Male, Female, Disabled) serving both contractors.
- A messing facility, including limited self-service kitchen facility.
- Locker rooms, male and female in suitable proportion for the total relevant staff numbers and with an allowance for flexibility in recruitment. The design shall allow for flexibility in the division to allow for long-term changes in the proportions. The space allowance for lockers should be based on a full-height lockers for each relevant person. There should be dry locker rooms, sufficient for all Infraco staff, based on full-height lockers, and a drying room to include additional full-height lockers for all of the Infrastructure and Tram Maintenance staff.
- machine tool area, open to the tram workshop. This might be linked to the dirty workshop.

29.13.3 Tram Maintainer Specific Facilities

- A small store for workshop cleaning equipment.
- A location for a computer server for the Tram Maintainer.
- Tram Maintenance Managers Office, sized for one person with meeting area for four persons.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 429 |

- Tram Maintenance General Office, sized for five persons.
- Tram Stores including office, small items store and large items store with access for fork-lift truck. The size of these shall be agreed with the relevant contractor.
- Battery store and charging area
- Clean workshop(s) for electronics and hydraulics
- Dirty workshop for bogie, with cross access track from the main vehicle workshop underneath the travelling crane; area could be linked with machine tool area

29.13.4 Infrastructure Maintainer Specific Facilities

- A location for a computer server for the Infrastructure Maintainer.
- Infrastructure Maintenance Manager's office, sized for one person with meeting area for four persons.
- Infrastructure Maintenance general office, sized for five persons.
- Infrastructure stores including small office, small items store and large items store with access for fork-lift truck. The size of these shall be agreed with the relevant contractor.
- Clean workshop for electronics
- Dirty workshop which could be the machine tool area.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 430 |

29.14 Provisional Schedule of the Plant and Equipment

The plant and equipment to be provided and installed shall include, but not be limited to, the following:

Table 83 - Depot Plant and Equipment to be Provided

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|-------------------------|--|---|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| 1 | | Cleaning Equipment | | | | | | | | | | |
| | 1.1 | Tram Cleaning Equipment | Equipment for cleaning of tram interiors | 110V Industrial vacuum cleaning equipment, ≥ 2kW power Equipment to allow removal Floor polishing equipment | P | Generally used in stabling areas However can be used throughout the Depot | T | O | O | O | O | 6 |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 431 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-------------------------|--|--|---------------------------|------------------|----------|------|------------|-------------------|---------|----------|
| | 1.2 | Tram pressure washer | Industrial washer for general tram cleaning within the Depot including bogie washing | Self powered Hot water/steam - self heating Pressure variable up to ≥ 200 bar Flow rate ≥ 12 l/min Lance and hose ≥ 10 m Detergents compatible with Tram external finishes | M | Throughout Depot | T | T | T | T | T | 1 |
| | 1.3 | Infraco pressure washer | Removal Removal of fly posters General cleaning | Features as per Tram pressure washer Mobile towable bowser with capacity for up to one shift of cleaning Infraco to ensure | M | Across the ETN | I | I | I | I | I | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 432 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|----|-------------|----------|---|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | interchangability with tram pressure washer Readily transportable on back of road-rail and other road vehicles | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 433 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--------------------|--|---|---------------------------|-------------------------------|----------|------|------------|-------------------|---------|----------|
| | 1.4 | Tram Washing Plant | Fixed plant for cleaning of Tram exterior | Unidirectional >15 tph continuously Minimised water consumption, maximised water recirculation controllable and monitored from Control Centre via SCADA system Self contained Pre-wet One pair application brushes Automatic end wash Two pair water wash brushes | F | Alongside main workshop | I | O | O | O | O | 1 |

| | | | | |
|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 434 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|----|-------------|----------|---|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | <p>Dryer</p> <p>Operates from -5°C ambient external temperature within shelter</p> <p>Final details TBD with tram supplier</p> <p>≥70% water recycling</p> <p>Backflow prevention devices shall be installed.</p> <p>Treatment of wastewater to meet appropriate standards prior to connecting to site drainage system shall be provided.</p> | | | | | | | | |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 435 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--------------------------------|----------------|---|---------------------------|----------------|----------|------|------------|-------------------|---------|----------|
| | 1.5 | Rail Groove Cleaning Equipment | P-way cleaning | Vacuum equipment to remove detritus/debris from grooved track including drain boxes and points Able to clean drains and gullies employing water jets Transportable on road/rail vehicle, lifted with crane or fork lift truck Self powered for full shift Easy collection/disposal of detritus/debris | M | Across the ETN | | | | | | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 436 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|---------------------|---|--|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| | 1.6 | Parts washer | Infrastructure/Tram component cleaning & degreasing in dirty workshop | Able to wash components ≤100kg, ≤750mm diameter | F | Within dirty workshop | I | I/T | I | I | User | 1 |
| | 1.7 | Floor scrubber | Depot floor cleaning | Industrial vacuum/brush scrubber equipment Compatible with floor finishes | M | Within Depot building | T | T | T | T | T | 1 |
| | | | | | | | | | | | | |
| 2 | | Mechanical Handling | | | | | | | | | | |
| | 2.1 | Shunter | Manoeuvring Trams within workshop | Battery powered Road/rail capability Capable of towing/propelling single Trams Speed up to 3 km/h | M | Throughout Depot tracks Road capability to move | T | O/T | I/T | O | User | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 437 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--------------------------------|--|---|---------------------------|--------------------------------|----------|------|------------|-------------------|---------|----------|
| | | | | Local and remote control Charging facilities Coupler at each end | | between tracks on hardstanding | | | | | | |
| | 2.2 | Tram lifting system and stands | Lifting Trams to allow routine maintenance and removal of bogie(s) | Fixed underfloor system providing flush floor when not in use. Ability to lift fully functional, unladen tram. Synchronised lift from single control panel. Ability to stop and lock lift at any vertical positionInterlocking to | F | Main workshop | I | T | T | T | T | 1 set |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 438 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-----------------------------------|---|---|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | protect Tram in event of system/component failure. Manually positioned stands to be provided Interlocking with OLE if required. | | | | | | | | |
| | 2.3 | Fixed high level access platforms | To allow access to all equipment mounted on Tram roof | Capable of providing access to all roof mounted equipment on tram Decking to prevent tools or small components falling through Handrails and toeboards to prevent | F | Main workshop | I | T | I | T | T | 2 sets |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 439 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|----------------|--|--|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | personnel/material falling Access/egress gates interlocked with OLE End protection | | | | | | | | |
| | 2.4 | Overhead crane | Bridge type crane spanning 2 roads within the workshop to allow all material within main workshop to be transported up to and including size/weight of motor bogie | ≥6.3 tonne capacity Vertical clearance <960 mm from hook (fully raised) to top of crane Traverses below OLE Interlocked with OLE Remote control using hand held device Multi-speed facility - lift, traverse and travel | F | Main workshop | I | T/I | T | T | User | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 440 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|------------------|--|---|---------------------------|-------------------------|----------|------|------------|-------------------|---------|----------|
| | | | | Long and cross travel to cover all areas over the two roads | | | | | | | | |
| | 2.5 | Mobile crane | Facilitate removal of miscellaneous equipment including bogie components within the dirty workshop | ≥2t capacity Powered operation | M | Throughout workshops | T | T/I | T | T | User | 1 |
| | 2.6 | Bogie workstands | To allow dismantled bogies to be maintained | Allows bogie to be manoeuvred along the stub track in the dirty workshop Wheel locks Capable of supporting | M | Dirty workshop | T | T | T | T | T | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 441 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-----------------------------|---|---|---------------------------|------------------|----------|------|------------|-------------------|---------|----------|
| | | | | both trailer and motor bogie | | | | | | | | |
| | 2.7 | Other tram equipment stands | Various stands to allow items of equipment to be stored and readily maintained when dismantled from the Tram | Infraco to propose depending on tram design Expected to include stands for doors, windows, body panels etc... | M | Throughout Depot | T | T | T | T | T | |
| | 2.8 | Accommodation bogies | To allow Trams to be moved within workshop once bogies have been removed or the Tram has been split at any articulation | Allows Tram to be manoeuvred throughout the depot once any combination of bogies has been replaced Allows entire tram to | M | Throughout Depot | T | T | T | T | T | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 442 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-----------------|---|--|---------------------------|--|----------|------|------------|-------------------|----------|----------|
| | | | | be manoeuvred throughout the depot once any articulation has been split | | | | | | | | |
| | 2.9 | Fork lift truck | Lifting and transporting miscellaneous equipment | Battery powered Charging facilities Road wheels >3 t lifting capacity Drum handling equipment Crane arm Capable of accessing all shelving and racking in stores- Infraco to demonstrate | M | Throughout the Depot but limited to hard standing areas when outside | T & I | T/I | T/I | T | Us er | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 443 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|---------------|---|--|---------------------------|--|----------|------|------------|-------------------|---------|------------------------|
| | 2.10 | Pallet truck | Lifting & Transporting equipment particularly in stores | Manually manoeuvred, hydraulic lifting the Infraco to propose requirements. Infraco to provide integrated solution | M | Throughout the Depot but limited to hard standing areas when outside | I | T/I | T/I | T | User | The Infraco to propose |
| | 2.11 | Hand trolleys | Transporting tools and spares | Unpowered the Infraco to propose requirements. Infraco to provide integrated solution | M | Throughout the Depot but limited to hard standing areas when outside | I | T/I | T/I | T | User | The Infraco to propose |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 444 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|-------------------------------------|--|--|---------------------------|------------------------------|----------|------|------------|-------------------|---------|------------------------|
| | 2.12 | Infraco lifting slings | General slings for lifting infrastructure heavy components on system and in Depot building | Infraco to propose. Stand for storage | P | Use on system infrastructure | I | I | I | I | I | The Infraco to propose |
| | 2.13 | Tram lifting slings | Specific lifting gear to allow all equipment to be removed and replaced. | Raised hook on overhead crane can be no more than 5390 mm ARL the Infraco to propose Stand for storage | M | Use in Depot building only | T | T | T | T | T | Tramco to propose |
| | 2.14 | Windscreen/window removal equipment | For use in replacing tram windscreens and side windows | Mobile stand capable to being used to access both windscreen and side windows Electrically powered vacuum beam with | M | Use in Depot building only | T | T | T | T | T | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 445 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|----------------------|--|--|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| | | | | suckers adapted to windscreen design Audio/visual alarm in the event of suction loss | | | | | | | | |
| | 2.15 | Re-railing equipment | For use in rerailing trams out on the System | Variety of jacks/beams/slides to be proposed by the Infraco Airbags Slew locking devices Capable of being readily transported on the road/rail vehicle | M | Used any where on system including Tramstops | T | T | T | T | T | 1 set |
| | 2.15 | Stop boards | To indicate the presence of equipment/personnel/tram | The Infraco to propose requirements. Infraco | P | Throughout System | I | T/I | I | T/I | User | ≥20 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 446 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|----------------------------|-----|-----------------------------|--|---|---------------------------|----------------------------|--------------------|------|------------|-------------------|----------|------------------------|
| | | | s on the tracks | to develop integrated solution | | | | | | | | |
| 3 | | Workshop & Stores Furniture | | | | | | | | | | |
| | 3.1 | Shelving and racking | Storage of spares and other material | Heavy duty The Infraco to propose requirements. The Infraco to develop integrated solution | F | Stores | I | T/I | I | T/I | Us er | The Infraco to propose |
| | 3.2 | Tram staging | for Tram inspections/repairs | The Infraco to propose any additional staging required | M | Used within Depot building | T | T | T | T | T | The Infraco to propose |
| | 3.3 | General staging | For infrastructure inspections/repairs | The Infraco to propose any additional staging | M | Across Edinburgh Tram | I | I | I | I | I | The Infraco to propose |
| DOC NO PRO-INFRACO-1399 | | | VERSION 4.0 | STATUS FOR ISSUE | | | DATE 16/04/2008 | | | SHEET 447 | | |

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|-------------|----------------------------------|---|---------------------------|----------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | required | | Network | | | | | | |
| | 3.4 | Shelving | Storage of minor items/documents | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |
| | 3.5 | Workbenches | Equipment maintenance | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |
| | 3.6 | Cupboards | Storage of minor items/documents | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 448 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|--|--|---|---------------------------|----------------------------|----------|------|------------|-------------------|---------|------------------------|
| | 3.7 | COSHH cupboard | Storage of COSHH items | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Dirty workshop | I | T/I | I | T/I | user | The Infraco to propose |
| | 3.8 | Workshop stools | Personnel comfort when working | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Throughout workshops | I | T/I | I | T/I | User | The Infraco to propose |
| 4 | | Fixed Plant | | | | | | | | | | |
| | 4.1 | Air conditioning maintenance equipment | Specialist tools for filling/emptying refrigerant | The Infraco to propose | F | Anywhere in Depot building | T/I | T/I | T/I | T/I | T/I | The Infraco to propose |
| | 4.2 | Tyre replacement equipment | Specialist tools for tyre splitting/removal/balancing /bearing replacement | The Infraco to propose | F | Dirty workshop | T | T | T | T | T | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 449 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|------------------------|-------------------------------------|---|---------------------------|------------------------|----------|------|------------|-------------------|---------|----------|
| | 4.3 | Underfloor wheel lathe | In-situ reprofiling of Tram tyres | Capable of producing a range of wheel profiles. Tolerances to be agreed between the Infraco Swarf conveyed to skip for removal by means of forklift truck capable of turning all wheels on one Tram within eight hour shift | F | Within Depot building. | I | T | T | T | T | 1 |
| | 4.4 | Sand Plant | Refilling of Tram sanding equipment | Minimum silo capacity 30 tonnes Capable of receiving sand delivery directly from road vehicle Allows Tram driver to | F | Dedicated facility | T | O | O | O | I | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 450 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|----|-------------|----------|---|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | <p>fill an empty tram within 5 minutes</p> <p>Rate of fill to be sustainable for 30 minutes. In no circumstances shall the interval between the filling of two Trams exceed 10 minutes</p> <p>The physical condition of the sand shall not deteriorate when stored</p> <p>Sand deliveries to a Tram shall stop automatically when</p> | | | | | | | | |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 451 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|---------------|--|---|---------------------------|----------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | the tram sand box is full Sand filling nozzles to be compatible with the sand filling inlets on the trams Signal interlocking to inhibit the movement of a tram if the sand filling nozzles are not returned to their correct storage position. | | | | | | | | |
| | 4.5 | Machine tools | General machine tools required for maintenance | The Infraco to propose requirements. The Infraco to develop | F | Dirty workshop | I | T/I | T/I | T/I | User | The Infraco to propose |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 452 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|--|---|---|---------------------------|----------------------|----------|------|------------|-------------------|---------|---|
| | | | | integrated solution | | | | | | | | |
| | 4.6 | Paint booth | Respraying of removable Tram panels | For use with water based paints integrated compressor | F | Outside workshop | T | T/I | T/I | T | User | 1 |
| | 4.7 | Pantograph maintenance & load test jig | to calibrates and align tram pantograph off Tram roof | The Infraco to propose | F | Throughout workshops | T | T | T | T | T | 1 |
| | 4.8 | Suspension setting equipment | To allow suspension to be set/shimmed without using tram lift | The Infraco to propose | M | Throughout workshops | T | T | T | T | T | 1 |
| | 4.9 | Diesel generator | Back up power source | Capable of connection to the depot LV switchboard and other plant requiring an external | M | Across network | * | I | I | I | | *To be rented by the Operator if and when required. |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 453 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|------------------------------|-----------------------------------|---|---------------------------|-------------------|----------|------|------------|-------------------|----------|---------------------------|
| | | | | energy source. Capable of providing at least three day continuous operation. | | | | | | | | |
| 5 | | Hand & Mobile Tools | | | | | | | | | | |
| | 5.1 | Infrastructure tools | Hand tools | The Infraco to propose | P | Across ETN | I | I | I | I | I | The Infraco to propose |
| | 5.2 | Tram tools | Hand tools | The Infraco to propose | P | Across ETN | T | T | T | T | T | Tramco to propose |
| 6 | | Welding Shop Equipment | | | | | | | | | | |
| | 6.1 | Ferrous welding equipment | General infrastructure repairs | The Infraco to propose requirements. Infraco to develop integrated solution | F | Dirty workshop | I | T/I | I | T/I | Us er | The Infraco to propose |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 454 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|------------------------------------|---|--|---------------------------|----------------|----------|------|------------|-------------------|----------|------------------------|
| | 6.2 | Aluminium welding equipment | Specialist Tram and Tram shelter repairs | The Infraco to propose requirements. The Infraco to develop integrated solution | F | Dirty workshop | I | T/I | I | T/I | Us er | The Infraco to propose |
| 7 | | Battery Shop Equipment | | | | | | | | | | |
| | 7.1 | Tram battery charger | To recharge Tram Batteries | The Infraco to propose | P | Battery room | T | T | T | T | T | The Infraco to propose |
| | 7.2 | Infrastructure battery chargers | To recharge various batteries used in power supply, control and comms equipment | The Infraco to propose and develop solution compatible with tram battery charger | P | Battery room | I | T | T | T | T | The Infraco to propose |
| 8 | | Instrumentation and Test Equipment | | | | | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 455 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|---------------------|---|--|---------------------------|------------------------|----------|------|------------|-------------------|---------|------------------------|
| | 8.1 | Tram test equipment | To allow testing of measurement and testing of tram equipment | The Infraco to propose. Note any overlap with "Special Tools" to be highlighted. As a minimum, proposal to include; headlight tester, tools to allow event recorder to be downloaded and interrogated, tools to allow CCTV systems to be downloaded and interrogated, tools to allow PA and PID announcements to be re-configured. | M/P | The Infraco to propose | T | T | T | T | T | The Infraco to propose |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 456 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|-----|---|--|---|---------------------------|------------------------|----------|------|------------|-------------------|---------|------------------------|
| | 8.2 | Infrastructure and Fixed systems test equipment | To allow measurement and testing of infrastructure and fixed systems | The Infraco to propose. Note any overlap with "Special Tools" to be highlighted as a minimum, proposal to include; OLE height and stagger gauge, stray current data loggers, noise measurement equipment, ride measurement equipment, point setting detection equipment, ≥3 sets of live line testing | M/P | The Infraco to propose | | | | | | The Infraco to propose |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 457 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|---|-----|--------------------------------------|--|------------------------|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | equipment | | | | | | | | |
| 9 | | Infrastructure Maintenance Equipment | | | | | | | | | | |
| | 9.1 | Portable P&C grinders | To dress points and crossings | The Infraco to propose | M | On Site | I | I | I | I | I | 1 set |
| | 9.2 | Track welding equipment | to build up profiles/replace sections of track | The Infraco to propose | M | On Site | I | I | I | I | I | 1 set |
| | 9.3 | Portable tamping equipment | To build up track ballast to realign track | The Infraco to propose | M | On Site | I | I | I | I | I | 1 set |
| | 9.3 | Portable lighting equipment | To illuminate work/collision sites | The Infraco to propose | M | On Site | I | I | I | I | I | 1 set |
| | 9.4 | Portable generators | To power site tools/lights | The Infraco to | P | On Site | I | I | I | I | I | 2 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 458 |
|----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|----|------|---------------------------|--|---|---------------------------|--|----------|------|------------|-------------------|---------|----------|
| | | | | propose | | | | | | | | |
| | 9.5 | Track measuring Equipment | To allow track line and levels to be measured | The Infraco to propose | P | On site | | | | | | 1 set |
| 10 | | Road Vehicles | | | | | | | | | | |
| | 10.1 | Road - rail vehicle | To move about the system carrying mobile equipment and personnel | <p>Able to operate on UK roads</p> <p>Able to operate on all parts of the ETN</p> <p>To be equipped with demountable ≥2 man-basket to enable OLE inspection throughout the ETN</p> <p>Capable of towing a tram including ability to apply tram brakes from cab of road-rail</p> | M | Mobile throughout ETN and road network | | | | | | 1 |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 459 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|----|-------------|----------|--|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | vehicle Capable of having snow plough attached in both road and rail mode Crane with capacity ≥6t and a reach (reduced capacity) of at least 4m. Able to transport other equipment items as set out elsewhere in this list Able to transport ≥3 personnel in cab Payload capability ≥10t | | | | | | | | |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 460 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|------|---------------------|--|---|---------------------------|-------------------------|----------|------|------------|-------------------|---------|------------------------|
| | | | | This will make it a requirement that the driver has a LGV driving license. Powered winch with ≥8t pulling capacity | | | | | | | | |
| | 10.2 | Other road vehicles | Miscellaneous vehicles to be proposed by Infraco | The Infraco to propose | M | Throughout road network | I | I | I | I | I | The Infraco to propose |
| | 10.3 | Road/rail trailer | Trailer with large man lift for OLE inspection/repairs | Capable of being towed to site by | M | Throughout road | I | I | I | I | I | 1 |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 461 |
|----------------------------|----------------|---------------------|--------------------|--------------|



Edinburgh Tram Network – Employer's Requirements

Section 29 – Depot

| | No | Description | Function | Features | Fixed/Mobile/ Portable | Location used | Supplier | User | Maintainer | Access Control | Cleaned | Quantity |
|--|----|-------------|----------|-------------------------------|---------------------------|---------------|----------|------|------------|-------------------|---------|----------|
| | | | | road/rail vehicle or truck | | network | | | | | | |

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|----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 462 |
|----------------------------|----------------|---------------------|--------------------|--------------|

29.15 Overhead Line Equipment

The Depot tracks shall be equipped with overhead line equipment. This will be in compliance with the Employer's Requirements for Overhead Line Equipment in Section 31.

Electrical and safety interlocking with the craneage and other plant and equipment shall be provided.

29.16 Depot Substation Buildings and Associated External Works

The requirements for the Depot substation building and associated external works are as follows:

- The Depot sub-station requirements and facilities shall accommodate the needs of the traction power loads within the Depot and to service the adjacent sections of main line, the Depot domestic supplies and the requirements of the Distribution Network Operator.
- A separate 11kV/400V LV transformer and distribution switchgear shall be accommodated fed from the main 11kV supply located in the Depot substation.
- The depot LV switchboard shall be capable of being energised from an external / mobile generator via socket and plug with an interlocked isolator. This shall provide 400 V ac supplies to essential services within the Depot complex.
- Provision shall be made for the switchboard generator apron and clear access to the connection point.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 463 |

29.17 Depot Systems

29.17.1 Electrical Supplies

The power supply to the traction sub-station is described in Section 30 (Traction Power) of these Employer's Requirements.

Scope

The requirements on the Infraco shall include but not be limited to:

- Main (11kV) power transformer and LV switchboard;
- Sub-mains distribution and main equipment;
- Small power distribution;
- Power supply to mechanical plant and controls;
- Back-up supplies (fixed standby generator);
- Uninterruptible power supplies;
- Data distribution and information technology systems supplies (including operations IT systems);
- Fire protection system supplies;
- Power supplies to CCTV, security and access control systems supplies;
- Power supplies to lighting – internal and external, emergency lighting supplies;
- Cable containment;
- Lightning protection and Depot equipment earthing; and
- Commissioning of systems and training.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 464 |

Auxiliary Power Supplies

Auxiliary supplies shall be provided with a suitably sized uninterruptible power supply. The uninterruptible power supply room shall be provided with cooling in order to maintain battery life (along with ventilation to offset hydrogen build-up if required).

110 Volt Power Supplies

Appropriate networks of 110 V shall be provided:

- 110 V power shall be distributed within the stabling area;
- 230 V/110 V transformers shall provide 110 V supplies throughout the workshops, the main LV switchroom, the plantroom, the wash plant and the sand filling plant.

Control Centre

Electrical supplies shall be configured such that in the event of a single failure there shall be no loss of data and no requirement for excessive actions on the part of the Control Centre staff.

A dual supply changeover arrangement, with high integrity circuit breakers is preferred to a single large uninterrupted power supply. The power changeover function shall not in itself cause the failure of any system so powered, the loss of information or an interruption to the availability to any sub-system for more than 20 seconds.

- Two, suitably sized uninterrupted power supplies shall be connected in parallel and supplied from the Depot substation to provide supplies to critical loads, i.e. Control Centre and equipment room supplies;
- The equipment room electrical systems to provide heating, ventilation, air conditioning, lighting, power and other building services to provide effective habitation for the centralised terminals of all sub systems deployed upon the Edinburgh Tram Network and the human/computer interfaces thereof shall be provided; and
- Lighting to equipment room shall be provided in accordance to CIBSE Codes. Emergency lighting within equipment room shall be at least 50% of normal to allow operations to be carried out even during mains failure.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 465 |

An appropriate means of facilitating uninterrupted data and voice communication between the equipment room and Control Centre shall be provided for those sub-systems that are present at the operator workplaces, mimic diagrams, display banks and any emergency override facilities. Dedicated containment (and riser, depending on the room's orientation) for cabling between the two rooms shall be provided.

29.17.2 Specific Sub-System Technical Requirements

Access Control

A complete access control system shall be provided to relevant standards with a clearly defined access control strategy.

Controlled entry for pedestrians, Trams and road vehicles shall be provided with appropriate access control for each. Access control shall be switchable between a reception area (for daytime use) and the Control Centre. The Depot road entrance shall have two separate vehicle gates for entry and exit, and additionally a pedestrian gate on the footway. The vehicle gate shall be capable of being opened, and the pedestrian gate released, from either the Control Centre or the Depot reception, or by a member of staff presenting a security card to a reader at the gate.

The vehicle gate shall re-close once a vehicle has passed through. The pedestrian gate shall close automatically and re-lock when it closes. The vehicle exit gate shall open automatically when a vehicle approaches it from within the Depot.

Tram entry / exit locations shall be provided with manual gates, which shall normally be left open. At these gateways, there shall be a microwave or equivalent detector, which shall sound a single brief distinct audible warning in the Control Centre whenever the beam is interrupted by a person or larger object.

Intercoms shall be provided from each of the two entry gates (pedestrian and vehicle) to reception and Control Centre. There shall be two intercom positions on the same pole, one at convenient height for car drivers and one for heavy goods vehicle drivers, who shall be able to use them whilst in the driving seats of their vehicles. There shall be one security card reader at the lower position and one with the intercom at the pedestrian gate. Any equipment in centre of the road shall be removable if required to allow tram movement by road if designed to be through the same access. An intercom system shall operate in line with the access control system.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 466 |

IT Systems

IT Systems including network cabling containment throughout the Depot building for the independent supply of IT systems shall be provided in accordance with Good Industry Practice.

- Data cabling shall be provided to appropriate standards;
- All equipment finishes shall be appropriate to area and type of use within the Depot building and shall be in materials with a long life in an environment that is in continuous use;
- All accessories used shall be from approved suppliers/manufacturers. Lifespan of finishes / accessories shall be verified with relevant supplier. Correctly (IP) rated items shall be installed as appropriate to the environment; and
- All materials used shall comply with their appropriate standards. Where necessary, finishes / accessories to carry the appropriate 'test pass' mark.

Data collection facilities shall be provided for the management of information provided by all relevant equipment including the underfloor wheel lathe, SCADA, wash plant etc.

Adequate data points shall be provided to enable data collection facilities to be connected.

Lighting

Natural light in offices shall be maximised and all rooms shall be placed within the building in locations appropriate to their function.

Office lighting shall be to CIBSE document 'Lighting Guide 7: Office Lighting'. The document encourages the maximum use of daylight in offices. Use of lighting controls (i.e. daylight sensing, presence detection) shall also be provided, hence saving energy by utilising daylight wherever and whenever possible.

Lighting in main workshop and other areas shall be placed such that light is given where required for work to take place, including when Trams are present. Each lighting element shall also be safely accessible for maintenance during the continuous operating hours with the OLE over one Tram berth isolated.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 467 |

- Lighting shall be provided so as to provide the required lighting levels (to CIBSE Guides) even when Trams are occupying the workshop. Task lighting shall be provided by luminaires placed close to the task, also supported by portable lamps connected to local supplies;
- Appropriate switching and control strategies shall be implemented; and
- Verification of lighting levels shall be supported by lighting calculations and also by taking post-installation light meter readings.

29.17.3 Workshop Doors

Workshop Tram access doors shall be bi-parting, bi-folding with clear panels for through visibility. The doors shall be power-operated with push-button controls both inside and outside. The open and close button shall be press and hold whilst the door moves, rather than press and walk away to ensure door does not open or close onto an obstruction or person.

- A top-hung door with a bottom track shall be provided and allowed for when sizing the electric motor;
- The actuating mechanism shall be such that it can be maintained without the need to isolate the overhead line equipment;
- In the event of power or door operating equipment failure, it shall be possible for one person to operate the doors manually from ground level;
- The doors shall be provided with a suitably located insulated aperture to accommodate the live overhead line;
- Overdoor heaters, if proposed, shall operate only when doors open via interlinks and integral thermostats.

Door leaves shall be bonded to earth so that should they inadvertently come into contact with the overhead line equipment, the fault resistance shall be sufficiently low to ensure immediate circuit breaker trip without damage to doors or equipment.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 468 |

29.17.4 Hazardous Material Storage

Facilities for the storage of hazardous materials and road access for their delivery and off loading shall be provided.

29.18 Equipment Room

29.18.1 Fire Alarms / Fire Extinguishing System

The equipment room shall have a means of locally activating the fire alarm via a wall-mounted panel.

The equipment room shall be fitted with smoke and temperature alarms.

The equipment room shall also be fitted with an automatic and manually operated extinguishing system, which shall not damage the equipment when activated. The extinguishing system chosen shall be designed subject to a risk assessment based on criticality etc.

In the event of the loss of the primary power supply, the alarm system shall function for a minimum of six hours. This system shall be integrated with the durations and functionality of all other UPS systems.

29.18.2 Heating and Ventilation

The equipment room shall be environmentally controlled to minimise the effects of room heating due to equipment dissipation.

The heat exchanger vents shall not be positioned over the work area of the maintainers nor directly above equipment cubicles, and shall be placed in position to minimise localised chilling effects.

The room shall be positively ventilated to prevent dust ingress.

All equipment fitted with fans shall ensure that fan failure shall not compromise system functionality.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 469 |

29.18.3 Lighting

Lighting within the equipment room shall be either incandescent or fluorescent type fittings.

In the event of power failure, emergency lighting shall be fitted which shall operate for four hours and maintain the level of illumination in the room.

The lighting shall be positioned to illuminate the front and rear of the equipment cubicles, but not directly above equipment cubicles.

29.18.4 Cable / Conduit Entry

Cable routing shall be primarily through floor-recessed conduit.

The main cable entry / exit shall be via an aperture located in the floor, which provides entry or access for cables external to the Depot.

Cable access shall be through the equipment room ceiling.

Particular care shall be taken to ensure that electro-magnetic compatibility is not degraded when cables are closely located.

Cables shall be continuously screened through the wall / floor / ceiling apertures.

Appropriate strain relief or clamping shall be provided.

All cables and conduits shall be clearly marked with cable identifiers or suitable permanent marking which shall last for the expected lifespan of the cable or conduit.

29.18.5 Architectural Requirements

Equipment shall be laid out in the equipment room to afford easy accessibility.

Cubicle doors, when opened shall not impinge on access.

Appropriate 'safe' walkways shall be clearly identified on the floor of the room.

Equipment shall be placed such that cabling runs are minimised.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 470 |

Antenna, low signal or high frequency cable runs shall be minimised and the equipment positioning optimised to ensure a majority of these runs are compliant.

The equipment room floor shall be sealed to minimise dust ingress into the equipment and the surface shall ensure that no static build-up occurs.

29.18.6 Security Requirements

In the event of security and access control system failure, this shall be logged accordingly and displayed to the Control Centre staff.

29.18.7 Equipment Room Furniture

The equipment room shall be furnished with modern ergonomic furniture to assist the maintainers and reduce fatigue.

There shall be two maintainer's desk positions in the room.

The design of the equipment room furniture shall include provision for the effective management of cabling, and equipment and maintenance power supply distribution.

Each desk position shall have personal storage of a minimum of three lockable drawers.

Positioning of storage shall not inhibit the work-envelope of the maintainer.

Additional tool storage locations shall be located in appropriate areas of the equipment room

29.19 Mechanical and Public Health

29.19.1 General

The mechanical and public health services works to be provided shall include the main Depot, and comprise heating, fresh air ventilation, toilet accommodation extract ventilation, specialist extract ventilation, comfort cooling systems, control systems, incoming natural gas supplies and distribution, fire alarm systems, fire suppression system, incoming mains water supplies, domestic hot water generation, domestic hot and mains water distribution, rainwater collection, waste and soil pipework systems, and underground surface water and foul drainage immediately local to the main Depot (connecting into main services systems).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 471 |

29.19.2 Water

Cold water shall be provided to each stabling road.

Mains water shall be supplied to areas such as the vehicle workshop (and other special purpose workshops), plant room and wash plant. Backflow prevention devices shall be employed.

Domestic hot water shall be centrally generated and stored. The calorifiers and circulation plant shall be housed in the appropriate plant room.

29.19.3 Air Conditioning

Air conditioning shall be provided in the Control Centre, and all administration areas.

A 'free-cooling' system shall be provided for the equipment room.

Duplicate cooling systems, each capable of 100% duty, shall be installed to serve the Control Centre and equipment room.

29.19.4 Ventilation

Dedicated extractor systems shall be provided to suit specific items of equipment (i.e., lathes, paint spraying booths, vehicle battery charging and uninterrupted power supply system).

29.19.5 Drainage Pad

A drainage pad shall be provided adjacent to the pressure washer with a water and power supply for a pressure washer.

Treatment of wastewater to meet appropriate standards prior to connecting to site drainage system shall be provided.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 472 |

29.19.6 Mechanical Systems

The systems shall be configured such that in the event of a single failure there shall be no loss of data and no requirement for excessive actions on the part of the Control Centre staff.

All centralised mechanical services plant shall be located in the plant room with sufficient space allocation for maintenance and / or plant removal. The only exception to this may be the heat rejection plant necessary for the air conditioning/comfort cooling installations, which are likely to be located externally. Should equipment be required to be located externally the impact on the overall visual appearance of the Depot shall be considered.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 473 |

30 Traction Power

The scope of this Section of the Employer's Requirements is to define the traction power (substations) requirements applicable to the Edinburgh Tram Network which the Infraco must comply with.

30.1 General Requirements

The provision of traction power shall be derived from a number of suitably located traction substations distributed around the Edinburgh Tram Network.

Each Edinburgh tram traction power substation shall include:

- The traction substation enclosure;
- The associated Scottish Power HV (11 kV) three-phase power supplies with associated HV switchboard, metering and local emergency tripping facility;
- 230V LV services with associated metering and distribution equipment for substation services i.e. lighting, small power etc;
- Traction substation transformer-rectifier/s and equipment;
- Traction dc switchboards;
- Feeder and bypass isolators;
- Substation earthing;
- Negative busbars;
- Batteries / charger;
- SCADA interface marshalling panels or agreed equivalent;
- Associated internal power and control cabling; and
- Miscellaneous items to complete.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 474 |

Substations shall be containerised at all locations where this is practicable.

Provision shall also be made for a 11 kV supply to the Depot services transformer.

30.2 Traction Substations

30.2.1 General

A sufficient number of traction substations (including a separate substation for the Depot) shall be provided, as described later in this Section 30.

The equipment to be provided for each of the eight traction substations for Phase 1a shall comprise:

- Appropriate HV supply arrangements from a Scottish Power circuit breaker (as part of their HV switchboard to be located in a separate section of the substation building);
- A single indoor transformer-rectifier unit;
- A 750 V dc switchboard with direct acting overload protection, impedance protection, earth fault protection and transfer tripping;
- A negative busbar cubicle;
- A tripping and closing battery and charger; and
- All associated internal power and control cabling, and earthing.

The layout and disposition of all equipment contained within all substations shall be identical where this is practical.

Separate personnel access shall be provided to the compartment housing LV control, protection and instrumentation equipment and associated multicore cabling terminations. This compartment shall be fully segregated from the HV / traction voltage compartments by means of a cage or similar. An access door shall be provided between the two compartments, with a locking system that is to be agreed with tie.

Two track feeder isolators with earthing function and a motorised bypass isolator shall be provided.

At all substations, control and indication information shall be provided to SCADA by suitable remote communication interface.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 475 |

30.2.2 Russell Road Track Paralleling Hut (applicable to Phase 1b only)

Consideration shall be given to the provision of a Russell Road track paralleling hut, which shall be provided with similar equipment as all other substations, however an HV supply from Scottish Power will not be provided and the substation shall be used as a track paralleling hut in the first instance.

The design shall consider the future detailed provision for the installation of such an HV Supply, in configuration of the substation which shall be identical, as far as practicable, to all other substations to be provided within the Edinburgh Tram Network.

Cable ducts into the building shall be provided to enable the future installation of a HV Supply with the minimum of disturbance to the ongoing operation of the location.

30.2.3 Gogar Depot Substation

The equipment at the Depot traction and services substation shall comprise three HV supply cables from three Scottish Power circuit breakers, or ring main units feeding two indoor transformer-rectifier units for depot stabling traction and main line traction, and the other to the services transformer in the Depot building.

One four-panel 750V dc switchboard with direct acting overcurrent protection, relay overcurrent protection, thermal image, earth fault protection on three (two for the yard and one for the workshop) track feeder circuit breakers and direct acting reverse current protection on the rectifier circuit breaker. (Alternatively, a fused rectifier may be used, whereby no direct acting reverse current protection on the rectifier circuit breaker is needed at all. An isolator may be offered in place of a rectifier circuit breaker. If the fused rectifier option is chosen, then this will be fed from one rectifier transformer; a three panel 750V dc switchboard feeds the main line in the usual way as described above.

The whole of the Depot yard shall be earthed on the negative side including the workshop traction supplies.

The enclosure of the yard and workshop circuit breaker shall be solidly earthed, and also connected to the rectifier negative pole.

Two negative busbar cubicles (one for the yard rectifier and the other for the main line rectifier), a tripping and closing battery and charger, all associated internal power and control cabling, and earthing shall be provided.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 476 |

In an annex segregated from the main enclosure for fire detection, two motorised track feeder isolators with motorised earthing function and a motorised load break bypass isolator with over-current detection and tripping relay shall be provided.

30.3 System Protection Settings

As well as complying with the tie requirements for as built documentation, all calculations used to determine protection settings shall be provided by the Infraco in a format allowing complete checking of methodology results without any additional sources of information.

30.4 Power System Design Principles

The 11 kV feeds to each traction substation shall be derived from and form part of the local Distribution Network Providers (Scottish Power) Network ring with a dedicated ring main unit or switchboard feeding the Edinburgh Tram Network the traction substation.

HV switchgear shall be provided to meet the requirements of the DNO (Scottish Power).

The 750 V dc traction power system shall provide a very high degree of reliability. Thus, small single-rectifier, substations shall be provided at close spacing, arranged to feed the 'in' and 'out' lines in permanent cross-connection between substations.

The OLE feeding shall be arranged so that the use of locally operated manual feeder isolators can facilitate the remote isolation and earthing of the overhead line; alternative solutions may also be offered.

Each traction substation shall also be configured so it can be isolated from the main line and bypassed without an impact on the Tram service.

The auxiliary switches of the bypass isolator shall, on the bypass isolator closing, re-configure the hard wire inter-tripping pilots to bypass the isolated substation. In the event of a fault, the over-current relay of the bypass isolator shall trip the feeding circuit breakers at both ends of the extended section, and give SCADA indication of the direction in which the fault current flow was detected. Other procedures for indication of fault location may also be offered.

Equipment located within the substations and the remote motorised isolators, including the earthing function, shall be controlled and monitored over the SCADA system.

11 kV supplies at the Depot and control centre will be taken from two 11 kV Scottish Power feeders, via a Scottish Power switchboard affording three 11 kV feeds to the Edinburgh Tram Network.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 477 |

One feed shall supply the traction transformer-rectifier for the Depot yard, workshop and stabling area roads that have the track solidly earthed.

The second feed shall supply the traction transformer-rectifier for a normal main line feeding configuration.

The third feed shall supply the transformer, adequately-sized for the Depot and control centre LV ac services.

Maximum use of the standard traction transformer rectifier unit shall be achieved for the System by providing a high degree of reliability. This will be afforded by deriving traction supplies from two separate Scottish Power feeders at each substation.

In the particular case of the Depot, in the event of loss of the 400 V ac supply, essential equipment (principally the Control Centre) shall continue to function on UPS supplies and from a separate generator (see Section 29 (Depot) of these Employer's Requirements).

The 11 kV incoming supply to all traction substations shall be able to be individually tripped by the system controller located in the Control Centre via SCADA, and by staff locally by means of a dedicated 11kV trip push button to be located in each substation lobby.

The OLE shall also be able to be tripped in either direction by the system controller from the Control Centre via SCADA.

The OLE shall be able to be tripped in both directions simultaneously via a hard wire emergency mass trip button to be located in the Control Centre that shall trip all substations in the designed groups.

The OLE shall be able to be tripped locally in both directions simultaneously by means of an emergency push button located in each substation lobby.

The substations are named, referenced and located as shown below:

Table 84 - Substation Abbreviations

| Substations | Nomenclature |
|------------------------|--------------|
| Phase 1a | |
| Leith Sands Substation | LSE |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 478 |

| | |
|------------------------------------|-----|
| Leith Walk Substation | LWE |
| Cathedral Substation | CAE |
| Haymarket Terrace Substation | HTE |
| Jenner's Depository Substation | JDE |
| Bankhead Drive Substation | BDE |
| Gogar Depot Substation | GDE |
| Ingliston Park and Ride Substation | IPE |
| Phase 1b | |
| Craigleith Substation | CGE |
| Granton Mains East Substation | GME |
| Granton Road Substation | GRE |

The 750 V dc feeder circuit breakers at each substation shall be arranged to feed the OLE locally through manual feeder isolator / earth switches located in their own compartment of the traction substation. Motorised load break bypass isolators shall be provided in these compartments or at suitable location to link adjacent OLE sections in an emergency.

Intermediate sub-sectioning points shall be provided, comprising section isolators in trackside pillars (depot: pole mounted will be acceptable) to give operational flexibility during emergencies. With the exception of 'tail end' feeds, most sections of OLE shall be double end fed, and provided as second level protection with transfer tripping through private pilot cables.

30.5 Scottish Power Interface (DNO)

All Scottish Power 11 kV supplies connections, together with all associated protection, emergency tripping and tariff metering equipment shall be procured by the Infraco.

The provision of a separate Scottish Power LV supply connection for lighting and auxiliary services within the traction substation buildings, excluding the depot traction substation shall be procured by the Infraco.

The ratings and protection of the Scottish Power supplies shall be suitably co-ordinated with the characteristics of the power conversion equipment.

SCADA indications shall be made available and SCADA cable tails shall be provided for Scottish Power to wire into their equipment. A maximum number of up to 5 in-/output connections are to be considered as sufficient.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 479 |

30.6 Multicore and Control Cabling

All necessary multicore and control cables within the substation, and LV ac supplies to the substation equipment, shall be provided.

Each substation LV ac supply shall be drawn from a suitably rated LV ac consumer unit.

The provision and installation of all the necessary intertripping pilot cables to and from the dc switchgear located within each substation shall be included.

Cables for all LV ac and LV dc protection, control, alarm and indications shall have copper conductor with XLPE or PVC insulation and an overall PVC oversheath and galvanized steel wire armour where cables are to be installed without armoured conduit or trunking or other adequate mechanical protection.

The conductors shall be plain annealed copper wire complying with BS EN 60447 – 2007 as applicable or equivalent and all cores shall be clearly identified by printed numbers at regular intervals.

The minimum conductor size shall be not less than seven strands of 0.67 mm diameter wire, or in the case of single wire conductors the minimum cross-sectional area shall be not normally be less than 2.5 mm². In special cases for light current installations single strand, annealed copper conductors with a cross-section of 1.5 mm² may be used but only with the specific written approval of tie.

All cable sheaths shall be free from defects and impervious to water.

Multicore and control cables shall be terminated in accordance with the manufacturer's recommendations and the cable cores shall be left long enough to be terminated without the addition of separate tails.

All detail diagrams shall be cross-referenced and shall show multicore cable schedule reference numbers to facilitate cable identification.

30.7 Transformer Rectifiers

30.7.1 General Arrangement

Each unit shall consist of a dry type, Class F AN cooled transformer to BS EN 60726. Each unit shall be suitable for environmental conditions E1 and ambient temperatures C1. The rectifier shall

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 480 |

comprise silicon diodes mounted on heat sinks, the whole to BS EN 60146, and cooled by natural circulation of air, enclosed in a cubicle with a rigidly constructed fabricated steel framework. The steel framework shall be completely clad in sheet steel to the extent as shall be consistent, by the provision of screened openings, with the requirements of natural cooling and ability to assess readily by direct vision from outside the cubicle any unhealthy condition of the major internally mounted components. Drip-proof top covers shall be fitted. The outer surfaces of the cubicles shall be Grey Shade 631 Semi Gloss to BS 381C 1996 or similar, e.g. RAL 7047. Adequate ventilation provision shall be made in the substation buildings without jeopardising the security of the building to ensure the equipment is able to perform correctly.

Alternatively, a separate close-coupled transformer cubicle may be offered. Substation floor area shall be considered at a premium, so an important consideration is compactness of layout without jeopardising operating and maintenance requirements.

All equipment shall comply with the requirements of BS EN 60076 and BS EN 60146, and the degree of enclosure shall be IP31 of BS EN 60529.

30.7.2 Rating

The rating of the transformer-rectifiers shall be declared as the 100 per cent continuous rated output at 750 V dc on all transformer tapplings. Each combined unit shall have an overload rating according to the rating class of BS EN 60146 stated in the Schedules. The impulse voltage withstand rating shall be 75 kV for the nominal system voltage of 11 kV.

30.7.3 Voltage Regulation

The overall voltage regulation of each combined transformer - rectifier shall be 5 per cent with a tolerance of ± 5 per cent of the regulation from 5 to 100 per cent rated load.

30.7.4 Voltage Ratio & Connections

The HV primary winding shall be delta connected, and two secondary windings, one star and one delta, arranged for series bridge rectifier operation in accordance with circuit diagram 12 of BS EN 60146 to produce 750 V dc at 100 per cent rated load and nominal tapping.

30.7.5 Voltage & Phase Tapping

Tappings shall be provided on the HV windings in order to make an off-circuit HV voltage selection, by means of bolted links.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 481 |

30.7.6 Transformer Cores

The cores shall be built up of cold rolled grain oriented silicon steel sheets in accordance with the guaranteed maximum total loss stated in BS EN 10107. When a transformer is connected on the nominal tapping, and operating at rated voltage and frequency, the flux density at any point in the magnetic circuit shall not exceed 1.6 Tesla.

The magnetic circuit shall be insulated from all structural parts and be capable of withstanding a test voltage to the frame of 2 kV rms for one minute. A link shall be provided for earthing the magnetic circuit to the enclosure.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 482 |

30.7.7 Performance Under External Short Circuit

The performance of the rectifier transformer under external short circuit conditions shall be in accordance with BS EN 60076 (BS 171 is withdrawn). In applying the values stated therein it is to be assumed that the voltage at the terminals of one side of the transformer is maintained at the full rated value for the duration of the short circuit when there is a short circuit between the phases or to earth on the other side of the transformer, or between poles on the rectifier output.

30.7.8 Losses

The no-load and load losses shall be as low as is consistent with reliability and economical use of materials.

30.7.9 HV Cable Terminations

A cable termination chamber for top or bottom entry shall be provided suitable for dry type terminations and the HV cable.

30.7.10 Diodes

The type of diode used shall have been proved in service and have an assessed reliability generally in accordance with valid and current European Standards ((actual BS 9300 seems not to standardise diodes for traction rectifiers)). A fuse-less design of diode bridge shall be provided. Alternatively fused diode bridges with monitored fuses in combination with fuse-less, but short circuit proof resistor/capacitor circuits may also be offered (refer to section 30.7.11).

Each diode shall be capable of withstanding voltages having a peak value not less than 2.5 times the peak working reverse voltage rating.

Particular attention shall be paid to the method used for mounting the diodes, and it shall be possible to replace easily any individual diode without disturbing other components.

30.7.11 Surge Protection

Each rectifier shall be fitted with surge protection to ensure that the reverse voltage is shared equally across series connected diodes and bridges and that the voltage across individual diodes is limited to the peak transient reverse voltage rating of the diode.

In order to attenuate surge voltages caused by lightning strikes, pantograph arcing or similar effects, a surge protection circuit comprising two separately fused resistor/capacitor networks shall be provided. The design of the surge circuit shall be such that resonant effects with significant

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 483 |

harmonics present in the open circuit voltage are minimised. . Alternatively, a non-fused short-circuit proof resistor/capacitor circuit may also be offered.

Adequate protection against lightning and over-voltages, however caused shall be afforded to the substation equipment. The characteristics of all surge diverters to be used on the Edinburgh Tram Network shall be correctly co-ordinated with those of the rectifier surge circuits, so as to limit over-voltages to acceptable levels and minimise resonance effects.

30.7.12 Temperature Rise

The rectifier transformer temperature rise shall be limited to 800 K at rated output. The maximum operating temperature of any rectifier component, including busbars and connections, shall not exceed the limits permitted by BS EN 60146.

30.7.13 Protective Services

The following devices shall be provided:

- Diode heat sink and transformer winding over-temperature alarm and trip, with alarm contacts for SCADA indication and local alarm lamp indication (amber) or, alternatively, indicated on substation control & protection display;
- Surge circuit fuse failure alarm, operating for the failure of either or both circuits, with alarm contacts for SCADA indication and local alarm lamp indication (amber) or alternatively indicated on the substation control & protection display; if a non fused solution is provided (refer to Section 30.7.11 Surge Protection then no indication is required.
- A supply supervision device shall be provided to monitor the presence of the main supply to the transformer-rectifier and to give a supply failure alarm through the SCADA system; and
- An extreme inverse over-current/earth fault relay protection on the 11 kV incoming circuit for tripping the Scottish Power rectifier feeder circuit breaker, with alarm contacts for SCADA indication.

30.7.14 Instrumentation

Each rectifier shall be fitted with a shunt or dc current transducer with connection to an ammeter mounted on the front of the cubicle. Each rectifier shall be fitted with a fused voltage divider connected to a rectifier output voltmeter mounted alongside the ammeter.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 484 |

The overall accuracy of the shunt / dc current transducer and ammeter, and of the voltage divider and voltmeter, shall be to Class Index 1.3.

Alternatively, this instrumentation may be located in the rectifier feeder cubicle of the DC switchgear or the values may be shown on substation control & protection displays.

All 750 V dc connections, relays and instruments and any stray current monitoring instruments shall be capable of withstanding the test voltage stipulated in BS EN 50124-1 2001.

30.7.15 Negative Isolation

The negative connection from each rectifier shall include a disconnection facility by means of an isolator, either as part of the rectifier or part of the negative busbar cubicle.

30.8 A.C. HV Switchgear

Provision is to be made for a 'Scottish Power' emergency trip facility (located in each substation lobby) to allow mobile tramway staff, who may not be authorised for access to the traction substations, to trip the Scottish Power in-feed to a substation in the event of a failure of the SCADA system.

30.9 D.C. Traction Supply Switchgear

30.9.1 General

The switchgear shall be of the high-speed air break type in accordance with BS EN 50123-2, suitable for use on a 750 V dc traction overhead line system, with floating track negative return circuit.

Circuit breakers shall be of the carriage-mounted 'withdrawable' type, within cubicles.

The switchboard shall comply with BS EN 50123 Part 6 and be capable of sustaining without damage, the electrical and mechanical stresses produced by fault conditions up to the prospective system short circuit rating.

The entire switchboard enclosure shall be insulated from earth and there shall be no inadvertent earthing of the switchboard other than via the main earth bar passing through the low impedance earth fault sensor.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 485 |

Each cubicle shall be of rigid folded sheet steel construction suitable for all normal and fault conditions, and withstand repeatedly without distortion or failure, shocks caused by closing and opening impacts. Enclosures shall have a degree of protection to IP 31.

Removal of covers on any cubicle to permit access to components shall not cause exposure of live conductors in the adjacent cubicles.

The design of the cubicles shall ensure complete dispersion of ionised effluent from the circuit breaker to atmosphere without hazard to personnel or the possibility of establishing a conducting path to the switchboard frame.

The switchgear assembly shall be designed in compliance with, and have certified test reports to demonstrate compliance with clause 6.6.3 of BS EN 50123-6 1998. Front access doors to compartments with exposed metalwork connected to the primary circuit shall be insulated against arcing to the door (3 mm polycarbonate screen or equivalent) and have a fault rated flexible earth strap at the top of the door between door and cubicle frame. Hinges and door latches shall be substantial and keep engaging on door closure.

Outgoing cable boxes shall be suitably sized to accommodate the DC cables. Feeder cable boxes shall be furnished with a surge arrester coordinated with the OLE and rectifier surge protection ratings.

Other DC switchgear, proved and tested in similar applications providing same or similar functionality in compliance with relevant, current and valid European Standards may also be provided.

30.9.2 Busbars

The busbars shall be rigidly supported and fully insulated throughout their length, including tee-off connections and joints between adjacent chambers.

The busbars shall be completely enclosed in an earthed metal chamber, access to which shall be by means of bolted panels. Removal of these panels shall not give access to outgoing circuits. No small wiring or other equipment shall be mounted in busbar chambers.

Other solutions providing same or similar functionality and electrical safety may also be provided.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 486 |

30.9.3 System Voltage and Fault Level

The normal system traction working voltage shall be taken as 750 V DC, with a tolerance in accordance with BS EN 50163.

The switchgear shall be capable of withstanding the electrical and mechanical stresses when clearing short circuit currents up to the maximum prospective level of the system, assuming that normal voltage will be maintained at the primary terminals of the rectifier transformer.

The switchgear shall be capable of interrupting the following currents:

- Terminal short circuits;
- Overhead line faults adjacent to a substation;
- Overhead line faults remote from substations, and including faults at the most distant point fed under the most onerous outage conditions tolerable;
- All values of traction load currents likely to be encountered in service, passing through the switchgear in either the forward or reverse direction; and
- Load currents of tramcar auxiliaries, under both starting and running conditions, passing through the switchgear in either the forward or reverse directions.

All electrical clearances in air and insulator creepage distances shall be adequate to withstand all specified steady state voltages and all transient voltages likely to arise in service.

30.9.4 Temperature Rise

Each current carrying component of the equipment supplied shall be capable of continuous operation at the specified ratings without exceeding the maximum temperature rises stated in the appropriate European Standard.

30.9.5 Circuit Breaker Isolation

Each complete circuit breaker together with its auxiliary switches and operating mechanism shall be arranged on a 'withdrawable' carriage to permit full accessibility for maintenance purposes and as a means of isolating the circuit.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 487 |

Indication of circuit breaker 'open/closed' status, and circuit breaker position, shall be visible through a window in the cubicle access door or by other suitable means (e.g. after opening the cubicle access door and, in addition, on substation protection and control display)..

The circuit breaker carriage shall remain within the confines of the cubicle when in the service or isolated positions.

A positive stop shall be provided to indicate when the circuit breaker has been fully moved into the service position.

Mechanical interlocks shall be provided so that it is neither possible to withdraw the circuit breaker without having first tripped the operating mechanism, nor to replace the circuit breaker if in the closed position. Means shall also be provided to enable the circuit breaker to be operated electrically or by hand when in the isolated position. A padlocking facility shall be provided on the isolating handle aperture. The main isolating contacts of the fixed portion shall be equipped with shutters arranged automatically to cover all live parts on both busbar and outgoing circuits. Provision shall be made for padlocking each individual shutter in the closed position.

Secondary isolating contacts shall be provided as necessary and arranged so that when in the isolated position all auxiliary supplies to the circuit breaker carriage are still connected.

Facilities shall also be provided so that the circuit breaker and its associated electrical auxiliary circuits can be operated electrically when the carriage is completely withdrawn from the cubicle enclosure.

The circuit breaker carriage shall be equipped with suitable wheels for movement on normal floor surfaces and also to act as guides in conjunction with suitable alignment rails, pins and sockets to ensure correct and accurate engagement of the plug and socket contacts.

Steel ramps and tracks of suitable section and robust construction shall be provided for the movement of the carriage into and out of the stationary portion of the cubicle. The arrangement shall positively and accurately align the main and secondary plugs of the carriage with the respective stationary portion plugging contacts and during all movements under service conditions maintain such alignment and earthing contact. The ramps shall be designed to permit easy movement of the carriage between cubicle and floor without shock or damage to the equipment or floor.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 488 |

Plugging or scraping contacts with copper current paths shall be provided to ensure a satisfactory and positive connection of the metalwork of the circuit breaker carriage to the switchboard earth bar established in the isolated position before any 750 V connections are made.

30.9.6 Circuit Breakers

All circuit breakers shall have a continuous current rating in accordance with BS EN 50123 and BS EN 60439 where applicable, shall be identical in arrangement and fully interchangeable with each other, where appropriate. Rectifier and feeder circuit breakers shall not be interchangeable, in case Rectifier circuit breakers are provided (in case of Fused Rectifier diodes, Rectifier disconnectors are sufficient and to be provided).

The closing circuit shall contain an anti-pumping feature which shall prevent automatic re-closure should the closing signal be retained indefinitely either by operator action or resulting from a failure on the supervisory control system. The circuit breaker shall not respond to a close signal when open and a trip signal is present.

Closing and tripping circuits shall be capable of satisfactory operation within the limits of 70 per cent (tripping of feeder circuit breaker trip coils) 80 per cent (closing) and 120 per cent, of the rated dc auxiliary supply voltage.

The 'trip' coils of the dc rectifier circuit breakers shall, if needed (see above), take the form of 'under voltage release' coils after Network Rail practice, so that loss of auxiliary voltage will cause the rectifier circuit breaker to drop out, leaving the feeder breakers closed up as a track paralleling hut (TPH).

The circuit breaker shall be capable of being closed and tripped manually in the service position while still retaining its full fault making and breaking capacity. Under such manual operation it shall be possible to disconnect the auxiliary dc supply without interfering with the operation of the breaker.

Provision shall also be made for the slow manual closing of circuit breakers when withdrawn for maintenance purposes and one device for this purpose shall be provided per switchboard. The slow closing device shall be such that the moving portion of the circuit breaker can be halted at any point in the travel, to enable checks to be made at all points of the closing stroke.

Mechanical indicators shall be provided to show whether the circuit breaker is open or closed. An operations counter shall be fitted.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 489 |

Shunt tripping coils shall be wired in series with circuit breaker auxiliary contacts arranged so that the supply to these coils is automatically cut off on completion of a successful operation.

All contacts shall be easily and quickly replaceable.

The arc chutes shall be so arranged that any emission of flame, hot gases or metal particles during operation of the circuit breaker will be contained within the cubicle and not cause damage. Arc-chutes shall be designed for convenient handling and removal during inspection and maintenance.

The design of the arc control chutes shall be such that erosion caused by the arc and emission of ionised effluent during operation of the circuit breaker is minimal. The materials used in them shall be non-hygroscopic.

Each circuit breaker carriage shall be fitted with a label holder and an easily removable blank white sandwich plastic label.

The front and rear of each cubicle shall display a prominent label showing the circuit identification by name and approved reference number.

30.9.7 Interlocks

A system of mechanical or electronic interlocks (substation control and protection) shall be provided which automatically imposes a fixed sequence of events designed to prevent mal-operation of the circuit breaker unit as a whole.

30.9.8 Protection Devices

Each feeder circuit breaker shall be fitted with a uni-directional series instantaneous overload device, with a calibration range chosen to be a standard for the system. It shall also be fitted with a multi-functional device to afford instantaneous, programmable and thermal image protection. Rate of rise protection is disallowed (may be a standard part of the multi function relay, provided it can be disabled) but impedance protection will be considered.

Each feeder circuit breaker shall be fitted with a line proving device to prove the circuit onto which the circuit breaker has been instructed to close is not faulted. The maximum current that may flow due to the 'line proving', in the event of a short circuit shall not exceed 40 amps. The relay that measures the residual resistance in the circuit and blocks the circuit breaker against closing shall have a setting range of 2 to 50 ohms as a minimum. In addition to blocking the circuit breaker from closing a SCADA indication shall also be given that the closing has been blocked.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 490 |

A combined intertripping and earth fault protection scheme shall be provided. Each switchboard shall be equipped with a low impedance earth fault detector, arranged to initiate a local mass trip of all dc circuit breakers and to intertrip corresponding feeder breakers at adjacent substations for all causes of feeder CB tripping. 'Intertrip receive' protection relays or related control equipment shall be fitted with a manual reset flag or similar (e.g. display), showing when the protection is operated. Intertrip by-pass facilities shall be provided, by means of auxiliary switches in the substation bypass isolators reconfiguring automatically when the isolator is closed. Inter-trip, in/out of service, switches shall be provided in order to inhibit the intertripping when OLE is sub-sectioned. Provision shall be made for SCADA 'opening' of the feeder circuit breakers without causing a mass trip or intertrip.

Contacts shall be provided to give individual trip alarms from main and back-up protections through the SCADA system.

The SCADA system will include a remote trip facility. In order to maximise reliability, the incoming SCADA control signal for this facility shall be arranged not only to trip the appropriate local feeder circuit breaker but also to trip the corresponding feeder circuit breaker at the remote end of the OLE section via the intertripping pilot wire system.

Each circuit breaker shall be fitted with a push button and lamp (white) to provide a local trip 'circuit healthy' indication on demand with the breaker closed. The current path for this feature shall include the actual circuit breaker trip or actuation coil.

Additionally, a voltage operated relay fitted with a self reset flag indicator shall be provided to supervise the tripping supplies to the switchboard. Contacts shall be provided to give an alarm through the SCADA system.

Each outgoing d.c. feeder cable box shall be equipped with a surge diverter.

30.9.9 Control and Instrumentation

All equipment shall comply with relevant and valid European Standards.

Auxiliary control supply shall be from a floating LV d.c. supply. Individual panels shall have both polarities of the supply fused, or protected by magnetic circuit breakers.

Current measuring devices shall be fed from either shunts or transducers. All 750 V connections and associated relays and instruments shall be capable of withstanding the test voltages according to relevant and valid European Standards.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 491 |

Main items to be included on each panel shall include:

- Circuit breaker control switch (open/close);
- Circuit breaker control selector switch (local/supervisory); and
- Indication lamps (open/closed - green/red).

All control and control selector switches shall be suitable for locking by means of a padlock. Indication lamps shall be of the LED type to ensure long life.

Each feeder circuit breaker panel shall be provided with an ammeter, of overall accuracy including the shunt to Class Index 1.5.

Each rectifier panel shall be provided with a voltmeter fed from the rectifier side of the circuit breaker, or the rectifier voltage transducer.

Alternatively, listed control and indication elements may also be provided by means of the substation protection and control units (e.g. display). In this case, therefore, padlocking is not applicable.

30.9.10 Overhead Line Emergency Trip

A facility to ensure the fail-safe hard wire emergency mass trip of traction substation dc circuit breakers by the system controllers shall be provided within the Control Centre.

Separate emergency trip push buttons shall be provided for the following two groups:

- Haymarket to Newhaven
- The rest of the Edinburgh Tram Network including the Depot,

This facility shall take the form of a suitably located and identified wall mounted box containing all equipment and push buttons necessary to provide this function.

The equipment to be provided in each traction substation and TP hut for this feature shall comprise a hold-in relay energised from the tripping batteries of the traction substation and a remote normally-closed contact in the Control Centre or other substation. The system shall be provided with trimming resistances to keep the relay current within limits for varying distances to the remote contact. The system is envisaged to be stable at up to 15 km with 1.5 sq mm pilot cores. The mass

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 492 |

trip relay shall have sufficient circuits to trip all feeder circuit breakers and dc rectifier circuit breakers. It is not envisaged to use the rectifier circuit breaker trip and an open link shall be provided in this circuit. Two further normally-open and normally-closed contacts shall be provided for use in cascading the trip to other traction substations in a similar manner.

Provision shall be made for an overhead line emergency trip facility (located in each substation lobby) to allow mobile tramway staff, who may not be authorised for access to the traction substations, to trip the overhead lines in both directions from a substation in the event of a failure of the SCADA system. The logic of this trip facility will be integrated in the central station controller of each substation.

30.9.11 Circuit and Busbar Earthing

Means shall be provided at each panel for applying a safety earthing device to busbar or circuit connections in order to comply with safety legislation. A dedicated earthing truck or other suitable earthing equipment, as needed for the installed equipment, shall be provided at each substation for such purposes.

30.9.12 Isolator Motorised Operation

Where motorised isolators are provided, operation of the feeder isolator and earth switch functions shall be from the substation tripping battery.

Operational commands shall be via SCADA signals hard wired from the SCADA outstation within the substation to relays in the isolator panel.

Both OLE feeder terminals shall have 'live line' detection arranged to inhibit opening of the feeder isolator and this detection shall be brought back to the Control Centre via SCADA.

It shall not be possible to earth a feeder unless the bypass and feeder isolator are both open.

It shall not be possible to close a feeder isolator unless both the earth has been removed and the adjacent bypass isolator is open.

It shall not be possible to close the bypass isolator unless both adjacent feeder isolators are open. SCADA position indication shall be provided for all switching elements in all positions.

In the event of loss of rectified Scottish Power LV supply the operation shall auto change over to a battery supply.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 493 |

For isolators located in the Depot, this section is not applicable, because of manual operation.

30.9.13 Bypass Isolator Over-current Feature

The bypass isolator when closed shall reconfigure the 'pilot wire' inter-tripping between adjacent substations to bypass the substation in which the bypass isolator is accommodated.

In case protection of contact line cannot be provided by adjacent substations when bypass-isolator is closed, the bypass isolator shall have a 'line current' trip feature where the current passing through the bypass isolator is measured and operates one of two relays depending on the direction of current flow through the isolator to trip both remote substations in the event of detecting a current in excess of setting.

The setting range to be approved by tie.

The relays shall be powered from a dedicated battery with a minimum of four hours standby time.

This battery shall be supplied from the substation tripping battery supply. There shall be SCADA indication of loss of battery voltage.

30.10 Batteries and Chargers

30.10.1 Scope and System Voltage

One 100 per cent duty battery, 100 per cent duty charger and dc distribution board unit shall be provided for each traction substation, for the purposes of providing tripping, closing and control supplies for the 750 V dc and ac switchgear. The battery charger will be supplied from the Scottish Power LV ac supplies in the substation. Neither polarity shall be deliberately earthed and the supply shall function unaffected with either pole inadvertently earthed.

It is to be noted that such supplies for the Scottish Power 11 kV switchgear will be derived from a battery and charger to be supplied and installed by Scottish Power themselves (Electricity Supply Regulations requirement).

The nominal battery voltage, suitable for the switchgear, shall be in accordance with BS 2618. The charger supply shall be 230 V, single phase, 50 Hz, and the complete equipment shall be a manufacturer's standard product.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 494 |

30.10.2 Batteries

The batteries shall be of the high performance type, and shall be designed for a life expectancy of at least ten years under the conditions of service likely to be encountered. Battery cases shall be of high impact polystyrene translucent plastic. The batteries shall be such that maintenance shall be required at not less than twelve month intervals.

30.10.3 Battery Duties

The rating of each battery shall be sufficient to meet the requirements of the most arduous duty cycle at any one of the substations including:

- The continuous standing load; and
- On the assumption the battery is charged to 80 per cent of its rated capacity and the charger supply is then lost, the battery shall then be able to supply the standing load for twenty-four hours and then have sufficient capacity to carry out the closure and tripping of a 750 V circuit breaker twelve times in quick succession.

30.10.4 Battery Accommodation

Each battery together with its associated charger and dc distribution load shall be accommodated in a single, self-contained, ventilated, sheet steel cubicle of rigid construction.

The cells shall be so mounted that ready access is provided to the tops of all cells for maintenance purposes. The battery enclosure internal metalwork shall be treated with electrolyte-resisting paint.

30.10.5 Battery Chargers

Each battery charger shall be of the automatic constant voltage type and shall be suitable for supplying the constant load and at the same time maintaining the battery in a fully charged condition while floating across the load and charger.

Arrangements shall be made such that, in the event of the battery becoming discharged, the rate at which recharging commences is as high as possible consistent with maintaining the automatic charging constant voltage feature and with the connections remaining undisturbed, as for normal service.

Each charger shall also incorporate a boost charge feature, which shall, after having been started, provide an automatically controlled high charge rate sufficient to restore a fully discharged battery to the fully charged state within twelve hours without excessive gassing or any form of damage to the

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 495 |

battery. The boost charge shall be initiated manually but reset to float automatically, and shall not cause damage to any connected equipment. Each charger shall be capable of automatically and continuously supply the constant load with the battery disconnected. Under such conditions, the charger shall still maintain the nominal system voltage without any damage to itself, and the ripple of dc output shall not exceed ± 15 per cent.

30.10.6 Alarm Devices

The following shall be provided:

- Undervoltage detection equipment to give local indication (amber lamp) and supervisory alarm when the system voltage falls to below 80 per cent nominal. A time delay shall be incorporated to prevent initiation during temporary voltage dips;
- Charge fail detection equipment to give local indication (amber lamp) and supervisory alarm if the voltage from the charger falls below the nominal floating charge voltage. Blocking diodes shall be provided to prevent the battery voltage being supplied to the equipment, so that only the charger voltage is effective in causing the alarm. The device shall not operate on switching surges or transient loss of ac supply; and
- Earth fault detection equipment to give local indication (amber lamp) and supervisory alarm of the occurrence of an earth fault, and to give local discrimination between positive and negative faults.

The above alarms shall be given separate SCADA alarm channels.

30.10.7 Instrumentation

The following shall be provided:

- Charger output/output voltmeter;
- Output dc load ammeter; and
- Centre zero battery ammeter.

30.10.8 Battery Distribution Board

The following shall be provided:

- Provision for isolating the battery (withdrawing the main fuses);

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 496 |

- Main and subsidiary fuses in both polarities; and
- Subsidiary fuses to dc switchboards (three in Depot traction substation, one in each of the other substations), ac switchgear transformer rectifier units, feeder and bypass isolators, two spare circuits.

30.11 Earthing, Bonding, Surge Protection & Ancillary Equipment

30.11.1 Earthing Systems

Each substation shall be equipped by Scottish Power with an earth system for their equipment which may be available for connection to the Edinburgh Tram Network substation earthing system and equipment, but only by agreement between the parties.

A earthing installation at each traction substation shall also be provided capable of specified performance alone, without recourse to connection to the Scottish Power earth system. Where Scottish Power allows interconnection, the Edinburgh Tram Network earth system shall connect to the Scottish Power earth terminal via a disconnectable link.

The Edinburgh Tram Network earthing systems shall be constructed employing copper conductors, including all necessary junctions, connectors and supports. The installation shall comply with relevant, current and valid European Standards.

The earth systems shall comprise a continuous main earth bar installation, located where possible in the cable trench, and around the inside walls of the substation, with branch connections to equipment and metalwork.

Each earthing conductor shall either be solid copper with a minimum cross-sectional area of 80 mm² or stranded PVC sheathed copper with a minimum cross-sectional area of 70 mm².

All joints and bonds shall be made by proven methods to the current carrying ability of the earth conductor and full details shall be submitted for tie's approval.

Attention is drawn to manufacturers' instructions on the earthing of traction dc switchgear via to low impedance earth fault protection equipment.

An Edinburgh Tram Network local earth rod system, of resistance to earth less than 2 ohm, shall be provided at each traction substation and connected to the substation earth system through a

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 497 |

disconnection link by means of stranded PVC sheathed copper cable with a minimum cross-sectional area of 70 mm² per cable. The earth rod system shall be in a minimum of two near equal sections (~4 Ohm) each connected back to the substation earth system as described. The resistance between any point of the earth system and a group of earth rods shall not exceed 0.1 ohm. This assumes earth interconnection with the Scottish Power system.

30.11.2 Traction Negative Busbar System

A negative busbar, insulated from earth and mounted within a sheet steel enclosure, shall be provided at each traction substation. The enclosure shall also incorporate an off-load isolator for the connection cables to the rectifier negative terminal. The negative busbar shall provide the connection point for the outgoing negative feeder cables to the tram track. The enclosure shall be able to accommodate four 1000 square millimetre section aluminium cables to the running rails. The enclosure shall be arranged to facilitate visual inspection of the connections inside. The enclosure shall be provided with robust insulated terminals adjacent to the negative busbar for terminating the stray current monitoring cables. Alternative stray current monitoring system can also be provided whereas no stray current monitoring cables may be necessary.

In order to minimise the flow of stray return currents in the earth and buried services, the negative pole of the traction supply, comprising rectifiers, negative busbars, feeder cables and tram track, shall not be deliberately earthed at any point.

The traction negative busbar of each traction substation shall be connected to the substation earth bar either via a minimum of one BB HVL and two Alstom 'Interval of discharge' (Soule 2 RAY's) in parallel, or via an equivalent circuit (e.g. Siemens Sitras[®] SCD), to control the touch voltage of the traction negative circuit and provide a fault return path. These shall be accommodated within the sheet steel negative busbar enclosure or in a separate cubicle.

The metalwork of the negative busbar enclosure shall be connected to the substation earth system.

30.11.3 Surge Diverters

Adequate protection against lightning and atmospheric overvoltages shall be afforded to the substation equipment. The characteristics of all surge diverters shall be correctly co-ordinate with those of the rectifier surge circuits, so as to limit overvoltages to acceptable levels and minimise resonance effects.

The equipment connected to the OLE shall be protected against surges by surge diverters.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 498 |

Each feeder isolator shall be equipped with a non-linear resistor gapless surge diverter connected positive pole to earth at the cable terminations in the substation. The surge diverters shall be of the zinc oxide type, enclosed in the dc feeder circuit breaker cable box.

The surge diverters shall be so designed and constructed to combine a high discharge capacity and low residual voltage with mechanical robustness.

30.11.4 Substation Ancillary Equipment

The following ancillary equipment shall be provided in each substation:

- 2 No. suitable sized and rated fire extinguishers of approved type and size;
- 1 No. fully-stocked first aid cabinet of approved type;
- 2 No. 'Electric Shock' wall-mounted framed safety instruction cards;
- 1 No. substation operation diagram printed on a plastic medium and framed;
- 6 No. double-sided rigid plastic notices 100 mm x 600 mm with cord loop attachment, "Danger-Live";
- 12 No. double-sided rigid plastic notices 100 mm x 60 mm with cord loop attachment, "Caution - do not interfere with this apparatus"; and
- 4 No. key safes, approximately 150 mm x 250 mm of approved type.

Sufficient padlocks for all switchgear shall be provided. The structured key security system shall be agreed with tie.

All substation door access keys shall be in accordance with the structured key security system set out in Section 22 of these Employer's Requirements.

30.12 Cables & Accessories

30.12.1 General

All cables shall comply with the current applicable specifications of the relevant European Standard and the supplementary requirements of these Employer's Requirements.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 499 |

30.12.2 Types of Cables

Categories of cables shall be allocated series of reference numbers as follows:

- HV supply cables (1000 series)
- 750 V dc traction cables (positive) (2000 series)
- 750 V dc traction cables ((negative) (3000 series)
- Stray current monitoring cables (4000 series)
- LV supply cables (5000 series)
- Pilot cables (dc transfer trip) (6000 series)
- Telecoms multipair cables (7000 series)
- Fibre optic cables (8000 series)

30.12.3 11kV A.C. Cable

AC cables shall be provided for the interconnection of the Scottish Power HV switchgear, the a.c. circuit breaker, and the transformer rectifier units.

The cables shall be in compliance with Scottish Power standard and may be three phase or single phase with sheaths connected also in accordance with Scottish Power standards.

30.12.4 Traction Supply Cables

Single core 750 V DC copper cables shall be used for the connection of rectifier (positive) to dc switchgear, and rectifier (negative) to negative busbars.

Cables from rectifiers to DC switchgear positive and negative busbars shall be dimensioned taking into account the rating of the transformer/ rectifier unit, including their overload class.

Negative cables may have a reduced insulation level commensurate with the reduced voltage withstand required.

The cables shall be manufactured in accordance with appropriate European Standards.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 500 |

Conductors shall be stranded tinned copper wires to BS EN 60228.

The insulation shall be butyl rubber (BR) or ethylene propylene rubber (EPR) to BS 6899 type GP2.

Alternatively XLPE may be considered by tie with adequate reference application and justification.

Cables shall be anchored at terminations by mechanical plastic glands, where gland plates must be traversed, and if necessary supported by non-hygroscopic resin-bonded laminated wood, hardwood or similar non-metallic approved clamps.

Conductor terminations shall be by means of indented or annular-compressed tinned copper lugs, with heat-shrinkable tube oversheath.

Cable conductors shall be jointed with indented or annular compressed ferrules with an approved compression tool, the joint made up by an approved jointing kit and sheathed by an approved heat-shrinkable tube.

Compression tools shall be certified as calibrated, and shall only be used when within the calibration period.

Cables to be utilised within the permanent works shall be drummed up and provided to site to ensure maximum cable lengths are installed throughout to minimise the necessity for through joints.

30.12.5 Low Voltage Supply and Multicore Control Cables

The cable construction shall comply with European standards.

Cables shall have copper conductor with XLPE insulation, PVC oversheath and, where not installed with mechanical protection, galvanized steel wire armour.

The conductors shall be plain annealed copper wire complying with BS EN 60447 circular or shaped conductors. All cores shall be identified by phase colours, or in case of control cables, by printed numbers.

All sheaths shall be free from defects and impervious to water.

LV supply cables shall be terminated in accordance with the manufacturer's recommendations and the cable cores shall be left long enough to be terminated without the addition of separate tails.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 501 |



Edinburgh Tram Network – Employer's Requirements

Section 30 – Traction Power

Cables to be utilised within the permanent works shall be drummed up and provided to site to ensure maximum cable lengths are installed throughout to minimise the necessity for through joints.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 502 |

31 Overhead Line Equipment

31.1 Scope

This Section of the Employer's Requirements defines the overhead line equipment (OLE) requirements that are applicable to the Edinburgh Tram Network which the Infraco must comply with.

31.2 General Requirements

The information provided in this section supplements any information provided in the Tram Design Manual and other documentation provided by tie.

Unless otherwise stipulated, all requirements pertaining to overhead line equipment shall be compliant with BS EN 50119.

31.3 Equipment Overview

Appearance of the overhead line equipment is of paramount importance throughout the Edinburgh Tram Network. The appearance must be appropriate to the location, and visual intrusion shall be minimised.

The type of equipment provided (including, for example, auto-tensioned, fixed termination, catenary support; central mast with balanced bracket arms, side masts with cantilever arms, span wire construction etc.) over each section of the Edinburgh Tram Network shall be appropriate to the area and to the tramway operating speed requirement in that location. The use of building fixings shall be maximised.

31.4 Electrical Power Characteristics

The overhead line equipment shall be energised at a nominal 750V in accordance with BS EN 50163: 2005: Railway Applications - Supply Voltages of Traction Systems.

The overhead line equipment system shall comply with the following electrical and operational parameters:

- System voltage;
- Conductor of suitable cross sectional area;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 503 |

- Traction buried reinforcing DC cables;
- The required operational speeds; and
- All in-service loading conditions.

31.5 Environmental Considerations

The overhead line equipment system shall fully comply with the environmental criteria as set out in these Employer's Requirements.

31.5.1 Ice Loading

The conventional ice loading of 10mm radial shall be used when assessing the ice-loading on overhead conductors.

31.5.2 Pollution

The creepage path and creepage distance of insulators shall accommodate the implications of atmospheric pollution in accordance with EN 50119:2001, pollution level "medium", and for areas close to the sea, "heavy"..

31.6 Material for Equipment

Standard materials shall be used with the exception of the route sections from Newhaven Road to Ocean Drive and Caroline Park to Granton Square Tramstops, where stainless steel or aluminium material (for tubes and fittings) shall be provided.

If 'parafil' or an equivalent material is to be considered, rigorous quality control fully documented and certified measures for the application, installation and long-term maintenance of the material shall be implemented. These measures are subject to specific approval by tie.

31.7 Pole and Cantilever Tube Deflection Criteria

The deflection of poles, cantilever tubes and other structural elements under normal and transient loading conditions shall be such as to not detract from the minimum safety functionality or appearance of the overhead line equipment system.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 504 |

31.8 Mechanical and Electrical Clearances

Mechanical and electrical clearances shall, as a minimum, be in accordance with BS EN 50119 and the guidelines specified in ORR's publication "Guidance on Tramways", Railway Safety Publication 2 ("RSP 2"). In addition, a 'safe working zone', shall be incorporated.

31.9 Contact Wire Gradient and Geometry

Contact wire gradients adopted shall take account of the planned tram operating speed in the area and shall follow BS EN 50119 requirements. The contact wire gradient shall be such that at all times and under all environmental and operating conditions, contact with the pantograph is maintained.

The overhead line equipment horizontal geometry shall be arranged so that the contact wire is always in contact with the working width of the pantograph under all environmental and operational conditions.

31.9.1 Contact Wire Height

The governing requirement for the establishment of rules for contact wire heights shall be as clause 5.2.8 of BS EN 50119. For safety considerations, in areas where tram path is shared with the public traffic the contact wire height and the profiling of the wire shall take into account:

- ORR's RSP2 requirement for minimum wire heights where a support has failed;
- Minimise the risk of contact with wire from people and/or objects on open top double decker buses, over-height road vehicles, window cleaners carrying ladders and any third party work;
- Activities associated with the Edinburgh festival, Christmas fun-fair on Princes Street, and similar public events; and
- Provide the necessary clearance for designated high-load routes.

31.10 Structural Integrity

All proposed structures within the overhead line equipment system shall be designed to comply fully with the design parameters and codes of practice specified for the project.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 505 |

31.11 Electromagnetic Compatibility

The overhead line equipment shall comply with Electromagnetic Compatibility Section of these Employer's Requirements.

31.12 Dynamic Performance

The dynamic performance of the overhead line equipment/pantograph interface shall be in accordance with the requirements of Clause 5.2.1 of BS EN 50119.

The performance of the overhead line equipment/pantograph interface shall be validated by a full dynamic simulation study undertaken during the design phase. The governing specification for all design activities is BS EN 50119.

The study method shall be validated in accordance with the requirements of BS EN 50317 and BS EN 50318.

31.13 Design Life

The design life of the overhead line equipment is set out in Design Life of these Employer's Requirements.

31.14 Auto-Tensioned Equipment Types

31.14.1 Form of Equipment

Low visual impact equipment is required throughout the Edinburgh Tram Network. Thus, anywhere along the route of the Edinburgh Tram Network, where line speed and/or pantograph interaction with the overhead line equipment demands, auto tensioned trolley wire equipment will generally be the appropriate solution.

31.14.2 Conductors and Tensioning Devices

The overhead line equipment shall utilise a single contact wire system, with additional parallel (buried) feeders or catenary system outside the city centre where the messenger wire replaces the parallel feeders..

The contact wire size shall be confirmed by electrical modelling studies and by pantograph/overhead line equipment dynamic modelling.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 506 |

Should mechanically tensioned balance weight system be proposed, the tensioning device shall comprise a counterweights and pulleys system of discrete and compact design. For example, the counterweight stack must be incorporated inside the pole structure. The system shall utilise a fail-safe mechanism with vandal proof features.

31.14.3 Tension Lengths

The maximum tension length between anchor locations shall be chosen so as to minimise the number of anchor points but without undue drag, localised hard spots and overloading of the equipment.

31.14.4 Span Length

The pole positioning, and hence span length along the track, shall be chosen;

- To maximise the structure spacing to achieve economy;
- To maintain the technical parameters referred to elsewhere in this document, e.g. geometry, clearance, dynamic performance, etc;
- For visual and aesthetic appearance issues, in accordance with the Tram Design Manual, and
- The achievement of all relevant consents and approvals.

31.14.5 Parallel Feeders

Aerial parallel feeders shall not be permitted. All parallel feeders shall be buried, located in suitable ducts running along the tracks and with cross feeding to the overhead line equipment conductors at suitable intervals. Outside Edinburgh city centre other options, like catenary system may also be offered by the Infraco for approval by tie.

31.15 Fixed Termination Equipment Types

31.15.1 Form of Equipment

Fixed termination trolley wire equipment shall be considered as an appropriate and cost effective solution for highly sensitive areas and/or where lower operational running speeds are required.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 507 |

31.15.2 Reduced Conductor Tension System

At junctions and sharp corners, where the operational speeds are limited by the track geometry, a variant of the fixed termination unsupported wire shall be considered which utilises a reduced conductor tension system.

31.16 Depot Equipment Type

In the Depot area, a fixed termination single contact wire system (supported or unsupported) shall be provided which shall accommodate the wire height constraints.

31.16.1 Equipment Support and Registration

Cantilevers

For both auto-tensioned and fixed termination systems the cantilevers shall consist of a horizontal registration tube insulated and hinged at the face of the pole, and supported by a tie wire.

As an option, fully insulated tubes and steady arms (glass fibre plastic or equivalent) may be proposed and offered for review by tie.

Cross Span Wire Supports

In Edinburgh city centre areas, as an alternative to cantilever on pole equipment option, the simple cross span wire support assembly may be considered. These can be constructed between poles or attached to suitable buildings, along the route of the Edinburgh Tram Network. The choice of material and the method of construction of cross span wires shall be subjected to the approval of the planning authority.

All fittings, clamps and accessories shall be standard proprietary items, capable of being sourced freely from the market.

For minimising the visual impact of the equipment the use of non-corroding material (particularly stainless steel) shall be considered by the Infraco.

Jumpers and Feeders

All feeders and jumpers shall be electrically and mechanically compatible with the environmental and operational conditions. The visual impact due to connecting buried feeder cables to overhead conductors shall be considered when selecting appropriate feeder pole locations.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 508 |

Insulation

All overhead line equipment support and registration assemblies shall be double insulated or equivalent. Failure of any single insulator shall not create an unsafe condition.

Section Insulators

Apart from the entrance to the Depot maintenance workshop, all section insulators shall be of the 'make before break' type.

31.17 Overhead Line Equipment Poles and Equipment Enhancement

Where poles are provided, the shape and colour shall be considered as part of the visual approach. The objective shall be to minimise their overall visual impact. It should be noted that the Tram Design Manual identifies a preference for circular poles.

Consideration shall be given to individual replacement of building fixings by poles in the future, should building alterations require their removal on a temporary or permanent basis.

The appearance around the base of support poles is of importance in certain areas. Consideration shall be given to minimise the impact to and ease of replacement of poles if damaged, e.g., by errant road vehicles.

The paint finish, if painting is required, shall be fully applied at the manufacturers works. However, following installation on site, the paint finish may have to be re-applied in some areas. The paint system to be used shall be offered for approval by tie.

Special attention shall be given to avoid damage to painted surfaces during delivery and installation. Specific approval shall be sought to make good any damage to paint work, following installation on site and tie reserves the right to reject equipment on the grounds of damaged paintwork alone.

31.17.1 Combined OLE / Lighting Poles

An integrated design of overhead line equipment poles and street lighting is required. This shall seek to optimise the spacing of support poles and minimise visual intrusion of the OLE and road lighting as a whole. An appropriate electrical feeding and earthing scheme shall be provided. This shall minimise the additional components required to be attached to support poles and shall take account of the maintenance approach to be adopted for the road lighting. The general requirements

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 509 |

for bonding and earthing of the system are contained in Earthing and Bonding of these Employer's Requirements.

Poles carrying overhead wiring along Princes Street shall not interrupt axial views down the streets connecting to Princes Street, shall be located between tram lines and shall be placed at regular intervals.

It should be noted that the Tram Design Manual prohibits fixings for wiring to buildings or structures on the north side of Princes Street.

31.17.2 Anchor Bolts, Foundations and Ties

Tie-back anchors shall be permitted in the off-street sections of the Edinburgh Tram Network with adequate anti-climbing protection, the design of which shall be subject to specific approval by tie.

Any anchor bolt connections and fasteners shall be fully secured and vandal proofed.

31.17.3 Foundations

For the ease of construction and where applicable the preferred type of foundations shall be of side bearing concrete, cast in-situ. These shall be either mechanically or hand dug, depending on the access and limited space availability for plant and equipment. This type of foundation shall be provided in Edinburgh city centre and populated areas, particularly where underground utilities are closely spaced or not easily detectable.

In certain areas within the Edinburgh Tram Network where the track alignment and construction of the track slab permits, the overhead line equipment foundations may be incorporated within the track slab design.

31.17.4 Fixing to Masonry and Concrete Structures

There are a significant number of buildings, particularly within the World Heritage Site categorised for their architectural or heritage values.

Fixings to buildings listed in schedule 10 of each of the Edinburgh Tram (Line One) Act 2006 and Edinburgh Tram (Line Two) Act 2006 require full listed building consent.

31.18 Safe Working On The System

The configuration of the overhead line equipment shall take into account the project requirements for a safe working zone of 2.0m (measured horizontally from the near rail and also vertically above

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 510 |

the ground). All electrical and mechanical clearances shall comply BS EN 50119 and with the recommendations and guidance provided by HMRI RSP2.

31.19 Switching and Sectioning Requirements

31.19.1 Sectioning

The overhead line shall be divided by means of OLE section insulators into separate electrical sections and subsections, the lengths of which are determined by the locations of the traction substations and operational requirements.

31.19.2 Isolation Facilities

At substation feeder points, off-load, positive polarity, SCADA controlled, motor operated isolator/earth switches (termed 'feeder isolators') shall be provided to isolate and earth each overhead line section from its respective feeder cable. Additionally, positive polarity, SCADA controlled, motor operated load brake isolators (termed 'bypass isolators') shall be provided to interconnect adjacent overhead line sections when the intervening substation is out of service. These shall be connected across the line side of the two feeder isolators, and will normally be open. At key overhead line sectioning points, positive polarity manually operated isolator/earth switches (termed "section isolators") shall be provided to isolate sub-sections from other sub divisions of the section and (in some cases) earth the isolated section.

At the section insulator and the insulated rail joint between Depot and main line, a mechanically coupled double pole section isolator is to be provided to bypass the section insulator and insulated rail joint. The isolator is intended to be used solely to power the Depot and stabling and fans from the main line in the event of failure of the depot traction power supply. It is not intended to be used to power the main line from the depot stabling traction power supply.

31.20 Isolator Enclosures

Feeder isolators and bypass isolators shall be provided.

Section isolators shall be provided. For on-street sections these 'section isolators' shall be totally enclosed in trackside cubicles, referred to as 'section pillars'.

Section pillars shall be of stainless steel construction to IP 65, free-standing with a base set on a concrete foundation. The pillars shall be factory-built assemblies, of rationalised widths to suit the range of isolator numbers required per unit.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 511 |

The enclosure shall be bonded to the tram track via an insulated 'earth' cable from an internal stainless steel stud, and the arrangements of which shall comply with Earthing and Bonding of these Employer's Requirements.

The isolator/earth switch 'earth' bar shall be bonded to the section pillar and connected to the tram track via suitable cable(s) additional to the above.

The dimensions of the pillars shall be the minimum compatible with standard creepage and clearance distances because physical clearances on the tramway are restricted.

An A4 size document holder shall be provided on the inside of the enclosure door.

The doors shall be outward opening through 180 degrees, hinged internally and fitted with stays. The doors shall be fitted with heavy-duty stainless steel locks operated by dedicated keys, which shall be provided in accordance with the operation and maintenance requirements for the tie structured key security system described in Section 22 of these Employer's Requirements.

It shall be possible to view the status of the isolator and any locking without opening the doors.

31.20.1 Paint Finish

The paint finish, if painting is required, shall be fully applied at the manufacturers works. However, following installation on site, the paint finish may have to be re-applied in some areas. The paint system to be used shall be offered for approval by tie.

Special attention shall be given to avoid damage to painted surfaces during delivery and installation. Specific approval shall be sought from tie to make good any damage to paint work, following installation on site and tie reserves the right to reject equipment on the grounds of damaged paintwork alone.

31.20.2 Labelling

Front panel legends, fitted centrally to the door consisting of approved 'Danger 750 V' - labels (black letters on a yellow background), and 'pillar description - reference number labels' with black letters on a polished stainless background, shall be provided on each pillar door.

31.20.3 Isolators

Isolators within an enclosure shall be arranged in groups where possible. The physical position of each isolator within each group shall correspond with the actual direction of the overhead line connected to it, and a standard layout shall be adopted throughout the system.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 512 |

The isolator blades shall be of copper, and the isolator assembly and its insulation shall be suitable for the required current carrying capacity within the environment of the enclosure.

Feeder and section isolators and operating mechanisms shall be suitable for off-load breaking and fault making in respect of both 'closing' and 'earthing' operations. The operating mechanism for manual operation shall have a firm distinct stop in the operation at each stage of operation. It shall not be possible to move from closed to earth positions, or the reverse, without the operator coming to a definite halt at the 'open' position before moving to the earth position by a separate operator movement.

Bypass isolators and their operating mechanisms shall be suitable for on-load breaking and fault making in respect of 'closing' operations.

The construction of the isolator shall be such that live parts are fully shrouded from the operator, by 8 mm of polycarbonate or equivalent arc resistant material, whilst allowing the position of the isolator contacts to be clearly visible with the enclosure door open.

The isolator mechanism shall be such that it can be locked by means of a padlock in the closed, open or earthed position.

Each isolator mechanism shall be clearly labelled with its unique identifier reference code in accordance with the electrical nomenclature scheme.

31.21 Power Feeder, Reinforcing and Bonding Cables

31.21.1 Feeder Cables

Single core 750 V dc cables shall be used for:

- The connection of substations (positive) to the OLE;
- OLE parallel reinforcing cables;
- Negative cables from substation negative busbars to the track; and
- Negative track parallel cables and rail and track cross bonding cables.

OLE parallel reinforcing cables shall be sized in accordance with the design of the overall traction system.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 513 |

Feeder cables shall be sized to match the rating of the OLE / reinforcing cable combination of each section.

Feeder cables from the traction substation feeder isolators to the OLE parallel reinforcing cable junctions shall be buried cable ducts running track side. A maximum of two cables may be carried per 150 mm diameter duct.

Cables for different circuits shall not share a common duct. The choice of cable material shall also minimise the number of bi-metallic cable joints.

Positive and negative cables shall not share a common duct.

Reinforcing cables shall be installed in buried ducts along the track. They shall run from OLE feeder point to feeder point with connections to the OLE via single core suitably rated copper cables to 'inbound' and 'outbound' lines. These feeds shall be at traction substations and maximum intervals of 450 m. Cables shall be drummed and supplied at maximum lengths to avoid and/or minimize cable through joints. Where joints cannot be avoided they shall be located in suitable cable drawpits or in neat, small dimension pillars of minimum intrusion on the streetscape. Joints between drum lengths of reinforcing cable, where no OLE connection is involved, may be in pillars or drawpits at the discretion and agreement as to specific installation method statements by tie. The insulation system employed at connection points shall meet the requirements of EN 50124-1 2001 to level 0.9 kV and OV4.

At nominal mid points between the OLE feeds and a maximum 250m from an OLE feed point there shall be suitably rated copper cross connections between the 'inbound' and 'outbound' OLE contact wires via the shortest practicable visually acceptable cable route. There shall be no joints in these cables.

Positive reinforcing and feeder cables shall be terminated in compression cable lugs of proprietary appropriate size and material for the cable used. Proprietary crimping tools designated for the cable lug to be crimped shall be used. Such crimping tools shall be under quality assurance control and within their calibration period. The appropriate flat stainless washer shall be used between cable lug and fixing bolt head. At all bi-metallic connections a suitable bi-metal connector piece shall be employed such that dissimilar metals are not connected other than by molecular fusion.

Feeder cables to the OLE shall be copper cored flexible, where required, installed in the OLE support poles in a neat and unobtrusive manner. As installed the cables shall meet the requirements for double insulation such that two distinct insulation layers can be identified to the

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 514 |

satisfaction of HMRI (or the appropriate regime in force). There shall be no joints between connection to the contact wire and the connection to the reinforcing cable(s).

The bi-polar section isolator at the eastern Depot entrance shall have one side of the positive pole cabled to the main line OLE parallel reinforcing cable by duplicate suitably rated cables. The other side of the positive pole shall be cabled to the Depot east isolator panel by duplicate suitably rated cables. The negative pole shall have suitable cables to each side of the isolator, one to each rail either side of the insulated rail joints.

Negative cables may have a reduced insulation level commensurate with the reduced voltage withstand required.

31.21.2 Track to Traction Substation (TSS) Negative Return Cables

Each of the four running rails in the vicinity of the TSS shall have a cable brought back to the negative busbar of the TSS.

A nominal one metre from the position on the running rails of the connections mentioned in the above, the cess running rail of each track shall be connected to the six-foot rail of the other track by a single cable. These are also classed as 'return' cables.

31.21.3 Rail to Rail and Track to Track Traction Cross Bonds

The rails of each track shall be connected together with a single suitably rated cable at suitable intervals.

At every second connection in the above, the six-foot rails of each track shall be connected together with a single suitably rated cable.

31.21.4 Running Rail Continuity Cables

Where 'along track continuity bonding' is required for negative return traction current return, 'along track' bonding cables shall be installed. Places requiring such bonding are:- Insulated rail joints to be normally bonded out, fishplated rail joints, rail sliding expansion joints (breathers), points and crossings, or other designated places.

'Along track bonding' shall comprise duplicate copper or steel cables as a minimum for each running rail to be so bonded.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 515 |

31.21.5 General Requirements for Cables

All cables shall be terminated in compression cable lugs of proprietary appropriate size and material for the cable used. Proprietary crimping tools designated for the cable lug to be crimped shall be used. Such crimping tools shall be under quality assurance control and within their calibration period. The appropriate flat stainless washer shall be used between cable lug and fixing bolt head. All return cables shall be connected to the running rails via proprietary connector plates to connect with the running rails using duplicate 'Cembre' or equivalent connectors, by milled holes in the rail web with connector thimbles expanded into the holes on a spacing not less than that allowed by the track designer. Bolt and connection sizes shall be coordinated with the rating of the cable size to be connected. Simpler single 'Cembre' type connections (or similar approved) may be used for cross bonding cables and duplicated continuity cables mentioned in the above.

The cables shall be manufactured to European standards, appropriate to their application.

Cables shall be anchored at terminations by mechanical plastic glands, where gland plates must be traversed, and if necessary supported by non-hygroscopic resin-bonded laminated wood, hardwood or similar non-metallic approved clamps. Conductor terminations shall be by means of indented or annular-compressed lugs to suit the cable, with heat-shrinkable tube over-sheath.

Cable conductors shall be jointed with indented or annular compressed ferrules with an approved compression tool, the joint made up by an approved jointing kit and sheathed by an approved heat-shrinkable tube. Compression tools shall be certified as calibrated, and within the calibration period.

31.21.6 Cable Ducts

Power cables shall be laid in suitably sized UPVC/polyethylene cable ducts. Parallel reinforcing cables for the OLE will require a minimum of 200 mm diameter ducts.

Draw pits shall be sized to suit the particular cables installed within the cable run and shall facilitate the installation of the cables without damage to the cable. Particular attention shall be made to ensure the cable loop can be installed without damage to the cable when installing at mid point.

Suitable draw wires shall be installed in each of the ducts when they are laid, and the draw wires shall remain in the ducts after the installation of the cables to aid any future modification or repair work.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 516 |

31.21.7 Installation of Cables

The arrangement of cables and all methods of laying and installation, including any special methods that may be necessary, shall be submitted by the Infraco for approval by tie.

Unless it has been agreed that the construction of cables is such as to permit laying at sub-zero temperatures, cable laying shall take place only when the ambient temperature is above 0°C and has been at this temperature for at least 24 hours, and approved special precautions have been taken to maintain the cable above this temperature to avoid risk of damage during handling. The recommendations of the cable manufacturer must also be taken into account.

All cables shall be installed with a bending radius not less than that recommended by the cable manufacturer.

Cable installation shall take account of the physical properties of the cables and the manufacturer's recommendations shall be clearly detailed on all cable pulling schedules.

All joints and terminations shall be made by proven methods to the current carrying ability of the cable and full details shall be provided to tie.

31.21.8 Surge Diverters

Surge diverters shall be positioned at the junction of each feed point and the OLE at traction substations on the OLE side of the isolator, and at over-bridges.

Surge diverters shall be of the gapless, metal oxide type with a rated discharge current of at least 10kA. The earthing terminal of the arrester will be connected to buried rods to provide an earthing resistance of less than 5 ohms. Surge arrestors' design, material and performance shall conform to the requirements of power supply specified standards for the Edinburgh Tram Network.

31.21.9 Bonding

The earthing and bonding requirements shall comply with tie's Earthing and Bonding Policy (see Section 34 of these Employer's Requirements).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 517 |

32 Stray Current

The ETN shall be designed in accordance with BS EN 50122-2.

In order to keep the stray currents caused by the traction return current as low as possible, permanent conductive connections between the return circuit and earth, including drainage diodes, are disallowed. The rail insulation against earth shall be at least five times better than recommended in BS EN 50122-2 before commencement of the Testing and Commissioning Phase.

Voltage limiting devices between return circuit and earth shall be dimensioned such, that they do not short-circuit the return circuit and earth during normal operation of the ETN, but ensure that accessible voltages do not exceed 60 V limit stated in RSP2 clause 183.

Where track substructures are steel-reinforced in longitudinal direction, a sufficient amount of reinforcement bars, i.e. at least four per track, shall be longitudinally interconnected by welding. At both sides of expansion gaps in the substructure, these bars shall have welded cross-connections and shall be interconnected in longitudinal direction by means of a conductor with suitable mechanical flexibility. This interconnected system shall not be connected to the return circuit at any point.

The Infraco must produce an Edinburgh Tram Network specific Stray Current Mitigation Strategy document that clearly defines its strategy for achieving as low as reasonably practicable protection requirements for the stray current effects and must submit such strategy to tie for their approval. Additionally, as part of that Stray Current Mitigation Strategy, the Infraco must produce a "Code of Practice for Stray Current Corrosion Control" and submit it to tie for their approval.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 518 |

33 Low Voltage Architecture

The LV supplies shall be arranged by the Infraco with the DNO, and this shall also include all necessary metering equipment or agreements for provision of unmetered supplies. The LV supplies shall include all those required for illuminated road signs, other road furniture, street lighting, traffic signal controllers, points actuation, tram signals, communications equipment, and Tramstop equipment.

The LV supplies shall provide the necessary security of supply to achieve the overall ETN reliability requirements, for individual elements and as a whole.

The LV supplies shall allow cabinet sizes in areas of visual concern to be minimised.

Provision shall be made by the Infraco for the attachment of local generators at critical points in the ETN in the case of local supply outages (e.g. at Tramstops).

The system architecture provided by the Infraco shall take account of the known statistical history of local power outages such that the overall ETN system and subsystems availability is achieved.

In establishing the capacity and duration of any UPSs provided, the time that the Infraco maintenance staff may need to mobilise and install a temporary generator shall be considered by the Infraco and advised to tie. This time shall be demonstrated by the Infraco to tie during the commissioning period. tie shall give at least two weeks notice that the test may be required. tie may then require the test to be undertaken by the Infraco immediately with no further prior notice at a time and location to be determined by tie. This time shall be appropriately included in the overall availability analysis for the ETN.

LV power design by the Infraco shall take account of local system requirements e.g. for additional lighting and for specific loads, such as the passenger lift at Murrayfield Tramstop and drainage pumps where installed.

The LV architecture shall reflect the fact that isolated supplies will be required trackside and remote from Tramstops or substations at such as pointwork and signals at tramway junctions, and isolated TPDS cabinets.

Particular attention must be given by the Infraco to suitable redundancy for critical equipment such as drainage pumps and the communications systems.

LV supplies to substations shall be provided as part of the Infraco's arrangements with the DNO unless these supplies are provided from elsewhere.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 519 |



Edinburgh Tram Network – Employer's Requirements

Section 33 – Low Voltage Architecture

Where UPSs are to be provided by the Infraco, careful consideration of appropriate loads to be supplied should be given by the Infraco. Automatic load-shedding schemes shall be considered where appropriate to support the required overall System availability.

Proposals for remote metering of substations shall be provided by the Infraco for the approval of tie.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 520 |



34 Earthing and Bonding

The requirements for earthing and bonding are set out in the latest version of the document "System Earthing Policy", reference ULE90130-SW-REP-00071 and the Infraco shall comply with such requirements in respect of carrying out the Infraco Works.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 521 |

35 Supervisory Control and Communications Systems

35.1 Scope

The scope of this section of the document is to define the Supervisory Control & Communications requirements that are applicable to the Edinburgh Tram Network (ETN).

It is split into three parts:

- Specific technical requirements of the various telecommunication subsystems;
- Components of those subsystems located at the Control Centre;
- Common considerations applying to these subsystems.

35.2 Specific Technical Requirements

This describes the various subsystems of the Supervisory Control and Communications System:

- The Tram Position and Detection Subsystem;
- The Passenger Information Display System;
- The Telephone Network;
- Operational Radio System;
- Passenger Help / Passenger Emergency Help Points;
- Closed Circuit Television (CCTV) System;
- Supervisory Control and Data Acquisition;
- Operational Data Network.

1.3 sets out considerations that apply to all Communications Subsystems that are included in 1.2.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 522 |

The detailed interfaces between Infraco and Tramco shall be developed. Consequently the statements made in the ERs concerning the scope split between Infraco and Tramco may be subject to change.

35.3 Tram Position and Detection System

35.3.1 Overview

The Tram Position and Detection System shall provide the information needed to monitor the efficient and effective movement and to implement the overall regulation of trams running on the Edinburgh Tram Network. The Tram Position and Detection System shall include both tram borne and trackside equipment.

Each tram driver shall be responsible for safe tram operation using 'Line Of Sight' principles, with the Tram Position and Detection System identifying and setting the correct route ahead of the tram and providing tram signals.

The Tram Position and Detection System shall provide monitoring facilities to the Control Centre staff.

The Tram Position and Detection System shall collect the following data from each tram as it passes over the loops for transmission to the Control Centre in real time:

- Tram number;
- Tram run number;
- Tram destination;
- Driver staff identity number;
- Driver duty number; and
- Whether the Tram is in service or out of service.

The Tram Position and Detection System shall provide a number of functions which shall include:

- Tram identification;
- Tram position on network (outside of depot);

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 523 |

- Tram progress monitoring;
- Route setting;
- Processing of manual 'Tram ready to start' and automatic advance signal demand requests from trams;
- Provide demands to the Points Controllers to permit trams to safely traverse points junctions;
- Provide demands to the local Traffic Signal Controller(s) to permit trams to safely traverse tram/road crossings; and
- Tram signals to provide controlled entry to and exit from the depot berthing and maintenance facilities;
- Store data concerning the times each tram arrives at and departs from all of the Tramstops. This will be passed to the Central Data Recorder to allow the daily performance of the system to be calculated by the Performance Monitoring System.

The Tram Position and Detection System shall convert relevant Tram Position and Detection System data into a format to update the Real Time Passenger Information Display system.

On the approach of a tram to each Tramstop and at the termini, the Tram Position and Detection System shall provide updates to the Passenger Information Display system such that the Tramstop Passenger Information Displays are updated and display information as stated in 35.4.1.

On each day, the TPDS shall enter the details of journeys for the particular tram for each entire operating day into the tram on-board computer at the commencement of service. The tram driver shall input his own driver code and the tram diagram number for the day. Alternatively, the TPDS may transmit this data to the tram. Any change to this data e.g. as the result of an incident affecting the service shall be initiated by the driver.

The Tram Position and Detection System will include the ability to:

- Display to the Driver how early or late he/she is at each stop;
- Allow the Driver to issue 'Tram Ready-to-Start' commands at selected Tramstops;
- Allow the Driver, when his/her tram is on the approach to a diverging junction, to manually demand that the points move left or right by operating controls in the cab.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 524 |

35.3.2 Technical Requirements

Key locations where Tram Position, Route Setting and Detection Equipment shall be provided shall include:

- At the approach to, and exit from, tramway/ road junctions;
- Entry to, and exit from, the Depot;
- At the approach to, and at, all Tramstops;
- At the approach to, and exit from, points and crossings.

Trackside Equipment at each of these locations shall be connected to the Edinburgh Tram Operational Data Network.

In the event that this Operational Data Network fails, the Trackside Tram Position and Detection System Equipment at each of these locations shall continue to operate autonomously until network connections are restored, at which point normal operations shall resume without Control Centre staff intervention.

The TPDS shall pass the times at which each tram arrives and leaves each Tramstop to the Performance Monitoring System (PMS), so that the PMS can calculate the operational performance of the Tram System according to specified algorithms.

Tramway signal heads shall be positioned at all signal controlled Track and Road Junctions and Pedestrian Crossings to allow optimum sighting for the tram driver. Local environmental conditions and the requirements of all interested parties, including that of HMRI (or the appropriate regime in place), shall be taken into consideration when choosing the positions of these signals.

Tramway signal heads shall display different proceed aspects for different routes if they are signalled separately. In such cases the Tram Position and Detection System shall pass the appropriate direction request to the road traffic signal controller as well as the point controller.

Tramway signal heads shall indicate the acceptance of the signal demand by the system to the tram drivers.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 525 |

The lie of all facing points shall be detected and displayed by point indicators. These are in the scope of the Points Control System, and are described in the section of this document dealing with the Track. However, although Signals and Points Indicators shall be clearly distinguishable, they should also be in similar style, and it will require some co-ordination with the Points Controller supplier to ensure compatibility.

Tramway signal heads shall utilise Light Emitting Diodes (LED's) and not incandescent lamps.

At all signal controlled tram and road junctions there shall be an interface installed between the Edinburgh Tram Network Tram Position and Detection System and the local traffic Signal Controllers. All tram signals at signalled controlled tram and road junctions shall be driven directly by the Traffic Signal Controller, through demands from the Tram Position, Route Setting and Detection System. The Tram Position and Detection System/Urban Traffic Control System interface shall implement an agreed Tram Priority at each signal controlled junction.

Each Tram Position and Detection System/Urban Traffic Control System interface shall incorporate the facility for the initiation of a "tram proceed" signal in the event of either tram detection failure or local Urban Traffic Control System interface failure. This facility shall be available at all times for use by the Control Centre Staff. Trackside facilities for tram drivers to make manual requests of the UTC are not required. A foreseeable single point failure shall not cause a tram to be presented with a tram stop signal on the street that causes the tram to stop for more than 5 minutes. A FMEA analysis shall be produced within 8 months of contract close that satisfactorily demonstrates that the proposed solution meets this requirement.

The failure of the Tram Position and Detection System equipment at any signal-controlled road crossing shall initiate the immediate operation of the junction into a predetermined (adjustable) priority cycle sequence. All such failures shall be monitored, reported and logged to the Tram Control Centre via SCADA and passed to the PMS System.

The implementation of the detection system at Tramstops and other trackside locations will be permitted to use the Tram Position and Detection System hardware in lieu of a Supervisory Control and Data Acquisition Remote Termination Unit for the passage of alarms and indications, should this prove a more efficient use of hardware resources.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 526 |

35.3.3 Tram-Borne Equipment

The Tram Position and Detection System shall include equipment to be installed on the trams. This equipment shall include:

- A Driver's Panel and keypad, to be installed in each cab;
- Communications equipment, to provide transmission of messages between the tram and the trackside equipment;
- Vehicle fault / maintenance indications / alarms transmission interface.

This equipment shall utilise the on-tram power supply.

All operations data messages etc. to or from the tram-borne Tram Position and Detection System shall be monitored and recorded in the equipment room for future reference or fault investigation.

35.4 Passenger Information Display System (PIDS)

35.4.1 Overview

Each Tramstop platform shall be equipped with a real time passenger information display system that shall be connected to the Control Centre by the Operational Data Network.

PIDs shall allow a limited selection of messages and free-form text to be displayed, at selected individual, selected groups or at all Tramstops on command from the Control Centre.

Each platform shall be equipped with at least one double-sided display; the display shall be in the form of a dynamic three line display.

Each display shall conform to the requirements of "DfT Inclusive Mobility - Guide to best practice in access to transport infrastructure". They shall each have the following characteristics:

- It shall be double sided;
- It shall be based on LED technology;
- Each side shall have three dynamic information lines, the third of which shall also provide a time display;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 527 |

- Each line shall have at least 32 characters;
- Each character shall be at least 50 mm high;
- Characters shall be bright yellow on a black background;
- The PID shall adjust to ambient light levels making it legible in all weather and lighting conditions.

Each Passenger Information Display shall be sited so that it is visible to anyone standing within the Tramstop shelter, and from as much of the platform area as possible.

Passenger Information Displays shall also be provided at the following locations:

- Ingliston Park and Ride facility;
- Edinburgh Airport passenger terminal;
- Ocean Terminal Shopping Centre; and
- Haymarket Railway Station.

Alternative types of display may be used at these locations subject to agreement with tie.

At termini, the Passenger Information Displays shall display a departure time, which shall be the later of the scheduled departure time and the arrival time plus one minute. At other Tramstops, the Passenger Information Displays shall show variable messages including the destination and time to arrival (in minutes) of the next three tram service arrivals, or arrivals within the next 30 minutes, which ever is the less at the particular platform.

Tramstop Passenger Information Displays shall be able to display Lothian Buses 'BUSTRACKER' information as an overall capability. Real-Time data shall be provided over an internet connection by the client in an agreed format.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 528 |

The following Tramstops shall have Passenger Information Displays that display the arrivals of both buses and trams at the Tramstop:

- Ocean Terminal
- Foot of the Walk
- Picardy Place
- Saint Andrew Square
- Princes Street
- Haymarket
- Edinburgh Park Station
- Airport
- Crewe Toll
- Granton

Passenger Information Displays on Tramstops, including those with bus/tram interchange facilities, shall be capable of prefacing the destination of the tram service being displayed by a two or three digit 'trip number' and of any required bus service by a three digit route number.

Each Passenger Information Display shall incorporate a digital time display (synchronised to the Edinburgh Tram Network time server derived from the Rugby Radio Clock or its successor or similar) as part of the display.

The colour and contrast of the lettering that is displayed by the Passenger Information Display shall fully take into account the requirements of the visually impaired. In particular DfT guidelines e.g. 'Inclusive Mobility - relating to provision for the visually impaired' and the requirements of Mobility and Access Committee for Scotland (MACS) shall be considered.

The Passenger Information Display System shall incorporate the necessary degree of redundancy and duplication to enable the systems availability targets to be achieved without losing the ability to handle faults and accept necessary upgrades.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 529 |

The equipment shall be consistent with the design of the structural elements of the Tramstop.

The Passenger Information Displays shall have 3 line LEDs and configured as lines, scrolling functionality should be possible.

35.5 Telephone Network

35.5.1 Overview

The Edinburgh Tram Network shall be provided with a Telephone Network that shall provide two-way voice communications between all staff at fixed locations throughout the Edinburgh Tram Network. The main Operator interface with the Telephone Network shall be provided by an integrated workstation at each Control Centre staff position.

The Operator's interface shall be designed to carry out control functions in an ergonomically efficient manner.

The Telephone Network shall comprise of the following sub-systems:

- A central Private Automatic Branch Exchange (PABX);
- Public Switched Telephone Network;
- Depot extensions (via the Depot structured cabling scheme);
- Passenger Help / Emergency Help Points (via the Operational Data Network);
- Public Address System (via the Operational Data Network);
- Substation extensions (via the Operational Data Network); and
- A Voice Recorder;
- Control Centre Human Computer Interface (HCI) for the telephony services; and
- Call logging and maintenance facilities.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 530 |

To facilitate management and maintenance of the PABX, it shall be provided with a maintainer's workstation, located in close proximity to the equipment.

The PABX shall provide:

- Digital call recording;
- Digital call logging;
- Maintenance and subscriber management; and
- All recording of the Telephone Network is to be digital to the current best medium.

All recording as described above should be carried out to the data recorders.

The Telephone Network shall include all PABX equipment, all necessary interfaces, configuration of the system elements, the connecting cables and management and diagnostic facilities.

The Telephone Network shall provide voice communications to external agencies including the emergency services and the urban traffic controllers.

The Telephone Network shall provide maintenance and administrative staff within the depot and substations telephone communications facilities appropriate to their needs.

35.5.2 Technical Requirements

The Telephone Network shall provide voice communication with all internal Edinburgh Tram Network organisation members and external parties but not with trams.

The Telephone Network and all associated components shall be of sufficient capacity to meet the current and future needs of the Edinburgh Tram Network.

All elements of the Telephone Network shall be designed to operate in an integrated manner.

The Telephone Network shall use the Operational Data Network for call routing to remote locations, e.g. Tramstops and traction power substations.

Suitable operator equipment shall be provided for the depot receptionist.

Suitable telephone handset equipment shall be provided for depot operational, administrative and maintenance staff.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 531 |

Suitable telephone handset equipment shall be provided for traction power substations.

Access to the Public Switched Telephone Network shall be configurable at all telephones, including those within the depot and substations, in order to change call barring and security measures.

PABX equipment shall be located in the Equipment Room. A multi-pair tie cable shall be provided to interconnect the PABX with the depot structured cabling patch panel.

The Telephone Network shall be equipped with a Maintainers' Workstation, also situated in the Equipment Room, for network management and diagnostics.

The Maintainers' Workstation shall allow the:

- Display of system status and alarms;
- Download of call and system logs to removable media;
- Configuration of the Telephone Network;
- Management of subscribers;
- Provision for updating system software; and
- Reporting of real time status and alarms to external equipment.

35.6 Public Address System

35.6.1 Overview

Loudspeakers and Audio Loops located at each Tramstop platform shall form part of the Edinburgh Tram Network Public Address System. The Operational Data Network, details of which are contained in Section 35.6.1 shall connect the associated amplifiers/controllers to the Control Centre.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 532 |

35.6.2 Technical Requirements

Each Tramstop shall constitute a zone.

An appropriate number of low output speakers shall be provided at each platform to prevent the possibility of announcement intrusion into adjoining properties, yet clearly audible without distortion on all areas of the platform. The speakers and their mountings shall be visually unobtrusive.

The Control Centre shall have the ability to make direct announcements to any Tramstop or groups of Tramstops, or turn off individual Tramstops or groups of Tramstops.

There shall be automatic switching between the volume setting for day / night time for each day of the week at the appropriate time of day.

Each Tramstop platform shall also be equipped with an audio loop to provide Public Address facilities for those who use hearing aids. The messages conveyed by these audio loops shall be identical to those issued by the standard Public Address equipment.

Park and Ride facilities shall be considered as a single Tramstop for Public Address purposes.

A 'library' of pre-recorded Public Address announcements shall be available to the Control Centre. Facilities shall be provided in the Control Centre for suitably trained operational staff to record additional announcements.

The approach and passing of 'Out of Service' trams shall be capable of initiating an automatic announcement at the stop advising passengers of the approach of the 'Out of Service' tram as it passes through the network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 533 |

35.7 Operational Radio System (ORS)

35.7.1 Overview

The ORS shall meet the mobile communications requirements for operation and maintenance requirements of the trams, and the tram network, and have sufficient capacity to meet the known future needs as defined in these Employer's Requirements.

An ORS shall be provided to enable safe and effective two-way communication enabling voice and data exchanges between the Control Centre staff and:

- Drivers on board an individual Tram, groups of Trams and/or all trams;
- Drivers of road and other support vehicles for the Edinburgh Tram Network; and
- Individually, or in groups, other mobile Edinburgh Tram Network operations and/or maintenance staff using hand portable equipment along the Edinburgh Tram Network and in the Depot.

Reliable voice communications shall be available throughout the length of the route, and to all areas used by operations or maintenance staff in the course of their duty so that messages of normal, priority or emergency status can be conveyed with high reliability.

The main operator interface with the ORS shall be provided by workstations installed in the Control Centre (for Control Centre staff), and tram mounted mobiles (for tram crews), road vehicle mounted mobiles and hand portable equipment for other mobile staff. Infraco shall supply 130 sets of radios with two spare batteries each and carrying cases. These sets will be supported by suitable re-charge racking and storage facilities.

The ORS shall comprise:

- A trunking controller;
- Sufficient base-stations to provide acceptable and reliable coverage to the satisfaction of tie;
- Integrated Control Centre operators' equipment;
- Mobile equipments for tram, road vehicle or hand-portable operation; and
- All communications links and configuration of the system.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 534 |

35.7.2 General Requirements

The ORS shall use trunking technology capable of group and broadcast calls with normal or emergency priority.

Base-station equipment in close proximity to the Edinburgh Tram Network shall connect to the trunking controller via the Operational Data Network.

The radio system or two-way communication shall not be affected by the failure of the Control Centre systems or supplies.

The ORS shall operate within allocated frequencies administered by OfCom. Operating licences and consents for the ORS shall be obtained from OfCom and any other relevant authorities, e.g. Civil Aviation Authority (CAA). The Operator shall be required to hold all such licences and permits obtained.

Communication shall be reliable, continuous and free from interference as set out in the RAMsS section of this document.

The Operational Radio System shall have all voice communications digitally recorded by the central voice recorder. Recording of the Operational Radio System voice communications shall be integrated with recording of the Telephone Network.

All recording of the Operational Radio System is to be digital to the current best medium

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 535 |

35.7.3 Short Codes

The Operational Radio System shall be able to send 'short codes' to Trams. It shall be possible to send such short codes to individual trams, groups of trams or to all trams and shall be configurable by the Operator's administrator.

The short codes shall be:

Table 85 - Radio Short Codes

| Status Message | Status Meaning | Control to Tram | Tram to Control |
|----------------|--|-----------------|------------------------|
| CHANGE | Change Active Unit | | ✓ |
| ACK MESS | Status message acknowledge | | ✓ |
| ACK CALL | Group Voice Call Acknowledge | | ✓ |
| ###-DEP | Departure from departure points, where ### is the three letter code for each departure Tramstop. | | ✓ |
| DELAY | Delay to Report | | ✓ |
| FAULT | Defect to Report | | ✓ |
| NEWCREW | Crew Change Complete | | ✓ |
| HELP | Police Required | | ✓ (see notes below) |
| EXIT | Depot Exit Request | | ✓ |
| ENTRY | Depot Entry Request | | ✓ |
| RELIEF | Crew Relief Request | | ✓ |
| XO-DONE | Crossover / Turnback complete | | ✓ |
| STABLED | Tram Stabled | | ✓ |
| CREWGONE | Driver Leaving Tram – will report back | | ✓ |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 536 |

| | | | |
|----------|---------------------|---|--|
| ALL-STOP | Stop Immediately | ✓ | |
| STOPNEXT | Wait Next Stop | ✓ | |
| FIREMEN | Beware Fire Engines | ✓ | |
| FIREGONE | Fire Engines Clear | ✓ | |

Notes

The 'HELP' code shall also be able to be sent from the hand portable and from the road vehicle radios; and

The emergency call functionality shall also require the use of short codes.

There shall be at least 30 codes.

The Operational Radio System including all mobiles radios and hand-portables shall be capable of being reconfigured by the Operator to operate with amended or additional status messages.

35.7.4 Physical Considerations

The Radio System Trunking Controller shall be installed in the Equipment Room. It shall communicate with either the maintainer's workstation or as a separate dedicated workstation, located in close proximity to the equipment.

All base station antennae shall be fitted with adequate surge protection measures.

Provision shall be made for charging racks sufficient for the for hand-portable radio equipment. Charging racks are to be located in the Control Centre.

All masts required to support base station equipment shall be capable of withstanding all foreseeable wind loading. They shall be fitted with anti-climb protection.

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 537 |

35.7.5 Radio Maintainers' Workstation

The Operational Radio System shall be equipped with a Radio Maintainers' Workstation for network management and diagnostics.

The Maintainers' Workstation shall allow the:

- Display of system status and alarms;
- Download of system logs to removable media;
- Configuration of the Operational Radio System;
- Subscriber management;
- Provision for updating system software;
- Reporting of real time status and alarms to external equipment; and

The Operational Radio System maintainers' workstation shall be situated in the Equipment Room.

Fault and downtime information shall be transmitted to the PMS system.

35.7.6 Road Vehicle Mobile Radio Equipment

The Operator and Maintainers will operate road vehicles requiring Operational Radio System mobile radio equipment. As a minimum all road vehicles shall be equipped with:

- Mobile transceiver;
- Cable harness, feeder and antenna;
- Display, keypad, speaker & microphone; and
- Necessary power supplies.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 538 |

All road vehicle mobile equipment shall be equipped with a keypad and alphanumeric display unit and be capable of displaying and storing short data messages.

Road vehicle mobiles shall translate status codes into meaningful textual messages.

All vehicle mobiles shall be equipped with an emergency call facility.

35.7.7 Hand-Held Mobile Radio Equipment

Certain Operational and Maintenance staff will be mobile and require hand portable mobile radio equipment. As a minimum the equipment shall include one hundred and thirty sets of:

- Hand-held radios with battery;
- Carrying cases for the hand-held radios;
- Two spare batteries for each radio;
- All necessary operational accessories, such as lapel microphones; and
- Sufficient charging racks suitable for 230VAC 50Hz operation to ensure availability of fully charged radios.

As a minimum the handportable radio shall use batteries with a life of 10 hours when used with a 90%rx / 10%tx duty Cycle.

Battery chargers shall fully charge a battery in less than 4 hours.

All hand portable radios shall be weatherproof and suitable for continuous use on or about the person in the outdoor environment.

All hand portable mobile equipment shall be equipped with a keypad and alphanumeric display unit and be capable of displaying and storing short data messages.

Hand portable mobiles shall translate status codes into meaningful textual messages.

All hand portable mobiles shall be equipped with an emergency call facility. The hand portables shall operate effectively and clearly within the trams and along the route of the Edinburgh Tram Network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 539 |

35.7.8 Tram borne Radio Equipment

Radio equipment shall be fitted to each driver's cab to enable two-way voice communications between drivers and controllers at the depot.

The Operational Radio Network equipment fitted to the tram shall include, as a minimum:

- Mobile transceiver;
- Keypad and display compatible with MAP27 interface protocol;
- Radio antenna, to be mounted on the tram roof.

The above equipment shall be free issued to the Tram Supplier for installation.

This radio equipment will utilise equipment supplied by the Tram Supplier, including:

- Gooseneck microphone;
- Emergency call button or kick switch and interface to the ORS;
- All necessary interconnections between Operational Radio Equipment in both cabs provided; and
- All necessary interconnections to other on-tram systems including power supply.

All voice communications involving the tram driver shall be via a hands-free method incorporating the touch-screen console and the gooseneck microphone so as to minimise distraction of the driver from his/her driving responsibilities. The integration of these functions shall be undertaken by Infracore.

When the tram is required to change direction of travel; e.g. after arrival at a terminus, the tram driver shall not be required to make any input to the Operational Radio System as he/she takes up occupation of the 'now leading' cab and the 'Change' status message shall be automatically generated.

Tram radios shall translate status codes into meaningful textual messages and display these to the driver.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 540 |

All radio calls received during on-board Public Address announcements shall be clearly indicated to the driver at the time of receipt.

All tram-borne radios shall be equipped with an emergency call facility.

35.7.9 Tram-Borne Interfaces

The interfaces for tram-borne Operational Radio Network equipment with other tram-borne systems shall include:

- Passenger Emergency Help Points;
- Public Address System; where the tram driver instigates an on-board Public Address, this shall take precedence over any incoming radio calls received during the duration of public address. The tram driver shall be alerted to the presence of an incoming radio call;
- Radio voice communications and an attack alarm shall be provided between the tram drivers and the inspectors on board each tram.

35.8 Passenger Help / Passenger Emergency Help Points

35.8.1 Overview

Each Tramstop platform shall be equipped with at least one Passenger Help / Passenger Emergency Help Point that shall be connected to the Control Centre by the Operational Data Network.

Each Passenger Help / Passenger Emergency Help Point shall be sited so that it is visible by the platform Closed Circuit Television camera.

Provision shall be provided for the connection of future additional Passenger Help/Passenger Emergency Help Points, as a minimum, at Ingliston Park and Ride facility.

All Passenger Help / Passenger Emergency Help Points System Equipment shall comply with the latest disability advice from the Department for Transport.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 541 |

35.8.2 Technical Requirements

Each Passenger Help / Passenger Emergency Help Point shall be provided with a two-way speech connection between the user on the Tramstop platform and the Control Centre Staff.

Each Passenger Help / Passenger Emergency Help Point shall be clearly visible and signed, and mounted in a manner that restricts its vulnerability to vandalism.

Each Passenger Help / Passenger Emergency Help Point shall be capable of being activated in two modes, normal and emergency, and there shall be a clearly marked and separate activation button for each function. Initiation of a call at the Passenger Help / Passenger Emergency Help Point shall be by pushing the appropriate call button.

Initiation of a call shall initiate the immediate recording of the subsequent voice communication that shall be time and date related.

Initiation of a call at the Passenger Emergency Help Point shall also cause the relevant Closed Circuit Television camera to focus on the Passenger Help / Passenger Emergency Help Point, overriding any sequential scanning for that camera. The recording rate of the CCTV camera will be increased during the PEHP conversation to the rate specified at section 35.14.13 of these Employer's Requirements.

35.9 Closed Circuit Television

35.9.1 Overview

The Edinburgh Tram Network shall be provided with a digital colour Closed Circuit Television (CCTV) System.

The tram CCTV system shall interface to the City of Edinburgh Council citywide CCTV system as 35.9.2.

Each Tramstop platform shall be equipped with at least one Closed Circuit Television camera. Additional Closed Circuit Television cameras shall be provided if adequate coverage of the access and egress routes at Tramstops and park and ride facilities cannot be achieved using the platform Closed Circuit Television cameras. Additional Closed Circuit Television cameras shall be provided to give full coverage of Park and Ride facilities.

Images from the CCTV cameras shall be transmitted to a Digital Video Recorder where they shall be recorded and time-stamped.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 542 |

The Closed Circuit Television System shall comply with the requirements outlined in the Home Office guidelines for digital CCTV and the related UK Police Guidance notes and shall provide clear images of 'evidential quality' under all weather and lighting conditions to be made available at the Control Centre for operational purposes and for the recording for evidential purposes.

The Edinburgh Tram Network Depot complex will be equipped with a digital CCTV System as part of the Depot Security System. This CCTV System shall be interfaced to the Passenger CCTV System detailed in this Section. The requirements for the Depot CCTV System are described in 29.8 - Depot Site Layout.

(Please note: As of 11/12/2007, the calculation of the number of CCTV cameras and the bandwidth required on the ODN – See 35.11 for a definition – is based on two cameras per Tramstop, plus ten cameras at the depot and none at Sub-stations. This gives a requirement for 54 new cameras. The ODN also needs to allow for 7 existing, plus two new, cameras at the Ingliston Park & Ride.

35.9.2 Technical Requirements

Cameras shall be of the dome type, vandal resistant and mounted on Tramstop infrastructure or special CCTV poles. The mounting arrangements for each camera shall ensure stability and limit any vibration to acceptable limits so as not to interfere with image quality.

CCTV cameras located at the Park and Ride facilities shall be positioned to cover all of the car park paths, locations identified for Ticket Vending Machines, shelters, buildings, any other structures and both pedestrian and vehicle access points.

The CCTV System at Park and Ride facilities shall provide a clear image of vehicles including the ability for operators to read their registration plates.

The CCTV viewing system shall normally cycle through a pre-defined list of camera images and carry this out over a pre-programmed time period.

All CCTV cameras shall be provided with pan, tilt and zoom facilities both automatically within preset limits and under manual control, and be programmed to zoom in on the Passenger Help / Passenger Emergency Help Point when they are used and to a Ticket Vending Machine location when a TVM alarm is initiated. The Control Centre Staff shall be able to override automatic operation and control the cameras.

The CCTV cameras shall incorporate configurable 'no-dwell' zones to ensure the privacy of adjacent buildings and shall be suitably adjusted at the time of camera installation.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 543 |

The CCTV System shall be provided with appropriate electrical / electronic interfaces to facilitate the presentation of images to an Edinburgh Tram Network display located within the Lothian & Borders Police Centre, the Lothian Buses Control Centre (Annandale Street) and one located at the Edinburgh in View CCTV Centre. This interface will also enable the transmission of images from the CEC's CCTV system to the ETN such that an appropriate subset of the CEC's CCTV images can be viewed in the Control Centre.

These interfaces shall be physically located in the Equipment Room. They shall include the provision and installation of the necessary connections and extensions to the Tram communication system to provide the necessary interfaces to third parties, and shall remain under the control of the Edinburgh Tram Network.

The selection of individual images by any of the above mentioned third parties for their further interrogation on their local monitors shall only be provided following telephone authority being obtained by them from the Control Centre Operator and shall not inhibit the continued use or availability of images to the Control Centre Operator.

Facilities shall be provided to enable any images generated by cameras that are part of the other interconnected CCTV systems to be selected by the Control Centre Operator and displayed within the Control Centre. Facilities shall be provided to "screen print" images for expediency.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 544 |

35.10 Supervisory Control and Data Acquisition

35.10.1 Overview

A Supervisory Control and Data Acquisition (SCADA) System shall be provided to monitor and control remote equipment.

The SCADA System shall comprise of a central host, which is used to scan the outlying equipment that is connected to Remote Terminal Units (RTUs) or "Intelligent Relays" shall regularly scan the attached equipment for status or to set/reset the associated controls and, in turn, will be scanned periodically by the central system. Alternatively, electronic subsystems like e.g. traction substation control & protection systems can be directly connected to overall SCADA by means of e.g. a databus or network connection.

The primary interface to the SCADA System shall be a diagram displayed to the Control Centre operators. The SCADA System shall transmit system data received, in real-time, from the RTUs to the mimic display.

The SCADA System will comprise four main functional elements as follows:

- Traction Power SCADA;
- Tramstop SCADA;
- Trackside SCADA; and
- Ticket Vending Machine alarm indications shall be transmitted via the SCADA system. Further details are contained in Employer's Requirements Integrated Fare Collection Section.

The current status of the Traction Power System as presented by the SCADA System shall be available as a display to the Control Centre Staff at all times.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 545 |

35.10.2 General Requirements

The SCADA itself shall not be a safety critical system, however, it shall provide the facility for the Control Centre staff to make requests of remote equipment to execute actions on behalf of the Control Centre staff, and provide indications for sub-systems.

These sub-systems are:

- Safety related - the traction power control system and remote terminal at each substation;
- Security related - the Passenger Help / Passenger Emergency Help Points at each Tramstop together with the associated Closed Circuit Television camera; and
- Security related - The transmission of Intruder Alarms.

The SCADA system shall pass data relating to equipment failure to the Performance Monitoring System (PMS), to allow the PMS to calculate operational performance relating to equipment availability.

The implementation of the SCADA System at Tramstops and other trackside locations may use the Tram Position and Detection System hardware in lieu of a SCADA RTU for the passage of alarms and indications, should this prove to be more efficient option.

Each SCADA System RTU shall contain a minimum of 30% spare capacity for the future in addition to those specified in the sections below, for the addition of further controls and indications across the Edinburgh Tram Network.

At Tramstops the SCADA Remote Termination Units shall be housed in the Tramstop equipment cabinet with the other Tramstop Supervision, Control and Communication Equipment.

Within Substations the SCADA Control and Monitoring Modules shall be wall or cabinet mounted. SCADA Remote Termination Units shall also be installed within the Points Controller cabinet at all electrically heated points. Further details are contained in 26.11.2 of these Employer's Requirements.

It shall be assumed that the signals to be monitored and controlled by the SCADA system will be concentrated into an interface rack. Connection shall be made from the SCADA Modules to the interface rack.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 546 |

Individual Tramstop systems control and communications equipments shall be designed to integrate with the Tramstop furniture wherever possible.

35.10.3 Traction Power SCADA

The Edinburgh Tram Network Traction Power Supply System has substations placed along the Edinburgh Tram Network as detailed in Employer's Requirements Traction Power (Substations) Section.

Each Traction Power Control Unit should provide as a minimum:

- 128 Digital Inputs;
- 16 Digital Outputs;
- 16 Analogue Inputs.

It shall be possible to put each substation into a bypass mode remotely by using SCADA, in order to guard against equipment and power failures or to allow maintenance.

The SCADA System shall contain a series of 'macros' that shall enable the Control Centre staff to isolate and earth all electrical sections between adjacent sub-stations or between a sub-station and the end of the Edinburgh Tram Network route by making no more than two mouse clicks, or equivalent, from the SCADA Human Computer Interface power diagram. This operation will initiate a sequence of switching operations, the progress and completion of which shall be indicated to the Control Centre staff via the SCADA Human Computer Interface power diagram. Should any operation in this sequence 'time out', or fail, a visual and audible alarm shall be generated to the Control Centre staff and the sequence be suspended by the system.

Facilities shall be provided to enable the switching sequences to be created, edited and deleted by a person with the appropriate rights of SCADA access to the system shall be provided.

The following SCADA System controls and indications provided for each substation shall include, but not be limited to:

- Fire Alarms;
- Equipment Over Temperature Alarms;
- Intruder Alarms;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 547 |

- Low Voltage Power Supply Fault indication;
- DC power fault indication (e.g. output circuit failure, etc.);
- Over Voltage Trip Alarms;
- Under Voltage Trip Alarms (if Under Voltage Trips are generated);
- Line Live;
- Line Earthed;
- Stray current monitoring, if provided;
- Power data, volts and amps in real time;
- UPS status for communications equipment;
- Battery and Battery Charger Status;
- DNO indications;
- Status of all isolators; and
- Status of all circuit breakers and control of them.

The Edinburgh Tram Overhead Line Equipment shall be arranged such that it is possible to isolate all or parts of the overhead traction supply. Feeder and Bypass Isolators are located at the line side in electrical cabinets or within the nearest substation. Further details are available in Employer's Requirements Overhead Line and Pantograph Section.

The SCADA System controls and indications to and from these Isolators shall include:

- Control command for opening and closing of individual Bypass Feeders at each substation;
- Indication of all individual Feeder Isolator position (open / closed / earthed / indeterminate); and
- Indication and Control of all individual Bypass Isolators.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 548 |

Where a Control Command is instigated by an Operator, the display shall ask him / her to confirm the action before proceeding. In any case, each Control Command shall be handled at the protocol level by a Request – Check – Confirm sequence to ensure that the possibility of the wrong control being performed is minimised. SW and HW interlocking may be realised in the traction power station by means of the substation control and protection system in each substation, which may also be required for local operation.

Information presented to the Operator shall be accurate under all feasible circumstances and shall include the status of all sub-section isolators. Manual input of the status of sub-section isolators may be proposed by Infraco with the appropriate risk analysis.

35.10.4 Tramstop SCADA

Tramstop Equipment shall be monitored by the Control Centre Operating staff via the SCADA System.

Such equipments shall include, but not be limited to:

- Operation of Passenger Help / Passenger Emergency Help Point and status;
- 'No-Break' Power Supply failure alarms;
- Communications Systems Status & Alarms;
- CCTV fault status;
- Public Address System volume level control, fault status and controls;
- Passenger Information Display fault status;
- Passenger Help/Passenger Emergency Help Point activation;
- Passenger Help/Passenger Emergency Help Point fault status;
- Tramstop equipment intruder alarms (including Fare Collection System Alarms – see below);
- Tramstop electrical supply status (including Tramstop lighting supplies).

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 549 |

Each Tramstop RTU should provide as a minimum:

- 64 Digital Inputs;
- 16 Digital Outputs;
- 4 Analogue Inputs.

35.10.5 Trackside SCADA

The SCADA System shall monitor trackside equipment as follows:

- Point Controls and Indications;
- Failure of Points to move within a given time of the request;
- Point Heater Controls and Indications (The Operator shall be able to command the heating of points in the event of the thermostatic control failing);
- Tram Wash equipment; and
- Sand replenishment equipment - inclusive of sand levels etc;
- Status of lift(s);
- Pumps.

It is possible that the Trackside SCADA system will share an RTU with the Tramstop SCADA system, and the trackside SCADA requirements will vary at different points along the alignment. The I/O counts are included within the Tramstop I/O count. However, note that an extra RTU will be necessary in the Depot for the specialised equipment there, for which the allowance below should be made:

- 64 Digital Inputs;
- 4 Analogue Inputs.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 550 |

35.10.6 Fare Collection SCADA

Ticket Vending Machine Alarms shall be brought to the attention of the Control Centre Operating staff via the SCADA System.

The TVMs provided by tie shall contain normally closed relay contacts (contacts open on occurrence of fault) for the following alarms to the SCADA system, and shall include:

- TVM Vandal Alarm;
- TVM coin jam;
- TVM printer malfunction;
- TVM card unit malfunction;
- TVM tickets low;
- TVM Cash Vault(s) ¾ full;
- TVM doors open.

TVMs shall be procured by TEL and issued to Infraco for installation.

The I/O for the TVMs is already included in the count in the Tramstop SCADA.

35.11 Operational Data Network

35.11.1 Overview

An Operational Data Network (ODN) shall be provided to ensure two-way voice and data transmission to fixed locations along the entire Edinburgh Tram Network, with high reliability, availability and low latency.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 551 |

The ODN shall provide the communications 'backbone' between Tramstops, substations, other remote equipment and the Depot, and shall convey data for a variety of applications including:

- Tram Positioning, Routing and Detection System;
- Passenger Information Displays;
- Telephone Network;
- Public Address;
- Operational Radio Network (optional);
- Passenger Help / Passenger Emergency Help Points;
- Closed Circuit Television;
- Point Control and Indication;
- Point Heating Control and Indication;
- Supervisory Control And Data Acquisition; and
- Ticket Vending Machines (separation of data shall be provided, one secure encoded stream for revenue, ticketing and fare collection data and the other for Ticket Vending Machine alarms, administration and management).

The ODN shall use a fibre optic transmission system. A multi-core fibre shall connect all ODN nodes.

The ODN shall include all master and outstation node equipment, interface cards, configuration of the system elements, the connecting cables and management and diagnostic facilities. Fibre optic repeaters between nodes shall not be employed.

The ODN Control Centre Node shall be equipped with sufficient communications capacity to allow the interconnection of all traction power substation nodes, Tramstop nodes point control nodes and Depot equipment.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 552 |

Where appropriate, Depot subsystems shall be connected to the ODN via the secure Local Area Network.

The ODN shall support the emergency relocation of Control Centre staff to alternative location(s) served by the ODN following a Control Centre evacuation, where they will be able to continue operation of the Edinburgh Tram Network albeit in a degraded mode.

The ODN shall not be a safety critical system. However it shall convey safety or security related messages to and from the following sub-systems:

- Safety related - Traction Power Supervisory Control And Data Acquisition; and
- Security related - Passenger Help / Passenger Emergency Help Points and the associated Closed Circuit Television images;
- Security related - The transmission of Intruder Alarms.

The ODN shall provide a bandwidth sufficient for the satisfactory transfer of all data, telephone and other signals required for controlling, monitoring and communicating with equipment distributed throughout the Edinburgh Tram Network.

In addition, the associated ODN communications paths and power supplies shall themselves incorporate similar levels of redundancy / diversity.

The ODN shall be configured such that in the event of single failure there shall be no loss of data and no requirement for any immediate actions on the part of the Control Centre staff. It shall be configured so as to provide automatic re-routing in the event of failures such that any loss of facility is confined to that given locality and does not affect the operation of the transmission system and facilities at any other location.

The ODN shall incorporate the necessary degree of redundancy and duplication to enable the commitment to be achieved without losing the ability to handle faults and accept necessary upgrades.

Where there are connections or any exchange of data between subsystems, each system shall be such that any failure in another system shall not cause a failure of the system, (except in the functionality between the two systems concerned).

There shall be commonality of design between all types of ODN nodes.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 553 |

The transmission latency of the ODN shall be such that it does not contribute any appreciable delay to any voice or data applications.

The ODN shall provide an expansion capability of 200% to allow for system growth or to enable further interfaces to be added or an increase in the bandwidth requirements of existing applications or known future enhancements of the Edinburgh Tram Network.

35.11.2 Location of Nodes

Remote ODN Nodes shall be located so that together they serve all locations along the alignment which require communications with the Control Centre, including Tramstops, substations, and points control and points heating cabinets. ODN nodes shall be provided at all Tramstops. Nodes shall also be provided at other locations if it not within the immediate vicinity of a Tramstop node.

Tramstop Nodes

Each Tramstop Node shall be equipped with communications interfaces to allow the interconnection of the following two-way voice or data services throughout the Edinburgh Tram Network:

- Digital Closed Circuit Television cameras and associated controls;
- Passenger Help / Passenger Emergency Help Points;
- Public Address;
- Ticket Vending Machines;
- Passenger Information Displays;
- Supervisory Control And Data Acquisition Remote Telemetry Units;
- Tram Position and Detection System Equipment; and
- Edinburgh Tram Network timeserver.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 554 |

Where appropriate, a Tramstop Node shall be equipped with additional communications interfaces to allow the interconnection of the following two-way voice or data services throughout the Edinburgh Tram Network:

- Radio base station equipment or
- Other Control Centres e.g. Police, Fire, Ambulance and other Emergency Services, Traffic Control Centre.

Traction Power Substation Node

If required separately, a Substation Node shall be equipped with communications interfaces to allow the interconnection of the following two-way voice and data services throughout the Edinburgh Tram Network:

- Supervisory Control And Data Acquisition Remote Telemetry Units;
- Private Automatic Branch Exchanges extensions; and
- Edinburgh Tram Network timeserver.

Where appropriate, an ODN Substation Node shall be equipped with additional communications interfaces to allow the interconnection of the following two-way voice or data services throughout the Edinburgh Tram Network

- Digital Closed Circuit TV cameras and associated controls;
- Tram Position and Detection System equipment;
- Radio base station equipment or
- Other Control Centres e.g. Police.

Points Control Node

If required separately, a Points Cabinet Node shall be equipped with communications interfaces to allow the interconnection of the following two-way voice or data services throughout the Edinburgh Tram Network:

- Supervisory Control And Data Acquisition Remote Telemetry Units; and

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 555 |

- Tram Position and Detection System equipment.

Where appropriate, a Points Cabinet Node shall be equipped with additional communications interfaces to allow the interconnection of the following two-way voice or data services throughout the Edinburgh Tram Network:

- Radio base station equipment or
- Other Control Centres e.g. Police.

35.11.3 General Requirements

For all ODN nodes, the multi-core fibre shall be terminated at a fibre patch panel situated adjacent to the node.

Tramstop node equipment shall be mounted in the Tramstop Equipment Cabinet. Traction Power Substation node equipment shall be either rack or wall mounted dependent upon its location. Control Centre Node equipment shall be fitted within an equipment rack located in the Equipment Room.

The ODN shall be equipped with a Maintainers' Workstation (which may be shared with other subsystems) running a Network Management System for network management and diagnostics.

The Maintainers' Workstation shall allow the:

- Display of system status and alarms;
- Download of system logs to removable media;
- Configuration of the Operational Data Network;
- Provision for updating system software; and
- Reporting of real time status and alarms to external equipment.

The ODN maintainers' workstation shall be situated in the Equipment Room at the Control Centre.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 556 |

35.12 Considerations applying to all Communications Subsystems

This sub-section details those considerations which apply to all the subsystems these are:

- Electrical Connections;
- Cabinets;
- Alarming of Faults.

35.12.1 Electrical Connections

All powered equipment described above, with the exception of the Passenger Information Display System and Ticket Vending Machine, shall be provided with a 'No-Break' power supply, via a UPS system, located in the nearest Tramstop Cabinet or Substation, as appropriate. LV Supplies will be in accordance with 33 these Employer's Requirements.

All electrical connections shall be made in such a way that the public shall not have access to any cabling. All cabling and wiring must comply with the Cabling and Ducting section of these Employer's Requirements.

The cable routes shall avoid close contact with, or interference from, high voltage electrical supplies and for this reason a 3.0 metre separation shall be achieved in any plane between any communication cable routes and high voltage electrical supplies.

Wherever practicable, communication between two or more items of trackside equipment and from trackside equipment to the Control Centre shall be by such means that permits minimal trackside cabling and an acceptable level of system integrity.

All powered equipment described in this section shall be provided with a connection to an earth. The earthing and bonding requirements are described in tie's Earthing and Bonding Policy Document.

35.12.2 Cabinets

All Tramstop control equipment, forming part of the subsystems, as described above, shall be mounted in cabinets located on or adjacent to the Tramstop platforms. Within substations, cabinets may be wall or floor-mounted as appropriate. The requirements on cabinets in general are detailed in 19 of these Employer's Requirements.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 557 |

35.12.3 Alarming of Faults

It is essential that malfunctioning of equipment is brought to the attention of the operators, in a unified manner, as quickly as possible. This shall be achieved through the medium of the SCADA System.

Where possible, this may be achieved through network monitoring of the subsystems, and a connection between the network monitoring system and the SCADA system. Where this is not possible, it shall be achieved through a contact connected into an RTU connected in turn to the appropriate SCADA system.

35.13 Control Centre

This describes the components of the various subsystems described above are located in the Control centre. It divides those systems into:

- Those components within the Control Centre;
- Those components within the Equipment Room.

35.13.1 Control Centre - Overview

The Control Centre shall be the focal point for the control and operation of the Edinburgh Tram Network. Its purpose shall be to provide a working place for the operational employees to manage and coordinate day-to-day activities associated with system operations. The Control Centre shall be located on the first floor of the Depot building.

The Control Centre comprises of a number of workstations, at which Control Centre staff sit and use equipment to remotely control or retrieve data from the system. The operator interface shall be designed to carry out control functions in an ergonomically efficient manner.

These workstations are:

- The Duty Manager;
- The Shift Controller;
- The Information and Security Supervisor;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 558 |

Edinburgh Tram Network – Employer's Requirements

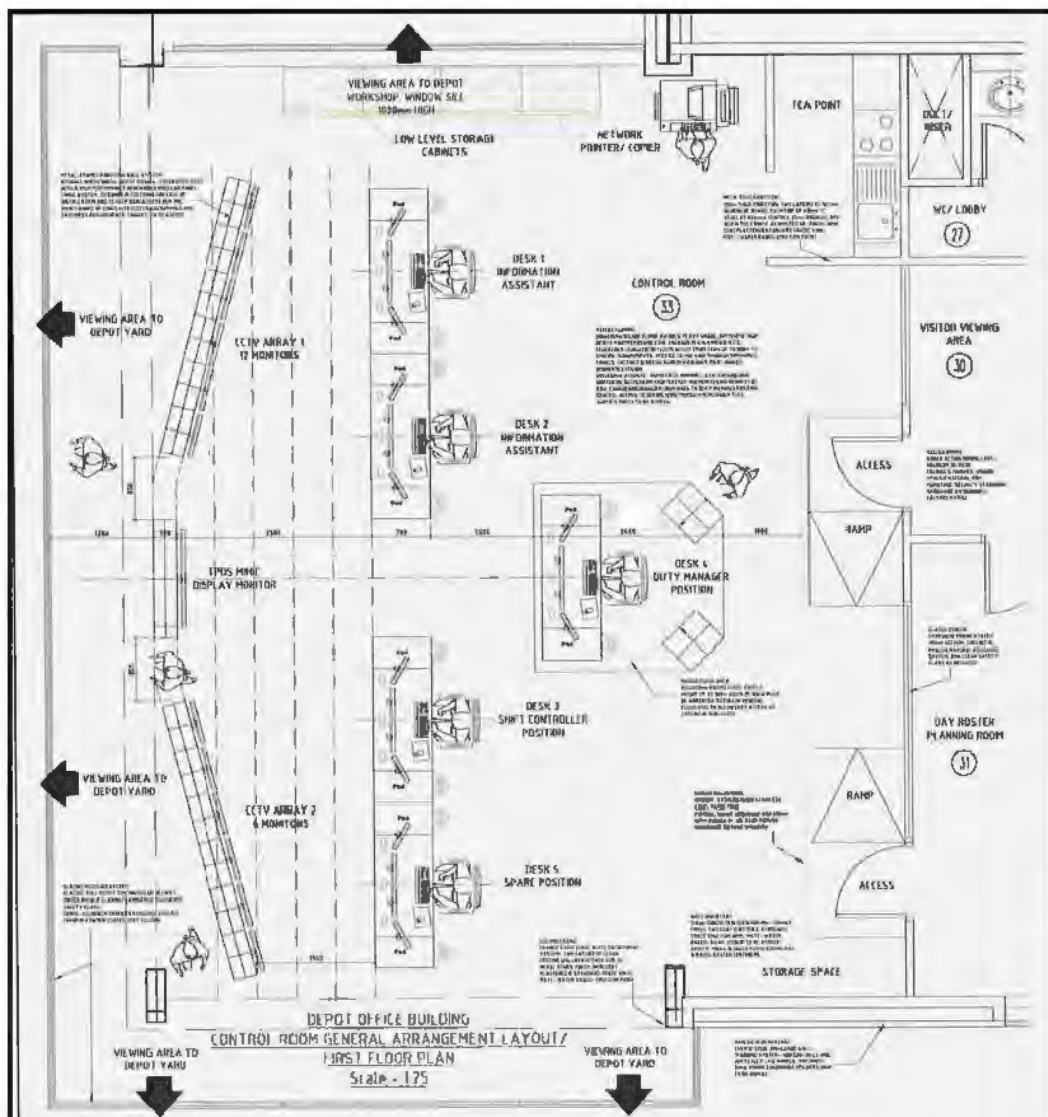
Section 35 – Communications

- There are also two workstations that have been identified for future expansion of the system.

A Monitor Matrix shall be provided, to be positioned either on the front wall or in close vicinity to the Control Centre desks. The matrix shall be of sufficient size to be viewed by all Control Centre staff.

A typical Control Centre Layout is shown in the diagram below. This shows the Control Centre with the addition of the two workstations that have been identified for future expansion.

Figure 11 - Typical Control Centre Layout



| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 559 |

35.13.2 Workstation Capabilities

Each Control Centre Workstation shall have the capability to provide indication and control of all subsystems and services: however, it will normally be restricted by logon status to the duties normally associated with the position. The various control and monitoring capabilities are described by subsystem:

- Tram Position and Detection Subsystem;
- SCADA System;
- Operational Radio System;
- Passenger Information Displays;
- Public Address;
- Closed Circuit Television;
- Passenger Help / Passenger Emergency Help Point System;
- Telephone System.

There shall be at least three screens attached to each workstation. The three screens shall be able to form a continuous display. The status of the dynamic data shall be regularly updated, at a frequency of not less than once every five seconds.

Through the top-level diagram it shall be possible to access additional nested menus or screens to gain additional information from the subsystems and facilities.

The presentation of the menus and 'human computer interface', to the Control Centre operators, shall be subject to the approval of tie.

Each workstation shall be equipped with at least one keyboard, and some or all of a mouse, joystick, or touch screen capability to navigate around the screens. The keyboard (s) shall be retractable when not in use.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 560 |

Differential alarm tones shall be provided for each of:

- Operational Radio Network normal calls;
- Operational Radio Network emergency calls;
- Passenger Help Point activation;
- Passenger Emergency Help Point activation;
- Internal and external telephones; and
- Emergency Telephone lines

Tram Position and Detection Subsystem

The Workstation shall present a diagrammatic representation of the entire Edinburgh Tram Network both as an overview display and a series of overlapping sectional displays

Each display shall provide the following as a minimum:

- Last known position of each tram;
- Run / Route number of each tram;
- Number of each tram;
- Punctuality of each tram;
- Driver staff identity for each tram;
- Tram in service / out of service;
- Tram destination; and
- Status of each tramway signal;
- Lie of points;
- Input a tram signal demand via the UTC system;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 561 |

The Control Centre Workstation(s) controls are only intended for use when the system is disrupted, in emergencies, engineering works, equipment failure conditions, or at the run out and run in of trams to/from the depot. Under normal operating conditions the Tram Position and Detection System will automatically control signals, points and routing of the trams and without the intervention of Control Centre staff. They shall be designed in such a way as to not compromise the safe running of the tram system at any time.

SCADA System

The Workstation shall present a diagrammatic representation of the entire Edinburgh Tram Network both as an overview display and a series of overlapping sectional displays, upon which shall be displayed the control, monitoring and alarm functions associated with the following:

- Electrical Power Substation Equipment for each Electrical Supply Point, the actual position and status of circuit breakers and motorised section isolators;
- Tramstop Equipment;
- Trackside Equipment; and
- Vending Machine Alarms. Details available in Employer's Requirements, Integrated Fare Collection.

The controls and indications shall be displayed in real time and synchronised with the Edinburgh Tram Network Time system.

SCADA Alarms

All alarm events shall generate an alarm message, which shall be electronically logged and displayed to the targeted Control Centre operator.

Each alarm message shall identify the system that has generated it.

Each alarm message shall be assigned a priority level.

High priority alarms shall generate an audible tone.

Alarms shall be presented in a hierarchical manner, with sufficient gradation to ease handover between Control Centre staff.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 562 |

The Control Centre staff shall have the facility to accept alarms individually or as a 'page' of alarms.

The alarm list shall have the facility to display alarms in chronological order, with the latest alarm first.

Each alarm entry shall include the date and time of occurrence, location and plant identity.

The silencing of alarms shall not inhibit the annunciation of further alarms nor constitute an acknowledgement of the alarm.

Alarm Sequence

Onset of Alarm

This shall be indicated by a flashing alarm message and sounding an audible alarm at the Workstation. There is also a simultaneous logging in the fault log and printing of the alarm on a printer situated in the equipment room.

Acknowledgement of the Alarm by the Control Centre Staff

The alarm message shall be steady, the audible alarms shall revert to a low level, and the acknowledgement shall be logged in the fault log and printed on a printer situated in the equipment room.

Acknowledgement of Reset of the Alarm by the Control Centre Staff

The reset alarm message shall be steady, the low level audible alarms shall cease, and the acknowledgement shall be logged in the fault log and printed on the Supervisory Control and Data Acquisition System printer situated in the Equipment Room.

Operational Radio System

The Workstation shall permit (preferably via a touch screen interface):

- Initiation / receipt of radio calls to any/all tram(s) and other vehicles fitted with the Operational Radio System;
- Initiation / receipt of radio calls to any/all portable radio handsets;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 563 |

Edinburgh Tram Network – Employer's Requirements

Section 35 – Communications

- Provides audible and visual alarms for emergency radio calls received. Such alarms shall be displayed so as to clearly differentiate between normal events and emergency events; and
- Use of 'short radio codes'.

Primary means of initiating radio calls to individual trams from the Control Centre staff shall be achieved by mouse click(s) on the relevant tram represented on the Tram Position Detection System display.

The attention of Control Centre staff to a tram making a radio call to the Control Centre shall be achieved by appropriate graphics symbols on both the Tram Position Detection System and Operational Radio System Human Computer Interfaces accompanied by an audible signal.

All Operational Radio System communications shall be via the Control Centre: direct calling between outstation radios is not required and shall not be available.

When an outstation user wishes to call the Control Centre, they shall insert a call request message. The Control Centre staff will then call them back.

When Control Centre staff call an outstation, the outstation radio shall 'ring' and the outstation operator shall answer the call and speak first.

All radio calls shall also be capable of being made and received via the Control Centre Workstations.

When an emergency call is received at the Control Centre, a distinct audible and visual alarm shall appear on the Workstation. It shall not be possible for a Control Centre member of staff to cancel an emergency call without answering it.

Nomenclature for tram radio call signs shall be the same as the tram number.

When Control Centre staff send a single voice message to all trams and request the tram drivers to acknowledge receipt, the radio system shall present a list of all trams and their status to the Control Centre staff via the Operational Radio System Human Computer Interface.

The status shall be coloured to identify:

- Trams that have acknowledged the message, in green;
- Trams that do not have active radios, in amber;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 564 |



Edinburgh Tram Network – Employer's Requirements

Section 35 – Communications

- Trams that have not acknowledged the message in red.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 565 |

This will enable the Control Centre staff to identify any trams that have not acknowledged the call. A similar arrangement shall apply to status codes sent to trams.

The Operational Radio System shall support the emergency relocation of Control Centre staff to alternative location(s) served by the Operational Data Network following a Control Centre evacuation, where they will be able to continue operation of the Edinburgh Tram Network albeit in a degraded mode.

The system shall digitally record all outgoing and incoming radio messages.

Passenger Information Displays

The Passenger Information Display System shall be accessible to the Control Centre staff via the Control Centre Workstations.

Normally, the Platform Information Display System shall be automatically updated from the Tram Position Detection System. However, the Control Centre staff shall have the ability to display a selection of pre-recorded messages and free form text on individual Platform Information Displays or groups of displays.

Details and times of the application of pre-recorded messages and free form text shall be logged by the Central Data Recording System.

Public Address

The Control Centre staff shall have the ability to initiate and transmit direct announcements to individual Public Address System Platforms, zones or groups of zones via the Control Centre telecommunications console.

The Control Centre staff shall be able to alter the volume setting of individual Public Address System zones or groups of zones.

Details of all Control Centre staff interventions and direct announcements shall be logged by the Central Data Recording System.

Closed Circuit Television

Colour pictures shall be transmitted to the Control Centre from the Tramstops, substations, park & ride facility and surrounding areas.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 566 |

The system shall normally display a continuous cycle of Closed Circuit Television. The system shall interrupt this cycle to automatically display the image of the location where a Passenger Help Point / Passenger Emergency Help Point is activated: this shall cause the relevant camera image to be transferred to the Control Centre Staff's local Closed Circuit Television display. This should be able to be overridden by the Control Centre staff. After termination of a Passenger Help / Passenger Emergency Help Point call, the associated Close Circuit Television Camera shall revert to the normal scanning sequence.

The Operator shall be able to select those images that are required to be displayed in predetermined viewing patterns on the Monitor Matrix at the front on the Control Centre near that of the support workplace. Priority of selection shall be adjustable, to be governed by the current Edinburgh Tram Network operating procedures. This shall be adjustable and the system shall allow new viewing patterns to be created, amended and deleted as required by the Control Centre staff to suit individual operational circumstances.

Operation of a Ticket Vending Machine alarm shall similarly cause the local Closed Circuit Television image to be automatically displayed on a pre-selected monitor in the Control Centre.

The selection of the camera for control shall cause the image to be transferred to the Control Centre Staff's local Closed Circuit Television display.

The Control Centre Staff shall have a joystick that shall allow control of the pan, tilt, zoom and focus camera attributes.

The Closed Circuit Television Graphical User Interface shall allow the Control Centre operator to switch any camera image to be recorded at high rate to the central data recorder, to be viewed on any monitor or his own workstation.

The control of the video switching shall be completely transparent to the user.

Location, time and date stamped recording facilities shall be activated if the emergency button is activated on a Passenger Help / Passenger Emergency Help Point, the image from the relevant camera shall be automatically routed to a designated screen in the Control Centre.

Video and textual information shall be displayed on the local display when swapped from the monitor matrix display and shall maintain camera identity, status and location.

All characters overlaid on a Closed Circuit Television image shall provide clearly legible letters and characters on a dark background. Character generation shall be separate from the video image such that the location of a camera failure can be clearly identified.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 567 |

The Control Centre shall provide facilities to capture a video image displayed on the Control Centre operator's display and print the image via a high quality video printer.

Passenger Help / Passenger Emergency Help Point System

The Passenger Help / Passenger Emergency Help Points System shall be accessible to the Control Centre staff via the Control Centre Workstations for alarm presentation, and via the Control Centre telecommunications console for communication with the person initiating the alarm or help request. Activation of a Passenger Help / Passenger Emergency Help Point shall give an immediate flashing indication and associated audible alarm on all Control Centre staff workstations and the Control Centre Overview Display. If this is an Emergency Help point activation, the image of the associated CCTV camera shall be automatically called to the Monitor Matrix.

The alarm message shall be steady and the audible alarm shall be silenced upon acknowledgement by the Control Centre staff.

Upon termination by the Control Centre staff of a Passenger Help / Passenger Emergency Help Point call, the reset alarm message shall be steady.

Telephone System

There shall be a touch screen interface to the Telephone, (and Public Address and Passenger Help Point / Passenger Emergency Help Point sub-systems if not provided for otherwise) that provides for:

- Initiation / receipt of telephone calls to any / all users on the exchange provided;
- Priority and high integrity initiation / receipt of telephone calls to / from emergency services;
- Audible and visual alarms for Passenger Help Point / Passenger Emergency Help Point calls received; and
- Making of public address announcements at individual, grouped or all Tramstops and / or park & ride sites.

All Control Centre staff positions shall be identical, with functionality determined by user 'log-in'. All voice communications to and from the Control Centre shall be recorded and be capable of being played back.

Recorded voice communications shall be stored as detailed in 35.14.14.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 568 |

Edinburgh Tram Network – Employer's Requirements

Section 35 – Communications

Emergency telephone lines shall be provided to allow contact with and from the organisations detailed in 35.13.4, regardless of any failure of the main Private Automatic Branch Exchange.

Such facilities need not necessitate individual handsets but may consider a single handset (on the relevant operator workplaces) with priority displays and call buttons.

The Workstation shall incorporate:

- Information displays: (Supervision of extensions and exchange lines);
- Call processing and routing: Traffic and console status; and
- Ability to provide user input via keyboard entry.

The Workstation shall provide:

- Interactive voice greetings and messaging;
- Advanced call monitoring;
- Line engaged signal;
- Waiting time or queuing status;
- Called / calling parties identity;
- Pre-programmed numbers;
- Hands-free / wireless operation;
- Time display, synchronised by the Time Server;
- Conference calling;
- Audio control;
- Programmable functions;
- A local loudspeaker;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 569 |

- An adjustable ring tone;
- Public Address System Interface; and
- Number ID

35.13.3 Control Centre Philosophy

The Control Centre shall provide Control Centre staff, and especially the shift controller and duty manager, with clear visibility of the entrance and exit tracks and associated infrastructure of the Depot complex with the main tramway and at least one end of Depot shed tracks and stabling apron tracks.

All Workstations shall be of similar design to maintain the aesthetics of the Control Centre.

Each Control Centre Staff position shall be able to control the local lighting, so that screen light reflections shall be reduced.

The Control Centre shall provide positions for the following operations personnel:

Operations Duty Manager

The Duty Manager will be responsible for overall control of the Edinburgh Tram Network and the safety of its operation.

The Operations Duty Manager is required to 'book' Tramcrew on / off duty and needs to see crew before they take their turn of duty in order to be convinced that they are in an appropriate condition to commence duty. The Control Centre shall provide for this without the need for Tramcrew to enter the Control Centre.

The Duty Manager's workstation will be identical to all other workstations.

Operations Shift Controller

The shift controller is responsible for the minute by minute operation of the Edinburgh Tram Network ensuring service perturbation risks are minimised and Tramcrew are aware of the current state of the Edinburgh Tram Network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 570 |

Operations Information & Security Supervisor

The information & security supervisor provides support to the duty manager and shift controller by monitoring the positions of trams, monitoring and editing of Passenger Information Displays, monitoring of Closed Circuit Television and Passenger Help / Passenger Emergency Help Points. This post will also take the primary role in ensuring passenger information and security.

Duty Manager

The duty manager's work place shall be located such that he can clearly see and interact with all the operations of the Control Centre.

The duty manager's workplace shall provide facilities to monitor and control the following subsystems:

- Tram Position and Detection;
- Supervisory Control and Data Acquisition;
- Operational Radio System;
- Closed Circuit Television;
- Telephones.

Shift Controller

The operator workplace provided for the shift controller shall be a complete replica of that provided for the duty manager.

In addition, the shift controller shall be given clear visibility of the mimic display and the bank of CCTV displays located at the front of the Control Centre.

Information & Security Supervisor

The information and security supervisor workplace shall be identical to the other workstations.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 571 |

Monitor Matrix

A monitor matrix shall be mounted either on the front wall or in close vicinity to the Control Centre desks. The matrix shall be of sufficient size to be viewed by all Control Centre staff.

It shall display CCTV images. Textual information shall be displayed on the displays to provide camera identity, status and location. Characters shall provide clearly legible letters and characters on a dark background. Character generation shall be separate from the video image such that the location of a camera failure can be clearly identified, and shall not be generated by the camera itself.

The Monitor Matrix shall cycle through a user-definable set of images over a period of time.

Positioning of the images or sequencing in the matrix shall reflect the geographical layout of the Edinburgh Tram Network. The sequencing and display time of these images shall be user configurable.

The Information and Security Operator shall be able to select those images that are required to be displayed in specified viewing patterns on Monitor Matrix. Priority of selection shall be adjustable, to be governed by the current Edinburgh Tram Network operating procedures. This shall be adjustable and the system shall allow new viewing patterns to be created, amended and deleted as required by the Control Centre staff to suit individual operational circumstances.

When activated by the Passenger Help / Passenger Emergency Help Points System interface, the Monitor Matrix shall display the associated CCTV image for that Passenger Help/Passenger Emergency Help Point.

35.13.4 Emergency Telephone Lines

The Control Centre shall have dedicated 'direct' lines between itself and the following locations as a minimum:

- Fire Brigade Control Centre;
- Lothian & Borders Police Control Centre;
- Lothian Buses Control Centre (Annandale Street);
- Edinburgh in View CCTV Centre;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 572 |

- Ambulance Control Centre;
- Airport Control Centre;
- Network Rail Edinburgh Waverley Power Signal Box;
- Network Rail Electrical Control Centre at Cathcart; and
- City of Edinburgh Urban Traffic Control.

The primary telephone interface providing these facilities shall be through the single integrated audio telecommunications device at each desk, with a secondary hand-held unit for back up. Multi facilities will not be acceptable.

Any incoming calls from emergency services shall be brought to the attention of the Control Centre staff, via messages on the display, audible alarms and / or indicators on the handsets.

All voice communications and messages critical to safe operation shall be recorded on the central data recording system.

All Control Centre communications between control-room staff shall also be recorded and stored for at least thirty-one days.

35.13.5 Local Area Network

All of the Workstations situated within the Control Centre shall be connected to a dual redundant Local Area Network, which shall in turn be connected to the Servers and Systems in the Equipment Room and thence to the Operational Data Network.

The Local Area Network cabling standard shall be category 5/5e or higher.

Each Control Centre staff position shall have two Local Area Network connections per Local Area Network and these shall be accessible through the floor mounted recessed sockets.

The Local Area Network shall accommodate the connection of further terminals for the requirements of future expansion of the Edinburgh Tram Network.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 573 |

35.13.6 Control Centre Time Display

The Control Centre shall have one or more wall-mounted digital display clocks, mounted so that all Control Centre operators have full view of the displayed time.

These clocks shall show the day, date, hours, minutes and seconds.

The clocks shall be synchronised with the Rugby time signal or its successor or similar.

35.13.7 Safety Requirements

The Control Centre will not house safety critical systems, however, it will provide controls and indications for sub-systems that can be considered to be safety or security related.

These sub-systems are:

- Safety related - the Traction Power Control System and Supervisory Control and Data Acquisition at each substation;
- Security related - the Passenger Help / Passenger Emergency Help Point communications to each Tramstop; together with the associated Closed Circuit Television equipment; and
- Safety related - the Tram Position, Route Setting and Detection System.

35.13.8 Electrical Requirements

The equipment located in the Control Centre shall run from 230/240VAC 50Hz electrical supplies.

Appropriate switched mains sockets shall be located on the walls and in the floor area close to each Control Desk locations for miscellaneous mains powered equipment.

There shall be no 110VAC or 415VAC 50 Hz available in this room. Power tools which require 110VAC 50Hz shall utilise a step-down / isolation transformer to achieve this.

Each mains socket shall be rated for a current of 13A.

The Control Centre equipment shall be supported by the provision of Uninterruptible Power Supply / diverse electrical supplies, further details are available in the Employer's Requirements Depot Section. An Uninterruptible Power Supply mains distribution panel shall be available in the Control Centre to provide a fault tolerant supply for all the equipment in the room. The connection of the

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 574 |

equipment to the Uninterruptible Power Supply distribution panel shall be through a system which has the same standard three-pin plug and sockets as normal 240v supplies, but is differentiated from the normal supply by means of appropriate labels and/of colour.

The design shall include full details of the future capacity that shall be provided for Edinburgh Tram Network expansion, and the method proposed for the work necessary to incorporate, install and commission future extensions.

All Control Centre cables and equipment shall be identified by permanent labelling in an approved format as detailed in the overall system-wide requirements.

The system wiring shall be sized to permit a minimum of 35% increase in power consumption for any additional equipment added as part of future Edinburgh Tram Network enhancements.

The main cable entry shall be via an aperture located in the floor, which provides entry or access for cables into the equipment room.

Particular care shall be taken to ensure that Electro-Magnetic Compatibility is not degraded when cables are closely located.

Cables shall be continuously screened through the aperture in the floor.

Appropriate strain relief or clamping shall be provided.

All cables and conduits shall be clearly marked with cable identifiers or suitable permanent marking which shall last for the expected system lifespan.

Local cabling between the Control Centre and the Equipment Room ducts shall be such that new cabling shall be capable of being installed without disruption to the operations including impact on the connections to the workstations.

35.13.9 Logging

In addition to voice image and message recording, there are two additional log facilities:

- Fault log; and
- Day log.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 575 |

Fault Log

An electronic fault log shall be created which shall log status messages from Supervisory Control and Data Acquisition and communications systems.

The fault log records all system faults for further investigation.

Data storage shall be provided which shall record data on a 'first in-first out' basis.

Data shall be backed up on a removable storage medium and the system shall automatically do this or notify the Control Centre operator that backup is required before overwriting.

Data shall be backed up on a removable storage medium and the system shall automatically do this or notify the Control Centre operator that backup is required before overwriting.

Fault reports shall be automatically generated.

Day Log

An electronic log of day-to-day operations shall be implemented, from which a hard copy can be generated.

35.13.10 Central Data Recording

The Control Centre shall have a means of digitally recording/replaying the following information:

- All Operational Radio System voice communications;
- All Telephone Network calls to or from the Control Centre;
- All calls via the emergency telephone lines;
- Public Address announcements;
- Closed Circuit Television images, (at variable speed controlled by the viewer);
- Textual changes to Passenger Information Display; and
- The data shall be stored on non-volatile memory storage for the purposes of review or incident investigation.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 576 |

The Control Centre staff shall be able to replay the data recorder from each desk position.

Information shall be recorded in a tamper-proof manner to evidential standards and be retained for a minimum period of one month.

35.13.11 Printers

The Control Centre shall house local printers for the printing of logs of maintenance or diagnostic data or colour prints of Closed Circuit Television frames.

35.13.12 Control Centre Furniture

The Control Centre shall be furnished with modern ergonomic furniture to assist the Control Centre staff and reduce fatigue.

Each desk position shall have personal storage of a minimum of three lockable drawers. Positioning of storage shall not inhibit the work-envelopes of the Control Centre Staff.

Additional storage equipment shall be located to the sides of the Control Centre.

The design of the Control Centre furniture shall include provision for the effective management of cabling, and equipment and maintenance power supply distribution.

Each of the Control Centre staff shall have the following functionality:

- Computer / workstation with dual flat screen displays, plus retractable keyboard;
- Integrated audio communications device comprising of handset and headset for (Public Address, Operational Radio, Telephones and Passenger Help / Passenger Emergency Help Points). The Telephone System (PABX) and the Operational Radio System shall be provided separately;
- Emergency telephones;
- Local light dimming control;
- Joystick control, (movement zoom and focus of Closed Circuit Television Cameras;
- Pointing device such as a mouse or tracker ball and keyboard; and
- Passenger Help / Passenger Emergency Help Point identification display.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 577 |

The integrity of Controls and Indications shall be commensurate with the extent to which safety depends upon their correct operation, in both normal and degraded modes.

35.13.13 Spare Capacity / System Expansion

Following installation of the initial Edinburgh Tram Network Control Centre System:

- All conduits, troughing, trunking, and apertures shall be only 50% full of cables;
- All multi-pin connectors shall have a minimum of 10% capacity available for expansion; and
- All multi-way termination blocks shall provide a minimum of 20% capacity for expansion.

35.14 Equipment Room

35.14.1 Overview

The Equipment Room shall be situated either directly adjacent to, or directly below the Control Centre. The primary purpose of the Equipment Room is to provide a location to house the bulk of equipment, which supports the operational monitoring, management and operation of the Edinburgh Tram Network.

The equipment shall primarily be contained in freestanding cabinets located in the Equipment Room. Cabling from the equipment exits from the cabinets and shall be routed to sub-systems located outside the Depot or routed through an aperture into the Control Centre.

Within the Equipment Room will be maintainer desks, which shall be used for maintaining equipment associated with the running of the system.

It is proposed that the Equipment Room shall house the servers which host the following systems (subject to the required performance, reliability, safety and maintainability characteristics):

- Tram Position and Detection subsystem;
- Passenger Information Display subsystem;
- Telephone Network Private Automatic Branch Exchange;
- Public Address subsystem;
- Operation Radio Network Trunking Controller and base station (if required);

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 578 |

- Passenger Help / Passenger Emergency Help Point subsystem;
- Closed Circuit Television subsystem;
- Matrix controller;
- Supervisory Control and Data Acquisition subsystem;
- Operational Data Network Control Central Node;
- Performance Monitoring System;
- Central Data Recording and Storage;
- Radio Clock;
- Security and Access Controller;
- Fire alarm system;
- Voice recording and playback;
- Printers (if required).

35.14.2 Maintainer's Positions

Where appropriate, a Maintainer's Workstation shall be provided for a subsystem, along with any printer. The maintainer's position shall be supplied with any additional diagnostic equipment that cannot be integrated into the maintainer's workstation as part of the suite of software. Any additional special adapters or cables and connectors shall also be provided.

35.14.3 Security and Access Control

The security and access control system shall be housed in the Equipment Room.

The security and access control system shall also monitor the entry and exit to the Equipment Room.

Abnormal or illegal entry messages shall be sent to the Control Centre. These actions shall also be logged in the central data recorder.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 579 |

35.14.4 Layout

The layout of the Equipment Room shall not be detrimental to maintenance and movement of equipment.

The positioning of cabinets and equipment shall take into consideration the cable and conduit entries and exits into the room.

The maintainer's workstations shall be situated with a full view of the equipment.

35.14.5 Equipment Housings and Mounting

Where possible, the equipment shall be placed in sealed, lockable cabinets, which provide a minimum of IP34 sealing.

Where indicators or diagnostic light emitting diodes/displays are used on equipment the cabinets shall have a glass door to assist in easy viewing from the maintainer's workstation.

Wherever possible, equipment shall be rack mounted or modular to aid replacement and maintenance.

To assist with installation all cabinets and equipment shall be fitted with suitable craneage or lifting points.

35.14.6 Diagnostic, Maintenance or Offline Mode Indications

If the equipment in the Equipment Room is placed into a diagnostic, maintenance or offline mode, this shall be communicated to the Control Centre staff and shall not compromise system safety or the performance of other systems.

35.14.7 Equipment Power Supplies

All powered equipment shall be connected to an Uninterruptible Power Supply in an adjacent room. This shall deliver 230V a.c. 50 Hz or 400 V a.c. 50 Hz.

Switched mains sockets shall be located on the walls and in the floor area close to the equipment locations. Further details are available in the Employer's Requirements - Depot. There shall be provision for 110V a.c. 50Hz in this room to enable the connection of power tools and the sockets shall be clearly marked accordingly.

Each 230V ac 50Hz mains socket shall be rated for a current of 13A.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 580 |

A Supply distribution panel shall be mounted to the wall to enable disconnection of supplies in the event of an emergency.

The system wiring shall be sized to permit a minimum of 25% increase in power consumption to accommodate additional equipment required for Edinburgh Tram Network expansion.

The power loading and performance characteristics of equipment shall be stated at the extremes of temperature, normal running and transient conditions.

35.14.8 Storage

The Equipment Room shall provide storage for both personal and vocational items. This shall be in the form of lockable cupboards and units.

All main data storage shall be carried out on servers or equipment located in the equipment room where access is restricted. All system or program data must be shown to be retrievable in the instance of a system re-build.

Adequate shelving and filing cabinets etc shall be provided to locate equipment, handbooks, files and storage of electronic data.

Printers and miscellaneous equipment shall be sited in the locale of the maintainers in order to afford easy access.

35.14.9 Spare Capacity / System Expansion

All conduits, troughing, trunking, or apertures shall be only 50% full of cables. All multi-way termination blocks shall provide a minimum of 20% capacity for expansion. All multi-pin connectors shall have a minimum of 10% capacity available for expansion.

Each cabinet shall only be populated up to 75% to provide additional space for system enhancements.

Cabinets containing equipment which may be affected by the future Edinburgh Tram Network enhancements shall have enough spare capacity to accommodate those changes or demonstrate that the expansion or upgrade can be achieved with the minimum amount of changes or use of personnel.

All patch panels and terminals shall have the capacity for equipment used by the future Edinburgh Tram Network enhancements.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 581 |

35.14.10 Master Clock and System Clocks

Within the Equipment Room, a Master Clock System shall be installed.

The Master Clock shall source a time signal from the standard Rugby clock signal (or its successor) or similar and broadcast the time signal to all systems that require accurate time synchronisation.

The Master Clock shall broadcast the time signal over the Local Area Network or directly via wired connections to the appropriate equipment.

In the event of Rugby time signal failure the system shall continue to generate time signals based on an accurate battery-backed clock. In the event of Master Clock failure, each of the systems that require the Rugby time signal shall continue operating using their own local clock signal. The failure of the Master Clock shall be logged accordingly and displayed to the Control Centre staff.

The time shall be sent to each of the systems to allow logging to resolution of 10ms or better.

A digital display clock shall be situated in a position, which can be easily seen by the maintainers at their workstation position. The clock shall source its time from the master clock. It shall show the day, date, hours, minutes and seconds.

35.14.11 Performance Monitoring System

The Performance Monitoring System shall be connected to the equipment room Local Area Network and be accessible by all designated users with appropriate user group login and password protection.

It shall receive data from the Tram Position and Detection Subsystems and the SCADA systems, which will allow it automatically to calculate those measures of performance of the Tram Network that can be calculated automatically. The relevant Performance Measures are all of those measures that form Performance Measurement System, as set out in Schedule 6 to the Infraco Agreement. This system shall produce appropriate daily and other periodical reports in both paper and software format. The reports shall provide a suitable audit trail for the calculation of the PMS. The detailed specification for this system shall be subject to further development with tie and subject to tie's approval.

The Performance Monitoring System shall also be accessible remotely through a Local Area Network firewall, via the Internet.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 582 |

35.14.12 Monitor Matrix Display Driver

The Monitor Matrix Controller shall receive data from the Closed Circuit Television System cameras and display the images onto the Matrix of displays in the Control Centre.

It shall be connected to the dual redundant Local Area Network and / or Closed Circuit Television System.

It shall have the capability of being expanded to accommodate the expansion of the Edinburgh Tram Network closed circuit television system.

35.14.13 Central Data Recording

The Central Data Recorder shall be housed in a cabinet separate to all other equipment. The cabinet shall be sealed and locked and have suitable tamperproof fittings. The door shall be fitted with an alarm to indicate when it has been opened, which shall be logged, printed, and displayed to the Control Centre staff.

The data shall be stored in secure manner such that no tampering can be achieved. The maintainers shall have easy access to the system in order to backup/archive data. The system shall have the capability of supporting connections to a Local Area Network based digital recording system held in the Equipment Room.

The system shall provide playback facilities within both the Control Centre and one of the administration offices.

All recorded Control Centre communications shall be time stamped to the nearest second, updated from the Edinburgh Tram Network Time Server in the Equipment Room. Recordings shall be archived to transportable media.

The archiving process shall not interrupt the recording process. The viewing of recorded Closed Circuit Television images shall not interrupt the recording of further Closed Circuit Television images.

The quality of data stored shall be suitable for legal interpretation and proceedings.

The data shall be stored on a system, which shall have the capacity to store at least thirty-one days worth of system communications, Closed Circuit Television images and text information.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 583 |

Each camera shall be recorded at a minimum rate of 16 frames per second (fps); however, the images shall be recorded at a higher frame rate of 25 fps when:

- An Emergency Help point has been activated;
- A TVM alarm is detected;
- A designated zone has been entered;
- The Control Centre staff manually command the Closed Circuit Television image to be recorded.

The data shall be recorded in a circular buffer where the oldest data is overwritten by the latest data ('first in-first out') and is subject to the storage capacity of 31 days referred to above.

The data shall be stored in secure manner such that no tampering can occur.

The images shall be overlaid by security coding of time/date and location.

Freeze frame facilities shall be provided.

In the above cases, the system will interrogate the Operator at the end of every three minutes to determine whether or not the high recording rate should be continued.

The central data recorder shall provide conversion facilities to adjust the optimisation of the images but not the pictorial content.

The storage device shall provide an audible warning that the storage capacity is within 5% of capacity and that the Control Centre staff are required to archive data to a non-volatile medium.

The status of the data recorder shall be conveyed to Control Centre staff.

Each DVR shall be connected to the Operational Data Network, to allow images to be transferred between locations to allow remote viewing.

35.14.14 Voice Recording

The Equipment Room shall house a Local Area Network based digital recording system that shall record all voice communications both into and out of the Control Centre.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 584 |

The Central Voice Recorder shall be housed in a cabinet separate to all other equipment.

The cabinet shall be sealed and locked and have suitable tamperproof fittings.

The door shall be fitted with an alarm to indicate when it has been opened, which shall be logged, printed, and displayed to the Control Centre staff.

The voice recordings shall be stored in a secure manner such that no tampering can be achieved. The maintainers shall have easy access to the system in order to backup / archive data.

The system shall provide playback facilities within both the Control Centre and in one of the administration offices.

All recorded Control Centre communications shall be time stamped to the nearest second, updated from the Time Server in the Equipment Room.

Recordings shall be archived to removable media.

The archiving process shall not interrupt the recording process.

The quality of data stored shall be suitable for legal interpretation and proceedings.

The voice recordings shall be stored on a system, which shall have the capacity to store at least thirty-one days worth of voice communications.

The data shall be recorded in a circular buffer where the oldest data is overwritten by the latest data ('first in-first out').

The data shall be stored in secure manner such that no tampering can be achieved.

The storage device shall provide an audible warning that the storage capacity is within 5% of capacity and that the Control Centre staff are required to archive data to a non-volatile medium.

The status of the voice recorder shall be conveyed to Control Centre staff.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 585 |

35.14.15 Equipment Room Maintainer Desks

Two workstations shall be provided for the maintainers, which comprise a local display, 'man-machine interface' and keyboard to enable the interrogation of the server or other related equipment for diagnostic or maintenance purposes.

The Workstations in the Equipment Room shall be of similar design to their equivalents in the Control Centre but their users shall require a greater level of more detailed access. Such access shall be governed by password and user group membership.

The Equipment Room workstations shall comprise:

- Display, mouse and keyboard for interaction with the Tram Position and Detection System and Passenger Information Display sub-system, the Operational Radio System and the UTC sub-system, the latter via the Tram Position, Route Setting and Detection System;
- Touch screen interface to the Telephone Network, Public Address system, and Passenger Help/Passenger Emergency Help Point systems;
- Touch screen interface to the Operational Radio System;
- Displays and console for the selection and monitoring of Closed Circuit Television images from remotely located cameras;
- Display, mouse and keyboard for interaction with the Supervisory Control and Data Acquisition System; and
- Human computer interfaces for the purpose of archiving and retrieving logged data.

Each maintainer's position shall have two-off Local Area Network connections per Local Area Network and these shall be accessible through recessed sockets.

Each maintainer's position shall have a Telephone Network handset.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 586 |

35.14.16 Equipment Room Local Area Network Requirements

Each of the maintainer's workstation computers situated within the Equipment Room shall be connected to a Local Area Network.

The Local Area Network cabling standard shall be category 5/5e or higher.

Each Equipment Room maintainer's positions shall have two Local Area Network connections that shall be accessible through recessed sockets.

The Equipment Room Local Area Network shall accommodate the connection of further terminals for the requirements of future Edinburgh tram Network expansion.

35.14.17 Other Systems

A repeat of the 'System Overview' display that is located in the Control Centre staff shall be made available on the Operator's Local area network, updated at least every 5 seconds. This is to enable **tie** to use this image for purposes such as for onward transmission to the TEL /Lothian Bus information centres and in the depot mess room to assist staff with timing crew changes.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 587 |

36 Integrated Fare Collection

36.1 Scope

The scope of this Section of these Employer's Requirements is to define the integrated fare collection requirements that are applicable to the Edinburgh Tram Network.

36.2 Procurement

Ticket Vending Machines (TVMs) and Ticket Validators for installation at Tramstops will be 'free issued' by tie to the Infraco at the Depot. The Infraco shall be required to provide the necessary foundations, ducting, power supply and communications linkage to the TVM and Ticket Validator locations at the Tramstops. The Infraco shall be responsible for the installation of agreed quantities of TVMs and Ticket Validators at the agreed locations.

36.3 General Technical Specification

The hand held TVM docking stations shall be 'free issued' by tie to the Infraco at the Depot and the Infraco shall provide appropriate power and comms interface connections, together with appropriate racking to store and charge.

36.4 Integrated Fare Collection

tie/TEL shall be responsible for the Edinburgh Tram integrated fare collection system which shall provide passengers with tickets and ticket validation on and/or off Trams for multi modal seamless bus and Tram journeys within the confines of the Lothian Bus operational area for ticket sales and throughout the SESTRAN area for validation.

Static Ticket Vending Machines will be provided at Tramstops, and hand held ticket vending machines that can also validate tickets will be carried by an Inspector on board each Tram. The fare collection system shall consist of a number of items of equipment each providing elements of the overall System functionality.

These shall include:

- Ticket Vending Machines providing ticket purchasing facilities – these are to be provided separately to the Infraco by tie and 'free issued' for installation by the Infraco;
- Tramstop ticket Validators – these are to be provided separately to the Infraco by tie and 'free issued' for installation by the Infraco;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 588 |

- Docking stations for hand-held ticket issuing and smart-card validation machines and associated support apparatus (including docking stations) – these are to be provided separately to the Infraco by tie and 'free issued' to the Infraco. The Infraco shall provide power and communications interface connections to the Depot local area network, together with appropriate racking to store and charge the hand held ticket machines.

The elements of the IFC system shall use the system wide communications backbone that shall be provided by Infraco to provide the wide area connections for data transfer and equipment control.

The Infraco shall provide connections for the Ticket Vending Machines and Ticket Validators to be connected locally to the communications network at Tramstops.

The Infraco shall provide a connection for the ticketing central management system to be connected to the communications network and local area operational network at the depot / operational control centre.

The Infraco shall provide for the ticketing central management system to be connected to the outside world by means of a secure IP address.

36.5 Ticket Vending Machines and Validators

36.5.1 General

There shall be a minimum of two TVMs per Tramstop. Exact numbers of TVMs and Ticket Validators are to be agreed for each Tramstop.

The Infraco shall include in the design of the Tramstops suitable foundations for the TVMs and the Ticket Validators and provide 230 volt ac power and communications links to the units as appropriate.

36.5.2 Docking Stations for Hand-Held Ticket Machines

Docking stations and chargers shall be 'free issued' by tie to the Infraco. The Infraco shall provide power and communications interface connections to the depot local area network, together with appropriate racking to store and charge the hand held ticket machines. These will be connected to the Central Management System.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 589 |

Table 86 - Hand Held Ticket Machine Quantities

| Equipment | Quantity | Comments |
|------------------|----------|---|
| Docking Stations | 35 | As determined in the design and implementation phases |

36.5.3 Equipment Interfaces

The following equipment interfaces are required to be provided by the Infraco:

Table 87 - System Interfaces

| Interface | Interface with Discipline | Interface Definition | Interface Management |
|---------------------------|--|-----------------------------|--|
| Central Management System | System wide | Integrated Fare Collection | Individual sub systems |
| Ticket Vending Machine | Tramstop / Buildings | Integration Fare Collection | Buildings |
| Ticket Vending Machine | Supervisory, Control and Communications System | Integrated Fare Collection | Supervisory, Control and Communications System |
| Smart Card Validators | Tramstop / Buildings | Integration Fare Collection | Buildings |
| Smart Card Validators | Supervisory, Control and Communications System | Integrated Fare Collection | Supervisory, Control and Communications System |
| Hand Held Ticket Machines | Central Internal Financial Control system and SC&C | Integrated Fare Collection | Integrated Fare Collection |

The interfaces identified above will be further developed by the Infraco to include details of programme requirements for interface resolution. The detailed interfaces and management thereof will be carried out according to the system integration process for the Edinburgh Tram Network.

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 590 |

37 System Integration

37.1 Introduction

A tramway has many constituent parts and therefore integration is a crucial factor when designing, implementing and operating a successful tramway.

tie shall be provided by the Infraco with a totally integrated Edinburgh Tram Network with all systems, subsystems and interfaces working efficiently and harmoniously together as one and able to be operated and maintained in full compliance with the requirements of the Edinburgh Tram Network and appropriate Consents. To achieve this, the Infraco shall be responsible for successfully undertaking comprehensive co-ordination and system integration roles within the Infraco Works. The system integration responsibility shall exist throughout all phases of the Infraco Works.

This Section of the Employer's Requirements outlines these responsibilities and provides details of the extent of co-ordination and system integration.

37.2 Definitions

System Integration shall include the collation, identification, recording and management of all elements of the Infraco Works, including but not limited to, the project management, design, procurement, manufacturing, factory testing, delivery, offloading, erection, construction, equipping, testing, commissioning, system acceptance testing, shadow running, operation and maintenance of the ETN.

Such integration shall include both the 'hard' integration elements in terms of system and sub-system functionality etc and 'soft' integration elements associated with approvals and Consents, people interfaces, plans, processes and procedures, and land/property agreements.

Also included shall be the production and delivery of all associated documentation (training and maintenance manuals and "As Built" documentation), all spare parts and special tools etc to allow the safe and efficient fulfilment of all operation and maintenance obligations, including dependability criteria, for the projected life time of the Edinburgh Tram Network.

System interfaces shall mean where two or more main elements or subsystems meet or interact or are intended to meet or interact in a manner which is necessary for the expedient and necessary progress of the Infraco Works and the safe and efficient operation and maintenance of the Edinburgh Tram Network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 591 |

37.3 Principle

System Integration is a fundamental project requirement and shall include the efficient and effective leadership of the system engineering and associated processes, coordination of the processes for the design, implementation and bringing the Edinburgh Tram Network into public service, complete technical direction and configuration management of the existing system design and system and subsystem interfaces to facilitate the Infraco Works.

37.4 Inter-contract Integration, Integration of third party and free issue equipment

The Infraco shall be responsible for managing all activities required to ensure that the Edinburgh Tram Network is successfully integrated with the equipment and subsystems being provided by the Infraco Parties and others. This over-arching integration role shall include as a minimum the following activities:

- undertaking a design co-ordination system and subsystem development function between contracts;
- lead in the system integration of the ticketing machines, ticket validators and bus passenger information displays;
- lead in the system integration of the subsystems and equipment being provided under the ETN project together with, systems and equipment, such as the "free issue components" or as indicated by tie;
- provision of an integrated testing and commissioning plan; and
- implementation of an integrated testing and commissioning programme.

37.5 Formal Roles to be undertaken by the Infraco

37.5.1 System Design Authority

The Infraco shall be responsible for the management of the design and interface processes in respect of systems and equipment being provided under or supplied pursuant to this Agreement. The system design authority role shall be deemed to include leadership of the System engineering process, co-ordination of the design process, configuration management of the System design, System and subsystem interfaces and all associated documentation including general technical direction.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 592 |

37.5.2 System Integrator

The Infraco shall perform the system integrator role with the aim of meeting the objectives of system integration as set out in this Section. This responsibility shall exist in all phases of the contract from initial requirements analysis, final sign-off of the ETN for operational use and during maintenance.

The Infraco shall be responsible for the practicalities of how the role of system integrator shall be executed, however as a minimum the role is deemed to include the management of the following activities:

- Systems assurance;
- Electromagnetic compatibility including stray current;
- Electromagnetic interference and any associated immunisation of Network Rail signalling systems or assets;
- Environmental issues – noise and vibration;
- System acceptance inclusive of testing and commissioning and training;
- Inter-contract integration;
- Third party issues and consents;
- System safety; and
- Verification and validation.

The Infraco shall:

- Produce a comprehensive system integration management plan, to be implemented and regularly updated by the Infraco throughout the duration of the Infraco Works. Such a plan shall form a fundamental part of the Infraco's overall operational & maintenance plan and design & implementation plan.
- Establish and document appropriate arrangements for the identification, management and monitoring of system integration at the scheme, system, and sub-system levels;

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 593 |

- Provide demonstrable assurance throughout the technical development, procurement and implementation of the ETN that the system and sub-systems form an integrated whole (both in terms of physical, functional and organisational fit, and the operation performance and dependability)
- Identify and integrate the System and all systems as defined in these Employer's Requirements, and equipment being provided under for the ETN project together with, subsystems and equipment provided by others as detailed in 37.4.
- Maintain the integrity of the scheme configuration; and
- Provide and demonstrate compliance and traceability between the scheme requirements and the design and implemented solution and evidence to support the phased and final cases for safety.

All Deliverables shall be:

- submitted in soft copy as required by tie;
- Produced in accordance with the ISO 9000 series and in a format approved by tie;
- Clearly written, without jargon, with terminology defined; figures, data, calculations and information used shall be clearly traceable and justified; all assumptions shall be stated and justified; and
- Be updated as necessary throughout the Term or as requested by tie.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 594 |

38 Location Specific Requirements

The requirements set out in this section of the Employer's Requirements are mostly applied either system wide or common to particular elements throughout the ETN. The principal exceptions are in relation to the Depot, the Specific Agreements made during the Parliamentary process and the Third Party Agreements as detailed in Schedule 13 (Third Party Agreements). Specific requirements have been identified through the design process. These have been developed by the SDS Provider through the design process over the past years, in particular the following processes:

- The SDS design process, preliminary and detailed (still ongoing) including (in no specific order and not limited to;
- Initial briefing from tie and their designers from the Parliamentary stage on issues within the STAG drawings and that had arisen subsequently, either during or in parallel with the Parliamentary process;
- Consultation with CEC as Promoter/Undertaker, as Planning Authority and with their Transport function, including as Roads Authority;
- Consultation with Stakeholders, including major bodies such as BAA, RBS, New Edinburgh Limited, Network Rail and First Scotrail, Historic Scotland, the World Heritage Trust, Forth Ports, and the emergency services. Note that some of these have Agreements as referred to above, but that further consultation and the passage of time has identified additional, changed and/or more detailed requirements to those set out in the Agreements;
- Consultation with other affected landowners, who may not have specific design requirements built into Agreements, as referred to above;
- Consultation with the Operator and with TEL (including Lothian Buses);
- Consultation with HMRI;
- Consultation with other affected bodies such as SEPA, Scottish Power, and the other Utilities;
- Specific consultation with frontagers;
- Specific consultation with general interest groups, relating to e.g. environmental matters, disability issues and cycling;
- Consultations with those submitting planning applications along the tram route;

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 595 |



Edinburgh Tram Network – Employer's Requirements

Section 38 – Location Specific Requirements

- Public consultation.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 596 |

39 Project Programme

39.1 Introduction

This Section of the Employer's Requirements provides an account of the programme restrictions that will impact on the Programme. The Section also contains details of the format in which programmes should be submitted and how costs should be broken down in the Work Breakdown Sheet.

39.2 Key Dates

- Key dates in respect of the Edinburgh Tram Network and the provision of the works, services and supplies by the Infraco are set out below. The tram depot at Gogar shall be complete and commissioned ready to accept first tram delivery by the end of November 2009.

Delivery into service for Phase 1a and Phase 1b shall be in accordance with the Programme.

In addition to the Programme dates included above, there are further Programme restrictions within which Infraco must work. These are constraint dates which shall not necessarily affect the whole Works but may do so. Infraco shall take due cognisance of these and the Programme dates outlined above. The constraint dates are as listed below:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 597 |

- Table of overall Programme Constraints;

| Constraint | Dates |
|-----------------|---|
| Embargos | August Embargo – from the first Sunday in August until the first Sunday in September Christmas Embargo – from the Thursday preceding the first Sunday in December until the first working day of the New Year annually |
| MUDFA | Latest revision of programme as agreed with tie through formal progress meetings. |
| Design | Latest revision of programme as agreed with tie through formal progress meetings. |
| Others | All other Constraints as shown in Schedule 13 – Third Party Agreements, Code of Construction Practice and Network Rail Possessions |

Table 88 – Table of overall Programme Constraints

- Further working time restrictions are imposed on the Infraco by the Construction Code of Practice;
- Network Rail potential possession dates..

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 598 |



39.3 Basis for Programme

- Infraco shall base its programme on the project management requirements at 12 of these Employer's Requirements;
- The Work Breakdown Structure (WBS) for building and coding the programme that is to be used to develop the Infraco programme is that used in tie's master programme;
- The P3e Activity Code Dictionary (Mandatory Codes as below); and

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 599 |



39.4 Third Party Agreements

Infraco shall include these constraints and obligations resulting from Schedule 13 – Third Party Agreements. Infraco shall demonstrate to **tie** that these constraints and obligations have been considered and resolved in the programme.

tie acknowledge their supporting role in the delivery of the obligations contained within these Third Party Agreements.

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 600 |

39.5 P3e Activity Code Dictionary (Mandatory Codes)

The following codes shall be used by the Infraco in the preparation and development of their programme. These codes can only be modified with the express permission of tie.

Activity

Code **Description**

Geographical Sections

| | | |
|----|------------|---|
| 01 | Section 01 | Newhaven Road to Haymarket |
| 02 | Section 02 | Haymarket Corridor |
| 03 | Section 03 | Haymarket to Granton Square |
| 04 | Section 04 | Granton Square to Newhaven Road – (Future Development) |
| 05 | Section 05 | Roseburn Junction to Gogar |
| 06 | Section 06 | Gogar Depot |
| 07 | Section 07 | Gogar to Edinburgh Airport |
| 08 | Section 08 | Ingliston Park & Ride to Newbridge – (Future Development) |

Intermediate Geographical Sections

| | |
|-----|---|
| 01A | Newhaven Road (inclusive) to Foot of the Walk (exclusive) |
| 01B | Foot of the Walk (inclusive) to McDonald Road (exclusive) |
| 01C | McDonald Road (inclusive) to Princes Street West (exclusive) |
| 01D | Princes Street West (inclusive) to Haymarket (exclusive) |
| 02A | Haymarket (inclusive) - Roseburn Junction (inclusive) |
| 03A | Roseburn Junction (exclusive) to Crewe Toll (inclusive) |
| 03B | Crewe Toll (exclusive) to Caroline Park (inclusive) |
| 03C | Caroline Park (exclusive) to Granton (inclusive) |
| 04A | Granton (exclusive) to Lower Granton Road (inclusive) - Future Development |
| 04B | Lower Granton Road (exclusive) to Newhaven Road (exclusive) - Future Development |
| 05A | Roseburn Junction (exclusive) to Balgreen Road (inclusive) |
| 05B | Balgreen Road (exclusive) to Edinburgh Park (inclusive) |
| 05C | Edinburgh Park (exclusive) to Gogarburn (inclusive) |
| 06A | Gogar Depot |
| 07A | Gogarburn (exclusive) to Edinburgh Airport (inclusive) |
| 08A | Ingliston Park & Ride to Newbridge North - Future Development |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 601 |

Sub-Section (Tram Stop)

| | |
|----|---|
| 00 | Intermediate Section Wide |
| 01 | Depot |
| 02 | Depot Stop (exclusive) - Gogarburn (inclusive) |
| 03 | Gyle (exclusive) - Depot Stop (inclusive) |
| 04 | Gogarburn (exclusive) to Ingliston Park & Ride (inclusive) |
| 05 | Ingliston Park & Ride (exclusive) to Edinburgh Airport (inclusive) |
| 06 | Edinburgh Park Central (exclusive) - Gyle (inclusive) |
| 07 | Edinburgh Park Station (exclusive) - Edinburgh Park Central (inclusive) |
| 08 | Bankhead (exclusive) - Edinburgh Park Station (inclusive) |
| 09 | Saughton Road North (exclusive) - Bankhead (inclusive) |
| 10 | Balgreen Road (exclusive) - Saughton Road North (inclusive) |
| 11 | Murrayfield Stadium (exclusive) - Balgreen Road (inclusive) |
| 12 | Roseburn Junction (exclusive) to Murrayfield Stadium (inclusive) |
| 13 | Haymarket (inclusive) - Roseburn Junction (inclusive) |
| 14 | Shandwick Place (inclusive) - Haymarket (exclusive) |
| 15 | Princes Street West (inclusive) - Shandwick Place (exclusive) |
| 16 | St. Andrew's Square (exclusive) - Princes Street West (exclusive) |
| 17 | Picardy Place (inclusive) - St. Andrew's Square (exclusive) |
| 18 | McDonald Road (inclusive) - Picardy Place (exclusive) |
| 19 | Balfour Street (inclusive) - McDonald Road (exclusive) |
| 20 | Foot of the Walk (inclusive) - Balfour Street (exclusive) |
| 21 | Bernard Street (inclusive) - Foot of the Walk (exclusive) |
| 22 | Port of Leith (inclusive) - Bernard Street (exclusive) |
| 23 | Ocean Terminal (inclusive) - Port of Leith (exclusive) |
| 24 | Newhaven Road (inclusive) - Ocean Terminal (exclusive) |
| 25 | Roseburn Junction (exclusive) to Roseburn (inclusive) |
| 26 | Roseburn (exclusive) - Ravelston Dykes (inclusive) |
| 27 | Ravelston Dykes (exclusive) - Craigleith (inclusive) |
| 28 | Craigleith (exclusive) - Telford Road (inclusive) |
| 29 | Telford Road (exclusive) - Crewe Toll (inclusive) |
| 30 | Crewe Toll (exclusive) - West Pilton (inclusive) |
| 31 | West Pilton (exclusive) - Caroline Park (inclusive) |
| 32 | Caroline Park (exclusive) - Saltire Square (inclusive) |
| 33 | Saltire Square (exclusive) - Granton Square (inclusive) |
| 34 | St. Andrew's Square |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 602 |

Discipline Codes

| | |
|------|-------------------------------------|
| ACCB | Accommodation and Boundary Works |
| APPR | Approvals |
| APPP | Prior Approvals – Detail Design |
| APPT | Technical Approvals – Detail Design |
| ARCH | Architecture |
| AUXI | Auxilliary Power |
| BLDS | Buildings |
| BRDG | Bridges |
| CECS | CEC Services |
| CHAR | Charette Changes |
| COMM | Commissioning |
| DASB | Design – As Builts |
| DEMO | Demolition |
| DEPO | Depot |
| DRAN | Drainage |
| EART | Earthworks / Embankments |
| ELEC | Electricity |
| ENVI | Environmental |
| GASS | Gas |
| GEOT | Geotechnical |
| HIGH | Highways |
| HMRI | Railway Inspectorate |
| JNCS | Junctions |
| LAND | Landscaping |
| LIGH | Lighting |
| MANA | Management |
| MECH | Mechanical |
| MILE | Milestones |
| MISC | Miscellaneous |
| MODL | Modelling |
| MULT | Multi-Discipline |
| NETR | Network Rail |
| OHLE | OHLE |
| OTHW | Other Works |
| PLAT | Platforms |
| POWR | Power (Traction) |
| ROAD | Roads / Paths / External Works |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 603 |



Edinburgh Tram Network – Employer's Requirements

Section 39 – Programme

| | |
|------|-----------------------------------|
| SEWR | Sewerage |
| SIGN | Signalling |
| STAK | Stakeholder |
| STRL | Street Lighting |
| STRU | Structures / Retaining Structures |
| SUBM | Submissions |
| SUBS | Sub-Stations |
| SURV | Surveys |
| SYSC | Systems Communications |
| SYSE | Systems Engineering |
| TELC | Telecoms (Including Data) |
| TRAM | Tram Vehicles |
| TRCK | Track |
| TRMS | Tram Stops |
| TROS | Traffic Order |
| TTRO | Temporary Traffic Order |
| TUNN | Underpasses / Tunnels |
| UTIL | Utilities |
| WATR | Water Supply |

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 604 |

Phase Codes

| | |
|----|----------------------------------|
| D | DEVELOPMENT (Management) |
| L | LAND & PROPERTY (Management) |
| J | JRC (Management) |
| S | SDS DESIGN |
| ID | INFRACO DESIGN |
| M | MUDFA (Utilities - Construction) |
| A | ADVANCED WORKS (Construction) |
| I | INFRACO (Construction) |
| T | TRAMCO (Construction) |
| W | SYSTEM WIDE As Built Design |
| P | PROJECT WIDE |

Scope Type Codes

| | |
|---|-------------------------------------|
| O | Original Scope |
| A | Approved Change to Original Scope |
| U | Unapproved Change to Original Scope |

Line Codes

| | |
|----|--|
| 00 | Common |
| 1a | Phase 1a - Airport to Newhaven Road |
| 1b | Phase 1b - Roseburn Junction to Granton Square |
| 02 | Phase 02 - Granton Square to Newhaven Road |
| 03 | Phase 03 - Ingliston Park & Ride to Newbridge North - Future Development |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 605 |

40 Maintenance

40.1 Scope

The scope of this section is to define the maintenance requirements with which the Infraco must comply.

It is anticipated that the Edinburgh Tram Network will have been delivered, tested and commissioned and taken into operation in accordance with the other parts of these Employers Requirements.

The maintenance scope is to maintain the delivered Edinburgh Tram Network functionality for the Term according to this Section of the Employer's Requirements and the Agreement.

40.1.1 General

The Infraco maintenance responsibilities during the Term are detailed here and apply to both the Edinburgh Tram Network infrastructure and Trams. This section also details the Infraco's obligation to develop a maintenance strategy and plan for the Edinburgh Tram Network as a whole, for delivering a maintenance service. The strategy and plan shall include planned inspections and interventions, lifecycle replacement and response to unplanned equipment failures and damage for whatever reason. For the avoidance of doubt, in accordance with the Infraco Agreement, repair of damage due to accidents, vandalism, graffiti, theft, derailments, external influences, force majeure, and repair of damages due to improper handling or operation of the system, where this is not the responsibility of Infraco, entitles Infraco to payment for additional labour and material required in accordance with the Schedule of Agreed Prices.

In response to these requirements the Infraco shall develop a maintenance strategy to support and enable the Edinburgh Tram Network to maintain the performance standards, and a Maintenance Plan for all Infrastructure and Tram systems and elements under their responsibility, that make up the Edinburgh Tram Network. The Maintenance Plan shall be submitted to tie and reviewed and agreed in accordance with the Review Procedure.

The Infraco's performance in delivering effective maintenance will be measured, monitored and managed through a combination of the key performance indicators and availability criteria, and assessed by tie through a series of qualitative tests in accordance with the Agreement.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 606 |

40.1.2 Overall Objectives

The main objective of the Edinburgh Tram Network is to provide a safe, reliable, punctual, clean, easily accessible, comfortable and environmentally friendly transport service.

The Maintenance Plan shall form part of the Infraco integrated management system. This shall also include the following objectives, procedures and processes:

- The Parties shall co-operate to achieve the aims under the Agreement;
- The Infraco shall demonstrate how it will meet the Employer's specific requirements under the Infraco Agreement, particularly the requirements for the availability of the ETN and defined sub-systems;
- The Infraco shall manage all their Infraco Parties to ensure they fulfil the requirements of their contracts;
- The Infraco shall ensure that the activities of all Infraco Parties do not compromise the operations, safety and life expectancy of the ETN;
- The Infraco shall set up and adhere to schedules and programmes for all planned work, including adherence to the relevant Operations & Maintenance Specifications and Manuals provided by Infraco;
- The Infraco shall in discharging its obligations minimise any downtime on the system for the Operator;
- The Infraco shall co-operate with tie and interfacing parties including the Operator, CEC, Network Rail shall co-operate and, in particular, shall support any obligations they respectively have under their safety management system;
- The Infraco shall be aware of, and be compliant with Law and standards governing operation and maintenance of tram network infrastructure, systems, equipment, and any changes thereto; and
- The Infraco shall establish and maintain lines of communication with all interfacing and affected parties by means of scheduled meetings, consultation, notices, and when required by tie publicity, in regard to maintenance works.

| DOC NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 607 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

Each year the Infraco shall plan and undertake programmes to review and improve the levels of system availability, safety, performance, and delivery of the infrastructure and trams. The Infraco shall develop a performance improvement plan which shall be developed in conjunction with the Operator and shall be included in future issues of the infrastructure maintenance plan. Infraco shall update the Maintenance Plan in the light of operational experience and resubmit for approval in accordance with the Review Procedure in Schedule 14 of the Agreement.

The Infraco performance payment regime set out in Schedule 7 of the Agreement shall provide a financial incentive for Infraco to provide reliable systems and assets for operation and to undertake effective maintenance of the Edinburgh Tram Network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 608 |

40.2 Infrastructure Maintenance Requirements

40.2.1 Purpose

This Infrastructure Maintenance Requirements section identifies the output specification that the Infraco shall meet. This includes delivering planned preventative (cyclical), life cycle and corrective maintenance to the infrastructure of the Edinburgh Tram Network and all relevant plant and equipment for which Infraco is responsible. The Infrastructure Maintenance Plan, which shall be developed by Infraco in response to these Requirements, shall specify objective plans and specifications for maintenance from the pre-operational period and over the Term and shall contain a strategy complying with 40.2.4 of this Section. These Employer's Requirements may be reviewed as necessary during the operational period by agreement with tie. The Infrastructure Maintenance Requirements shall be read in conjunction with the other sections of these Employer's Requirements and with such 'as-built' technical documentation, design standards and Operation & Maintenance standards and manuals as are developed by the Infraco.

The Infrastructure Maintenance Plan shall be a fully controlled issue document. Updates shall be shown as a draft version until these are agreed by tie. It shall take into account all statutory, regulatory and contractual requirements in force at the time of issue.

40.2.2 Scope

The Infrastructure Maintenance Plan shall cover all maintenance activities, including but not exclusively, the response to unplanned equipment failures and damage for whatever reason, to the infrastructure, plant and equipment that make up the Edinburgh Tram Network. The following responsibilities matrix identifies the general scope for which the Infraco is responsible. The Infraco responsibility for Depot Plant and Equipment maintenance is identified in Table 83 - Depot Plant and Equipment to be Provided.

The Infraco detailed responsibilities in respect of road related obligations are contained in table 90 – Roads, structures in table 92 – Structures (as carried out by the Infraco or others) and landscaping (trees and vegetation).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 609 |

Table 89 – Infrastructure and Equipment Responsibilities Allocation Matrix

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|----------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Tram Stop Structure | | | | | | | | | | | | | | | | |
| Platform surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Platform Inclined Approach | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Canopy | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Inside surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| External surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Internal Roof surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| External Roof surfaces | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Integral Lighting | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Internal seating | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 610 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|--|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Tram Stop Furnishings | | | | | | | | | | | | | | | | |
| Stop Name Signage | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Static Information Signage | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Guard Rails/Barriers (as applicable) | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Lighting Columns | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Lighting Lanterns | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Litter Bins | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| External seating | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Platform Edge White Line | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Advertising Signage | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Stop Equipment | | | | | | | | | | | | | | | | |
| CCTV Cameras | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Public Address Loudspeakers | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Hearing Loops | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Passenger Information Displays | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Passenger Alarm/Help points | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Ticket Vending Machines (maintained & serviced by TEL) | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Drainage (Interface defined in Table 93) | | N/A | N/A | N/A | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 611 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|---|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Trackside Equipments | | | | | | | | | | | | | | | | |
| Stop Equipment Cabinets | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Stop Equipment Cabinet Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Traction Isolator Cabinets | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Traction Isolator Cabinet Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Point Control Cabinets | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Point Control Cabinet Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Point Heater Cabinets, Point Heaters & Controls | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Road Junction Cabinets | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| Road Junction Cabinet Equipment | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| Point Machines (including Manual Control) | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Contact Wire & Supports | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Poles | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Pole mounted Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Wall Fixings | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| OLE Wall fixed Equipment | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 612 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|--|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Tram Signal Heads (Roadside) | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Signal Posts (Trackside) | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Signals Posts | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram Detector Loops | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Lighting on OLE Masts | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trackside cable ducts | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trackside cables | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Cable drawpits | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Structures (Bridges, Retaining Walls etc) | | | | | | | | | | | | | | | | |
| Over Bridges See Table 95 for split | | N/A | N/A | N/A | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Under bridges See Table 95 for split | | N/A | N/A | N/A | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Retaining walls | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Misc Structures | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Swept Path | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Swept Path Markings | | N/A | N/A | N/A | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Track | | | | | | | | | | | | | | | | |
| Trackwork | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Points & Crossings | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Track Drainage | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Field' Stray Current Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 613 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|-------------------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Sub Stations | | | | | | | | | | | | | | | | |
| Sub Station Buildings | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Station Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Station Compounds | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Sub Station Parking Facilities | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Stray Current Monitoring Points | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Stray Current Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Earthing Equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trams | | | | | | | | | | | | | | | | |
| Free issue' tram mounted equipments | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Trams | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Tram saloon & Drivers cabs | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Radio | | | | | | | | | | | | | | | | |
| Portable radios | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Radio Base stations | | N/A | N/A | N/A | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Landscaping | | | | | | | | | | | | | | | | |
| Soft landscaping | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Hard Landscaping | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 614 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Floor | Room No. | Description | User Competence Assessor | Used by | | | Cleaned by | | | Maintained by | | | Access Controlled by | | |
|---|----------|---------------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|----------|---------------|-----------------|----------|----------------------|-----------------|----------|
| | | | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | Transdev |
| Stores, Workshops and Maintenance Area | | | | | | | | | | | | | | | |
| Ground Floor Level | | Stores Office Centrally located | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| | | Heavy Store (Infraco) | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Heavy store (Tramco) | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Visitors Entrance Hall | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| | | Workshop Cleaners Room | n.a | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| | | Light Store (Infraco) | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Light Store (Tramco) | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Infrastructure Workshop | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Dirty Workshop / Machine Shop | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Clean Workshop (Infraco) | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Clean workshop (Tramco) | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Lobby | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Male Toilets | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Male Showers | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Female Toilets | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Female Showers | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Staff Corridor | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | | Infrastructure Admin | n.a | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Maintenance (Tramco) Admin | n.a | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | First Aid | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| | | Sw itchroom | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Infrastructure Manager | n.a | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Maintenance (Tramco) Manager | n.a | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Store Room (Cleaners?) | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | | Staff Entrance Hall | n.a | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| | | Drying Room | n.a | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| | | Tram Batteries | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Equipment Room | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | UPS Room | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Compressor Room- Air tools | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | | Tram Maintenance Area | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Maintenance Area Transit Zone | | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | | Inspection Pits | | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| First Floor office accommodation | | | n.a | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Furnishings - Used, Cleaned, Maintained and Controlled as appropriate | | | | | | | | | | | | | | | |
| Chairs, Desks, Tables, Filing cabinets etc | | As Appropriate | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kitchen and Catering Equipment | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Reception Desk & Furnishings | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Control Room Furnishings | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ |
| Lockers, Coat Rails etc | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Training Room furnishings (Projector, Screen etc) | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| External | | | | | | | | | | | | | | | |
| Depot Yard | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ |
| Depot Stabling Area | | | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ |
| Electrical Sub Station | | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ |
| Power Energy Building (Electric, Gas etc) | | | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ |
| Depot Car Park | | | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 615 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Description | User Competence Assessor | Used by | | | Cleaned by | | | | Maintained by | | | | Access Controlled by | | | |
|-------------------------------|--------------------------|---------|-----------------|----------|------------|-----------------|-----|----------|---------------|-----------------|-----|----------|----------------------|-----------------|-----|----------|
| | | Infraco | Tram Maintainer | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev | Infraco | Tram Maintainer | CEC | Transdev |
| Miscellaneous | | | | | | | | | | | | | | | | |
| Communication & Control links | | N/A | N/A | N/A | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |

| LEGEND | |
|-----------------------------|-----------------|
| Provided by Tram Maintainer | |
| Provided by the Infraco | |
| ✓ | Responsible |
| ✗ | Not Responsible |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 616 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

Table 90 – Roads

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|---|--|--|----------------|---|--|
| Defects reporting CLARENCE, walking surveys, etc | Rail and rail containment | Infraco | | | Sharing of information between CEC & Infraco call centres. All part of the routine 28 day inspection, work arising dealt with below |
| | Tram Stops | Infraco | | | |
| | Overhead Line Equipment | Infraco | | | |
| | Tram duct access chambers | Infraco | | | |
| | Tram vehicle detection loops | Infraco | - | - | |
| | Non-tram vehicle detection loops | CEC | 1 working hour | | |
| | Temporary tram signs | CEC | 28 days | - | |
| | Coloured/textured surfacing for tram | CEC | 28 days | - | |
| | All other road related defects | CEC | 28 days | - | |
| Defect repairs | Rail and rail containment | Infraco | | | |
| | Tram Stops | Infraco | | | |
| | Overhead Line Equipment | Infraco | | | |
| | Tram duct access chambers | Infraco | | | |
| | Tram vehicle detection loops | Infraco | | | |
| | Temporary tram signs | Infraco | | | |
| | Coloured/textured surfacing for tram | CEC | | 3 months | Resurfacing only to be undertaken when it is agreed that it is required. |
| | All other road related defects | CEC | - | Emergency* (7 days) Non Emergency (3 months) | * Likely to result in injury (CEC liability, conscious decision by CEC on timescale) |
| Signals | Tram detection loops and cable to the UTC controller | Infraco | | 1hr | |
| | Traffic and tram signal equipment | CEC | | 4hrs | 24 hr response already contracted by CEC. |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 617 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|-------------------------|---|--|-----------|-----------------------|---|
| | Traffic detection | CEC | | 4hrs | |
| | CEC Traffic Control Centre | CEC | | 5mins | Telephone contact with CEC Control Centre except when this is unmanned when Tram control will be able to make a junction call themselves. |
| Lighting | On OLE poles | Infraco | | * 2hr | Response required when 6 or more adjacent lights fail. |
| | Platforms | Infraco | | * 1hr | Response required when 2 or more adjacent lights fail. |
| | Street Lighting | CEC | | * 2hr | Response required when 6 or more adjacent lights fail. |
| | All other illuminated road signs and bollards | CEC | | 28 days | |
| Winter Maintenance | Roads | CEC | | * 2hrs | |
| | Cycleways/footways | CEC | | * 2hrs | |
| | Platforms on-street | CEC | | * 2hrs | |
| | Platforms off-street | Infraco | | * 2hrs | |
| Removal of obstructions | On road/footway including non-segregated tramway path, platforms and platform ramps | CEC | | * 1hr | May involve Lothian and Borders Police |
| | On tramway (segregated sections) | CEC | | *1hr | |
| | On platform (segregated sections) | CEC | | *1hr | |
| CCTV | For roads | CEC | | 28 days | |
| | For tram | Infraco | | 2 days | |

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 618 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

Table 91 – Roseburn Corridor

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|---|--|--|-----------|---|--|
| Defects reporting CLARENCE, walking surveys, etc | Cycleway/footway | CEC | 28 days | | |
| | Retaining walls | CEC | 28 days | | |
| | Lighting | CEC | 28 days | | |
| | Embankment/cutting and its vegetation | CEC | 28 days | | |
| | Kick-rail | Infraco | | | Demarcation between areas |
| | Fencing – between cycleway/footway and tramway | Infraco | | | |
| | - all other fencing | CEC | | | |
| | Noise Barriers | Infraco | | | If required and do not form a part of the perimeter fencing. |
| | Grass track | Infraco | | | |
| | Drainage | Infraco | | | |
| | Tram Stops | Infraco | | | |
| | Overhead Line Equipment | Infraco | | | |
| | Tram duct access chambers | Infraco | | | |
| | Tram vehicle detection loops | Infraco | | | |
| | Temporary tram signs | Infraco | | | |
| | Coloured/textured surfacing for tram | Infraco | | | |
| Defect repairs | Cycleway/footway | CEC | | Emergency* (7 days) Non Emergency (3 months) | |
| | Retaining walls | CEC | | | |
| | Lighting | CEC | | | |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 619 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| | | | | | |
|-------------------------|---------------------------------------|---------|--|--------|--|
| | Embankment/cutting and its vegetation | CEC | | | |
| | Kick-rail | Infraco | | | |
| | Fencing | Infraco | | | |
| | Noise Barriers | Infraco | | | |
| | Grass track | Infraco | | | |
| | Drainage | Infraco | | | |
| | Tram Stops | Infraco | | | |
| | Overhead Line Equipment | Infraco | | | |
| | Tram duct access chambers | Infraco | | | |
| | Tram vehicle detection loops | Infraco | | | |
| | Temporary tram signs | Infraco | | | |
| | Coloured/textured surfacing for tram | Infraco | | | |
| Winter Maintenance | Cycleways/footways | CEC | | * 2hrs | |
| | Platforms | Infraco | | * 2hrs | |
| Removal of obstructions | On cycleway/footway | CEC | | * 1hr | May involve Lothian and Borders Police |
| | On tramway and platform | Infraco | | * 1hr | |
| CCTV | At Tramstops | Infraco | | 2 days | |

| | | | | |
|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 620 |

Table 92 – Structures

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|--|--|-----------|-----------------------|--|
| Structures | S01 Roseburn Terrace Bridge Existing structure to carry trams and cycles | CEC | | | <p>CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance (see Definitions below).</p> <p>Existing deck to be removed by the Infraco and fascia to be incorporated within new structure. The existing abutments will be retained to support the embankments but will not support the new bridge deck. Inspection report available. No major defects noted that would present a future maintenance liability.</p> |
| | S02 Coltbridge Viaduct Existing structure to carry trams and cycleway | CEC | | | <p>CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance.</p> <p>Existing structure has been inspected (inspection report available) and assessed. The existing structure will carry the proposed tramway with a new steel walkway attached to the western elevation. Any defects noted during the inspection will be rectified by the Infraco during the construction of the walkway and new deck slab.</p> |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 621 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|---|--|-----------|-----------------------|--|
| | S03 St George School Access Bridge Existing road bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance (if CEC own it). Infraco will be responsible for day-to-day maintenance. Existing structure has been inspected (inspection report available) but no assessment has been undertaken as the structure provides vehicular access over the proposed tramway. |
| | S04 St George School footbridge Existing footbridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance (if CEC own it). CEC to be responsible for polycarbonate sheets. Existing structure has been inspected (inspection report available) but no assessment has been undertaken as the structure provides pedestrian access over the proposed tramway. |
| | S05 Ravelston Dykes Bridge Existing bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance. TEL will be responsible for day-to-day maintenance. Existing structure has been inspected (inspection report available) but no assessment has been undertaken as the structure provides vehicular access over the proposed tramway. |
| | S06 Craigleith Drive Bridge Existing bridge to carry trams and cycles | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. The structure have been inspected (report is available) and assessed. The structure has capacity to carry the proposed tramway. No major defects were noted. |

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|-------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 622 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|--|--|-----------|-----------------------|--|
| | S07 Holiday Inn Access Bridge Existing road bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. Existing structure has been inspected (inspection report available) but no assessment has been undertaken as the structure provides vehicular access over the proposed tramway. |
| | S08 Queensferry Road Bridge Existing road bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. Existing structure has been inspected (inspection report available) but no assessment has been undertaken as the structure provides vehicular access over the proposed tramway. |
| | S09 Groathill road South Bridge Existing bridge to carry trams | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. The structure have been inspected (report is available) and assessed. The structure has capacity to carry the proposed tramway. No major defects were noted. |
| | S10 Telford Road Bridge Existing road bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. Existing structure has been inspected (inspection report available) but no assessment has been undertaken as the structure provides vehicular access over the proposed tramway. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 623 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|---|--|-----------|-----------------------|---|
| | S11 Drylaw Drive Bridge Existing bridge to be demolished | | | | Structure to be demolished by the Infraco. |
| | S12 Crewe Road Gardens Bridge Existing road bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. Structure to be extended by the Infraco over the proposed tramway. No inspection or assessment has been undertaken. A full set of construction drawings for the structure were provided. |
| | S16 Victoria dock Entrance Bridge Existing bridge carrying to carry trams and general traffic | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. An inspection of the structure was undertaken (inspection report is available), however, no assessment has been undertaken to date. |
| | S17 Tower Place Bridge Existing bridge carrying to carry trams and general traffic | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. An inspection of the structure was undertaken (inspection report is available), however, no assessment has been undertaken to date. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 624 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|---|--|-----------|-----------------------|--|
| | S18 Leith Walkway Railway Bridge Existing | Network Rail | | | The structure has been inspected and assessed (reports are available). The structure has capacity to carry the proposed tramway. The major defect noted during the inspection, leaking water main, has now been rectified. However, the next routine inspection should confirm that no adverse affects have occurred to the substructures. |
| | S19 Haymarket Station Viaduct New | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. |
| | S20 Russell Road Bridge New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S21A Roseburn Street Bridge New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S21B Murrayfield Stadium Retaining Wall New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S21C Murrayfield Stadium Underpass New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S21D Murrayfield Training Pitches R/W New | Infraco | | | Infraco to be responsible for all maintenance. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 625 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|---|--|-----------|-----------------------|---|
| | S21E Water of Leith Bridge New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S22 Balgreen Road Bridge New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S23 Carrick Knowe U/B New bridge carrying trams and cycles | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. |
| | S24 Saughton Road Bridge Existing WEBS bridge | Infraco | | | Infraco to be responsible for all maintenance. This structure was constructed as part of the WEBS project. Full construction drawings were supplied to ensure that the structure is integrated into the tram system without any modification. An assessment report confirming this is available. |
| | S25 Broomhouse Road Bridge Existing WEBS bridge | Infraco | | | Infraco to be responsible for all maintenance. This structure was constructed as part of the WEBS project. Full construction drawings were supplied to ensure that the structure is integrated into the tram system without any modification. An assessment report confirming this is available. |
| | S26 South Gyle Access Bridge New tram only bridge | Infraco | | | Infraco to be responsible for all maintenance. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 626 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|--|--|-----------|-----------------------|---|
| | S27 Edinburgh Park Station Bridge New tram only bridge | Infraco | | | Infraco to be responsible for all maintenance. |
| | S28 A8 Underpass New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S29 Gogar Burn Bridge New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S30-31-34 Gogar Culverts New | Infraco | | | Infraco to be responsible for all maintenance. |
| | S32 Depot Access Bridge New road bridge over tram | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. |
| | S33 No longer required | | | | |
| | W01 Lindsay Road Retaining Wall New | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. |
| | W02 Ferry Road Retaining Wall New | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. |
| | W03-04 Russell Road Retaining walls 1&2 New | Infraco | | | Infraco to be responsible for all maintenance. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 627 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|---|--|-----------|-----------------------|--|
| | W08 Baird Drive Retaining wall New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W09 Balgreen Road Retaining wall 1 New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W11 Bankhead Drive Retaining. Wall New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W14 & W15 Gogar Burn Retaining Walls New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W16 A8 Retaining Wall New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W17 Depot Internal Retaining Walls New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W18 Murrayfield Tramstop Retaining Wall New | Infraco | | | Infraco to be responsible for all maintenance. |
| | W19 Gyle Stop Retaining Wall New | Infraco | | | Infraco to be responsible for all maintenance. |

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|------------------|---------|-----------|------------|-------|
| DOC.NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 628 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Task or Activity | Sub-heading | Maintenance Works to be undertaken by: | Frequency | Minimum Response Time | Comments |
|------------------|---|--|-----------|-----------------------|---|
| | W100 Roseburn Corridor Retaining. Structures New | CEC | | | CEC to be responsible for the ongoing structural maintenance. Infraco will be responsible for day-to-day maintenance. |

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|-----------------------------|----------------|---------------------|--------------------|--------------|
| DOC.NO. PRO-INFRACO-1399 | VERSION 4.0 | STATUS FOR ISSUE | DATE 16/04/2008 | SHEET 629 |
|-----------------------------|----------------|---------------------|--------------------|--------------|

Clarification of terms used in Tables 89 to 92 inclusive of the Employers Requirements.

Tram Stop:

Shall comprise: shelters, lighting, passenger information, platform and ramps including the paving, kerbing/cope and soft landscaping, drainage, cleansing and waste removal, seats, cycle racks (where these are directly associated with the tramstop, ticket machines and waste bins).

Rail and Rail Containment

Shall comprise: the rail and rail drainage (up to the point where this ties in to existing road drainage), and the structural elements that contain its permanent placement, and any associated road repairs where these are a consequence of the tramway maintenance. In the case of Roseburn Corridor it shall also include the grass track, up to and including the kick-rail and fencing separating the tramway from the cycleway/footpath.

Overhead Line Equipment

Shall comprise: the pole, the overhead power line and any necessary equipment to allow the permanent placement of the overhead power line.

Tram duct access chambers

Shall comprise: chamber/manholes and permanent covers to access points to the tram related duct access points along the route.

Temporary tram signs

Shall comprise: traffic signs, including temporary speed restriction signs, which are erected from time to time for limited periods over and above permanent tram signs.

Coloured/textured surfacing for tram

Shall comprise: specialist coloured and textured surfacing, including skid-resistant and edge demarcation surfacing, which is laid specifically for hazards directly associated with the tram track over and above that required for general traffic.

Grass Track

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 630 |

Shall comprise: the rail and rail drainage and the structural elements that contain its permanent placement, and any associated repairs, all within the boundaries defined by kick-rails and/or fence/retaining walls.

Structures

"Day-to-day" maintenance of structures will comprise cosmetic treatments including cleaning, the removal of graffiti and localised repairs of paintwork where this is required as a result of graffiti removal.

"Structural maintenance" of any structures will comprise renewal of waterproofing and associated road surfacings; repairs to brickwork, masonry, concrete or steel; repairs to facings and cladding; repair and/or replacement of bearings; repairing 3rd party damage; and any other maintenance activity not mentioned in the "day-to-day" activities above. Where this will require the removal of the rails or its containment is required prior to the structural maintenance then this will be undertaken in all instances by Infraco and reinstated upon completion of the works.

Where activities are the obligation of the Infraco or the Infraco's Sub-contractors, or the Infraco is supporting other parties' roads, structures and Roseburn Corridor obligations, Infraco shall ensure that such obligations are fulfilled, to ensure the safety of the Edinburgh Tram Network is not degraded and that the ability of Infraco, Tram Maintainer, tie and the Operator to achieve their objectives is not frustrated.

40.2.3 Maintenance Approach

The approach to maintenance of the Edinburgh Tram Network ("ETN") shall be as follows:

- All day to day maintenance and inspection activities and planned life cycle renewals and refurbishments shall be planned, organised, undertaken and safely handed back to the Operator in an operational condition as required by the Infrastructure Maintenance Plan and the specifications (against which the ETN is built) and procedures;
- All activities carried out under the scope of the Infrastructure Maintenance Plan shall be the responsibility of the Infraco manager responsible for the maintenance obligations;
- All day to day maintenance, inspection activities and life-cycle replacement works shall be carried out in accordance with agreed procedures and method statements, in the knowledge of, and in liaison with, the Operator;
- Infraco will maintain system interfaces (e.g. Wheel / Rail or Pantograph / OLE), to the best effect for the ETN as a whole.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 631 |

- Maintenance and life-cycle replacement works shall be classified as planned or unplanned activities arising from condition assessment which has been determined by planned inspection and testing;
- Unplanned maintenance activities shall include rapid response to unplanned equipment failure and damage from whatever cause, and shall be monitored in accordance with the fault rectification times. The approach to each of these categories will be different but there shall be two managers (the Tram Maintainer and the Infraco, with one to be designated as the lead manager) liaising with the Operator's engineering manager, who are responsible for undertaking works in their area of responsibility. These managers shall be able to call upon the services of contractors to carry out all or part of these works.

40.2.4 Maintenance Strategy

Preventative Maintenance

The Infraco shall schedule interventions such that all components that make up the infrastructure shall be subject to checks, repairs and conditioning treatments in order to maximise the asset and component lives, and in advance of critical tolerances being reached which would have affected operation, or have reduced their performance in the service for which they were designed.

Two types of preventative maintenance shall be undertaken:

- Systematic preventative maintenance that follows a predetermined schedule based upon time, usage and data gained through operational and maintenance experience such as:
 - Condition inspection and safety checks; for example, grooves for excessive wear, damage, or debris;
 - Cleaning of equipment and drains;
 - Functional tests to reveal faults; and
 - Adjustments to enable optimum operation.
- Conditional preventive maintenance including carrying out planned inspections to establish if the performance or operation of infrastructure sub systems are within pre-determined measurable parameters such as:
 - Vibration and noise levels ;

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 632 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

- Temperature thresholds in substation transformers etc.;
- Wear limits on rail, and wire height and stagger, etc.;
- Including non-destructive testing as appropriate; and
- Points operation times and geometric limits.

The Infraco shall take the necessary corrective maintenance action arising as a consequence of the conditions where these are out of tolerance.

Reactive and Fault Correction Maintenance

The Infraco shall repair or change damaged or faulty equipment, following the observation of any failures and/or the occurrence of incidents. This involves two kinds of intervention:

- Breakdown in service requiring specific intervention shall be limited to re-establishing safe, robust and sound operating conditions. This shall require a specific intervention, to be carried out by Infraco staff within the limits of the equipment and operating rules and procedures agreed with the Operator and tie.
- Repairs: this covers interventions that shall be undertaken following incidents or failures that occur in operation, potentially involving a longer stoppage of equipment including overhauls of parts of a sub-system or section of the line. This is an intervention of lasting character, carried out by maintenance staff or contractors. After repair, if equipment has been replaced, then it shall conform to its original specifications or such alternative standards as agreed with tie; or in the event that the equipment is reconditioned then it shall conform with allowable tolerances.

Response times for reactive and fault correcting maintenance will be based on the potential impact of the incident or failure. A response to an incident is to be initiated within the time limits specified in Clause 52 of the Agreement. Fault Correction times are detailed in the table on the following page.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 633 |

Table 93 - Fault Correction Requirements

| Fault category | Correction Time Limit Between 08:01-22:00 | Correction Time Limit Between 22:01-06:00 | Description |
|--|---|---|---|
| 1 | 1 hour to attend and make safe and functional. 2 hours to Breakdown Intervention | 2 hours to attend and make safe and functional. Rectified by 07:30 | Critical issue such as Health & Safety risk, or failure halting the operation of the tram network in whole or part thereof, failure of major system |
| 2 | 2 hours | 3 hours | Failure impacting the punctuality of the tram network, or having potential to impact. |
| 3 | 8 hours | 9 hours | Failure or incident not having immediate impact on network operation, but impacting the quality of the Transport Services as monitored by the Edqual Service elements in Schedule 7 of this Agreement |
| 4 | 1 week | 1 week | Failure or incident not impacting network operation, nor quality of the Transport Services as monitored by the Edqual Service elements in Schedule 7 of this Agreement |
| Tramstop lighting Fault | 2 days | 2 days | |
| Tramstop telephone Fault | 3 days | 3 days | |
| Fault causing the lift at Murrayfield Tramstop or depot to be out of operation | 6 hours | 6 hours | |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 634 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Fault category | Correction Time Limit Between 06:01-22:00 | Correction Time Limit Between 22:01-06:00 | Description |
|--|--|--|-------------|
| Tramstop electronic passenger information display Fault | 2 days | 2 days | |
| Tramstop PA system Fault | 24 hours | 24 hours | |
| Tramstop CCTV Fault | 2 days | 2 days | |
| Defect, fault or other disrepair that restricts access to all or part of a Tramstop or otherwise interferes with its use | 1 day | 1 day | |
| Defect, fault or disrepair causing a trip hazard at an Tramstop (including unintended changes of floor levels or protrusions from the floor of more than 25mm) | 24 hours | 24 hours | |
| Defect degrading system access to | 6 days | 6 days | |

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|------------------|---------|-----------|------------|-------|
| DOC NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 635 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Fault category | Correction Time Limit Between 06:01- 22:00 | Correction Time Limit Between 22:01- 06:00 | Description |
|--|---|--|-------------|
| below DDA requirements | | | |
| Broken glass at a Tramstop or the depot | 2 hours | 2 hours to attend, make safe and functional. Rectified by 07:30 | |
| Overflowing / damaged gutter at a Tramstop or the depot | 24 hours | 24 hours | |
| Structural defect, fault or other disrepair at a Tramstop or the depot | 28 days | 28 days | |
| Any other defect, fault or other disrepair at a Tramstop or the depot (including in relation to shelters, seats, canopies, signage, cycle parking, litter bins and poster cases) but excluding blocked | 5 days | 5 days | |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 636 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Fault category | Correction Time Limit Between 06:01- 22:00 | Correction Time Limit Between 22:01- 06:00 | Description |
|---|---|---|-------------|
| drains, overgrown vegetation and fencing faults. | | | |
| Blocked drain other than on a street running section of the Edinburgh Tram Network System | 24 hours | 24 hours | |
| Blocked drain on a street running section of the Edinburgh Tram Network System | 2 hours | By 07:30 if notified between 22:01 and 05:30 | |
| Overgrown vegetation | 3 days | 3 days | |
| Defect, fault or disrepair fencing such that access to the track or buildings and equipment is not prevented | 6 hours | 6 hours | |
| Defect, fault or disrepair in respect of a Monitoring Point or any other | 24 hours | 24 hours | |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 637 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| Fault category | Correction Time Limit Between 06:01- 22:00 | Correction Time Limit Between 22:01- 06:00 | Description |
|--|---|---|-------------|
| electronic monitoring equipment | | | |
| Structural defect, fault or disrepair other than at a Tramstop or the depot | 28 days | 28 days | |
| Any other defect, fault or disrepair other than at a Tramstop or the depot | 2 days | 2 days | |

Note:

The foregoing table concentrates on elements not covered by the punctuality and qualitative criteria of the Performance Monitoring Regime set out in Schedule 6 to the Agreement.

The Infraco shall develop an electronic system for the management of reactive and faulting maintenance. The system shall be based upon the electronic Event Logger which will be situated in the Control Centre and shall enable the accurate analysis, reporting and logging of faults and other reactive maintenance requirements (including cleaning) including the time and date when they were reported and the time and date when they were cleared. Infraco shall manage all faults through to a satisfactory resolution and will provide a full record and audit trail including details of how the resolution was achieved and the time taken to achieve it. The full details of the system to be agreed with tie and shall form part of the asset management system as referred to in these Employer's Requirements.

Life Cycle Maintenance

The Infraco shall refurbish and replace elements of infrastructure before its performance deteriorates below the design, stated tolerances or equipment has become obsolete and/or is incurring disproportionately high maintenance costs as assessed by the Infraco and proposed to tie.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 638 |

The initial lifecycle replacement plan will be based upon the manufacturer's stated design life, Infraco's previous experience, and assumptions on the impact of designed use.

Subsequent annual updates will take into account condition and reliability data gathered during the inspection, maintenance and operational use.

Further Maintenance Activities

In respect of the ETN, the Infraco shall in addition to preventive, life cycle and reactive maintenance undertake the:

- Removal of graffiti;
- Repair vandalism and accident damage; and
- Cleaning.

Repair of vandalism and accident damage and removal of graffiti will be undertaken by the Infraco and, where this is not caused by the Infraco or any of the Infraco Parties, the Infraco shall be entitled to payment for additional labour and material required in accordance with the Schedule of Agreed Prices.

40.2.5 Organisation, Training and Competency

Staffing Plan, Recruitment and Training Plan

The description of the Infraco organisation for all aspects of maintenance and all management and administrative support shall be set out in Infraco human resources plans (staffing plan and recruitment and training plan). These documents shall contain all details of:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 639 |

- Organisational structure;
- Job descriptions and required competencies;
- Standard training courses;
- Compliance with all appropriate Law and regulations;
- and the procedures required to:
 - Recruit staff to fulfil the various employee roles and maintain the required establishment;
 - List the scope of items to be sub-contracted by the Infraco;
 - Monitor the performance and competency of maintenance staff whether direct labour or contractors; and
 - Secure and review the required competencies and associated training courses.

The maintenance documents submitted in draft form with the Infraco Proposals shall subsequently be developed and agreed with tie and Operator as part of the Infraco Works. This will include the identification of key staff. These documents shall be reviewed and updated when necessary, and at least annually.

It is to be expected that there will be an element of staff turn-over during the contract period. The Infraco shall include in the plan their process of ensuring quality is maintained and knowledge is managed and maintained. The proposed replacement of any key staff member of Infraco shall be notified to tie and to the Operator.

40.2.6 Quality, Health, Safety and Environmental

Health and Safety

For all matters relating to Health and Safety, Infraco shall produce and maintain a Safety Management Plan, which shall comply with the requirements of ISO18001 and be certified by an ISO approved body. The Safety Management Plan shall be reviewed and updated when necessary, and at least annually.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 640 |

Environmental and Sustainability Management

For all matters relating to environmental and sustainability management Infraco shall produce an Environmental Management Plan. This shall set out the various environmental legal and regulatory requirements that Infraco shall comply with and the Infraco standards, processes and procedures that will enable compliance with such environmental, legal and regulatory requirements, to also meet its obligations under the various agreements to which it is a party, the tie Environmental and Sustainability policy and shall in all respects comply to the requirements of ISO 14001 and be certified by an ISO approved body.

The Environmental Management Plan shall be submitted to tie prior to completion of Section A on Site, and shall be reviewed and updated when necessary, and at least annually.

Quality

The Infraco HSQE Manager shall be responsible for providing a Quality Management Plan within the Quality Management System which shall comply with the requirements of ISO 9001 and be certified by an ISO approved body. The Quality Management Plan shall be available at least three months in advance of any maintenance activities commencing. The Infraco HSQE Manager shall be responsible for auditing and inspecting the requirements of all Infraco plans, processes and procedures.

The Quality Management Plan shall be submitted to tie, and shall be reviewed and updated when necessary, and at least annually.

Safety

The Infraco shall develop, to the satisfaction of tie, the Independent Competent Person as defined under the ROGs regulations, HMRI and other Approval Bodies, a generic safety management system for the commissioning and operation of the ETN that complies with the ROGs regulations.

The generic safety management system shall be capable of development to a full and final version prior to commencement of commissioning of the ETN.

The preliminary work on the safety management system will include the production of a safety justification framework document that will indicate the likely format and some of the detail of the eventual Case for Safety that the Operator, Infraco and Tram Maintainer will be required to present to, and gain approval from, the Competent Person as defined under the ROGs Regulations.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 641 |

The framework document will be drafted in conjunction with the Operator and tie and in consultation with the Competent Person, as defined under the ROG's Regulations and other relevant Approval Bodies describing how system safety is achieved through system design supported by system maintenance and system operation. It shall embrace the following subject areas:

- Description of system design, maintenance and operation: Introductory section giving general description of the ETN, identification of safety responsibilities and reporting mechanisms;
- Arrangements during construction and initial access to the lines: organisation and management of working staff, safety, emergency arrangements, identification of staff, insurance, safety audit, arrangements for keeping and distributing records;
- Arrangements for testing and staff training: organisation and management of staff, safety arrangements including staff working on the tramway, emergency arrangements, identification of staff, insurance, fault analysis, safety audit, arrangements for keeping and distributing records;
- Infrastructure management: track, speed limits, public crossings (surface and bridges), fencing, Tramstop infrastructure, monitoring and reporting systems;
- Tram operation arrangements: operating arrangements including fitness and training of staff, certification of staff, tram preparation, defect repair and breakdown procedures and communications;
- Tramstop arrangements: access for contractors, control of access and vandalism and security;
- Tram maintenance arrangements: engineering and operational acceptance of tram vehicles, competence of staff engaged on maintenance, quality assurance, technical audit, monitoring, reporting of defects, procedure for imposing operating restrictions, acceptance of trams for the transport services;
- Infrastructure maintenance: inspection procedures, accreditation, control and monitoring, reporting procedures, emergency arrangements, communications, signage and warnings in the operating environment;
- Interfaces with other organisations: liaison with emergency services, HMRI and Roads authorities;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 642 |

- Risk assessment: assessment of the risks associated with all aspects of the project operations including groups of people most at risk, severity of failure event and likelihood of event occurring;
- Health and safety policy: policy statement, monitoring arrangements, alcohol and drug policy including testing and disciplinary action; and
- Code of practice for working on or near the line;
- Control of safety critical work.

40.2.7 Liaison with tie and Other Parties on Maintenance Related Issues

Infraco Communications Plan

The Infraco shall create a Communications Plan (which shall be agreed with tie as part of the finalisation of the Infrastructure Maintenance Agreement) for all matters related to communications between the Infraco, the Operator, Tram Maintainer, tie, TEL, CEC and if required by tie other third parties.

A Communications Plan shall be submitted to tie prior to commencement on Site, and shall be reviewed and updated when necessary and at least annually.

The Infraco shall establish effective lines of communication with the Operator and tie, through the control centre and planning staff in order to plan maintenance activities around tram service requirements. The Infraco shall pay particular attention to communication in respect of the planning and undertaking of works having a direct impact on the operation of the ETN, the return to full service following completion of the maintenance and unplanned maintenance activities or repairs covering day to day operations and tie/third party long-term contractual matters.

The Infraco shall provide details of how effective lines of communication with the Operator and tie will be set up and maintained throughout the Term. This will include details of how key staff and expertise will be provided "on call" at all times to the Operator in the event of unforeseen breakdowns etc. Infraco shall after liaising with the Operator propose a process for system / equipment handover after the completion of maintenance activity to be agreed with tie and a programme of daily meetings to discuss punctuality performance (and associated deductions) and infrastructure availability.

The Communications Plan shall be aligned with that of the Operator and Tram Maintainer to ensure communication in critical areas, such as health and safety management, access arrangements for maintenance and response, and permits to work, are coordinated.

| DOC NO | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 643 |

40.2.8 Reporting

Annual Review

Infraco shall prepare an annual review report, "The Annual Review Report". The content of the Annual Review Report shall be agreed with tie and address the following, as a minimum:

- Health and safety, environmental and quality annual performance reports and proposals for improvement;
- Annual report on planned, reactive and lifecycle maintenance activities carried out against programme, together with impact of shortfalls and proposals for recovery;
- Overall system performance, trends in condition or failures and recommendations based on learning though the process of delivering maintenance; and
- Summary and classification of complaints and significant events, together with actions taken / recommended.
- Recommendations based on learning though the process of delivering maintenance.

Infraco shall be responsible for arranging each year's Annual Review Meeting, to take place, as nearly as possible, twelve months after the previous year's Annual Review Meeting.

Infraco shall issue the meeting agenda and all required management reports and papers, as agreed with tie, no later than five working days in advance of each meeting.

Reporting period review

The reporting period review report shall include comprehensive details to cover as a minimum the following information for the relevant Reporting Period:

- Output from performance measurement system with associated performance deduction calculations as Schedule 7;
- Details of all events after associated with failures to provide Available Infrastructure and Available Trams;
- Health and safety, environmental and quality reports;

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 644 |

- Maintenance report showing progress against Annual Maintenance Plan and detailing the programme for the upcoming eight weeks, including;
 - A statement on planned maintenance, including cleaning, performance during the Reporting Period and any backlog;
 - Report on reactive and fault correcting maintenance, including cleaning, required during the Reporting Period, impact on Tram service, and any wider implications to the service and the Maintenance;
 - Any planned future works to be carried out within the eight week period, howsoever arising, which have the potential to disrupt the operation of the Edinburgh Tram Network service; and
 - Infrastructure condition, failures in the Period and mitigation undertaken in Period and with recommendations and actions to be taken, complaints and any significant events.

Infraco shall schedule the Four weekly Review Meetings no less than one month in advance of each meeting.

Infraco shall issue the meeting agenda and all required management reports and papers, as agreed with tie, later than five working days in advance of each meeting.

Records

Infraco shall maintain all records necessary for the effective delivery of the maintenance services. All records shall to be up to date within ten Business Days of the end of the relevant Reporting Period relating to the specific record. Records are to be the property of tie, access to the records will be afforded to tie within five days of a request being made. Records will be kept for the longer of the Term or 6 years from the day the maintenance service was performed.

The record details, including format, storage medium, recovery procedure, administration and access, are to be proposed within the draft Communication Plan, and discussed and agreed with tie in conjunction with the final Communications Plan.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 645 |

The agreed method of communicating a request will be included within the Communications Plan.

40.2.9 Infrastructure Maintenance Plan - Overview

Infraco shall develop and deliver a Maintenance Plan that ensures that all the Infrastructure assets and equipment safely continue to meet their designed operational performance or specification, meet the availability targets identified within the Contract, and support the achievement of the performance regime.

40.2.10 Development of the Plan

An Infrastructure Maintenance Plan shall be developed by Infraco and submitted to tie prior to commencement of maintenance activities. This shall detail how maintenance will be delivered in response to the infrastructure maintenance requirements; where it is not possible to include elements of detail at the time, a development plan will be included, identifying exactly what information is outstanding, and when it will be provided.

The completed Infrastructure Maintenance Plan will be submitted by the date identified in the development plan and agreed with tie.

During the operational phase Infraco shall submit to tie an annual infrastructure maintenance plan for review and approval three months before the anniversary of the Service Commencement Date of the Edinburgh Tram Network or part thereof. The new plan will detail the planned and life cycle maintenance for the following year in order to provisionally approve planned works. The process of approval is to be agreed with tie during the tender stage.

Life Cycle Requirements

A Lifecycle Replacement Plan shall be included within the Infrastructure Maintenance Plan. This will detail all planned lifecycle replacement works over the Term.

The annual updates to the Infrastructure Maintenance Plan will include an updated Lifecycle Maintenance Plan detailing life cycle replacement works until the end of the maintenance period.

The planned maintenance strategy (including cyclical and life-cycle maintenance) should be such that the performance of the Edinburgh Tram Network should never fall below that of the designed operational performance or specification, within the Term.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 646 |

Reactive Maintenance Requirements

The Infraco Maintenance Plan shall detail Infraco's assumptions on the volume and type of reactive maintenance likely to be experienced in the relevant period, and should detail how their resource planning has been prepared to respond to it.

Frequencies

The Infraco Maintenance Plan shall indicate the frequency and sequence to which maintenance will be undertaken; based upon statutory obligations, manufacturer's and best practice recommendations, Contractor's experience and operational performance and availability requirements.

Maintenance Codes

A standard Work Breakdown Structure, consistent with that defined for the construction phase, shall be established to identify maintenance tasks to various infrastructure sub-systems.

40.2.11 Tools

The Infraco shall maintain and replace as appropriate, a full set of tools sufficient for the maintenance of the ETN in good condition and calibrated where necessary.

40.2.12 Availability and Warranty

The availability requirement for the Edinburgh Tram Network is contained within the performance regime.

Lack of availability of key systems or the late running of trams due to failures which are the Infraco responsibility will give rise to the imposition of performance deductions from the fee payable under Schedule 6. Details of the performance regime are set out in the Schedule 6.

During any warranty period or extended warranty period associated with any part and during the Term (as set out in the Agreement), a robust process shall be in place to manage the return and replacement of parts thus contributing to optimal operational service, whilst optimising the management of warranty claims under the Agreement.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 647 |

40.2.13 Asset Management System

An integrated asset maintenance management and recording system shall be provided and utilised by Infraco in order for data obtained from the tram and infrastructure sub-systems or other sources to be collated and analysed. This will enable the Infraco to assess safety and performance issues and to facilitate modifications and changes, where necessary, to the maintenance plan and working practices including the asset management system itself.

A computerised asset management system shall be established, in a form to be agreed with tie, to facilitate maintenance of the assets and allow data obtained from the infrastructure sub-systems, trams or other sources to be collated and analysed. This will include development of an asset register.. This will enable technical staff to assess safety and performance issues and to facilitate modifications and changes, where necessary, to the maintenance plan and working practices.

In addition to recording all the assets as they arrive on site, the asset management system shall record against each discrete item provided with a serial number:

- Its date of registration;
- Its location(s), including transfers from one site or equipment to another;
- Its maintenance history, with references etc.;
- Its fault history;
- Its maintenance prognosis (when maintenance is next due etc.); and
- Overdue inspection / maintenance.

The functional details of the asset management system will be integrated with the hard copies of the suite of operation and maintenance manuals and comply with the requirements specification for an asset management system.

40.2.14 Work Instructions

Infraco shall verify that they and all sub-contractors have carried out the necessary planning to undertake all proposed maintenance activities in accordance with the Infrastructure Maintenance Plan and all necessary risk assessments, method statements and work instructions.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 648 |

For each maintenance activity type, detailed work instructions will be broken down against equipment type and artisan skill set to facilitate planning of the work. Each work instruction will provide a step by step breakdown of the work involved including information about how any equipment to be worked on should be accessed and / or made safe.

40.2.15 Minimum Spare Parts Holdings

In order to cover all planned infrastructure maintenance and arising corrective maintenance, sufficient spares shall be held by the Infrastructure Maintainer throughout the duration of the Infrastructure Maintenance Agreement to ensure that delays in completing planned or corrective maintenance are not experienced due to parts unavailability.

Infraco will provide details of its planned spares holding within the Infrastructure Maintenance Plan.

The Infrastructure Maintainer shall be required to maintain, at all times, a minimum holding of certain spare parts. The schedule of minimum spare parts holding will be developed by tie and Infraco as part of the finalisation of the Infrastructure Maintenance Agreement. The level of minimum spare parts holding will also be reviewed every year to ensure that it is appropriate on the basis of operational experience and Infraco's ongoing requirements.

For the avoidance of doubt, the initial stock / holding of spares shall be provided as part of the initial capital expenditure by Infraco. The Infraco maintainer shall be responsible for the replacement of any spare part used and the stock / holding shall be maintained at the same level, subject to adjustments approved by tie, based upon experience, once the ETN is operational. Where repair is to be undertaken in-situ, information shall be provided of any special facilities or equipment required. Where equipment is to be returned to the original equipment manufacturer (or any other organisation) for repair, it shall be demonstrated that the holding is sufficient to allow for predicted turnaround times.

Wherever reasonably practicable and where cost efficient the Infrastructure Maintainer shall source as many consumable spare parts and as much repair work from approved local suppliers in the interests of cost efficiency and minimisation of lead times.

40.2.16 Maintenance Records

All maintenance work performed shall be logged for record, monitoring and audit purposes. This shall be recorded in a log book and in the asset management system.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 649 |

40.2.17 Indicative Scope

Infraco shall develop their Infrastructure Maintenance Plan to include all fixed Infrastructure and mobile equipment under their responsibility; this includes, but is not limited to those identified in table below.

The maintenance of Infrastructure shall generally be based on the recommendations of the manufacturer or designer, and as set out in the operating and maintenance manual. Specific additional requirements are listed in the second column.

Table 94 - Infrastructure Maintenance Plan Scope

| System, Element or Service | Its Specific Requirements |
|------------------------------------|---|
| Overhead Line Electrification | |
| Control and Communications Systems | <p>The common failure reporting of the SCADA system, the log files of computers and the recording devices shall be used for the detection of failures in addition to fault reports provided by the Operator.</p> <p>As the Closed Circuit Television (CCTV) and the Public Address System (PA) at the Tramstops and in the depot area are crucial for the security of the site, their proper functioning shall be monitored. CCTV cameras need to be cleaned regularly and recording media made available. Quick repair of any faulty or damaged CCTV equipment shall be conducted to maintain Tramstop security. It is equally essential that the information given over the PA system be clear and audible, taking into account ambient noise level at Tramstops.</p> |
| Power Supplies and Sub-Stations | |
| Tramstops | <p>Regular maintenance is essential to ensure that features, which were designed to prevent crime and improve the environment, do not deteriorate and present opportunities for crime and raise fears for personal security.</p> <p>It is also crucial to ensure that Help Points are clearly signed and well lit so that their location is clear to passengers on the Tramstop. Therefore, the quick repair of faulty or damaged equipment is essential.</p> |
| Pest Control | Special planned maintenance shall be considered for vermin |

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|------------------|---------|-----------|------------|-------|
| DOC.NO | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 650 |

| System, Element or Service | Tie Specific Requirements |
|--|--|
| | control, pigeon shoots and the removal/ cleaning of birds' droppings and nests. These activities shall be scheduled as required and every six months intervals maximum throughout the ETN. |
| Depot Building and Yard | Special planned maintenance shall be considered for vermin control, Pigeon shoots and the removal/cleaning of birds' droppings and nests. These activities shall be scheduled as necessary and every six months intervals maximum. Infraco will ensure that safe, secure, access and use of the facilities is not impeded by adverse weather conditions such as snow and ice. |
| Lighting for Depot Building, Depot Yard, Tramstops, P&R Site, Control Centre and Offices | |
| Track Work and Roads | |
| Landscaping | A landscape and vegetation plan shall be developed and adhered to by Infraco to summarise the responsibilities and frequency and scope of the management of trees on, or closely adjacent to, the System (see Third Party Agreements (Schedule 13) and the Code of Maintenance Practice). |
| Structures | Regular drain clearing |
| Internal Workshop Equipment | This equipment should be supplied to Infraco with the corresponding operating instructions, which also contain instructions for proper maintenance. |
| External Workshop Equipment | |
| Infraco Road Vehicles | Maintenance of vehicles shall be in line with best practice and legislative requirements |

40.2.18 Cleaning Maintenance Plan

Within the Infrastructure Maintenance Plan Infraco shall include a cleaning plan which shall detail the cleaning schedule for all infrastructures and equipment for which Infraco have responsibility. In addition to scheduled cleaning, if required by tie, Infraco shall provide a reactive cleaning service to respond to specific incidents causing litter or hazards. Where this requires additional material or labour, the scope and costs shall be agreed in advance in writing in accordance with the Agreement.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 651 |

40.2.19 Track and Infrastructure Cleaning

The Infraco shall ensure that all locations for which Infraco has responsibility are kept free of rubbish and litter. The locations shall be cleaned in accordance with the location categories defined in any Regulations made under the Environmental Protection Act 1990. These categories are:

- Category 1 Walkways linking to public rights of way or road;
- Category 9 Railway embankments in urban areas.

The complete ETN shall be litter picked once every six months on average with the area within the Tramstop being litter picked every month.

Infraco cleaning of Tramstops shall be limited to the following:

- CCTV cameras;
- Passenger Information Displays; and
- Public Address speakers.

40.2.20 Depot Building and Yard, Offices and Car Park

Infraco shall ensure that all locations for which Infraco has responsibility are kept free of rubbish and litter. The areas within the Depot shall be cleaned in accordance with the frequencies stipulated in the Infrastructure Maintenance Plan, but no less than the following:

- Toilets – once a day;
- Canteen areas – once a day;
- Offices – once a day;
- Corridors and communal areas – once a day;
- Workshop area – once a day; and
- Car Park and Depot Yard – once a week.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 652 |

40.2.21 Cleaning Records

All cleaning work performed shall be logged for record, monitoring and audit purposes. This shall be recorded in a log book and in the CMS.

40.3 Tram Maintenance Strategy

40.3.1 Purpose

The purpose of this tram maintenance section is to describe how Infraco shall procure that Tram Maintainer shall meet its obligations under the Tram Maintenance Agreement and its obligations under the Operators safety justification document in respect of maintenance and all references to Tram Maintainer responsibilities in this section shall be read as Infraco responsibilities and the Infraco shall have overall responsibility for the compliance. This includes the fleet of trams supplied under the Tram Supply Agreement and any relevant plant and equipment for which the Tram Maintainer is responsible. The final version of the Tram Maintenance Plan, to be developed by Tram Maintainer in response to these Employer's Requirements, will set out the specific objectives for the pre-operational period and the first twelve years of operation, following which this document may be reviewed. This Tram Maintenance section should be read in conjunction with the Tram Maintenance Agreement, and with such 'as-built' technical documentation and operation and maintenance manuals as shall be provided by the Tram Supplier.

The Tram Maintenance Plan shall be a fully controlled document. The Infraco shall procure that Tram Maintainer will take into account all mandatory requirements in force at the time of issue. It shall be updated annually allowing a three month review period to take cognisance of operational experience.

40.3.2 Scope

This Tram Maintenance section covers the maintenance activities for the following:

- Tram servicing & maintenance (planned activities);
- Tram repairs (unplanned activities); and
- Cleaning of the trams (primarily the responsibility of the Operator).

Where certain activities are the obligation of parties other than Tram Maintainer, the Tram Maintenance section will describe how the Tram Maintainer shall ensure that such maintenance obligations are fulfilled, so as to ensure the safety of the ETN, is not degraded and that the ability of the Operator to achieve its objectives is not frustrated.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 653 |

Table 89 – Infrastructure and Equipment Responsibilities Allocation Matrix and Table 83 - Depot Plant and Equipment to be Provided identifies the scope for which the Tram Maintainer is responsible.

Overall Objectives

The overriding objective is to operate a safe, reliable, punctual, clean, easily accessible, comfortable, and environmentally friendly transport service which meets tie's expectations.

The Tram Maintenance Plan will be developed to deliver this objective by:

- Co-operation with Infraco to achieve the aims of the Tram Maintenance Agreement;
- Meeting the specific requirements under the Tram Maintenance Agreement, particularly the defined performance standards in respect of tram availability and reliability;
- Diligent management of subcontractors to ensure they fulfil the requirements of their subcontracts;
- Adherence to the relevant Operations and Maintenance Manuals;
- Setting up and adherence to schedules and programmes for all planned work;
- Co-operation with interfacing parties and in particular the support of any obligations they have under a 'Safety Case', 'Safety Management System' or Legislation;
- Awareness of, and compliance with, legislation, statutes, regulations, and standards governing the operation of the Tramway and any changes thereto. (This will include reviews to identify any necessary changes to any established operating procedures for Phases 1a and 1b); and
- Establishing and maintaining lines of communication with all interfacing and affected parties by means of scheduled meetings, public meetings and consultation. Each year the Tram Maintainer shall undertake programmes to improve the safety, performance, and delivery of the Tram service. These programmes shall be developed in the form of a performance improvement plan which shall be included in future issues of the Operations and/or Tram Maintenance Plan.

Maintenance Approach

The approach to maintenance of the Trams shall be as follows:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 654 |

Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

- All day to day maintenance and inspection activities and any "special works" are to be planned, organised, carried out and safely handed back to an operational status under the requirements of this Tram Maintenance section and Infraco and/or Operator procedures and regulations;
- All activities carried out under the control of the Tram maintenance plan are the responsibility of a named Tram Maintainer manager (or his named deputy) responsible for the maintenance obligation;
- Maintenance activities are classified as planned, or unplanned arising from condition determined from planned inspection and testing;
- The approach to each of these classifications will be different but essentially there will be two managers (Tram Maintainer and Infraco) liaising with the Operator's Engineering Manager, for carrying out the works in their area of responsibility with Infraco having overall responsibility. Subject to prior approval, these managers may call upon the services of approved sub-contractors to carry out some of these works; and
- Tram maintenance staff will have been trained to drive the Trams within the Depot and will do so when Operator drivers are unavailable to do so.
- The Tram Maintainer shall minimise the operational downtime of the tram vehicles or any other equipment under its control for maintenance.

Table 95 - Maintenance Plan

| Maintenance Activity | Planned Frequency | Responsible Manager | Contracted out to External Supplier – Tenderer to complete |
|--|-----------------------|-------------------------|--|
| Inspection of Trams | Yes See Appendix 1 | Tram Maintainer Manager | |
| Servicing of Trams | Yes See Appendix 1 | Tram Maintainer Manager | |
| Maintenance & overhaul of Trams | Yes See Appendix 1 | Tram Maintainer Manager | |
| Cleaning of trams Sanding, consumable replenishment | Yes See Appendix 1 | Operator | N/A |
| Repairs as required to trams to deliver the timetable (including | Unplanned | Tram Maintainer Manager | |

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|------------------|---------|-----------|------------|-------|
| DOC NO. | VERSION | STATUS | DATE | SHEET |
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 655 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

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| accident damage and vandalism repairs) | | | |
|---|--|--|--|

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 656 |

40.3.3 Organisation, Training, and Competency

Staffing Plan, Recruitment & Training Plan

The description of the Tram Maintainer organisation for all aspects of the operation, maintenance, and all management and administrative support of Phases 1a and 1b shall be set out in the Tram Maintainer human resources plans, staffing plan and recruitment and training plan. These documents will contain details of:

- Job descriptions and required competencies; and
- Standard training courses;
- and the procedures required to:
 - effectively recruit staff to fulfil the various employee roles;
 - monitor their performance; and
 - secure and review the required competencies and associated training courses.

These documents shall be agreed with tie as part of the finalisation of the Tram Maintenance Agreement.

40.3.4 Quality, Health, Safety, & Environment

Health and Safety

For all matters relating to health and safety the Tram Maintainer shall produce a Safety Management Plan which shall be agreed with tie as part of the finalisation of the Tram Maintenance Agreement. This Plan shall set out all relevant or appropriate regulatory requirements that the Tram Maintainer has to comply with, and the Tram Maintainer standards and procedures that it will have to develop to comply with legislation. The Plan will also meet the obligations under the Tram Maintenance Agreement. The Safety Management Plan must not prejudice the Operator safety case. The Tram Maintainer shall operate complaint to ISO 18001.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 657 |

Environment

For all matters relating to environmental management, the Tram Maintainer shall produce an Environmental Management Plan which shall be agreed with tie as part of the finalisation of the Tram Maintenance Agreement. This Plan shall set out all relevant and appropriate regulatory requirements that the Tram Maintainer shall comply with, and the Tram Maintainer Standards and Procedures that it will have to develop to comply with legislation. The Plan will also meet the obligations under the various Agreements. The Tram Maintainer shall operate in compliance within EN14001.

Quality

The Tram Maintainer shall be responsible for quality in so far as implementing the requirements of the above two plans in respect of auditing and inspecting the requirement of all Tram Maintainer plans and procedures. The Tram Maintainer shall operate to and achieve accreditation to ISO 9002.

40.3.5 Liaison with Promoter & Other Parties on Maintenance Related Issues

Communications Plan

The Tram Maintainer shall create a Communications Plan (which shall be agreed with tie as part of the finalisation of the Tram Maintenance Agreement) for all matters related to communications within Infraco, the Operator, and all relevant third parties and stakeholders.

It is critical that the Tram Maintainer establishes effective lines of communication with the Operator, through their Control Centre, in order to plan the maintenance activities around service requirements. This specifically relates to the withdrawal of Trams for planned preventative maintenance and returning of Trams for service following completion of these activities and unplanned maintenance activities or repairs.

The Tram maintainer will provide details of how effective lines of communication with the Tram Operator will be set up and maintained throughout the period of the Tram Maintenance Agreement. This will include details of how key staff and expertise will be provided 'on-call' at all times to the Operator in the event of unforeseen tram breakdowns etc. It will also include a system for Tram handover after the completion of Tram Maintenance activity and a programme of daily meetings to discuss punctuality performance (and associated deductions), tram defect status and future Tram utilisation.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 658 |

40.3.6 Tram Servicing and Maintenance Plan

Fleet Overview

The Tram fleet for Phases 1a and 1b will consist initially of 27 Trams, each capable of carrying about 250 passengers.

The Trams will be maintained at a new purpose-built depot.

40.3.7 Maintenance Plan Overview

All planned and preventative inspection and maintenance shall be carried out using a programme that shall be agreed annually between tie and Infraco. A balanced programme is required for this type of rolling stock, enabling the most efficient use of Tram downtime.

Maintenance schedules and examination job titles in this document have been drawn from general experience of similar vehicle types, and do not relate to any particular vehicle. It should be noted that all exams, sequences and frequencies mentioned are indicative at this stage, and will be reviewed once further fleet and maintenance contractor details are known.

Unplanned repair activities are not included in this Tram Maintenance section but shall be provided by the Tram Maintainer in terms specified in the Tram Maintenance Agreement.

40.3.8 Maintenance Strategy

Tram Planned Preventative Maintenance

There are two types of preventative maintenance which are to be carried out:

- Systematic preventative maintenance which follows a predetermined schedule such as:
 - Condition inspection and safety checks;
 - Cleaning of equipment;
 - Functional tests to reveal faults; and
 - Adjustments to enable optimum operation.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 659 |

- Conditional preventative maintenance consists of carrying out regular inspections to determine that the performance, or operation of, Tram sub-systems remain within pre-determined measurable parameters, such as:
 - Vibration and noise levels;
 - Temperature threshold; motors and cooling circuits, etc.;
 - Wear threshold; wheel diameter, suspension heights/clearances, and pantograph height, etc.; and
 - Door operation times.

Tram Corrective Maintenance

This type of maintenance entails repairing or changing faulty equipment, through observation of failures. It involves three kinds of intervention:

- Breakdown in service requiring specific intervention. Immediate repairs are to be carried out rapidly to clear the line as quickly as possible. This activity is limited to re-establishing sound operating conditions and assisting the Operator to re-establish operational headways. Unless a repair can be rapidly undertaken to ensure safe, normal operation of the affected Tram for the remainder of the day, the affected Tram should be withdrawn from service and returned to the Depot where a more permanent repair, under controlled conditions, may be carried out.
- Repairs. This covers interventions carried out following incidents or failures that occur in operation, or identified from routine maintenance activity, generally involving a longer stoppage of equipment including overhauls of an entire Tram or major Tram component or operating system. This is an intervention of lasting character, carried out by maintenance staff (or approved sub-contractors). After repair, the Tram must conform to its original specifications.
- Whilst not strictly a breakdown, the Tram Maintainer shall also be required to assist with the recovery of any Tram derailment occurring on the line and carry out the appropriate re-railing technique, irrespective of the cause of the derailment. The Tram Maintainer will advise the Operator of the safe condition, or otherwise, when re-railing of the Tram has been completed.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 660 |

Further Maintenance Operations

Preventive maintenance and corrective maintenance must be complemented by:

- Operations that contribute to the good image of public transport (appearance and comfort) such as removal of graffiti and re-applying freshening up paintwork, that cannot be achieved by the Operator through routine cleaning methods; and
- Checks on wheel condition (profile and flats).

The final version of the Tram Maintenance Plan shall include the proposed programme for all Tram preventative maintenance and further maintenance operations.

The periodicity/interval and duration of all planned preventative maintenance activities shall be specified in the final version of the Tram maintenance plan. It is anticipated that most intervals will be fixed-time intervals based upon calculated scheduled service distances, to be specified by the Tram Supplier. If any activities are specifically based upon a kilometreage based interval, which cannot readily be related to elapsed time, this should be made clear in the proposal.

The various examination types, based on their interval shall be categorised by code letter and the activities to be undertaken shall be fully detailed. The information should be summarised in the form of a matrix or star/dot chart where the breakdown of exam type is shown labelled on one axis and equipment or sub-system to be worked on is labelled on the other axis.

The Tram Maintainer will also create a list of standard repair times for items that are susceptible to damage or failure in service, such as replacement of glazing, lower front skirts, pantograph etc. Where possible, standard durations for repair and fixed prices for these repairs shall be established.

Maintenance Codes

A standard set of maintenance codes should be established to identify maintenance tasks to various Tram sub-systems:

The following standard set of codes is proposed (and are used in the Star Charts) and should be developed further as the details of the Tram design and recommended maintenance approach are understood:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 661 |

Table 96 - Star Charts

| Code | Area |
|------|-------------------------------------|
| A | Sanding System |
| B | Brakes |
| C | Bodywork |
| E | Battery and Control Systems |
| F | Radio and communications systems |
| G | Pantograph |
| H | Heating and Ventilation |
| I | Interior Trim and Fittings |
| M | Electrical Machines |
| O | Doors |
| P | Electrical Traction Power Equipment |
| T | Mechanical Transmission |
| U | Underframe and Bogies |
| Z | Emergency Equipment |

Maintenance star charts setting out the indicative periodicities for maintenance activities shall be developed as part of the Maintenance Plan.

These star charts are to be developed in line with the finalisation of the Tram Maintenance Agreement and Tram Supplier's recommendations.

40.3.9 Availability and Warranty

The availability requirement for phases 1a and 1b of the ETN will be established in detail during the tendering process. Where possible, at peak periods and for special events, all trams should be made available.

Any lack of availability will give rise to the imposition of availability deductions from the fee payable under the Tram Maintenance Agreement. Details of the availability performance regime are set out in the Tram Maintenance Agreement. This also sets out the requirement for a 'hot spare' Tram and for Trams to be available for training purposes outside of peak hours.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 662 |

During the Warranty and Extended Warranty period (as set out in the Tram Supply Agreement) a robust process must be in place to manage the return and replacement of parts thus ensuring optimal operational service, whilst optimising the management of warranty claims under the Tram Supply Agreement.

40.3.10 Technical Management

An integrated, computer-based maintenance management and recording system (CMS) should be utilised in order for data obtained from the maintenance of the Trams or other sources to be collated and analysed. This will enable the technical team to assess safety and performance issues and to facilitate modifications and changes, where necessary, to the Tram Maintenance Plan and working practices.

The CMS shall also provide a real-time configuration management control system of the Trams by recording serial numbers of all components on the Trams. This record shall also be updated whenever components are exchanged or replaced during maintenance or repair of the Trams.

The CMS will need to be capable of interfacing with Infraco and/or tie's systems to facilitate remote access to maintenance management data.

40.3.11 Work Instructions

In order for Infraco to be able to verify that the Tram Maintainer has carried out the necessary planning to undertake all proposed preventative maintenance activities in accordance with the Tram Maintenance Plan, details of the work activities shall be submitted for information only.

For each exam type detailed work instructions will be broken down against equipment type and artisan skill-set to facilitate planning of the work. Each work instruction will provide a step-by-step breakdown of the work involved including information about how any equipment to be worked on should be accessed and/or removed from the Tram.

Each work instruction should, as a minimum, include details of:

- Health and safety precautions;
- Key skills and competencies required to undertake the work;
- Consumable components to be replaced;
- Special tooling (if any);

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 663 |

- Particular Depot facilities required; and
- Agreed time to complete the task.

40.3.12 Minimum Spare Parts Holdings

In order to cover all planned Tram Preventative Maintenance and arising Corrective Maintenance, sufficient spares shall be held by the Tram maintainer throughout the duration of the Tram Maintenance Agreement to ensure that a Tram is seldom unavailable for service due to parts unavailability.

Spares fall into the following categories:

- Consumables (brake pads, filters, bulbs etc.);
- Line Replaceable Units (repair on site);
- Line Replaceable Units (return to OEM for repair); and
- All other equipment.

The Tram Maintainer shall provide details of its planned spares holding and into which of each of the above categories each item falls.

In order to facilitate a seamless transition of Tram Maintenance services from one Tram Maintainer to another on the expiry or earlier termination of the Tram Maintenance Agreement, the Tram Maintainer shall be required to maintain, at all times, a minimum holding of certain spare parts. The schedule of minimum spare parts holding will be developed by tie and the Tram Maintainer as part of the finalisation of the Tram Maintenance Agreement. The level of minimum spare parts holding will also be reviewed after three years to ensure that it is appropriate on the basis of operational experience and Infraco's ongoing requirements.

Failure to maintain the minimum spare parts holding will give rise to an availability deduction being made in respect of the maintenance fee.

Where repair is to be undertaken on site, information shall be provided of any special facilities or equipment required. Where equipment is to be returned to the original equipment manufacturer (or any other organisation) for repair, it shall be demonstrated that the holding is sufficient to allow for predicted turnaround times. Estimated lead times for all other spares shall also be provided.

Where line replaceable units (LRUs) are exchanged as part of normal Tram preventative maintenance (to be brought up to optimum condition off the vehicle), the appropriate work

| DOC NO | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 664 |

instruction should be explicit regarding this fact and should also state the approved time for exchange of such components. The spares holding of LRUs should be sufficient to cater for this method of working.

Wherever possible the Tram maintainer shall source as many consumable spare parts and as much repair work from approved local suppliers in the interests of cost efficiency and minimisation of lead times.

40.3.13 Cleaning Maintenance Plan

Tram Cleaning

Internal and external cleaning of Trams is the responsibility of the Operator. This will also include the removal of graffiti, except where this cannot be removed by normal cleaning methods or requires replacement of the panel(s) concerned. In such cases the panels will be replaced or made good by the Tram Maintainer. This shall also include the replacement of window glazing due to damage by etching.

The Tram Maintainer must ensure that adequate quantities of interior and exterior body panels, glazing and window sealing materials are kept in stock to meet this obligation.

40.4 Maintainability, Maintenance and Spares

40.4.1 General

An asset register shall be produced by the Infraco and the Tram Maintainer and populated by them with equipment data, serial numbers etc. The asset register shall be available prior to the commencement of delivery of equipment and materials. All spares, tools and test equipment which are delivered as part of the Works, shall be entered in the asset register.

Performance, reliability, fault / failure data shall be available that enables analysis of the Edinburgh Tram Network for product improvement.

Data shall be presented to maintenance staff such that potential causes of faults / failures are clearly identified.

Hardware components shall be easily accessible and not require specialist equipment for their removal or replacement.

Connectors shall be used which permit fast and easy disconnection and replacement of faulty / failed components and prevent dirt and moisture ingress and are suitably supported and specified for the operating environment in which they are used.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 665 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

Maintenance regimes, component replacement programmes and spares holding levels shall be determined through fault tree, cause-consequence and Markov analysis, as appropriate, and ratified through the verification and validation process.

Spares that have potential long lead times, or minimum order quantities, shall be identified and adequate quantities held on site in order to achieve the performance requirements of the system including repair times.

The Edinburgh Tram Network shall be designed to facilitate inspection, repair, maintenance and fault finding without interruption to the ETN operations and performance.

Spares provided shall be sufficient to ensure the continuous operation of the system from the date of the Edinburgh Tram Network handover to tie. These spares shall include provision for damage and vandalism. The Edinburgh Tram Network design shall be underwritten such that all equipment / system suppliers shall warrant that all equipment in the design shall be available for the design lives specified and that they shall give tie a minimum of twelve months notice where after that period they intend to cease supply of that component.

Equipment housings / enclosures and their contents, e.g. racks etc. shall not exceed 2.0m in height unless specifically agreed by with tie.

The lowest mounting point, plug-in group or terminal block shall not be less than 0.4m above floor level unless specifically agreed by with tie.

Cables shall be clearly identified at each end of the cable connections by clearly visible and indelible labels. Related drawings shall describe the labelling conventions.

The maximum use shall be made of readily available and fully proven 'industry standard' materials and components. These shall remain readily available for the projected life of the Edinburgh Tram Network and which shall be supported in the market place on an ongoing basis.

Provision for handling the possible obsolescence of any of the components during the projected life of the ETN without degrading the ongoing performance of the Edinburgh Tram Network shall be individually addressed prior to supply/construction.

The detailed arrangements for the delivery, storage, management, and control of spare parts shall be agreed between the Infraco, the Tram Maintainer and the Operator as part of the arrangements for the ongoing operation and maintenance of the ETN.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 666 |

In addition, Infraco shall procure that an adequate supply of consumables and spares shall be available to support the testing, commissioning and shadow running.

The Infraco / Tram Maintainer shall establish and maintain a log of all such consumables and spares used during this process and an updated copy shall be presented with each monthly progress report.

Where cables are to be provided, they shall contain sufficient slack to permit reasonable disturbance during maintenance.

40.4.2 Structures and Civil Engineering

As the bulk of these features will be static, the quantity of spares shall include those items that may suffer attrition as a result of accidents and vandalism such as signage, bollards, etc., and any special features bespoke to the ETN.

If not readily available, small quantities of special surfaces, e.g. tactile paving, etc., shall be stocked but it is anticipated that common wearing surfaces will be repaired using materials commonly available to the trade.

40.4.3 Track

In respect of track and ancillaries, the levels and numbers of spare holdings of major replacement elements, such as rails, sleepers, switch half-sets and full-sets, and crossings – 'standard' supply and more importantly of bespoke design – are considered to be of critical importance. At least one point machine, point indicator and hand operated mechanism shall be provided. Additionally, quantities of small parts and day-to-day maintenance items, together with special equipment such as buffer stops, are to be provided, based on instructions contained in the maintenance manual and on forecast component lives. In proposing the numbers of all spares holdings, the objective will be to ensure, as far as will be reasonably practicable, uninterrupted operation of the tram services.

40.4.4 Training

An indicative training plan for all parties involved in the maintenance and operation of the Edinburgh Tram Network System shall be produced and submitted to tie within six months of the Commencement Date. This shall be updated as required thereafter and as a minimum, be submitted to tie every eight months.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 667 |

40.4.5 Infrastructure and Trams

Training and Competency

Staff training and competency assessments shall be carried out in accordance with best practice. The requirements of the ROGs regulations for safety critical work shall be observed.

Training Plan

An indicative training plan for all staff of the Edinburgh Tram Network System shall be produced within six months of the Commencement Date.

Both operating and maintenance training courses shall be provided for all of the items of supply associated with the Edinburgh Tram Network, including the operation and maintenance of all specialist plant and tools provided or required. All training materials and classes shall be in the English language.

The training may take place either at an individual contractor's premises or, locally on the tramway system or at other facilities to be agreed with the Operator/Maintainer and made available by the training supplier. All these arrangements shall be with the prior agreement of the Operator/Maintainer. "Maintainer" in this Section regarding Training in maintenance and operation means both Infraco and Tram Maintainer.

A training plan shall be provided for each group of trainees (i.e. Operator and Maintainer) covering all the items of supply. The plan will set out in a logical manner the order, duration, location and the content of the training to be given, the type (i.e. classroom, practical hands on) and the scope (i.e. operation, routine maintenance, first line repair, second line repair etc).

The Training Plan shall take due account of the Operator's proposed operational plan and the maintainer's proposed maintenance plan and any manufacturer's or otherwise recommended maintenance intervals for the scope of equipment supplied as well as all manufacturer's maintenance intervals for the equipment provided.

The Training Plans will clearly set out the course objectives. These will ensure that:

- All appropriate grades of operational and maintenance staff are able to perform, in a proper, effective and safe manner all necessary scheduled and reasonably foreseeable unscheduled tasks in order to functionally operate, maintain, fault find and safely restore in the shortest time in the event of any failure, the full functionality of the systems and equipment forming the Edinburgh Tram Network.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 668 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

- All appropriate operational and maintenance staff are able to comprehend environmental and operational conditions, safety concepts and the health and safety requirements when carrying out their duties.
- All appropriate operational and maintenance staff are able to correctly interpret and make proper correct safe and effective use of all operational electronic data, displays and printed/written documentation presented to them in the course of their duties.
- The competence of all of the trainees shall be certified in a format that is compliant with all of the obligations placed on the employers of the trainees.
- The Training Plans shall clearly set out the level of testing of trainees, and how the certification of trainees will be achieved and documented. It shall also set out the method of participant feedback to be used following the completion of the training. Where appropriate, the testing and certification process will be split where appropriate to ensure competency on particular items of equipment, systems and methods.
- The training plans shall be agreed with tie and the operator prior to the commencement of the training.

Training Material

Infraco will provide, inter alia, the following training materials appropriate to the individual training session.

- Twelve sets of all training material and two sets of the Training plans and trainer's course material and notes, together with copy discs, drawings and artwork shall be provided to enable the Operator/ Maintainer to provide future training courses for himself when necessary.
- All training material, including master discs, drawings and artwork, will be updated within four months of the completion of the training on the basis of the formal feedback from attendees and the Operator/ Maintainer of 'lessons learnt' and from its practical application on the tramway on a routine basis and shall reflect all changes made to the system such that the system and training are fully aligned.
- In the event of any of the systems or equipment supplied and installed having to be modified or amended or the maintenance requirements for the same being revised within the Warranty period, the training material shall be revised and updated to reflect the changes to equipment, components or procedures that have become necessary.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 669 |

Training Costs

All relevant costs, including travel and accommodation, associated with the effective training of the Operator/Maintainer's staff, on site or remote, shall be at the expense of the training provider, including materials, classrooms and instructors, but excluding the time cost for the trainees.

40.4.6 Maintenance Training

All relevant costs associated with the effective training of the Operator/Maintainer's staff, on site or remote, shall be at the expense of the training provider, including materials, classrooms and instructors, but excluding the time cost for the trainees.

Training courses and materials shall be provided in line with the Training Plans. These shall cover all operations necessary for the maintenance, repair and renewal of all the infrastructure and equipment forming the ETN systems throughout its life including items such as fault diagnosis, replacement and repair of equipment, software maintenance, system structure, integration and interfaces and hardware and software set-up.

The training shall include training on all the specialist tools and test equipment and software required to maintain and operate the system.

The training shall be structured as set out in the training plan to cover the basic theory, system operation overview, routine maintenance, first line fault rectification, second line fault rectification, renewals and software maintenance.

The training documentation shall include reference to manufacturer's documentation and also include all documentation, drawings, and technical data required to provide a single reference for the items covered by the training. The documentation will include fault identification and rectification process flow charts to assist maintenance personnel in identifying and rectifying faults. The initially recommended periodicity of inspections, tests and routine maintenance or rectification processes shall include 'pass' or 'fail' criteria. In the case of a 'failed' test, the appropriate course of action, with remedies for such inspections, tests and maintenance shall be detailed. Course documents, course content and notes shall be submitted for approval by tie.

Risk assessments shall be carried out on all of the proposed maintenance methods and where found to be appropriate safe systems of work shall be included within the training material and training. COSHH assessments will be carried out on all substances to be used in the training and proposed for the maintenance of the equipments. All such documentation shall be submitted to tie for approval.

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 670 |

Personal Protective Equipment for course attendees shall be provided, as appropriate, by Infraco.

Testing and certification of the attendees shall be carried out. Upon completion of the training on each section of the equipments and systems, all attendees shall be required to pass a written and practical test for evaluation and certification purposes by the trainer to confirm that personnel are competent to carry out all necessary tasks. The certification process and documentation shall be submitted to tie. The individual results and certification shall be fully documented and presented to tie and the Operator / Maintainer for their records.

40.4.7 Operational Training

Sufficient Operational Training Courses shall be provided in line with the Training Plan for all the various grades of the Operator/Maintainer's staff, to ensure that safe and proper operation of the system can be achieved throughout its life, commencing with the formal take-over of the ETN.

The training shall be structured as set out in the training plan to cover the operation of the ETN under all operating conditions, including normal running and working in the many degraded modes, and in the recovery from degraded modes.

The training shall include operator familiarisation and functional training in conjunction with the Factory and Site Acceptance Tests of the integrated system and Control Centre systems.

The training shall provide comprehensive hands-on training on the equipment and systems for all operational equipment including trams.

This shall include the simulation of a service and all associated equipments and failures.

The training shall include full details of the functionality of the tramway and control systems.

The training documentation shall include reference to manufacturers' documentation and also include all documentation, drawings, and technical data required to provide a single reference for the items covered by the training. The documentation shall include fault identification process flow charts to assist the Operator / Maintainer in identifying faults and to assist in the deployment of the correct maintenance personnel.

40.5 Information Procedures, Records and Manuals

40.5.1 General

All designers, suppliers, installers and maintainers of the Edinburgh Tram Network shall provide comprehensive documentation in support of their works. Such documentation shall be prepared in

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 671 |

accordance with the contractual requirements, Employer's Requirements and any other relevant documentation.

This information will be included in the form of the Project Health and Safety File. The file will be divided into Sections and Volumes in a manner to be agreed with **tie**. Each Section will be numbered in sequence and may comprise more than one volume. The volumes shall be identified by an integrated sequential numbering system.

40.5.2 Information

Information to be provided shall include, but shall not necessarily be limited to:

- Product literature;
- Design parameters, specifications, data and drawings;
- Product specifications;
- Illustrated parts lists;
- Product usage and examples of use service;
- Whole life cycle evidence and documentation;
- Maintenance and fault finding;
- Spares management, product storage and handling; and
- Health and Safety considerations and documentation.

40.5.3 Operation and Maintenance Manuals Information

Infraco shall produce for the Edinburgh Tram Network operating instructions for the system as a whole and for all individual sub-systems consolidated into an overall suite of bespoke Operations and Maintenance Manuals. This data shall be produced in hard copy form and shall also be available as an on-line database to operations and maintenance personnel.

The Edinburgh Tram Network shall have maintenance instructions for the system as a whole and for all individual sub-systems consolidated into an overall suite of Operations and Maintenance Manuals.

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|-------------------|---------|-----------|------------|-------|
| PRO-INFRA-CO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 672 |

This data shall be produced in hard copy form and available as an on-line database available to maintenance personnel. The technical documents and manuals shall be compiled electronically in a universal format such as XHTML.

Maintenance instructions shall be available in hard copy form and for download to remote/portable diagnostics terminals.

The Operations Manuals and Maintenance Manuals shall be comprehensively indexed and cross-referenced. They shall meet all requirements of an ISO 9000 Quality Plan, ISO 14000 Environmental Plan and ISO 18000 Health and Safety Plan. They shall take into account the relevant legal requirements and customary practices existing in Scotland. They shall be of a quality at least as good as that outlined in the SDS Maintenance Documentation Specification (reference number ULE90130-SW-SPN-00064).

They shall be prepared in accordance with a uniform approach, combining together the contributions from different contributors. They shall be consistent in terms of the page layout, indexing, language, tense, person and methodology of maintenance of each item of equipment on the system in a clear and concise manner.

The Maintenance Manuals shall include initial planned maintenance schedules and all inspection and maintenance frequencies. These frequencies shall include, but not necessarily be limited to, post commissioning, daily, weekly, specific and periodic inspection and procedural activities. All such activities shall be fully co-ordinated and integrated to minimise the frequency of visits and thus the possible disruption of the tram service.

The contributors shall update the manuals' information at periods considered appropriate to their equipment and/or installation supply throughout during the contracted period of maintenance and/or warranty agreement. Notwithstanding such interim updates, a full review and update will be undertaken at the end of such maintenance and/or warranty agreement. Such updating material shall be carried out and provided by the appropriate maintainer.

The master copy of the Manuals shall be held electronically and be accessible via the Internet using an appropriate access permission regime. The access arrangements shall record who accesses individual sections and when.

The information to be included in the manuals from the relevant subcontractors through the Infracore and Tram Maintainer shall include, but not be limited to the following:

- System Overview (including explanation of manuals content)

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 673 |

Landscaping Manuals, comprising:

- Area Descriptions;
- Inspection and Maintenance Manual; and
- Planting Stock Lists.

Structures Manuals, comprising:

- Structures descriptions, etc.;
- Inspection and maintenance manual; and
- Illustrated parts list.

Power supply Mmanuals, comprising:

- Equipment Description and Operation Manual (how the equipment works);
- Maintenance Manual (including inspection and day-to-day maintenance procedures);
- Overhaul Manual; and
- Illustrated Parts List.

Overhead Line, Manuals, comprising:

- Equipment Description and Operation Manual (how the equipment works);
- Inspection and Maintenance Manual (including erection procedures, etc.);
- Overhaul Manual; and
- Illustrated Parts List.

Permanent Way Manuals, comprising:

- Equipment Description and Operation Manual (how the equipment works);

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 674 |

- Inspection and Maintenance Manual;
- Overhaul Manual; and
- Illustrated Parts List.

Tramstops Manuals, comprising:

- Tramstop descriptions, Lighting, Seating, Signs, etc.;
- Inspection and Maintenance Manual; and
- Illustrated Parts List;
- Supervisory Control and Communications Systems Manuals, comprising:
 - Equipment Description and Operation Manual;
 - Inspection and Maintenance Manual; and
 - Illustrated Parts List.

Tram Manuals, comprising:

- Information to be included in a Drivers Handbook;
- Equipment Description and Operation Manual;
- Maintenance Manual (including inspection and day-to-day maintenance procedures);
- Overhaul Manual (larger overhauls are unlikely to be carried out by tie and this will be required by their eventual overhaul contractor); and
- Illustrated Parts List.
- A full suite of vehicle design drawings.

Gogar Maintenance Depot Manuals, comprising:

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 675 |

- Description of Depot and its Equipment (including road and on-track maintenance vehicles);
- Maintenance Manual (covering all equipment including integrated equipment maintenance schedule) under the following headings:
 - Fixed equipment;
 - Mobile equipment;
 - Portable equipment; and
 - Hand tools.
- Illustrated Parts Lists for each of the above.

Central Control Centre Manuals, comprising:

- Operational Procedures (these may be included in System Operation manuals);
- Equipment Description and Operation Manual; and
- Illustrated Parts List.

Signalling, including:

- Equipment Description and Operation;
- Inspection and Maintenance Manual; and
- Illustrated Parts List.

40.5.4 Asset Register

The Operations and Maintenance Manual shall be linked to an Asset Register within the computerised Asset Management System that shall be provided by the Infraco . This shall be populated with actual equipment data, serial numbers etc. This asset register shall be capable of being linked to a graphical information system (GIS) and include as-built, maintenance and other drawings and records.

Performance, reliability, fault/failure data shall be included, presented and made available to enable analysis for product improvement.

| DOC NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 676 |

40.5.5 Provisional List of Operating Procedures and Standards

A – Operating Procedures (To be developed in conjunction with the Operator)

1. Permit to work;
2. Power switching and isolation;
3. Switching and Safety Interlocking with Inspection Platforms in Depot;
4. Track Safety;
5. Issue and use of Personal Protection Equipment;
6. First Aid;
7. Communication with OCC (Trackside);
8. Communication with OCC (Tram);
9. Depot & Yard Tram Movements & Parking;
10. Use of Wheel Lathe;
11. Lifting & Safe Handling;
12. Recording of Maintenance & Repair in Infraco Records System;
13. Risk Assessments (Safety, and Environment);
14. COSHH Risk Assessments;
15. Preparation and Approval of Method statements;
16. Materials Procurement & Control;
17. Waste Disposal;
18. Evacuation of Depot;

| DOC.NO | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 677 |

19. Detailed maintenance procedures (as supplied by the Tram Maintainer & Infraco);
20. Monitoring the medical condition of employees;

B – Infraco Standards (to be developed by Infraco prior to Section A completion)

1. Tram (pantograph parameters, door parameters, wheel profile, suspension/coupler heights & clearances, brake parameters and wear limits);
2. Tram Driver routine preparation;
3. Tram Cleaning;
4. Tram related Noise and Vibration (To be developed in conjunction with the Tram Maintainer);
5. Tram clearances with Tramstops (To be developed in conjunction with the Tram Maintainer).

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 678 |



Edinburgh Tram Network – Employer's Requirements

Section 40 – Maintenance

| DOC.NO. | VERSION | STATUS | DATE | SHEET |
|------------------|---------|-----------|------------|-------|
| PRO-INFRACO-1399 | 4.0 | FOR ISSUE | 16/04/2008 | 679 |



**THIS IS SCHEDULE PART 3 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 3

CODE OF CONSTRUCTION PRACTICE AND CODE OF MAINTENANCE PRACTICE

PART A - CODE OF CONSTRUCTION PRACTICE

1. MANAGEMENT SYSTEMS

1.1 The Infraco shall implement and comply with the following management systems:

1.1.1 a "quality management system" in accordance with ISO 9001;

1.1.2 a "safety management system" in accordance with OHSAS 18001 or HSG65;
and

1.1.3 an "environmental management system" in accordance with ISO 14001.

2. INSTRUCTION AND TRAINING

2.1 The Infraco shall ensure that its employees, Sub-Contractors, agents and others on Site undertake a number of inductions. These shall comprise:

2.1.1 project-specific induction for the Infraco Works (provided by the Infraco);
and

2.1.2 worksite and task-specific-induction including a method statement briefing and toolbox talk, (provided by the Infraco).

2.2 Any persons who have not received the induction, for example visitors, shall be escorted on Site by a competent inducted person.

2.3 The Infraco shall maintain induction and training records in order that **tie** can inspect them. These records shall identify the scope of the induction and training and the persons who received them.

3. SAFE SYSTEMS

3.1 Risk Assessments

3.1.1 The Infraco shall prepare risk assessments for all work activities being undertaken.

3.1.2 Each risk assessment shall include as a minimum the following details:

3.1.2.1 Document control

- (a) document title and number;
- (b) revision status;
- (c) authorisation for use; and
- (d) reference to supplementary documentation.

3.1.2.2 identification of any hazards;

3.1.2.3 identification of those who might be harmed, and how; and

3.1.2.4 an evaluation of the risks and, in relation to each risk, the control measures required to reduce the risk to an appropriate level.

3.2 Method Statements

3.2.1 The Infracore shall prepare method statements for all work activities which fall within the definition of "construction work" under the Construction (Design & Management) Regulations 2007. Each method statement shall relate to the relevant work location.

3.2.2 Categorisation of Method Statements

Method statements shall be categorised as detailed below:

| CATEGORY | RISK | APPROVAL PROCESS |
|----------|---|--|
| A1 | Low risk. | Prepared by Contractor / Sub Contractor |
| | <i>Minimum implications on Human life or the Project</i> | Approved by Contractor / Sub Contractor |
| A2 | Medium risk. | Prepared by Contractor / Sub Contractor |
| | <i>Possibly implications on Human life or the Project</i> | Approved by Contractor / Sub Contractor For Information tie Ltd Project Manager |
| A3 | High risk. | Prepared & Approved by Contractor/ Sub Contractor |
| | <i>Major implications on Human life or the Project.</i> | Accepted by tie Ltd HSQE Advisor Accepted by tie Ltd Project Manager |

3.2.3 Each method statement shall include as a minimum the following details:

3.2.3.1 Document control

- (a) document title and number;
- (b) revision status;
- (c) contractor prepared and approved; and
- (d) **tie** acceptance for use (as defined below).

3.2.3.2 Scope of work

3.2.3.3 Hazards identified

3.2.3.4 Public interface arrangements

3.2.3.5 Protection of existing infrastructure

3.2.3.6 Environmental protection arrangements

3.2.3.7 Plant, equipment and materials

3.2.3.8 Emergency procedures

3.2.4 The documentation referred to in paragraph 3.2.3 above shall be developed so that it is specific to the Infracore Works. The Infracore shall ensure that revisions and updates can be identified.

3.2.5 The Infracore shall issue a copy of its procedure for the production of method statements and risk assessments to **tie** for approval in accordance with the Review Procedure.

3.3 Submission of Risk Assessments & Method Statements

3.3.1 A 4-week "look ahead" schedule identifying the required scope of the Infracore Works shall be issued to **tie** by the Infracore. This schedule shall identify the relevant risk assessments and method statements which are required in respect of each such scope. **tie** shall identify which risk assessments and method statements require to be provided by the Infracore to **tie** based upon the

categorisation of method statements in accordance with paragraph 3.3.2 above.

- 3.3.2 The Infraco shall issue risk assessments and method statements to **tie** a minimum of 20 Business Days prior to the commencement of the Infraco Works which are the subject of the method statements and risk assessments.
- 3.3.3 The Infraco shall not undertake any Infraco Works for which a risk assessment or method statement has been requested without the agreement of **tie**.
- 3.3.4 **tie** shall supply a letter of acceptance with all requested and returned Method Statements and Risk Assessments, which are found to be acceptable for site use. No requested Method Statement work activities shall commence on site without this letter of acceptance.
- 3.3.5 Irrespective of whether or not **tie** has reviewed a risk assessment and method statement produced by the Infraco, the Infraco shall issue one copy of the risk assessment and method statement to **tie** for information purposes before any work shall commence.

3.4 **Permit to Commence Works**

- 3.4.1 The Infraco shall comply with **tie**'s system for controlling access to undertake work activities, which shall require the Infraco to obtain an approved permit to commence works from **tie** ("**Permit to Commence Works**") for each Work Site and agreed scope of construction works.
- 3.4.2 In so far as not otherwise submitted pursuant to this Agreement, the Infraco shall submit a form for each required Permit to Commence Works ("**Permit to Commence Works Form**") which is required, to **tie** a minimum of 5 Business Days in advance of the access being required.
- 3.4.3 The Infraco shall advise **tie** of the persons within its organisation who are competent to authorise the Permit to Commence Works Forms.
- 3.4.4 Each Permit to Commence Form shall identify the necessary licences, third party approvals and notifications that have been obtained / granted to enable the works to be undertaken, together with the specific control measures that require to be implemented under the Infraco's safety management system.

3.4.5 The Infraco's personnel who will implement the Permit to Commence procedure shall be required to undergo training by **tie**.

3.5 **Permits to Work**

3.5.1 The Infraco shall implement a "permit to work" system for the following activities as a minimum:

3.5.1.1 hot works;

3.5.1.2 entry into confined spaces;

3.5.1.3 work affecting services;

3.5.1.4 access to live facilities; and.

3.5.1.5 works on private land controlled by third parties.

The Infraco shall implement a procedure for managing third party permits to work

3.5.2 The Infraco shall issue a copy of its permit to work procedures to **tie** for approval in accordance with the Review Procedure.

3.5.3 The Infraco shall advise **tie** of the competent persons within its organisation who shall be competent to authorise permits to work.

3.6 **Personal Protective Equipment**

3.6.1 The Infraco shall provide all necessary personal protective equipment ("**PPE**") for its employees and provide them with all necessary information, instruction and training on its use.

3.6.2 The Infraco shall ensure that all persons on any Work Site (including any Infraco Parties and visitors) wear the necessary PPE.

3.6.3 **tie's** specific requirements for PPE with regard to particular tasks are as follows:

3.6.3.1 head protection conforming to BS 5240 or BS EN 397;

3.6.3.2 protective footwear complying with BS EN 345 (safety boots which provide ankle support and contain steel midsoles shall be required for works which are carried out on railway land);

3.6.3.3 yellow high visibility clothing to comply with BS EN 471:1994, Table 1, Class 2 or 3, which shall be worn at all times; the clothing shall comply with the requirements of Clause 4.2.3(b) in all cases; jackets with sleeves in accordance with Clause 4.2.4 and to Class 3 shall be worn on dual carriageway roads with a speed limit of 50 mph or above, unless operatives stay within the working space at all times; and

3.6.3.4 orange high visibility clothing complying with GO/RT 3279 shall be worn where any works are carried out on railway land.

3.7 **Work Site Completion Certificates**

3.7.1 The Infraco shall comply with **tie**'s system for certifying the completion of the relevant work activities within each Work Site, which shall require the Infraco to complete a completion certificate ("**Work Site Completion Certificate**") for each Work Site in relation to which the relevant Infraco Works have been completed.

3.7.2 The Work Site Completion Certificate shall be completed by the Infraco to identify and cross reference the quality control records, testing and commissioning records and any other relevant records identified within Schedule 2 (*Employer's Requirements*) and this Schedule 3 (*Code of Construction Practice*), together with details of any outstanding works which are required and the timescales for undertaking them.

4. **REPORTING**

4.1 The Infraco shall report the following information to **tie** within the same working day or 24 hours of the event occurring:

4.1.1 details of any accident or incident;

4.1.2 details of any environmental event; and

- 4.1.3 details of any visit by either the Health & Safety Executive or SEPA, together with details of any report issued or enforcement action that resulted.
- 4.2 The Infraco shall include the following information within its four weekly progress report which is to be provided to **tie** as part of the Infraco Works:
 - 4.2.1 an update on any events referred to in paragraphs 4.1.1 to 4.1.3;
 - 4.2.2 details of any near misses;
 - 4.2.3 details of any accident investigation reports raised by the Infraco including details of corrective and preventative actions which have been taken;
 - 4.2.4 the accident incident rate ("**AIR**") and accident frequency rate ("**AFR**") for the Infraco Works (including details of total hours worked and number of persons employed);
 - 4.2.5 a summary of the monitoring and internal auditing activities undertaken by the Infraco in the period, including details of any corrective or preventative actions raised or closed out; and
 - 4.2.6 details of the programme of monitoring and auditing planned for the subsequent four-weekly period.

5. AUDITING AND MONITORING

- 5.1 The Infraco shall be responsible for carrying out, auditing and monitoring of its site establishment and work activities.
- 5.2 **tie** shall undertake regular auditing and monitoring of the Infraco's activities and site establishment and documentation records, and the Infraco shall action any findings which are raised by **tie**.

6. NON-CONFORMANCE, COMPLAINTS AND DISCIPLINARY MATTERS

- 6.1 **tie** shall implement a process for recording and processing breaches by the Infraco of the requirements of this Schedule 3 (*Code of Construction Practice*) and complaints.
- 6.2 The Infraco shall take such steps as are required by **tie** to remedy any such infringement or address any such complaint and the following priority levels for action shall apply:

| Level of Urgency | Category of Notification | Required Response Time |
|-------------------------|--|--|
| 1 | High urgency. Involves an immediate threat to persons or property or the circumstances otherwise require immediate rectification. | Immediate action required. If response not completed by the Infraco within 4 hours, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco. |
| 2 | Medium urgency. No immediate threat to persons or property, but circumstances require rectification within 24 hours. | Remedial action requires to be completed within 24 hours. If the Infraco does not complete the required response within 24 hours, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco. |
| 3 | Issue requires rectification, but no immediate threat to persons or property and the circumstances do not otherwise require immediate rectification. | Timescales for rectification to be agreed between the Infraco and tie . In the event that the Infraco does not comply with the agreed timescales, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco. |

If the Infraco fails to take any remedial action required by **tie** pursuant to the table above, **tie** shall be entitled to employ and pay other persons to carry out the same and all costs incurred by **tie** shall be recoverable from the Infraco by **tie** and may be deducted by **tie** from any monies due or to become due to the Infraco or, alternatively, recoverable from the Infraco as a debt.

6.3 Without prejudice to Clause 27 (*Removal of Infraco's Employees*) of the Agreement, **tie** shall implement a process for initiating disciplinary actions which could arise from complaints received in respect of Infraco staff or breach by any member of the Infraco's staff in respect of the requirements of Schedule 2 (*Employer's Requirements*) or this Schedule 3 (*Code of Construction Practice*). These comprise:

6.3.1 Black Card: issued for gross misconduct, or the aggregation of two Red Cards or three Yellow Cards - results in employment on the Edinburgh Tram project being terminated for the individuals involved.

6.3.2 Red Card: issued for serious misconduct, or the aggregation of two Yellow Cards.

6.3.3 Yellow Card: issued for misconduct.

7. IDENTIFICATION

- 7.1 The Infraco shall ensure that all site construction staff are easily identifiable to the public by use of photo identity cards.
- 7.2 The Infraco shall ensure that all site construction staff identify their employer by means of their company logo on their high visibility waistcoat / jacket and safety helmet.

8. HOURS OF WORKING

- 8.1 Normal maximum hours of permissible working for the Infraco Works shall be:

Monday – Friday 0700 – 1900 hours

Saturday 0800 - 1300 hours

- 8.2 These hours of work shall not apply to equipment which is required to operate continuously (e.g. for safety or environmental reasons) or to work undertaken within fully enclosed areas such as buildings.

8.3 Work Outside Normal Hours

- 8.3.1 In certain circumstances work outwith these hours may be undertaken with the prior approval of **tie** and CEC. These circumstances may include:-

8.3.1.1 Sunday and evening/night working on public roads and in the vicinity of the railway network, where such working is required to minimise disruption to other traffic; or

8.3.1.2 where, through consultation with local residents and businesses adjacent to the proposed Infraco Works to be undertaken outwith the normal hours of working, it is deemed by the Infraco acting reasonably and having due and proper regard to the said consultation to be less disruptive to those businesses and residents by having the Infraco working extended hours outwith the normal hours of working, or

8.3.1.3 where Infraco Works are taking place in areas where there are no residents adjacent to the proposed Infraco Works.

- 8.3.2 Application for prior approval must be made by the Infraco at least two weeks in advance.

8.4 Where Sunday or evening and night working has the potential to disturb nearby land users and occupiers, the Infraco shall notify such users and occupiers seven days in advance with a description of the work to be carried out, measures which will be taken to control noise or other disturbance, and proposed hours of working.

8.5 No works shall be undertaken between Haymarket at Magdala Crescent to Leith Walk Junction of London Road from and including the following dates:

Festival 03rd August 2008 until 07th September 2008;

Festival 02nd August 2009 until 06th September 2009;

Festival 01st August 2010 until 05th September 2010;

Christmas 07th December 2008 until 02nd January 2009;

Christmas 06th December 2009 until 04th January 2010; and

Christmas 05th December 2010 until 04th January 2011.

9. SITE ARRANGEMENTS

9.1 Site Housekeeping

9.1.1 A 'good housekeeping' policy shall be applied by the Infraco at all times; this shall include, but not necessarily be limited to, the following requirements:

9.1.1.1 all working areas, including offices, shall be kept in a clean and tidy condition;

9.1.1.2 all working areas shall be a no-smoking area; specific areas within the Site shall be designated as smoking areas and shall be equipped with containers for smoking waste; these shall not be located at the boundary of the Site and adjacent to neighbouring land;

9.1.1.3 open fires shall be prohibited at all times;

9.1.1.4 all necessary measures shall be taken to minimise the risk of fire and the Infraco shall comply with the requirements of the local fire authority;

- 9.1.1.5 radios (other than two-way radios used for the purposes of communication related to the Infraco Works) and other forms of audio equipment shall not be operated on the Site;
 - 9.1.1.6 any waste susceptible to spreading by wind or liable to cause litter shall be stored in enclosed containers;
 - 9.1.1.7 rubbish shall be removed at frequent intervals and the Site kept clean and tidy;
 - 9.1.1.8 hoardings shall be frequently inspected, repaired and re-painted as necessary;
 - 9.1.1.9 eating and drinking shall only permitted within the Infraco's designated welfare area;
 - 9.1.1.10 adequate toilet facilities shall be provided for all Site staff;
 - 9.1.1.11 food waste shall be removed frequently;
 - 9.1.1.12 the Infraco's personnel (including any Sub-Contractors) shall be required to conform to a reasonable dress code;
 - 9.1.1.13 any behaviour that is lewd or likely to cause offence shall not be permitted; and
 - 9.1.1.14 wheel washing areas shall be brushed clean frequently.
- 9.1.2 The Infraco shall inspect all working areas at least weekly and shall provide a four weekly written report on compliance with paragraph 9.1.1 above. **tie**, **tie's** Representative or any other party authority by either of them may carry out inspections of the Site at any time without prior notice of time and place of the inspections. Access to all areas of the Infraco Works shall be given to visiting inspectors and the Infraco shall give inspectors all reasonable assistance during their Site inspection.
- 9.1.3 The Infraco shall register the project with the Considerate Constructors Scheme.

9.2 Welfare

- 9.2.1 The Infraco shall be responsible for ensuring that adequate welfare facilities are provided; adequate facilities shall comprise:
- 9.2.1.1 sufficient toilet facilities for all staff at readily accessible locations, including adequate supplies of toilet paper;
 - 9.2.1.2 facilities for changing, storing and drying clothes, for heating water and for washing and drinking (the latter must have seating for each person and wipe-clean mess table tops);
 - 9.2.1.3 washing facilities near every toilet facility and changing room; the washing facilities shall include a supply of hot and cold or warm water, soap or cleaning agent and towels or hot air drier;
 - 9.2.1.4 clean, wholesome drinking water, clearly marked as such;
 - 9.2.1.5 a means of heating food; and
 - 9.2.1.6 rest facilities.
- 9.2.2 The Infraco shall keep all welfare facilities clean and shall not use them for the storage of materials, plant and other working equipment.
- 9.2.3 The Infraco shall provide suitable and sufficient fire fighting equipment for all on-site accommodation.
- 9.2.4 Where there is the possibility of female employees or visitors being present on the Site, the Infraco shall provide separate toilet, washing and changing facilities.

9.3 Fencing and Hoardings

- 9.3.1 The Infraco shall ensure that all working areas are sufficiently and adequately fenced to prevent the public and animals from straying on to the working area; hoardings shall be provided to suit the individual location by carrying out an appropriate risk assessment, but may be:
- 9.3.1.1 adjacent to a pedestrian route;

- 9.3.1.2 a modular wire mesh fence, a minimum of 1.8 metres in height, where appropriate for minimum security needs; or
- 9.3.1.3 a 2.4 m minimum height, plywood faced, timber framed boundary hoarding, of a surface density of not less than 7kg/m² or other hoarding providing equivalent security and noise attenuation, in the vicinity of noise sensitive neighbours;
- 9.3.1.4 in locations identified by **tie** a proprietary steel panelled hoarding system a minimum of 2.4m in height;
- 9.3.1.5 a 2.4m minimum height, plywood faced, timber framed boundary hoarding, of a surface density of not less than 7kg/m² together with a covered walkway over a pedestrian route;
- 9.3.1.6 adjacent to a live road carriageway;
- 9.3.1.7 as for a pedestrian route, but in conjunction with a vehicle restraint system which complies with containment level T1 and T2 of BS EN 1317 - 2:1998, where determined by the risk assessment;
- 9.3.1.8 in areas not adjacent to a live carriageway or pedestrian route;
- 9.3.1.9 as for a pedestrian route;
- 9.3.1.10a post and wire fence 1.2m in height erected on the line of the Permanent Land;
- 9.3.1.11 other designs, where a particular level of risk mitigation appearance or acoustic rating is considered to be required and is agreed with **tie** and CEC; and
- 9.3.1.12 where the Infracore Works to be undertaken are of a minor nature, and subject to the approval of **tie**, barriers comprising post and planks or similar proprietary systems can be used.

All fencing and hoardings shall comply with Chapter 8 of the Traffic Sign Manual.

All access and egress to worksites shall be via designated positions within the fencing and hoardings, which shall remain closed and secured when not in use.

9.3.2 All fencing and hoardings that create poorly lit pedestrian routes shall have appropriate lighting fitted by the Infraco, and these shall be illuminated at all times when the adjacent street lighting is lit.

9.3.3 The Infraco shall ensure that the location and design of Site boundaries, hoarding and temporary structures on the public road shall permit adequate visibility at junctions and proper forward visibility along the roads in accordance with the National Roads Directorate advice notes and the requirements of CEC.

9.3.4 The Infraco shall ensure that where hoardings are provided, they are painted on the side facing away from the working area in a colour and style to be approved by **tie** and CEC, and that the public side of the hoarding carries signs which identify the project and give appropriate contact information for the Infraco.

The Infraco shall ensure that where fencing is provided the fence panels are covered by material that complies with the requirements of Loss Prevention Standard LPS 1215 *Flammability Requirements and Tests for LPCB Approval of Scaffolding Materials*. The material shall be printed in a colour and style to be approved by **tie** and CEC, and carries signs which identify the project.

9.3.5 All hoardings shall be maintained by the Infraco in a neat and tidy condition at all times, 24 hours, 7 days a week.

9.3.6 The Infraco shall be expressly prohibited from displaying or allowing to be displayed any advertisement or notice including illicit bill or fly posting on the hoardings. The Infraco shall ensure that all graffiti, fly posting or defacement to the hoardings is removed and made good or obscured within 24 hours.

9.3.7 An information board shall be provided by the Infraco at each working area detailing information on the work programme and estimated duration of the Infraco at that working area, together with the location of the information centre, the web address and a 24-hour telephone number for use by members

of the public who wish to lodge complaints or comments or additional information.

- 9.3.8 All fencing and hoarding shall be removed as soon as reasonably practicable after the completion of any part of the Infraco.

9.4 **Lighting and Visual Intrusion**

- 9.4.1 The Infraco shall site construction buildings, equipment and lighting so as to minimise visual intrusion and light spillage at nearby residential properties, in so far as is consistent with the safe and efficient operation of each Work Site. Lighting shall be removed as soon as is consistent with the safe and efficient operation of each Work Site.
- 9.4.2 Site lighting shall be positioned and directed by the Infraco so as to minimise nuisance to residents and to minimise distractions or confusion to passing drivers on adjoining public roads. This provision shall apply particularly to working areas where work after dark will be carried out and the Infraco shall provide appropriate lighting for these sites.
- 9.4.3 So far as is practicable, all power to temporary traffic signals, lighting and the like shall be taken by the Infraco from mains supplies rather than from portable generators. Where portable generators are used, industry best practice shall be followed to minimise noise and pollution from such generators.
- 9.4.4 The Infraco shall comply with the Institute of Lighting Engineers' document *Guidance Notes on Reduction of Light Pollution 2000* in so far as is reasonably practicable and applicable to the Infraco.

9.5 **Access and Loading**

- 9.5.1 The Infraco shall ensure that lorries shall enter and exit the Site in a forward direction at designated locations, except where space restriction does not permit this. If the reversing of vehicles into public spaces is required, then a responsible person observing the rear of the vehicle shall properly control the movement. The sounding of audible reversing alarms shall not be permitted outside normal working hours, except where this has been approved by **tie** and CEC in connection with Infraco Works permitted under paragraph 8.3

above). Entry and exit conditions shall be subject to prior approval by **tie**, CEC and the Lothian and Borders Police before implementation.

9.5.2 Access to and egress from the Site shall be carried out by initiating a left turn wherever reasonably practicable.

9.5.3 All loading and unloading of vehicles shall take place off the public road as far as is reasonably practicable.

9.6 **Security**

9.6.1 Adequate security shall be exercised by the Infraco to protect the public and prevent unauthorised entry to or exit from the Site. Site gates, where used, shall be closed and locked when there is no Site activity and Site security measures shall be implemented.

9.6.2 Site security cameras, where used, shall be placed in locations which will not unduly infringe upon the privacy of local residents.

9.7 **Living Accommodation**

9.7.1 No living accommodation shall be provided by the Infraco within any construction working area. Mess rooms, locker rooms, toilets and showers shall be permitted at Work Sites.

9.8 **Clearance of Site on Completion**

9.8.1 The Infraco shall clear and clean all utilities apparatus (where relevant to the Infraco Works), working areas and accesses as work proceeds and when no longer required for the carrying out of the Infraco Works.

9.8.2 All surplus soil and materials, rubbish, Temporary Works (including temporary roads and hardstandings), Infraco's Equipment, sheds, offices and temporary fencing shall be removed, post holes filled and the surface of the ground restored as near as practicable to its original condition, or to such condition as has previously been agreed with **tie** and CEC in accordance with this Agreement and/or the Specification (as appropriate).

9.9 **Pest Control**

9.9.1 The Infraco shall ensure that the risk of infestation by pests or vermin is minimised by adequate arrangements for the disposal of food waste or other material attractive to pests. If infestation occurs, the Infraco shall take such action to deal with it as required by **tie** and CEC.

10. **REQUIREMENTS RELATING TO WORKS AFFECTING EDINBURGH AIRPORT**

10.1 The Infraco shall comply with the requirements of Edinburgh Airport Limited in relation to aerodrome safeguarding, including those requirements included within the Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 (SEDD Circular 2/2003).

10.2 The Infraco shall have regard to, and comply (where relevant) with all BAA and CAA guidelines, including, (but not necessarily limited to):

10.2.1 CAP 168 Licensing of Aerodromes.

10.2.2 CAP 680 Aerodrome Bird Control.

10.2.3 CAA Safeguarding of Aerodromes Advice Note 1 (Safeguarding – An Overview).

10.2.4 CAA Safeguarding of Aerodromes Advice Note 2 (Lighting near Aerodromes).

10.2.5 CAA Safeguarding of Aerodromes Advice Note 4 (Cranes and Other Construction Issues).

10.2.6 BAA Standard Conditions for Aerodrome Safeguarding.

10.3 The Infraco shall prepare for approval by **tie** and Edinburgh Airport Limited a "Construction Management Strategy" as defined within CAA Safeguarding of Aerodromes Advice Note 4 (Cranes and Other Construction Issues). The Construction Management Strategy shall address as a minimum the following issues:

10.3.1 use of cranes or other tall construction equipment;

10.3.2 control of activities likely to produce dust or smoke clouds

- 10.3.3 the design of temporary lighting to avoid distracting pilots (see Advice Note 2);
- 10.3.4 storage of materials, particularly compliance with height limits;
- 10.3.5 control and disposal of waste, to prevent attraction of birds; and
- 10.3.6 site restoration, to prevent attraction of birds.

11. REQUIREMENTS RELATING TO WORKS AFFECTING THE RAILWAY

- 11.1 The Infraco shall comply with the requirements of Network Rail in relation to railway safeguarding.
- 11.2 The Infraco shall comply with all Network Rail standards and guidelines, including but not limited to "*Contract Requirements (NR/SP/OHS/008)*" including the Safety Clause Menu and "*Health and Safety Management of Third Party Works (RT/LS/P/043)*".

12. HEALTH & SAFETY REQUIREMENTS

12.1 Safety Signage

The Infraco shall be responsible for the provision of all safety signage required for the work activities being undertaken. Safety signage shall comply with the Health and Safety (Safety Signs and Signals) Regulations 1996.

12.2 Hazardous Substances

- 12.2.1 The Infraco shall maintain a register of safety data sheets for all materials and substances used.
- 12.2.2 The Infraco shall be responsible for undertaking "COSHH" assessments for materials and substances used or with which contact will be made on the Site.
- 12.2.3 The Infraco shall liaise with **tie** regarding proposals for storage of hazardous substances in open air, in buildings, within the workplace and the decanting, disposal of empty containers, tanks and cylinders.

12.3 Electricity

- 12.3.1 The Infraco shall use electrical tools and equipment which operate at a voltage no greater than 110V. Where there is a requirement to operate tools and equipment using a voltage greater than 110V, the approval of **tie** shall be obtained in writing.
- 12.3.2 Electrical tools shall be double insulated and used in conjunction with a RCD.
- 12.3.3 Tools shall be connected to a 240V supply via a portable 110V centre tapped transformer.
- 12.3.4 The lead between the 240V supply and the transformer shall be as short as is reasonably possible.
- 12.3.5 All temporary electrical systems shall possess a current inspection certificate.
- 12.3.6 All tools shall have passed an electrical safety test and shall be identified with a label which states the unique identification, the test date, the next test date and the organisation which carried out the electrical safety test.

12.4 Provision and Use of Work Equipment

- 12.4.1 The Infraco shall be responsible for ensuring the inspection of all work equipment. Records of inspections shall be retained at the Site.
- 12.4.2 Work equipment shall only be used by authorised personnel, who have received appropriate training and certification.

12.5 Lifting Operations and Lifting Equipment

- 12.5.1 The Infraco shall be responsible for ensuring that all lifting equipment is accompanied by current test and examination certificates.
- 12.5.2 Safe working loads shall be shown on all lifting equipment.
- 12.5.3 Lifting equipment and lifting operations shall only be used by authorised personnel, who have received appropriate training and certification.

12.6 Height Gauges for Low Structures

A height gauge in the form of a rigid "goal post" type structure shall be erected at:

12.6.1 all egress points from the worksites. The height that the cross bar is set to shall be dependent upon the minimum height of any obstruction that a vehicle will encounter on public or third party land; and

12.6.2 all access points to the worksites or in the proximity of an on site obstruction. The height to which the crossbar requires to be set shall be subject to review during the course of the Infracore Works to ensure that it takes cognisance of the ongoing Infracore Works.

The height gauge shall comprise a form that shall alert the driver of contact with the crossbar and shall be located in a position that shall enable the driver to take avoiding action prior to contacting any obstruction.

12.7 **Overhead Power Lines**

Where plant and equipment is working in the vicinity of an overhead power line, the distance between the plant and equipment and the overhead line should be at least:

12.7.1 15m (plus the length of the jib) if the lines are suspended from steel towers;
or

12.7.2 9m (plus the length of the jib) if the lines are supported on wooden poles.

In cases where approach is likely, stout, distinctive barriers should be erected at ground level to prevent access. Where work is to take place close to overhead lines, detailed precautions should be discussed with the owner of the overhead lines. However, the responsibility for ensuring that precautions are adequate remains with the Infracore, not with the owner of the power lines.

In addition to the specific precautions required when working in the vicinity of overhead power lines, the following shall be undertaken:

12.7.3 barriers shall be erected at least 6m away, to prevent inadvertent approach by other site vehicles; and

12.7.4 crossing points shall be clearly marked beneath the lines by means of a rigid "goal post" structure at a height specified by the electrical supplier.

Storage of materials shall be prohibited in the area between the overhead lines and the ground-level barriers.

13. FIRE PREVENTION

- 13.1 The requirements of the document "*Fire Prevention on Construction Sites: The Joint Code of Practice on the Protection from Fire of Construction Sites and Buildings Undergoing Renovation* (published by the Construction Confederation and the Fire Protection Association) shall apply to the Infracore Works.
- 13.2 All temporary protective coverings shall comply with the requirements of the Loss Prevention Standard LPS 1207 'Fire Requirements for Protective Covering Materials'.
- 13.3 All scaffold cladding materials shall comply with the requirements of the Loss Prevention Standard LPS 1215 'Flammability Requirements for Scaffold Cladding Materials'.
- 13.4 The Infracore shall, as appropriate to the work activities, appoint "a fire marshall" who shall be responsible for day to day fire safety.
- 13.5 A permit to work shall be implemented for all "hot works".
- 13.6 The use of halogen lighting shall be prohibited.

14. FIRST AID

- 14.1 the Infracore shall be responsible for providing first aid provision for its personnel (including any Sub-Contractors) in accordance with the Health and Safety (First Aid) Regulations ("Regulations") 1981. This shall include the provision of:
 - 14.1.1 a first aid box, the size of which shall be commensurate with the number of workers on Site; and
 - 14.1.2 the required number of first aiders or appointed persons required by the Regulations.

15. INSPECTIONS

- 15.1 The Infracore shall be responsible for undertaking the statutory inspections required in terms of the Construction (Health, Safety and Welfare) Regulations 1996 that relate to the Infracore Works being carried out. The records of the inspections shall be retained on the Site.

16. ROADS AND FOOTPATHS, CYCLEWAYS AND BRIDLEWAYS

16.1 General

- 16.1.1 The Infraco shall submit to **tie** a statement setting out the proposed measures (including specified traffic routes) to be taken with respect to traffic and road safety for the duration of the Infraco Works, to enable the development including all relevant information in relation to the Infraco obtaining Temporary Traffic Regulation Orders ("**TTROs**") and the equivalent of such orders as are applicable to third parties (for example Edinburgh Airport Limited), for approval before the Infraco Works commence. The Infraco shall circulate the approved statement to all bodies identified by **tie** and CEC and any other bodies reasonably requested by **tie**.
- 16.1.2 The measures to be taken with respect to traffic and road safety shall include, but not necessarily be limited to:
- 16.1.2.1 use of TTROs; the Infraco shall consult with **tie**, CEC and other third parties on the arrangements for agreeing and implementing TTROs to facilitate road closures and the like; the use of TTROs shall take into account the requirement for, and availability of, suitable alternative routes;
 - 16.1.2.2 use of temporary signing and lining where required by **tie** and CEC to identify places where construction is taking place;
 - 16.1.2.3 use of temporary signing to restrict vehicle types and sizes and define routes for construction traffic;
 - 16.1.2.4 use of appropriate temporary signing and lighting wherever the Infraco Works are in progress to ensure the safety of all road users; and
 - 16.1.2.5 preparation and implementation of a programme agreed by Infraco with **tie** and CEC for road closures and temporary traffic signal arrangements.

16.2 Temporary Road Closures And Diversions

- 16.2.1 The Infraco shall finalise the arrangements for required closures and diversions of specified highways, footpaths and cycle ways with **tie** and CEC, BAA or any private landowner, to suit its Programme.
- 16.2.2 Before breaking up, closing or otherwise interfering with any street or footpath to which the public has access, the Infraco shall make such arrangements with **tie** and CEC as may be reasonably necessary to cause as little interference with the traffic in that street or footpath during the Infraco Works as shall be reasonably practicable.
- 16.2.3 Temporary road closures which result in the diversion of bus routes shall be agreed by the Infraco with the relevant bus operators who will in turn notify the Traffic Commissioner.
- 16.2.4 Pedestrian access to properties shall be maintained at all times where practicable, unless otherwise agreed with **tie** and CEC and the owners and tenants of affected properties. Access to and from public facilities shall be maintained at all times unless otherwise agreed with the relevant administering bodies.
- 16.2.5 Wherever the Infraco Works interfere with the existing public or private roads or other ways over which there is a public or private right of way for any traffic, the Infraco shall construct diversion ways as necessary. The standard of construction and lighting shall be suitable in all respects for the class or classes of traffic using the existing ways and the widths of the diversions shall not be less than that of the existing way unless otherwise agreed with **tie** and CEC or the owner of the private road.
- 16.2.6 Diversion routes shall be constructed in advance of any interference with the existing ways, shall be kept as short as reasonably practicable and shall be maintained by the Infraco to provide adequately for the traffic flows. All diversion routes shall be removed and the road returned to **tie** and CEC as soon as is reasonably practical after completion of the Infraco Works. Liaison shall be undertaken with **tie** and CEC regarding any special events such as the Edinburgh Festival, Christmas, New Year, sporting events and filming which might interact with the diversions.

- 16.2.7 Adequate horizontal clearance of 0.6 metres minimum shall be provided from the kerb line, to avoid fouling by vehicles. The minimum headroom beneath any projection over the road shall be 5.3 metres.

16.3 **Parking Provision for Construction Traffic**

- 16.3.1 Areas and locations of parking provision for site and construction traffic shall be agreed by the Infraco with **tie** and CEC prior to the commencement of Infraco Works.
- 16.3.2 No daytime or overnight parking of site or construction vehicles outside any construction compounds or work sites shall be allowed except where the delivery or removal of materials is taking place at that location and with prior agreement with **tie** and CEC, as required under paragraph 8.3 above.

16.4 **Pedestrian Routes, Cycle Routes and Bridleways**

- 16.4.1 The Infraco shall ensure that all existing pedestrian routes, cycle routes and bridleways are maintained throughout the Infraco Works unless otherwise agreed with **tie** and CEC. Any temporary replacement footway or cycleway shall meet the following requirements:
- 16.4.1.1 all temporary and diverted footways, which replace footways which are currently accessible to wheelchairs and pushchairs, shall continue to be usable by such users where reasonably practicable and take into account DDA access requirements;
- 16.4.1.2 tactile paving shall be used where present on existing pedestrian facilities unless otherwise agreed with **tie** and CEC;
- 16.4.1.3 any temporary footways and cycle ways shall have uniform surfaces; there shall be no steps and any longitudinal gradients shall be suitable for the prevailing conditions, preferably 1 in 20 and no greater than 1 in 12; cross-falls shall be suitable for disposal of surface water run off, but ideally shall not exceed 1 in 30;
- 16.4.1.4 ramps shall be provided at all junctions of footways and cycle ways with carriageways; gradients shall be appropriate to the circumstances, not exceed 1 in 12, and the base of the ramps shall be flush with the carriageway; all temporary footways and cycle

way ramps shall be surfaced in non-slip material and kept free from mud and debris; the Infraco shall ensure that there is no ponding at any junction;

16.4.1.5 existing footway and cycle way widths shall be maintained where practicable; footway and cycle way widths shall not be reduced without the prior agreement and approval of CEC;

16.4.1.6 clear signing and protection measures shall be provided at all times for each pedestrian and cycle route or bridleway affected by the Infraco Works, in accordance with Chapter 8 of the Traffic Signs Regulations and General Directions 1981 and relevant safety legislation; the Infraco shall liaise and agree the signing requirements of all pedestrian and cycle routes affected by the Infraco Works with **tie** and CEC, and shall provide any additional signage and/or protection measures required and agreed with **tie** and CEC; and

16.4.1.7 headroom clearance over footways and cycle ways shall be appropriate for the circumstances and a minimum of 2.3 metres; a horizontal clearance of 0.6 metres shall be provided from the kerb line, where practicable, for any hoarding to avoid fouling by vehicles; the minimum headroom beneath any projection over the highway shall be 5.3 metres, but will be higher for abnormal load routes; where a path is a designated bridleway, headway clearance shall be appropriate for the circumstances and a minimum of 3.6 metres; all pedestrian routes diverted onto the carriageway shall be clearly defined by continuous barriers, constructed to the reasonable requirements of **tie** and CEC.

16.5 Maintenance and Repair of the Road

16.5.1 The Infraco shall carry out a pre-construction inspection and take photographs of the public roads, footpaths and cycle ways in the vicinity of the Site in conjunction with **tie** and CEC. The Infraco shall produce a report of the results of the joint inspection. The report shall establish the general road conditions within and in the vicinity of the Site, the residual life of the road and the level of reinstatement likely to be required in order to comply with the requirements of this Agreement, including the Specification. The

report shall be agreed and signed by both the Infraco, **tie** and CEC as appropriate.

16.5.2 The Infraco shall take every reasonable precaution to prevent its operations from unnecessarily damaging the roads and footpaths within the Site and in the vicinity of the Infraco Works.

16.5.3 The Infraco shall carry out all maintenance works as are necessary to maintain the roads and footpaths affected by the Infraco Works in a safe and serviceable condition to the reasonable satisfaction of CEC and **tie**.

16.5.4 Reinstatements of the road shall be carried out in accordance with the RAUC(S) "*Specification for the Reinstatement for Openings of Roads*", October 2003.

16.6 **Existing Street Furniture**

16.6.1 No street furniture or other features within the vicinity of the Site and the Infraco Works, but outwith the area covered by the Tram Legislation shall be unnecessarily disturbed or altered by the Infraco Works, except as expressly required by **tie** in accordance with this Agreement. Any damage to street furniture consequent upon construction activities connected with the Infraco Works shall be reported to **tie** and the appropriate owner or authority (unless the appropriate owner cannot be identified) immediately on discovery of the damage. Any damage shall be replaced or made good as soon as practicably possible and to the reasonable satisfaction of the owner of the street furniture or other feature.

16.6.2 Any street furniture or other obstructions outside the area to be occupied by the Infraco but which are required to be moved in order to gain access to the Site shall, subject to the prior consent of the owner thereof, be removed and reinstated or replaced as appropriate, on completion of the Infraco Works. Any costs associated therewith shall be borne by the Infraco, including the costs of reinstatement or replacement.

16.7 **Vehicle Movements and Access to the Site**

16.7.1 The Infraco and its Sub-Contractors and suppliers moving loads, construction plant, materials and spoil (including vehicles used for carrying such when

empty) shall limit the use of the public roads for such purposes as far as reasonably practicable.

16.7.2 All access routes shall be agreed with **tie** and CEC prior to the commencement of the relevant part of the Infraco Works.

16.7.3 Vehicles arriving or leaving the Site shall do so during the normal working hours as specified in paragraph 8.1 above, unless otherwise agreed with **tie** and CEC. Access (which is deemed to include both the route and entrance to any Work Site) by lorries shall be as agreed with **tie**, CEC and the Lothian and Borders Police. Access to and egress from the Site shall be carried out by initiating a left turn wherever reasonably practicable.

16.7.4 All vehicles operating on the Site shall be fitted with roof mounted yellow flashing beacons and reversing alarms.

16.7.5 The Infraco shall take all reasonable measures to ensure that delivery vehicles do not remain stationary on the road unnecessarily prior to entering the Site. In exceptional circumstances, for example where the Site is very constrained, it may be necessary to have the potential for a limited number of vehicles to stand on the road. The location of such standing areas their size and the duration of any standing periods shall be subject to prior agreement with **tie**, CEC and the Lothian and Borders Police.

16.7.6 The Infraco shall ascertain and comply with any restrictions in respect of abnormal load routes as they may affect access to the Site.

16.8 **Mud on Roads**

16.8.1 The Infraco shall take strict measures to minimise the spillage of mud and loose materials on roads arising from the Infraco Works and ensure that the roads are safe at all times. These shall include, but not necessarily be limited to:

16.8.1.1 the provision of easily cleaned hard standings for vehicles entering, parking and leaving the Site or construction compound;

16.8.1.2 the provision of wheel washing facilities at construction compounds and construction sites, including, where practicable, mechanical

wheel spinners, adequate provision for drainage via settlement tanks and regular maintenance of settlement tanks;

16.8.1.3 where mechanical wheel wash facilities are not practicable at construction sites, the use of manual techniques to ensure that the wheels of vehicles are clean prior to them leaving the construction site;

16.8.1.4 the use of mechanical road sweepers and surface flushing apparatus to clean the hard standing and to remove any mud or debris deposited by site vehicles on roads, footpaths, and in gullies or drains in the vicinity of the Site; the road sweepers or other equipment shall be readily available whenever the need for cleaning arises;

16.8.1.5 the loading and sheeting of vehicles are in such a manner as to prevent material falling off during their journey;

16.8.1.6 compliance with the requirements regarding the control of dust outlined in paragraph 19 below; and

16.8.1.7 compliance with the requirements regarding the control of waste water, mud, debris from wheel washing outlined in paragraph 21 below.

16.9 Provision, Erection and Maintenance of Traffic Safety and Control (Traffic Safety Measures)

16.9.1 The Infraco shall provide, erect and maintain such traffic signs, road markings, lamps, barriers and traffic control signals and such other measures as may be necessitated by the construction of the Infraco Works in accordance with the requirements of the Agreement and to the approval of **tie** and CEC. The Infraco shall not commence any work which affects the public road until all traffic safety measures necessitated by the work are fully operational.

16.9.2 The Infraco shall keep clean and legible at all times all traffic signs, road markings, lamps, barriers and traffic control signals and shall position, replace, reposition, cover or remove them as required by the progress of the Infraco Works and to the reasonable requirements of **tie** and CEC.

16.9.3 The Infraco shall ensure that all barriers, footpath space and temporary footpaths (including the requirement for kerb ramps where use has to be made of the carriageway) shall comply with the requirements of the document *Inclusive Mobility A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure* issued by the Mobility and Inclusion Unit of the Department for Transport.

16.9.4 So far as practicable, all power to temporary traffic signals and lighting shall be taken by the Infraco from mains supplies rather than from portable generators. Where portable generators are used all reasonable measures will be taken to minimise noise and pollution from such generators.

16.10 Implementation of the Closure of Roads and Access to Frontages

16.10.1 The Infraco shall not close any roads or private accesses until immediately before the area is required for construction in accordance with this Agreement and the Programme. The construction of the Infraco Works shall follow in the area of a temporary closure expeditiously and shall be carried out efficiently and in a continuous manner to ensure that all temporary closures are re-opened as quickly as possible.

16.10.2 The Infraco shall, in carrying out the Infraco Works, take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of adjacent properties, and to the public generally. The owners, tenants or occupiers of affected properties shall be informed of the Infraco Works to be undertaken, their planned duration, road and access closures and alternative access routes (where required) in writing and by locally posted public notices at least one calendar month prior to work starting.

16.10.3 The Infraco shall render all necessary assistance to occupiers of premises affected by the Infraco Works so as to enable them to accept and send out deliveries to and from their premises during their normal working hours.

16.11 Access for Emergency Vehicles

16.11.1 The routes proposed by the Infraco for emergency service vehicles and personnel to gain access to the Site, the construction corridor and

neighbouring sites along the route shall be agreed by the Infraco with the emergency services and tie and CEC prior to the start of construction.

17. NOISE

17.1 Noise Control

17.1.1 The Infraco shall take all practicable measures to minimise nuisance from noise. The noise limits specified in this paragraph 17.1 or which may be otherwise agreed with CEC shall not be regarded as a licence to make noise up to the stated limit.

17.1.2 Subject to the specific requirements of CEC and other affected third parties the following minimum requirements shall be met:

17.1.2.1 during normal working hours, as defined in paragraph 8.1 above the maximum noise levels measured 1 metre from any occupied dwelling or other building used for residential purposes, generated by construction plant and equipment shall not exceed the following limit:

| | |
|---|-------------------------|
| Monday to Friday (inc.) 0700-1900 hours | L_{Aeq} 12 hour 75 dB |
| Saturday 0800 - 1300 hours | L_{Aeq} 5 hour 75 dB |

17.1.2.2 outside normal working hours, the following limits shall apply:

| (a) | Period | Hours | Limit |
|-----|-------------------------|-----------|--------------------------|
| | Monday to Friday (inc.) | 1900-2200 | L_{Aeq} 3 hours 65 dB |
| | Saturday | 1300-2200 | L_{Aeq} 9 hour 65 dB |
| | Sunday & Bank Holidays | 0800-2000 | L_{Aeq} 12 hours 65 dB |

17.1.2.3 the default noise limit for any night time (2200 hours (or 2000 hours on Sundays and Bank Holidays) to 0700 (or 0800 on Saturdays, Sundays and Bank Holidays)) construction work shall be L_{Aeq} 1 hour 55dB at residential buildings; higher noise levels may be permitted where ambient noise levels are higher.

17.1.2.4 the maximum noise levels measured 1 metre from any school, college or other teaching facility resulting from construction work shall not exceed the following limits:

At any time when occupied $L_{Aeq\ 1\ hour}$ 65 dB

17.1.2.5 the maximum noise level measured 1 metre from any office building or other building used for office purposes during normal working hours shall be as defined in paragraph 17.1.2.1 above.

17.1.3 In order to ensure that the best practicable means are used to meet the levels set out above, a programme of on-site monitoring by a suitably qualified practitioner shall be agreed between the Infraco, **tie** and CEC. This monitoring programme shall include the location and frequency of readings, and shall define to whom the results shall be made available. Monitoring shall be undertaken by the Infraco at locations identified in the Environmental Statements as those where mitigation measures may be necessary to avoid significant noise disturbance.

17.1.4 In exceptionally difficult circumstances, essential work causing noise above these limits may be permitted with the prior approval of **tie** and CEC. Where not otherwise required in accordance with this Agreement, application for prior approval must be made at least two weeks in advance of the relevant Infraco Works commencing, and shall be fully justified and kept to the minimum necessary. Conditions may be attached to any permission for such Infraco Works.

17.1.5 In the event that measurements indicate noise has exceeded the limits in paragraph 17.1.2 above of this clause, the Infraco shall stop the operation in a safe manner and take all practicable measures to prevent recurrence. If this does not enable the limits to be met, exceptional permission must be applied for under the terms of paragraph 17.1.4 above.

17.1.6 Without prejudice to the other requirements of this paragraph 17, the Infraco shall comply with the recommendations set out in BS 5228, '*Noise Control on Construction and Open Sites*'; insofar as these are reasonably practicable and applicable to the Infraco Works, and in particular with the following requirements:

- 17.1.6.1 all vehicles and mechanical plant used for the purpose of the work shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order;
 - 17.1.6.2 all compressors and generators shall be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which shall be kept closed whenever the machines are in use, and all pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers;
 - 17.1.6.3 all machines in intermittent use shall be shut down in the intervening periods between work or throttled down to a minimum; noise emitting equipment which is required to run continuously shall be housed in a suitable acoustic enclosure (see BS5228 Part 1:1997, Figures B.1, B.2 and B.3 (or later issue));
 - 17.1.6.4 stationary equipment with significant noise output shall be sited away from sensitive site boundaries as far as is practicable;
 - 17.1.6.5 temporary noise barriers shall be used to reduce noise levels where appropriate and practicable; barriers shall be located as close to the plant as possible, and shall have a mass per unit area of at least 7kg/m^2 ;
 - 17.1.6.6 no deliveries shall arrive at the Site before 0700 hours;
 - 17.1.6.7 the engines of all parked vehicles or vehicles waiting to enter any work area shall be switched off within two minutes of arrival; and
 - 17.1.6.8 work compounds shall be laid out so that accesses and loading areas are located as far away from sensitive neighbours as practicably possible and so that temporary structures screen noisy areas where practicable.
- 17.1.7 Without prejudice to the requirements of this paragraph 17 set out above, the Infraco shall comply with the City of Edinburgh Department of Environmental and Consumer Service's document *Construction Site Noise: A Guide for Contractors*, August 2000 (or current issue, if subsequent amendments have been issued), and shall liaise with that department in accordance with the requirements therein.

17.2 Communications Regarding Noise

- 17.2.1 The Infraco shall give 7 days notice to local residents who may be adversely affected by noise from the proposed programme of Infraco Works, providing a description of the work to be carried out, measures that will be taken to control noise or other disturbance, and the proposed hours of working.
- 17.2.2 The Infraco shall provide **tie** and any other party requested by **tie** with a list of contacts who will be responsible for investigating and resolving noise issues in respect of the carrying out of the Infraco Works.

18. VIBRATION

18.1 Vibration Control

- 18.1.1 Subject to the specific requirements of **tie** and CEC, the following minimum requirements shall be met:
- 18.1.1.1 to protect residents and users of buildings from nuisance and harm the Infraco shall, as far as practicable, not exceed the Vibration Dose Values specified in BS6472:1992 as resulting in a 'low probability of adverse comment'; and
 - 18.1.1.2 to protect buildings and other structures from physical damage, peak particle velocity levels shall not exceed 5mm/sec except for particularly sensitive buildings or structures where the level shall not exceed 3mm/sec.
- 18.1.2 If vibration levels are predicted to exceed the criteria specified in paragraph 18.1.1 above, then the Infraco shall procure that a suitably qualified practitioner undertakes monitoring during the activity and the Infraco shall adopt alternative methods of working to reduce vibration levels to those prescribed in above. The monitoring programme shall be agreed between the Infraco, **tie** and CEC. This programme shall include the location and frequency of readings and will identify to whom the results should be made available.
- 18.1.3 In order to ensure that these levels are not exceeded, a programme of on-site monitoring by a suitably qualified practitioner shall be agreed between the Infraco, **tie** and CEC. This programme shall include the location and

frequency of readings, and to whom the results should be made available and, as a minimum, shall cover all locations identified as 'significantly affected' in the Environmental Statement.

18.2 **Inspection of Buildings and Other Structures**

18.2.1 The Infraco shall be responsible for the compilation of a schedule of all buildings or other structures, including scheduled monuments and listed buildings that are located within the Site, or which are located directly adjacent to such Work Sites, which may be at risk of physical damage or damage caused by vibration generated during the Infraco Works. The said schedule is to be subject to agreement with CEC, CEC having the power to add, or subtract, buildings from the schedule as they deem fit. The agreed schedule is to be published in accordance with the requirements of Schedule 2 (*Employer's Requirements*). A notice of inclusion within the schedule is to be delivered to each scheduled building, attachment of a notice to the building shall be sufficient evidence that notice has been served. Subject to the granting to the Infraco of free and unhindered access to the building or structure, a record of the condition and survey of any defects in the building or structure shall be prepared prior to the commencement of any Infraco Works. Certified copies of the building record and condition survey shall be made available free of charge by the Infraco to the owners of the examined buildings or structures, on their presentation of proof of title to the building. The best practicable means shall be undertaken by the Infraco to avoid damage, or to minimise damage where it is unavoidable. The condition of the buildings and other structures listed in the schedule shall be monitored at reasonable intervals during the Infraco Works and for a period of one year after the completion of the said Infraco Works. The results of the aforesaid monitoring shall be made available free of charge by the Infraco to the owners of the examined buildings, on their presentation of proof of title to the building.

18.2.2 The results of this record of the conditions and survey of any defects shall be provided to ~~the~~ and CEC, the property owner and occupier and, in the case of scheduled or listed features, to CEC and Historic Scotland by the Infraco.

18.2.3 Without prejudice to the provisions of Clause 36 (*Examination of Work Before Covering Up*), after the Infraco Works have been completed and at

any time up to two years after their completion, the owners of properties identified under paragraph 18.2.1 above may, upon providing reasonable evidence of damage, request that a second defects survey is undertaken. Any damage which is identified as being caused by the Infraco Works shall be repaired by the Infraco within a reasonable time of identification at the expense of the Infraco to the reasonable satisfaction of the property owner and so that the property is returned no worse than the standard of repair and stability existing before the Infraco Works commenced.

19. DUST AND AIR POLLUTION

19.1 Dust and Other Air Pollution

19.1.1 The Infraco shall take all necessary measures to avoid creating a dust nuisance during the Infraco Works.

19.1.2 Particular consideration shall be given by the Infraco to Infraco Works affecting the operations of Edinburgh Airport Limited. Details of the specific mitigation measures shall be included within the Construction Management Strategy identified under paragraph 10.3 above.

19.1.3 Measures to prevent dust shall include the following:

19.1.3.1 the provision of easily cleaned hardstandings for vehicles;

19.1.3.2 the enclosure of material stockpiles at all times and damping down of dusty materials, using water sprays during dry weather;

19.1.3.3 the hard surfacing of heavily used areas which will be kept clean by regular brushing and water spraying;

19.1.3.4 control of dust released from cutting or grinding of materials on the Site; any mobile crushing plant which is used during the Infraco Works shall be appropriately licensed and sited so as to minimise dust annoyance to any persons who may be liable to be affected by emissions; the Infraco shall notify SEPA in advance of any mobile crushing plant being brought onto the Site;

19.1.3.5 the complete sheeting of all vehicles carrying spoil and other dusty materials;

19.1.3.6 watering of unpaved surfaces and roads; and

19.1.3.7 a limit on vehicle speeds on unpaved surfaces of 20 kph.

19.1.4 Where dust generating Infraco Works (such as excavation and demolition) are undertaken close to buildings so that there is a potential for soiling of windows and ledges with dust, the Infraco shall clean such windows and ledges as frequently as is necessary (and as a minimum, at least once per week) during periods of dust generating work and on completion of the Infraco Works at that Work Site. The Infraco shall take precautions to prevent damage occurring as a consequence of cleaning works.

19.1.5 The Infraco shall take precautions to prevent the emission of smoke or fumes from construction vehicles, site plant and stored materials including volatile substances. Vehicles and plant shall be well maintained and measures shall be taken by the Infraco to ensure that engines and motors are not left running for long periods when not directly in use.

19.1.6 The engines of all parked vehicles or vehicles waiting to enter any work area shall be switched off within two minutes of arrival.

19.1.7 Work compounds shall be laid out by the Infraco so that accesses and loading areas are located as far away from sensitive neighbours as is practicably possible, and so that temporary structures screen noisy areas where practicable.

19.1.8 There shall be no burning of waste on the Site.

20. DISPOSAL OF WASTE AND CONTAMINATED MATERIALS

20.1 Waste

20.1.1 A waste management plan ("**WMP**") shall be developed in accordance with "*Site Waste Management Plans: Guidance for Contractors and Clients*" (DTI 2004). The Infraco shall be responsible for the preparation of the WMP to address all of the approvals and consents which require to be obtained and thereafter, the Infraco shall be responsible for the development of the WMP to document the control measures and mitigation measures that shall be implemented. The plan shall in particular identify:

- 20.1.1.1 responsibilities for waste management;
 - 20.1.1.2 the types and quantities of waste materials likely to be generated;
 - 20.1.1.3 measures to be taken to minimise generation of waste;
 - 20.1.1.4 proposals for recycling and/or re-use;
 - 20.1.1.5 measures to be adopted for management of waste on the Site including enclosure, segregation, secure storage, sorting for recovery, and other on-site handling;
 - 20.1.1.6 proposed treatment and disposal routes; and
 - 20.1.1.7 licensing arrangements.
- 20.1.2 The Infraco shall implement and comply with the WMP.
- 20.1.3 The Infraco shall undertake monthly audits to demonstrate compliance with Statutory Requirements and the WMP. The Infraco shall set out its audit programme in the WMP and shall provide copies of the audit report to **tie**.
- 20.1.4 Spoil or other waste materials arising from the Infraco Works shall be used, wherever reasonably practicable, in the Infraco Works.
- 20.1.5 The disposal of waste, including any surplus spoil, shall be managed by the Infraco, so far as is reasonably practicable, to maximise the environmental and development benefits from the use of surplus material to minimise the removal of surplus spoil from the Site and to reduce any adverse environmental effects of disposal.

20.2 **Contaminated Land and Materials**

- 20.2.1 The Infraco shall identify all areas within the Site where contaminated land, including land contaminated by invasive alien species listed in Part 2 of Schedule 9, of the Wildlife and Countryside Act 1981 (as amended), may be encountered. In each of these areas, the Infraco shall:
- 20.2.1.1 carry out appropriate additional site investigations as instructed by **tie** to the satisfaction of **tie** and CEC to determine the extent and type of contaminants present on the Site;

- 20.2.1.2 identify potential sources, pathways and receptors and assess the risk of harm to receptors;
 - 20.2.1.3 liaise with **tie**, CEC and SEPA to address their reasonable requirements and to agree control or protection measures necessary for dealing with identified risks;
 - 20.2.1.4 obtain any necessary licences for the storage, treatment and disposal of contaminated material (including dewatering discharge); and
 - 20.2.1.5 ensure that removal and disposal of contaminated materials complies with a strict consignment note system and that delivery is to appropriately licensed disposal facilities.
- 20.2.2 The Infraco shall develop management procedures to be followed in the event that contaminated or hazardous materials are discovered on the Site during construction.
- 20.2.3 If the Infraco identifies contamination on the Site which has not been previously identified , no further development shall take place (except to the extent that would not disturb that contamination) until a site investigation has been carried out in accordance with paragraph 20.2.1 above.
- 20.2.4 The Infraco shall comply with the guidance in the Health & Safety Executive document "*Protection of Workers and the General Public during the Development of Contaminated Land*" (1991) and to the DEFRA document "*Helping to Prevent the Spread of Invasive Non-native Species, Horticultural Code of Practice*" (March 2005), in so far as this is reasonably practicable and applicable to the Infraco Works. Invasive alien species listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland Act) 2004, will be treated in accordance with the Environmental Protection Act 1990. Japanese knotweed and giant hogweed and soils containing particles of these plants are regarded as controlled waste.
- 20.2.5 Appropriate precautions shall be taken if materials containing asbestos are encountered. The Infraco shall observe the exposure limits and measurement methods for asbestos, set out in the Health & Safety Executive Guidance

Note EH 10 (2001), and shall also comply with Health & Safety Executive "Guideline Note MS13 - Asbestos" (2005), the Health & Safety Commission document "Approved Code of Practice and Guidance Note Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board" (2002), in so far as these are applicable to the Infraco Works.

21. PROTECTION OF THE WATER ENVIRONMENT

21.1 Waste Water and Run-off

21.1.1 A construction site drainage plan ("**CSDP**") shall be prepared, in consultation with SEPA. The Infraco shall be responsible for the preparation of the CSDP to address all of the approvals and consents which require to be obtained. Thereafter, the Infraco shall be responsible for the development of the CSDP to document the control measures and mitigation measures that shall be implemented. The CSDP shall include measures to ensure that surface water runoff is contained and managed appropriately and that appropriate measures are taken to prevent inundation of the Site. "Sustainable Urban Drainage System" ("**SUDS**") measures shall be included within the Infraco Works where reasonably practicable and applicable, in accordance with Law and the guidance in:

21.1.1.1 "*Interim Code of Practice for SUDS*" (CIRIA 2004);

21.1.1.2 "*Sustainable Urban Drainage System – Design Manual for Scotland and Northern Ireland*" (CIRIA C521); and

21.1.1.3 "*Sustainable Urban Drainage Systems – Best Practice Manual*" (CIRIA C523).

21.1.2 The Infraco shall implement and comply with the CSDP.

21.1.3 The Infraco shall ensure that there shall be no washout from temporary construction laydown and storage areas into watercourses.

21.1.4 No water shall be discharged into watercourses, but shall be stored in settlement lagoons or tanks, or filtered prior to discharge, or discharged onto a grassy area to soak away.

- 21.1.5 Waste water and site discharges to surface water or sewer shall only be permitted where the effluent quality and discharge location is acceptable to SEPA or Scottish Water (as appropriate). Water Environment (Controlled Activities) (Scotland) Regulations 2005 ("**CAR**") discharge authorisation shall be obtained by the Infraco if required prior to discharge.
- 21.1.6 The Infraco shall ensure that all treatment facilities are regularly inspected and maintained and that a full record is kept of inspection, maintenance and other measures to maintain equipment performance.
- 21.1.7 Approval from SEPA shall be obtained by the Infraco prior to any excavation below the water table, including any site de-watering and discharge. Contact should be made with SEPA at least one month prior to the relevant operation to establish the level of CAR authorisation required. Cut-off ditches may be used to prevent water from entering excavations.
- 21.1.8 The Infraco shall comply with BS 6031: 1981 "*Code of Practice for Earthworks*", regarding the general control of site drainage is so far as this is applicable to the Infraco Works.
- 21.1.9 The Infraco shall ensure that areas of exposed ground and stockpiles are minimised to reduce silty runoff. Geotextiles or other equivalent measures shall be used by the Infraco where necessary to prevent silty run-off from soil mounds close to watercourses.
- 21.1.10 The Infraco shall ensure that any water that has come into contact with contaminated materials is disposed of in accordance with the requirements of SEPA or Scottish Water (as appropriate).
- 21.1.11 The Infraco shall take suitable precautions to prevent the entry of pollutants into any bodies of water, and report any incidents to SEPA and Scottish Water.
- 21.1.12 Procedures for responding to potentially polluting incidents or inundation of the site by floodwaters shall be implemented in accordance with SEPA guidance (with reference to paragraph 21.6 below).
- 21.1.13 Cementitious mixtures are highly alkaline and corrosive and shall be prevented from entering watercourses and drains. The Infraco shall make

suitable provision for washing out ready mix concrete lorries, skips, concrete pumps and the like.

21.2 Storage of Polluting Materials

21.2.1 The Infraco shall make provision to ensure that oil drums and containers or other potential contaminants stored on the Site are properly isolated and banded and that no oil or other contaminants are allowed to reach watercourses or groundwater, including aquifers. Oil storage containers (both fixed and mobile) with a 200 litre capacity or greater shall be stored in compliance with the Water Environment (Oil Storage) (Scotland) Regulations 2006, where applicable. Drip trays and other secondary containment measures shall be used by the Infraco where necessary to prevent spills during refuelling and operation of small static and mobile equipment. Storage locations for such materials shall be positioned away from watercourses. All surface water or other contaminated water which accumulates in bunds shall be removed by the Infraco by manually controlled positive lift pumps, and not by means of a gravity drain.

21.2.2 Refuelling shall be carried out by the Infraco in a designated area which is away from watercourses and drains.

21.2.3 Spill response kits containing equipment appropriate to the quantity and types of materials present on site shall be available for use by the Infraco in the event of a fuel spillage. Personnel shall be trained in their use.

21.3 Protection of Aquifers

21.3.1 The Infraco shall have due regard for protection of underlying aquifers and adhere to the SEPA "*Groundwater Protection Policy for Scotland*". In all instances, measures to ensure appropriate protection of aquifers shall be undertaken, subject to prior approval of SEPA. Prior approval shall be sought by the Infraco in writing, prior to commencement of the relevant Infraco Works.

21.4 Control and Management of Foul Drainage

21.4.1 Where permanent facilities are not accessible foul water and sewage effluents produced by the construction workforce shall be contained by temporary foul

drainage facilities. A licensed contractor engaged by the Infraco shall dispose of all foul water collected off-site.

21.5 Infraco Works in the Vicinity of Water

- 21.5.1 The Infraco shall take suitable precautions to prevent the entry of pollutants, including sediments and dusts, into any bodies of water, and report any incidents to SEPA.
- 21.5.2 Crossings of watercourses shall be constructed by the Infraco so as not to impede the flow, obstruct the movement of floodwater or exacerbate erosion of the channel and banks and shall require CAR authorisation from SEPA.
- 21.5.3 In watercourses which support migratory fish, Infraco Works shall be avoided during upstream and downstream fish migration, spawning, incubation and hatching periods.
- 21.5.4 Where bankside habitat is temporarily affected, it shall be reinstated by the Infraco to its original form on completion of the Infraco Works at that Work Site.
- 21.5.5 Areas of bankside adjacent to working areas shall be fenced off during construction to prevent damage to the banksides.
- 21.5.6 Stripping of surface vegetation near water by the Infraco shall be kept to a minimum. Exposed surfaces shall be seeded or reinstated by the Infraco with vegetation, as soon as is practical after construction in that working area is complete.
- 21.5.7 Where culverting is required as Temporary Works, such culverting shall be subject to CAR authorisation from SEPA. Culverting that is so authorised shall be designed by the Infraco and constructed to permit the passage of fish and other aquatic fauna under normal flow conditions.

21.6 Guidance

- 21.6.1 The Infraco shall comply with all relevant SEPA "pollution prevention" guidelines, including, but not necessarily limited to:

- 21.6.1.1 PPG1 General guide to the prevention of water pollution.

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| 21.6.1.2 | PPG2 | Above ground oil storage tanks. |
| 21.6.1.3 | PPG3 | The use and design of oil separators. |
| 21.6.1.4 | PPG4 | Disposal of sewage where no mains drainage is available. |
| 21.6.1.5 | PPG5 | Works in, near or liable to affect watercourses. |
| 21.6.1.6 | PPG6 | Working at construction and demolition sites. |
| 21.6.1.7 | PPG7 | Refuelling facilities |
| 21.6.1.8 | PPG8 | Storage and disposal of used oils. |
| 21.6.1.9 | PPG13 | High pressure water and steam cleaners. |
| 21.6.1.10 | PPG18 | Control of spillages and fire fighting runoff. |
| 21.6.1.11 | PPG19 | Garages and vehicle service centres. |
| 21.6.1.12 | PPG21 | Pollution incident response planning. |
| 21.6.1.13 | PPG22 | Dealing with spillages on roads. |
| 21.6.1.14 | PPG23 | Maintenance of structures over water. |
| 21.6.1.15 | PPG26 | Pollution prevention storage and handling of drums and intermediate bulk containers. |

21.7 **Water Environment (Controlled Activity) (Scotland) Regulations 2005**

Without prejudice to the foregoing terms of this paragraph 21, the Infraco shall comply with the terms of CAR where relevant to the Infraco Works.

22. ECOLOGY

22.1 **Encroachment into Wildlife Areas**

22.1.1 The Infraco shall take all reasonably practicable measures to minimise harm to and disturbance of wildlife caused by noise and vibration, dust and other air pollution, including:

- 22.1.1.1 minimising habitat loss by keeping the working corridor and extent of working areas to the minimum necessary for the Infraco Works; removal of habitats and new planting shall be undertaken in consultation with Scottish Natural Heritage ("**SNH**"), **tie** and CEC;
 - 22.1.1.2 fencing off adjacent habitat to prevent unnecessary incursion or damage; staff shall be made aware of the need to avoid damage to adjacent retained areas;
 - 22.1.1.3 the reinstatement or replacement of areas of habitat disturbed during construction in areas not required for the Infraco Works on completion of the Infraco Works in accordance with the Landscape and Habitat Management Plan ("**LHMP**"). The Infraco shall be responsible for the preparation of the LHMP to address all of the approvals and consents which require to be obtained and thereafter, the Infraco shall be responsible for the development of the LHMP to document the control measures and mitigation measures that shall be implemented ; and
 - 22.1.1.4 compliance with the guidelines set out in British Standard (BSI *Code of Practice for Earthworks* (BS6031) in relation to soil stripping, storage and placing.
- 22.1.2 Approval shall be obtained by the Infraco from **tie**, SNH, SEPA, Scottish Executive Environment Group Wildlife Habitats Division ("**SEEG WHD**") and CEC, for detailed method statements for any Infraco Works proposed in designated sites, including Special Protection Areas (SPA)/Ramsar sites, Sites of Special Scientific Interest (SSSI), Sites of Interest for Nature Conservation (SINC) and Wildlife Sites.
- 22.1.3 Applications for approval shall be made by the Infraco at least one calendar month prior to relevant Infraco Works commencing.

22.2 **Protected Species**

- 22.2.1 In advance of any Infraco Works, the Infraco shall employ suitably qualified professionals to check all working areas and any land within 30 metres of the boundary of the working area (unless there is a boundary with a private third party within the 30 metres, in which case no checks shall be taken within the

private land), or 100m from any piling operations or use of explosives for the presence of species protected by statute. Where protected species are identified, appropriate mitigation measures shall be agreed in advance with the relevant authorities and any appropriate licences obtained in accordance with any requirements for licensing. The Infraco shall implement any mitigation measures agreed in accordance with this paragraph 22.2.1.

22.2.2 Where any habitat has to be cleared in the breeding bird season, typically March to June or July for most species, the habitat must be checked prior to removal for the presence of nesting wild birds, their nests and eggs and young. If found, no habitat shall be removed until nesting is complete, or unless other suitable mitigation is agreed in advance between the Infraco and SNH.

22.2.3 The Infraco shall be responsible for obtaining a licence from SNH for any work that may cause disturbance to a badger or involves the damage or destruction of a sett. Licence applications shall be made for any Infraco Works within 10m, heavy machinery operating within 30m, and for piling or use of explosives within 100m, and no Infraco Works shall proceed until the required licences are obtained. Alternative setts shall be provided in the event of and in advance of any loss.

22.2.4 The Infraco shall be responsible for obtaining a licence from SEEG WHD for any work which may cause disturbance to otters or involve damage or destruction to an otter holt or lying up site or if any Infraco Works are proposed within 30m of an otter holt or lying up site. Alternative holts or lying up sites shall be provided in the event of and in advance of any loss.

22.2.5 The Infraco shall be responsible for ensuring that all bridges and other built structures and mature and dead trees within the working area shall be checked by a licensed bat handler for their use by roosting or hibernating bats prior to felling or other potentially damaging operations. If found, mitigation measures shall be agreed between the Infraco and SNH and SEEGWHD and implemented, including review of the design to seek ways of avoiding loss of the roost. If avoidance is not possible, a licence shall be applied for by the Infraco from SEEG WHD for disturbance to a European Protected Species and / or destruction or damage to a breeding site or resting place. Alternative roost sites shall be provided in advance of any loss. Any loss of feeding

habitat shall be compensated for by new habitat creation as detailed in the LHMP. All mitigation measures for protected species shall be installed by the Infraco as early as possible during the construction process so that use can be established at an early stage.

22.2.6 Where appropriate use of mitigation measures by target species will be positively encouraged using a variety of techniques e.g. feeding.

22.2.7 Permanent mitigation structures for protected species including mammal fencing and tunnels and artificial badger setts shall be checked during construction and approved on completion by a suitably qualified ecologist and reported to SNH. Should these structures not be to the required standard specified, remedial measures shall be taken by the Infraco .

22.2.8 Mitigation shall aim to compensate for loss of foraging specifically for badgers through creation of appropriate grassland and scrub habitat wherever possible within the Limits of Deviation in the Tram Legislation in line with the Civil Aviation Authority Advice Note 3 – *"Potential Bird Hazards from Amenity Landscaping and Building Design"*.

22.2.9 The Infraco's personnel and personnel engaged by any Sub-Contractors shall be briefed by a suitably qualified professional on measures for protected species as part of site induction.

22.3 **Protection of Mature Trees**

22.3.1 For the purposes of this paragraph, "trees" are defined as trees with a diameter of over 10cm girth at a height of 1.5 m above ground level.

22.3.2 Loss of trees shall be avoided as far as reasonably practicable. The Infraco shall comply with the guidelines set out in British Standard (BS) 5837:1991 "Trees in Relation to Construction" insofar as these are reasonably practicable and applicable to the Infraco Works.

22.3.3 All tree surgery operations shall comply with the British Standard (BS) 3998 *"Recommendations for Tree Work"* and a method statement addressing safety of workers and the public shall be prepared and implemented.

22.3.4 Felling shall be carried out in accordance with the Forestry Commission document *"Forest and Water Guidelines 2004"*, which relates to the influence

that woodland and trees can have on the freshwater environment, insofar as this is reasonably practicable and to the extent that they are applicable to the Infraco Works.

22.3.5 Prior to felling, the Infraco shall procure that trees suitable as bat roosts are checked by a licensed bat handler for roosting and hibernating bats, and should any be identified, mitigation measures shall be agreed by the Infraco with SNH and SEEG WHD and the Infraco shall obtain any relevant licences.

22.3.6 Woody material generated shall be retained on the Site as far as is reasonably possible and used as part of habitat creation measures.

22.3.7 Adverse effects on all trees within or in the vicinity of the Site shall be minimised by the adoption of suitable mitigation measures. These may include, but shall not be limited to, the following:

22.3.7.1 selective removal of lower branches in an approved manner, to reduce mechanical damage by construction plant;

22.3.7.2 control of construction activities to minimise compaction of the ground beneath the entire canopy of the tree; no heavy materials or plant shall be stored, and construction traffic movements shall be controlled, by fencing or other means, so as to minimise vehicle movement within the canopy;

22.3.7.3 the use of matting around the root zone to minimise soil compaction; and

22.3.7.4 the use of chestnut paling around the trunk to prevent damage.

22.4 **Tree Replacement**

Where trees are removed, damaged or die as a consequence of the Infraco Works, they shall be replaced by the Infraco by at least 2 trees for every one removed, which replacement trees shall be of similar or approved size and in a location as close as possible to the original position. All tree planting shall be agreed with **tie** and CEC, and shall be in accordance with the LHMP. The supply, storage, handling, planting and maintenance of new planting shall be undertaken in accordance with the appropriate British Standards, including, but not necessarily limited to;

22.4.1 (BS5837) "Trees in Relation to Construction";

22.4.2 (BS3998) "Recommendations for Tree Works"; and

22.4.3 (BS4428) "Code of Practice for General Landscape Operations (excluding hard surfaces)".

22.5 Control of Invasive and Alien Species

22.5.1 If any invasive alien species listed in Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended), are identified along the route, including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) or Himalayan Balsam (*Impatiens glandulifera*), a strategy shall be developed and implemented by the Infraco prior to the commencement of the Infraco Works to manage their presence. The strategy will ensure appropriate treatment of invasive alien species in advance of construction in accordance with approved methodology and will prevent the spread of the species within and outside the development area. The soil containing these species or plants thereof shall be dealt with as contaminated material and disposed of in accordance with paragraph 20.2 above;

22.5.2 The Infraco shall comply with the strategy for the control of invasive and alien species.

23. ARCHAEOLOGY AND CULTURAL HERITAGE

23.1 Archaeological and Heritage Mitigation Plan

23.1.1 In advance of the commencement of the Infraco Works, an "Archaeological and Heritage Mitigation Plan" ("AHMP") shall be prepared. The Infraco shall be responsible for the preparation of the AHMP to address all of the approvals and consents which require to be obtained and thereafter, the Infraco shall be responsible for the development of the AHMP to document the control measures and mitigation measures that shall be implemented. The AHMP will identify the level of mitigation proposed at each site of archaeological or historic significance (as defined by statute and/or Historic Scotland), taking into account the measures outlined in the Environmental Statements. These may include:

23.1.1.1 prior archaeological evaluation by trial excavations;

- 23.1.1.2 a detailed photographic record prior to construction;
 - 23.1.1.3 a watching brief during construction;
 - 23.1.1.4 a detailed standing building survey and salvage;
 - 23.1.1.5 archaeological excavation;
 - 23.1.1.6 preservation in situ;
 - 23.1.1.7 further documentary research and archiving; or
 - 23.1.1.8 other such measures as may be approved.
- 23.1.2 The Infraco shall implement and comply with the AHMP.
- 23.1.3 No development within or immediately adjacent to an area which is, in the opinion of **tie** and CEC, of known or suspected archaeological importance, shall commence until a scheme to deal with any archaeological remains on the Site has been submitted to and approved by **tie** and CEC and implemented. The Infraco shall apply for prior approval at least two calendar months in advance of the relevant Infraco Works commencing.
- 23.1.4 No development within or adjacent to an area which is designated as a Scheduled Ancient Monument shall commence without the Infraco confirming whether Scheduled Monument Consent is required from Historic Scotland, and where necessary obtaining such consent. The AHMP shall identify the Scheduled Ancient Monuments and Listed Buildings which shall be affected, and shall outline the Infraco Works that can take place in proximity to them and will detail the necessary mitigation.
- 23.1.5 All records obtained through the mitigation shall be lodged with the National Monuments Record of Scotland ("**NMRS**").
- 23.1.6 The AHMP shall outline the appropriate procedures that shall be followed should any significant archaeological remains be found during the pre-construction excavations.
- 23.1.7 Any archaeological works carried out on the Site by the Infraco shall be undertaken by a suitably qualified investigating body acceptable to **tie** and

CEC. The results shall be provided to the property owner and occupier and, in the case of scheduled or listed features, to **tie**, CEC and Historic Scotland.

23.1.8 The Infraco shall take all reasonable precautions to prevent employees, any Sub-Contractors, their employees, or any other persons from removing or damaging any fossils, coins, articles of value or antiquity, structures or other remains or any other thing of archaeological or historical interest during investigations and during all the Infraco Works. The AHMP shall outline the legal obligations placed on those who discover portable antiquities or disturb human remains.

23.1.9 The Infraco shall appoint a suitably qualified professional person to record the condition of all scheduled and listed buildings and structures or parts thereof, within or adjacent to the construction working areas which are identified as at risk from physical damage or vibration. This will have been carried out in accordance with the Institute of Field Archaeologists Standards and Guidance. The results shall be provided to the property owner and occupier and in the case of scheduled or listed features, to CEC and Historic Scotland.

23.1.10 At least one month prior to commencement of the relevant excavation works, a copy of each survey undertaken under paragraph 23.1.9 above shall be provided by the Infraco to **tie**, the property owner and occupier and, in the case of scheduled or listed features, to **tie**, CEC and Historic Scotland.

23.1.11 After the Infraco Works have been completed and at any time up to two years after the opening of the tram, the above parties may, upon providing **tie** or the Infraco with reasonable evidence of damage, request that a second defects survey is undertaken. Any damage which is identified as being caused by the Infraco Works shall be repaired within a reasonable time of identification at the expense of the Infraco to the reasonable satisfaction of the property owner and such that the property is returned to the standard of repair and stability existing before the Infraco Works commenced.

23.2 **Guidance**

23.2.1 All archaeological investigations, watching briefs or other activities shall be carried out in accordance with the following guidance from the Institute of

Field Archaeologists, particularly – but not necessarily limited to standards and guidance for:

- 23.2.2 field evaluation;
- 23.2.3 excavation;
- 23.2.4 archaeological watching brief;
- 23.2.5 archaeological investigation and recording of standing buildings or structures;
- 23.2.6 collection, documentation conservation and research of archaeological materials;
- 23.2.7 the IFA policy statement on Environmental Protection;
- 23.2.8 the IFA Code of Conduct; and
- 23.2.9 the British Archaeologists and Developers Liaison Group Code of Practice.

PART B - CODE OF MAINTENANCE PRACTICE

1. MANAGEMENT SYSTEMS

1.1 The Infraco shall implement and comply with the following management systems:

1.1.1 a "quality management system" in accordance with ISO 9001;

1.1.2 a "safety management system" in accordance with ISO 18001 or HSG65; and

1.1.3 an "environmental management system" in accordance with ISO 14001.

2. INSTRUCTION AND TRAINING

2.1 The Infraco shall ensure that its employees, Sub-Contractors, agents and others on the Edinburgh Tram Network for whom the Infraco has responsibility undertake a number of inductions. These shall comprise:

2.1.1 specific induction for the Maintenance Services (provided by the Infraco);

2.1.2 worksite and task-specific-induction including a method statement briefing and toolbox talk, (provided by the Infraco).

2.2 Its employees, Sub-Contractors, agents and others on the Edinburgh Tram Network for whom the Infraco has responsibility who have not received the induction, for example visitors, shall be escorted on Edinburgh Tram Network non-public areas at all times by a competent inducted person and receive a site briefing.

2.3 The Infraco shall maintain induction and training records in order that the Operator and **tie** can inspect them. These records shall identify the scope of the induction and training and the persons who received them.

3. SAFE SYSTEMS

3.1 Risk Assessments

3.1.1 The Infraco shall prepare risk assessments for all work activities being undertaken by its employees, Sub-Contractors, agents and others on the Edinburgh Tram Network for whom the Infraco has responsibility.

3.1.2 Each risk assessment shall include as a minimum the following details:

3.1.2.1 Document control

- (a) document title and number;
- (b) revision status;
- (c) authorisation for use; and
- (d) reference to supplementary documentation.

3.1.2.2 identification of any hazards (as a minimum they should address the following – access to the work site, security of the work site, interface with the public, potential for vandalism, interface with the tram system and interface with traffic);

3.1.2.3 identification of those who might be harmed, and how; and

3.1.2.4 an evaluation of the risks and, in relation to each risk, the control measures required to reduce the risk to an appropriate level.

3.2 Method Statements

3.2.1 The Infraco shall prepare method statements for all maintenance activities to be carried out by Infraco.

3.2.2 Each method statement shall include as a minimum the following details:

3.2.3 Document control

- (a) document title and number;
- (b) revision status;

- (c) authorisation for use; and
- (d) reference to supplementary documentation.

3.2.3.1 General information

- (a) description and scope of work;
- (b) location and boundaries (including sketch or site plan if appropriate); and
- (c) access routes for personnel and materials and equipment.

3.2.3.2 Resources

- (a) number and competences of personnel (including function and role);
- (b) contacts; and
- (c) lines of communication.

3.2.3.3 Details of work activities

- (a) detailed work sequence;
- (b) plant, equipment and tools to be used;
- (c) personal protective equipment required;
- (d) delivery requirements;
- (e) wastes produced, and means of disposal; and
- (f) inspection and testing requirements, including details of:
 - (i) acceptance criteria;
 - (ii) quality control checklists and record forms to be used;
 - (iii) frequencies of inspections and testing; and

- (iv) documentation which is required prior to the issue of a handover checklist in accordance with Clause 52.2 of the Agreement.

3.2.3.4 Specific control measures

- (a) permits and authorisations required; and
- (b) temporary amended systems, subject to agreement with the Operator through the appropriate change control arrangements as developed and agreed between the Infraco, **tie** and the Operator during the mobilisation phase.

3.2.3.5 Emergency procedures

- (a) Evacuation and rescue from locations where Infraco and Subcontractors are performing Maintenance Services.
- (b) Interface with the Operator / Control Centre and Emergency Services.

3.2.3.6 Supplementary documentation

- (a) risk assessments; and
- (b) COSHH assessments.

3.2.4 The documentation referred to in paragraph 3.2.2 above shall be developed so that it is specific to the Maintenance Services. The Infraco shall ensure that revisions and updates can be identified .

3.2.5 The Infraco shall issue a copy of its procedure for the production of method statements and risk assessments to **tie** for approval.

3.3 Access Permit

3.3.1 The Infraco shall comply with the Operator's system, as developed and agreed between the Infraco, **tie** and the Operator during the mobilisation phase, for controlling access to undertake work activities as notified to the Infraco by **tie**, which shall require the Infraco to obtain an approved access permit ("**Access Permit**") from **tie** for works that will necessitate interruption or restriction of the Transport Services and all that are safety related.

- 3.3.2 In so far as not otherwise submitted pursuant to this Agreement, the Infraco shall submit a form for each required Access Permit ("**Access Permit Form**") which is required, in accordance with Clause 17.12 of this Agreement to **tie** in advance of access being required. In the event of emergency works or essential unplanned Maintenance Services a reduced period of notice can be applied in accordance with Clause 17.13 of the Agreement.
- 3.3.3 The Infraco shall advise **tie** of the persons within its organisation who are competent to authorise the Access Permit Forms.
- 3.3.4 Each Access Permit Form shall identify the risk assessments, method statements and permits to work which have been raised under the Infraco's safety management system.
- 3.3.5 Each Access Permit Form shall identify any requirements for system interruption or isolation.
- 3.3.6 The Infraco shall agree with **tie** the "start work date and time" and "stop work date and time" for each work activity or group of work activities to be included in each Access Permit.
- 3.3.7 The Infraco shall identify within each Access Permit Form any special control measures which require to be implemented including:
- 3.3.7.1 requirement for a temporary speed restriction;
 - 3.3.7.2 requirement for alteration or disablement of traffic signals ;
 - 3.3.7.3 traffic management requirements under Chapter 8 of the UK traffic signs manual for segregating the work sites from the operational Edinburgh Tram Network or road traffic; and
 - 3.3.7.4 requirement to undertake works outwith the conditions included within the noise and vibration policy referred to in the Tram Legislation.
 - 3.3.7.5 Temporary modifications. These are subject to Change Control agreement with the Operator.

- 3.3.8 On completion of the work activity or group of work activities, or the "stop work time" (which ever is sooner) the Infraco shall return the relevant Access Permit to **tie** for cancellation.
- 3.3.9 The Infraco's authorised persons shall be required to undergo training by **tie** (with the input of the Operator) in the operation of the Access Permit system.

3.4 Permits to Work

- 3.4.1 The Infraco shall implement a "permit to work" system for the following activities as a minimum:
- 3.4.1.1 breaking the ground;
 - 3.4.1.2 hot works;
 - 3.4.1.3 entry into confined spaces;
 - 3.4.1.4 work affecting services;
 - 3.4.1.5 access to live facilities; and
 - 3.4.1.6 works on private land controlled by third parties.
- 3.4.2 The Infraco shall implement a procedure for managing third party permits to work (for whom the Infraco has responsibility).
- 3.4.3 The Infraco shall issue a copy of its permit to work procedures to **tie** for approval.
- 3.4.4 The Infraco shall advise the Operator and **tie** of the competent persons within its organisation who shall be competent to authorise permits to work.

3.5 Personal Protective Equipment

- 3.5.1 The Infraco shall provide all necessary personal protective equipment ("PPE") for its employees and provide them with all necessary information, instruction and training on its use.
- 3.5.2 The Infraco shall ensure that all persons on Infraco's Work Site (including any representatives of the Operator, **tie** and visitors) wear the necessary PPE.

3.5.3 **tie**'s specific requirements for PPE with regard to particular tasks are as follows:

3.5.3.1 yellow high visibility clothing to comply with BS EN 471:1994, which shall be worn at all times when working on the Edinburgh Tram Network or roads.

3.5.3.2 orange high visibility clothing complying with GO/RT 3279 shall be worn where any works are carried out on railway land.

4. REPORTING

4.1 The Infraco shall report the following information to the Operator and **tie** within 24 hours and as soon as reasonably practicable of the event occurring:

4.1.1 details of any accident or incident which requires notification to the Health & Safety Executive (the Infraco shall copy all notifications in full to the Operator and to **tie**);

4.1.2 details of any environmental event which requires notification to the Scottish Environmental Protection Agency ("**SEPA**");

4.1.3 details of any visit by either the Health & Safety Executive or SEPA, together with details of any report issued or enforcement action that resulted; and

4.1.4 details of any incidents or near misses.

4.2 The Infraco shall report the following information to **tie** and, if requested by **tie**, to any other relevant third party on a four weekly reporting cycle:

4.2.1 details of any accident investigation reports raised by **tie** including details of corrective and preventative actions which have been taken;

4.2.2 the accident frequency rate ("**AFR**") for the Maintenance Services (including details of total hours worked and number of persons employed);

4.2.3 a summary of the monitoring and internal auditing activities undertaken by the Infraco in the period, including details of any corrective or preventative actions raised or closed out; and

4.2.4 details of the programme of monitoring and auditing planned for the subsequent four-weekly period.

5. AUDITING AND MONITORING

- 5.1 The Infraco shall be responsible for carrying out and recording, auditing and monitoring of its maintenance work activities.
- 5.2 **tie** any other party reasonably requested by **tie** may undertake auditing and monitoring of the Infraco's maintenance work activities, and the Infraco shall action any findings which are raised **tie** or the relevant other party.

6. NON-CONFORMANCE, COMPLAINTS AND DISCIPLINARY MATTERS

- 6.1 **tie** shall implement a process for recording and processing breaches by the Infraco of the requirements of this Part B of Schedule 3 (*Code of Construction Practice and Code of Maintenance Practice*) and complaints.
- 6.2 The following represent a backstop, the Infraco response times are detailed in clause 52 of the Infraco Agreement and the target correction times for these events are contained in Section 40 of the Employers Requirements.
- 6.3 The Infraco shall take such steps as are required by **tie** to remedy any such infringement or address any such complaint and the following priority levels for action shall apply:

| Level of Urgency | Category of Notification | Required Response Time |
|------------------|---|--|
| 1 | High urgency. Involves an immediate threat to persons or property or the circumstances otherwise require immediate rectification. | Immediate action required as detailed in Clause 52 of the Agreement. If response is not initiated and actions commenced to resolve the issue by the Infraco within 4 hours, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco . |
| 2 | Medium urgency. No immediate threat to persons or property, but there is an impact o n the | Remedial action requires to be initiated and actions commenced to resolve the issue within 24 hours. If the Infraco does not take |

| Level of Urgency | Category of Notification | Required Response Time |
|------------------|--|---|
| | delivery of the Transport Services, require rectification within 24 hours. | this action, tie may procure that the relevant work is carried out and the costs of so doing shall be recovered from the Infraco . |

If the Infraco fails to take any remedial action required by **tie** pursuant to the table above, **tie** shall be entitled to employ and pay other persons to carry out the same and all costs incurred by **tie** shall be recoverable from the Infraco by **tie** and may be deducted by **tie** from any monies due or to become due to the Infraco or, alternatively, recoverable from the Infraco as a debt

7. IDENTIFICATION

- 7.1 The Infraco shall ensure that all staff undertaking Maintenance Services are easily identifiable to the public by use of photo identity cards.
- 7.2 The Infraco shall ensure that all personnel undertaking maintenance activities identify their employer by means of their company logo on their high visibility and protective clothing and, if applicable to be worn according to the task being completed, on their safety helmet.

8. SITE ARRANGEMENTS

8.1 Site Housekeeping

- 8.1.1 A ‘good housekeeping’ policy shall be applied by the Infraco at all times; this shall include, but not necessarily be limited to, the following requirements:
- 8.1.1.1 all working areas shall be kept in a clean and tidy condition;
- 8.1.1.2 all working areas shall be a no-smoking area; specific areas within the Site shall be designated as smoking areas and shall be equipped with containers for smoking waste; these shall not be located at the boundary of the Site and adjacent to neighbouring land;
- 8.1.1.3 open fires shall be prohibited at all times;

- 8.1.1.4 all necessary measures shall be taken to minimise the risk of fire and the Infraco shall comply with the requirements of the local fire authority;
- 8.1.1.5 radios (other than two-way radios used for the purposes of communication related to the Maintenance Services) and other forms of audio equipment shall not be operated on the Site;
- 8.1.1.6 any waste susceptible to spreading by wind or liable to cause litter shall be stored in enclosed containers;
- 8.1.1.7 rubbish shall be removed at frequent intervals and the Site kept clean and tidy;
- 8.1.1.8 eating and drinking shall only be permitted within the Infraco's designated welfare area unless required due to the specific nature and location of the works being undertaken, in which case appropriate arrangements must be made;
- 8.1.1.9 adequate toilet facilities shall be provided for all maintenance staff;
- 8.1.1.10 food waste shall be removed frequently;
- 8.1.1.11 the Infraco's personnel (including any Sub-Contractors) shall be required to conform to a reasonable dress code;
- 8.1.1.12 any behaviour that is lewd or likely to cause offence shall not be permitted; and adequate supervision must be provided by Infraco with swift follow-up and disciplinary action taken in accordance with the Infraco disciplinary procedure of any breaches;
- 8.1.2 The Infraco shall inspect all working areas weekly or as otherwise agreed and shall provide a four weekly written report on compliance with paragraph 8.1.1 above. ~~tie~~ or any other party authorised by it may at reasonable times visit the Site without prior notice of time and place of the visit. Access to all areas of the Maintenance Services shall be given to visiting inspectors and the Infraco shall give inspectors all reasonable assistance during their Site inspection.

8.2 Temporary Fencing

8.2.1 The Infraco shall ensure that where appropriate, all working areas are sufficiently and adequately protected to prevent the public and animals from straying on to the working area; A risk assessment shall determine the need for any temporary fencing around work sites.

8.2.2 All temporary fencing shall comply with Chapter 8 of the Roadworks and temporary situations (2006) Part 1 and 2.

All access and egress to worksites shall be via designated positions within the temporary fencing, which shall remain closed and secured when not in use.

8.2.3 All temporary fencing that creates poorly lit pedestrian routes shall have appropriate lighting fitted by the Infraco, and these shall be illuminated at all times when the adjacent street lighting is lit.

8.2.4 The Infraco shall ensure that the location and design of temporary fencing and temporary structures on the public road shall permit adequate visibility at junctions and proper forward visibility along the roads in accordance with the National Roads Directorate advice notes and the requirements of CEC.

8.2.5 All temporary fencing shall be maintained by the Infraco in a neat and tidy condition at all times, 24 hours, 7 days a week responding within a maximum of 1 hour to any reported problems with the temporary fencing.

8.2.6 The Infraco shall be expressly prohibited from displaying or allowing to be displayed any advertisement or notice including illicit bill or fly posting on the temporary fencing. The Infraco shall ensure that all graffiti, fly posting or defacement to the temporary fencing is removed and made good or obscured within 24 hours.

8.2.7 All temporary fencing shall be removed as soon as reasonably practicable after the completion of any part of the Maintenance Services.

8.3 Lighting and Visual Intrusion

8.3.1 Site lighting shall be positioned and directed by the Infraco so as to minimise nuisance to residents and to minimise distractions or confusion to passing drivers on adjoining public roads. This provision shall apply particularly to

working areas where work after dark will be carried out and the Infraco shall provide appropriate lighting for these sites. Lighting shall be removed as soon as is consistent with the safe and efficient operation of each Work Site.

8.3.2 So far as is reasonably practicable, all power to temporary traffic signals, lighting and the like shall be taken from mains supplies rather than portable generators. Where portable generators are used to provide power to temporary traffic signals, lighting and the like the Infraco shall ensure Good Industry Practice is followed to minimise noise and pollution from such generators.

8.3.3 The Infraco shall comply with the Institute of Lighting Engineers' document *Guidance Notes on Reduction of Light Pollution 2000* in so far as is reasonably practicable and applicable to the Infraco .

8.4 Access and Loading

8.4.1 The Infraco shall ensure that lorries shall enter and exit the Site in a forward direction at designated locations, except where space restriction does not permit this. If the reversing of vehicles into public spaces is required, then a responsible person observing the rear of the vehicle shall properly control the movement. The sounding of audible reversing alarms shall not be permitted outside normal working hours, except where this has been approved by **tie** and CEC in connection with the Maintenance Services, such approval not unreasonably withheld. Entry and exit conditions shall be subject to prior approval by **tie**, CEC and the Lothian and Borders Police before implementation.

8.4.2 Access to and egress from the Site shall be carried out by initiating a left turn wherever reasonably practicable.

8.4.3 All loading and unloading of vehicles shall take place off the public road as far as is reasonably practicable.

8.5 Living Accommodation

8.5.1 No living accommodation shall be provided by the Infraco within any maintenance working area. Mess rooms, locker rooms, toilets and showers shall be permitted at designated positions agreed with **tie**.

8.6 Clearance of Maintenance Work Site on Completion

8.6.1 The Infraco shall clear and clean all working areas and accesses as work proceeds and when no longer required for the carrying out of the Maintenance Services.

8.6.2 All surplus materials, rubbish, Temporary Works, Infraco's Equipment, and temporary fencing shall be removed, and the surface of the ground restored as near as reasonably practicable to its original condition, or to such condition as has previously been agreed with **tie** in accordance with this Agreement.

8.7 Pest Control

8.7.1 The Infraco shall ensure that the risk of infestation by pests or vermin is minimised by adequate arrangements for the disposal of food waste or other material attractive to pests. If infestation occurs, the Infraco shall take such action to deal with it as required by **tie**.

9. REQUIREMENTS RELATING TO WORKS AFFECTING EDINBURGH AIRPORT

9.1 The Infraco shall have regard to, and comply (where relevant) with all BAA and CAA guidelines when working on or adjacent to Edinburgh Airport.

9.2 For Maintenance Services to be carried at Edinburgh airport, the Infraco shall prepare for approval by **tie** and any other party reasonably requested by **tie** a "Construction Management Strategy" as defined within CAA Safeguarding of Aerodromes Advice Note 4 (Cranes and Other Construction Issues). The Construction Management Strategy shall address as a minimum the following issues:

9.2.1 use of cranes or other tall construction equipment;

9.2.2 control of activities likely to produce dust or smoke clouds

9.2.3 the design of temporary lighting to avoid distracting pilots (see CAA Safeguarding of Aerodromes Advice Note 2 Lighting near Aerodromes);

9.2.4 storage of materials, particularly compliance with height limits;

9.2.5 control and disposal of waste, to prevent attraction of birds; and

9.2.6 site restoration, to prevent attraction of birds.

10. REQUIREMENTS RELATING TO WORKS AFFECTING THE RAILWAY

10.1 The Infraco, where working in proximity to Network Rail infrastructure, shall comply with the reasonable requirements of Network Rail necessary in relation to railway safeguarding and at all times keep **tie** and the Operator informed of any and all dealings with Network Rail.

11. REQUIREMENTS RELATING TO WORKS AFFECTING OTHER THIRD PARTIES

11.1 The Infraco shall comply with the reasonable requirements of other affected third parties in relation to procedural requirements e.g. notifications, implementation of Permit to Work systems as defined within Third Party Agreements or as may be reasonably required by **tie**.

12. ROADS AND FOOTPATHS, CYCLEWAYS AND BRIDLEWAYS

12.1 General

12.1.1 The measures to be taken with respect to traffic and road safety shall include, but not necessarily be limited to:

12.1.1.1 use of TTROs; the Infraco shall consult with **tie** and other third parties notified by **tie** on the arrangements for agreeing and implementing TTROs to facilitate road closures and the like; the use of TTROs shall take into account the requirement for, and availability of, suitable alternative routes;

12.1.1.2 use of temporary signing to restrict vehicle types and sizes and define routes for construction traffic;

12.1.1.3 use of appropriate temporary signing and lighting wherever the Maintenance Services are in progress to ensure the safety of all road users; and

12.1.1.4 preparation and implementation of a programme agreed by the Infraco with **tie** and CEC for road closures and temporary traffic signal arrangements.

12.2 Temporary Road Closures And Diversions

- 12.2.1 The Infraco shall finalise the arrangements for required closures and diversions of specified roads, footpaths and cycle ways with **tie**, the Operator, CEC and where roads, footpaths and cycle ways at Edinburgh Airport, BAA, any private landowner or relevant bus operator.
- 12.2.2 Before closing or otherwise interfering with any street or footpath to which the public has access, the Infraco shall make such arrangements with **tie**, and if requested by **tie**, with the Operator and CEC as may be reasonably necessary to cause as little interference with the traffic in that street or footpath during the Maintenance Services as shall be reasonably practicable.
- 12.2.3 Pedestrian access to properties shall be maintained at all times where reasonably practicable, unless otherwise agreed with **tie**, and if requested by **tie**, with the Operator and CEC and the owners and tenants of affected properties. Access to and from public facilities shall be maintained at all times unless otherwise agreed with the relevant administering bodies.
- 12.2.4 Wherever the Maintenance Services interfere with the existing public or private roads or other ways over which there is a public or private right of way for any traffic, the Infraco shall construct diversion ways as necessary. The standard of construction and lighting shall be suitable in all respects for the class or classes of traffic using the existing ways and the widths of the diversions shall not be less than that of the existing way unless otherwise agreed with the Infraco, and, if requested by **tie**, with the Operator and CEC or the owner of the private road.
- 12.2.5 Such necessary diversion routes shall be constructed in advance of any interference with the existing ways, shall be kept as short as reasonably practicable and shall be maintained by the Infraco to provide adequately for the traffic flows. All diversion routes shall be removed and the road returned to **tie** and CEC as soon as is reasonably practical after completion of the Maintenance Services. Liaison shall be undertaken with **tie** and CEC regarding any special events such as the Edinburgh Festival, Christmas, New Year, sporting events and filming which might interact with the diversions.

- 12.2.6 Adequate horizontal clearance of 0.6 metres minimum shall be provided from the kerb line, to avoid fouling by vehicles. The minimum headroom beneath any projection over the road shall be 5.3 metres.

12.3 Parking Provision for Construction Traffic

- 12.3.1 Areas and locations of parking provision for site and construction traffic shall be agreed by the Infraco with **tie** and CEC prior to the commencement of the Maintenance Services.

12.4 Maintenance and Repair of the Road

- 12.4.1 The Infraco shall take every reasonable precaution to prevent its operations from unnecessarily damaging the roads and footpaths within the Site and in the vicinity of the Maintenance Services.
- 12.4.2 The Infraco shall carry out all Maintenance Services as are necessary to maintain the roads and footpaths affected by the Maintenance Services in a safe and serviceable condition to the reasonable satisfaction of **tie**, the Operator and CEC.
- 12.4.3 Reinstatements of the road shall be carried out in accordance with the RAUC(S) "*Specification for the Reinstatement for Openings of Roads*", October 2003.

12.5 Existing Street Furniture

- 12.5.1 No street furniture or other features within the vicinity of the Site and the Maintenance Services, but outwith the area covered by the Tram Legislation shall be unnecessarily disturbed or altered by the Maintenance Services. Any damage to street furniture consequent upon construction activities connected with the Maintenance Services shall be reported to **tie** and the appropriate owner or authority (unless the appropriate owner cannot be identified) immediately on discovery of the damage. Any damage shall be replaced or made good as soon as practicably possible and to the reasonable satisfaction of the owner of the street furniture or other feature.
- 12.5.2 Any street furniture or other obstructions outside the area to be occupied by the Infraco but which are required to be moved in order to gain access to the Maintenance Services shall, subject to the prior consent of the owner thereof,

be removed and reinstated or replaced as appropriate, on completion of the Maintenance Services. Any costs associated therewith shall be borne by the Infraco, including the costs of reinstatement or replacement.

12.6 Vehicle Movements and Access to the Site

12.6.1 The Infraco and its Sub-Contractors and suppliers moving loads, construction plant, materials and spoil (including vehicles used for carrying such when empty) shall limit the use of the public roads for such purposes as far as reasonably practicable.

12.6.2 All access routes shall be agreed with **tie** and CEC prior to the commencement of the relevant part of the Infraco Works.

12.6.3 Access (which is deemed to include both the route and entrance to any Work Site) by lorries shall be as agreed with **tie**, CEC and the Lothian and Borders Police. Access to and egress from the Site shall be carried out by initiating a left turn wherever reasonably practicable.

12.6.4 All vehicles operating on the Site shall be fitted with roof mounted yellow flashing beacons and reversing alarms and subject to Clause 8.4.1 these shall be used.

12.6.5 The Infraco shall take all reasonable measures to ensure that delivery vehicles do not remain stationary on the road unnecessarily prior to entering the Site. In exceptional circumstances, for example where the Site is very constrained, it may be necessary to have the potential for a limited number of vehicles to stand on the road. The location of such standing areas their size and the duration of any standing periods shall be subject to prior agreement with **tie**, CEC and the Lothian and Borders Police.

12.6.6 The Infraco shall ascertain and comply with any restrictions in respect of abnormal load routes as they may affect access to the Site.

12.7 Provision, Erection and Maintenance of Traffic Safety and Control (Traffic Safety Measures)

12.7.1 The Infraco shall provide, erect and maintain such traffic signs, road markings, lamps, barriers and traffic control signals and such other measures as may be necessitated by Maintenance Services in accordance with the requirements of the Agreement and to the approval of **tie**, the Operator and

CEC. The Infraco shall not commence any work which affects the public road until all traffic safety measures necessitated by the work are fully operational.

12.7.2 The Infraco shall keep clean and legible at all times all traffic signs, road markings, lamps, barriers and traffic control signals and shall position, replace, reposition, cover or remove them as required by the progress of the Maintenance Services and to the reasonable requirements of ~~the~~, the Operator and CEC.

12.7.3 The Infraco shall ensure that all barriers, footpath space and temporary footpaths (including the requirement for kerb ramps where use has to be made of the carriageway) shall comply with the requirements of the document *Inclusive Mobility A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure* issued by the Mobility and Inclusion Unit of the Department for Transport.

12.7.4 Where portable generators are used to provide power to temporary traffic signals, lighting and the like the Infraco shall ensure Good Industry Best practice be followed to minimise noise and pollution from such generators.

12.8 Implementation of the Closure of Roads and Access to Frontages

12.8.1 The Infraco shall not close any roads or private accesses until immediately before the area is required for undertaking the Maintenance Services in accordance with this Agreement and the Maintenance Programme. The Maintenance Services shall follow in the area of a temporary closure expeditiously and shall be carried out efficiently and in a continuous manner to ensure that all temporary closures are re-opened as quickly as possible.

12.8.2 The Infraco shall, in carrying out the Maintenance Services, take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of adjacent properties, and to the public generally. The owners, tenants or occupiers of affected properties shall be informed of the Maintenance Services to be undertaken, their planned duration, road and access closures and alternative access routes (where required) in writing and by locally posted public notices at least one calendar month prior to work starting.

12.8.3 The Infraco shall render all necessary assistance to occupiers of premises affected by the Maintenance Services so as to enable them to accept and send out deliveries to and from their premises during their normal working hours.

12.9 Access for Emergency Vehicles

12.9.1 During Maintenance Services involving any likely disruption to roads and access routes the Infraco shall propose suitable access routes for emergency service vehicles and personnel to gain access to the Edinburgh Tram Network. These shall be agreed by the Infraco with **tie**, Emergency Services, the Operator and CEC prior to the start of the Maintenance Services.

13. NOISE

13.1 Noise Control

13.1.1 The Infraco shall take all reasonably practicable measures to minimise nuisance from noise.

13.2 Communications Regarding Noise

13.2.1 Except in the case of emergency work, the Infraco shall give seven days notice to local residents who may be adversely affected by noise from the proposed programme of Maintenance Services, providing a description of the work to be carried out, measures that will be taken to control noise or other disturbance, and the proposed hours of working.

14. VIBRATION

14.1 Vibration Control

14.1.1 The Infraco shall take all reasonably practicable measures to minimise damage caused due to vibration.

15. DUST AND AIR POLLUTION

15.1 Dust and Other Air Pollution

15.1.1 The Infraco shall take all necessary measures to avoid creating a dust nuisance during the Maintenance Services.

15.1.2 Particular consideration shall be given by the Infraco to works affecting the operations of Edinburgh Airport Limited. Details of the specific mitigation measures shall be included within the Construction Management Strategy identified under paragraph 9.2 above.

15.1.3 Measures to prevent dust shall include the following:

15.1.3.1 the hard surfacing of heavily used areas which will be kept clean by regular brushing and water spraying;

15.1.3.2 control of dust released from cutting or grinding of materials on the Maintenance Services;

15.1.3.3 the complete sheeting of all vehicles carrying dusty materials;

15.1.4 Where dust generating works are undertaken close to buildings so that there is soiling of windows and ledges with dust, the Infraco shall clean such windows and ledges as frequently as is necessary (and as a minimum, at least once per week) during periods of dust generating work and on completion of the Maintenance Services at that location. The Infraco shall take precautions to prevent damage occurring as a consequence of cleaning works.

15.1.5 The Infraco shall take precautions to prevent the emission of smoke or fumes from vehicles and plant. Vehicles and plant shall be well maintained and measures shall be taken by the Infraco to ensure that engines and motors are not left running for long periods when not directly in use.

16. DISPOSAL OF WASTE AND CONTAMINATED MATERIALS

16.1 Waste

16.1.1 A waste management plan ("**WMP**") shall be developed in accordance with "*Site Waste Management Plans: Guidance for Contractors and Clients*" (DTI 2004). The Infraco shall be responsible for the preparation of the WMP to address all of the approvals and consents which require to be obtained and the control measures and mitigation measures that shall be implemented. The WMP shall be subject to the approval of **tie**. The WMP shall in particular identify:

16.1.1.1 responsibilities for waste management;

16.1.1.2the types and quantities of waste materials likely to be generated;

16.1.1.3measures to be taken to minimise generation of waste;

16.1.1.4proposals for recycling and/or re-use;

16.1.1.5measures to be adopted for management of waste on the Site including enclosure, segregation, secure storage, sorting for recovery, and other on-site handling;

16.1.1.6proposed treatment and disposal routes; and

16.1.1.7licensing arrangements.

16.1.2 The Infraco shall implement and comply with the WMP.

16.1.3 The Infraco shall undertake monthly assessments to demonstrate compliance with Statutory Requirements and the WMP. The Infraco shall set out its assessment programme in the WMP and shall provide copies of the assessment report to the Operator and tie.

17. PROTECTION OF THE WATER ENVIRONMENT

17.1 Waste Water and Run-off

17.1.1 The Infraco shall ensure that by means of well maintained interceptors or other suitable means there shall be no contamination of run-off water by the Maintenance Services that makes its way into watercourses.

17.1.2 No water shall be discharged into watercourses, but shall be filtered prior to discharge, or discharged onto a grassy area to soak away.

17.1.3 Waste water and site discharges to surface water or sewer shall only be permitted where the effluent quality and discharge location is acceptable to SEPA or Scottish Water (as appropriate). Water Environment (Controlled Activities) (Scotland) Regulations 2005 ("CAR") discharge authorisation shall be obtained by the Infraco if required prior to discharge.

17.1.4 The Infraco shall take suitable precautions to prevent the entry of pollutants into any bodies of water, and report any incidents to SEPA and Scottish Water.

17.1.5 Procedures for responding to potentially polluting shall be implemented in accordance with SEPA guidance.

17.2 Storage of Polluting Materials

17.2.1 The Infraco shall make provision to ensure that oil drums and containers or other potential contaminants are properly isolated and banded and that no oil or other contaminants are allowed to reach watercourses or groundwater, including aquifers. Oil storage containers (both fixed and mobile) with a 200 litre capacity or greater shall be stored in compliance with the Water Environment (Oil Storage) (Scotland) Regulations 2006 (where applicable). Drip trays and other secondary containment measures shall be used by the Infraco where necessary to prevent spills during refuelling and operation of small static and mobile equipment. Storage locations for such materials shall be positioned away from watercourses. All surface water or other contaminated water which accumulates in bunds shall be removed by the Infraco by manually controlled positive lift pumps, and not by means of a gravity drain.

17.2.2 Refuelling shall be carried out by the Infraco in a designated area which is away from watercourses and drains.

17.2.3 Spill response kits containing equipment appropriate to the quantity and types of materials present on site shall be available for use by the Infraco in the event of a fuel spillage. Personnel shall be trained in their use.

17.3 Works in the Vicinity of Water

17.3.1 The Infraco shall take suitable precautions to prevent the entry of pollutants, including sediments and dusts, into any bodies of water, and report any incidents to SEPA.

17.4 Water Environment (Controlled Activity) (Scotland) Regulations 2005

Without prejudice to the foregoing terms of this paragraph 17, the Infraco shall comply with the terms of CAR where relevant to the Infraco.

18. ECOLOGY

18.1 Encroachment into Wildlife Areas

- 18.1.1 The Infraco shall take all reasonably practicable measures to minimise harm to and disturbance of wildlife caused by noise and vibration, dust and other air pollution.
- 18.1.2 Approval shall be obtained by the Infraco from Scottish Natural Heritage, SEPA, Scottish Executive Environment Group Wildlife Habitats Division ("SEEG WHD") and CEC, for detailed method statements for any Maintenance Services proposed at designated sites, including Special Protection Areas ("SPA")/'Ramsar' sites, Sites of Special Scientific Interest ("SSSI"), Sites of Interest for Nature Conservation ("SINC") and wildlife sites.
- 18.1.3 Where reasonably practicable, applications for approval shall be made by the Infraco at least one calendar month prior to relevant Maintenance Services commencing.

18.2 Protected Species

- 18.2.1 In advance of any disruptive to the environment non-routine works, the Infraco shall employ suitably qualified professionals to check all working areas and any land within 30 metres of the boundary of the working area (unless there is a boundary with a private third party within the 30 metres, in which case no checks shall be taken within the private land) for the presence of species protected by statute. Where protected species are identified, appropriate mitigation measures shall be agreed between the Infraco and the relevant authorities.
- 18.2.2 Where any habitat has to be cleared in the breeding bird season, typically March to June or July for most species, the habitat must be checked by the Infraco prior to removal for the presence of nesting wild birds, their nests and eggs and young. If found, no habitat shall be removed until nesting is complete, or unless other suitable mitigation is agreed in advance between the Infraco and Scottish Natural Heritage.
- 18.2.3 The Infraco shall be responsible for obtaining a licence from Scottish Natural Heritage for any non-routine work that may cause disturbance to a badger or

involves the damage or destruction of a sett. Licence applications shall be made by the Infraco for any works within 10m, heavy machinery operating within 30m, and no works shall proceed until the required licences are obtained.

18.2.4 The Infraco shall be responsible for obtaining a licence from SEEG WHD for any non-routine work which may cause disturbance to otters or involve damage or destruction to an otter holt or lying up site or if any Maintenance Services are proposed within 30m of an otter holt or lying up site.

18.2.5 The Infraco shall be responsible for ensuring that all bridges and other built structures and mature and dead trees within the working area shall be checked by a licensed bat handler for their use by roosting or hibernating bats prior to felling or other potentially damaging operations. If found, mitigation measures shall be agreed between the Infraco, Scottish Natural Heritage and SEEG WHD and implemented, including review of the design to seek ways of avoiding loss of the roost. If avoidance is not possible, a licence shall be applied for by the Infraco from SEEG WHD for disturbance to a European Protected Species and / or destruction or damage to a breeding site or resting place. Alternative roost sites shall be provided in advance of any loss. Any permanent loss of feeding habitat shall be discussed between the Infraco and **tie** and agreement shall be reached as to how to compensate for by providing new habitat creation as detailed in the landscape and habitat management plan prepared and issued to the Infraco by **tie**.

18.2.6 Where appropriate use of mitigation measures by target species will be positively encouraged using a variety of techniques e.g. feeding.

18.2.7 The Infraco's personnel and personnel engaged by any Sub-Contractors shall be briefed by a suitably qualified professional on measures for protected species as part of site induction.

18.3 Protection of Mature Trees

18.3.1 For the purposes of this paragraph, "trees" are defined as trees with a diameter of over 10cm girth at a height of 1.5 m above ground level.

- 18.3.2 All tree surgery operations shall comply with the British Standard (BS) 3998 "*Recommendations for Tree Work*" and a method statement addressing safety of workers and the public shall be prepared by the Infraco and implemented.
- 18.3.3 Felling shall be carried out in accordance with the Forestry Commission document "*Forest and Water Guidelines 2004*", which relates to the influence that woodland and trees can have on the freshwater environment, insofar as this is reasonably practicable and to the extent that they are applicable to the Maintenance Services.
- 18.3.4 Prior to felling, the Infraco shall procure that trees suitable as bat roosts shall be checked by a licensed bat handler for roosting and hibernating bats, and should any be identified, mitigation measures shall be agreed by the Infraco with Scottish Natural Heritage and SEEG WHD and the Infraco shall obtain any relevant licences.
- 18.3.5 Woody material generated shall be retained on the site as far as is reasonably possible and used as part of habitat creation measures.

18.4 Control of Invasive and Alien Species

- 18.4.1 If any invasive alien species listed in Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended), are identified along the route, including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) or Himalayan Balsam (*Impatiens glandulifera*), the Infraco shall develop a strategy to manage their presence. The strategy will ensure appropriate treatment of invasive alien species in accordance with approved methodology and will prevent the spread of the species within and outside the Edinburgh Tram Network
- 18.4.2 The Infraco shall comply with the DEFRA document "*Helping to Prevent the Spread of Invasive Non-native Species, Horticultural Code of Practice*" (March 2005), in so far as this is reasonably practicable and applicable to the Maintenance Services. Invasive alien species listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland Act) 2004, will be treated in accordance with the Environmental Protection Act 1990. Japanese knotweed and giant hogweed and soils containing particles of these plants are regarded as controlled waste.



**THIS IS SCHEDULE PART 4 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 4

PRICING

CONTENTS

- 1.0 Generally
- 2.0 Definitions used in this Schedule
- 3.0 Construction Works Price
- 4.0 Provisional Sums
- 5.0 Value Engineering taken into firm price – but conditional
- 6.0 Further Value Engineering
- 7.0 Utilities Diversions to be carried out by Infracore
- 8.0 Schedules of Rates
- 9.0 Roads Reconstruction

Appendices

- A Construction Works Price
- B Provisional Sums and the Mechanism for their Adjustment
- C Value Engineering taken into firm price – but conditional
- D Further Value Engineering
- E Utilities Diversions to be carried out by Infracore
- F Schedules of Rates
- G Process for the agreement of Value of **tie** Changes
- H Base Date Design Information
- I Network Rail Immunisation

1.0 GENERALLY

- 1.1 The Infraco Construction Works Price is detailed in Appendix A to this Schedule Part 4.
- 1.2 The Construction Works Price is on a lump sum basis that is fixed until completion of the Infraco Works and not subject to variation except in accordance with the provisions of this Agreement.
- 1.3 This Part 4 of the Schedule sets out the various categories of items that may be subject to change, together with a mechanism for adjustment of the Contract Price including the Construction Works Price.
- 1.4 No provision within this Part 4 of the Schedule shall entitle the Infraco to more than one payment for any item or other entitlement under the Infraco Contract.
- 1.5 References to clause numbers in Part 4 of this Schedule are to clauses in the Infraco Contract unless otherwise stated.
- 1.6 All rates, lump sums and the like contained in this Schedule Part 4 are exclusive of Value Added Tax and are in Pounds Sterling.

2.0 DEFINITIONS USED IN THIS SCHEDULE

- 2.1 "**Archaeological Officer**" means the archaeological officer appointed by CEC from time to time.
- 2.2 The "**Base Case Assumptions**" means the Base Date Design Information, the Base Tram Information, the Pricing Assumptions and the Specified Exclusions.
- 2.3 The "**Base Date Design Information**" means the design information drawings issued to Infraco up to and including 25th November 2007 listed in Appendix H to this Schedule Part 4.
- 2.4 The "**Base Tram Information**" means the information contained in Tram Supplier's technical response in relation to the Employer's Requirements and in the Tram Supply Agreement (including, for the avoidance of doubt Schedule 23 of the Tram Supply Agreement (Tram Technical Information Data Version 11))
- 2.5 The "**Contract Price**" comprises capital expenditure and revenue expenditure as follows:

| | £ |
|---|---------------------|
| Construction Works Price | 238,607,664 |
| SDS Price (as defined in the SDS Agreement and the Novation Agreement) | 3,308,815 |
| SDS Provisional Sums (as set out in Appendix 4 to SDS Novation Agreement) | |
| Extended Construction Support | 1,000,000 |
| Design Support Team | 675,000 |
| Tram Supply Price (as defined in the Tram Supply Agreement) | 55,781,634 |
| Infraco Maintenance Mobilisation | 1,782,292 |
| Tram Maintenance Mobilisation | 2,275,806 |
| Infraco Spare Parts | 1,013,090 |
| Total of capital expenditure | £304,444,301 |

Revenue expenditure comprises amounts payable to the Infraco from the Service Commencement Date.

- 2.6 **"Defined Provisional Sum"** means a sum included in the Construction Works Price which is provisional but for which Infraco has deemed to have made a provisional allowance for programming and planning (but not Preliminaries).
- 2.7 **"Issued for Construction Drawings"** shall have the meaning as used in Schedule Part 1 (*Definitions and Interpretations*).
- 2.8 A **"Notified Departure"** is where now or at any time the facts or circumstances differ in any way from the Base Case Assumptions save to the extent caused by a breach of contract by the Infraco, an Infraco Change or a Change in Law.
- 2.9 **"Pricing Assumptions"** means the assumptions in respect of the Contract Price as noted in Section 3.4 below.
- 2.10 **"Specified Exclusions"** means items for which Infraco has made no allowance within the Construction Works Price as noted in Section 3.3 below.
- 2.11 **"Traction Power Simulation Modelling"** means the technical modelling simulation prepared by the Infraco dated 2 April 2008, reference TSELEN2/484.01r04/STS.
- 2.12 An **"Undefined Provisional Sum"** means a sum included in the Construction Works Price which is provisional but for which Infraco has not deemed to have made due allowance for programming, planning and pricing Preliminaries.

3.0 CONSTRUCTION WORKS PRICE

3.1 The Construction Works Price is a lump sum, fixed and firm price for all elements of work required as specified in the Employer's Requirements as Schedule Part 2 and the Infraco Proposals as Schedule Part 31 and is not subject to variation except in accordance with the provisions of this Agreement.

3.2.1 It is accepted by **tie** that certain Pricing Assumptions have been necessary and these are listed and defined in Section 3.4 below. The Parties acknowledge that certain of these Pricing Assumptions may result in the notification of a Notified Departure immediately following execution of this Agreement. This arises as a consequence of the need to fix the Contract Price against a developing factual background. In order to fix the Contract Price at the date of this Agreement certain Pricing Assumptions represent factual statements that the Parties acknowledge represent facts and circumstances that are not consistent with the actual facts and circumstances that apply. For the avoidance of doubt, the commercial intention of the Parties is that in such circumstances the Notified Departure mechanism will apply.

3.3 Specified Exclusions from the Construction Works Price are:

- a) Utilities diversions (including both the diversion of Utilities and the diversion of any other utilities) and protective works associated with utilities save for the Defined Provisional Sums for those utilities diversions that are to be undertaken by Infraco.
- b) Work in connection with the St Andrew Square public realm project beyond the tram works. For the avoidance of doubt Tramstops, trackform, track bed, OHLE, road surface refurbishing, associated systems and link works together with any other work shown on the Base Case Design Information are included.
- c) Ground conditions that require works that could not be reasonably foreseen by an experienced civil engineering contractor based on the ground conditions reports provided to BBS on 20th and 27th of November and 6th December 2007. Additionally the Constructions Works Price does not include for dealing with replacement of any materials below the earthworks outline or below ground obstructions/voids, soft material or any contaminated materials.
- d) Bernard Street public realm project as information provided to Infraco on 28th November 2007.

3.3.1 In the event that the Infraco is required to carry out any of the Specified Exclusions, this shall be a Notified Departure.

3.4 Pricing Assumptions are:

- 1 The Design prepared by the SDS Provider will not (other than amendments arising from the normal development and completion of designs):
 - 1.1 in terms of design principle, shape, form and/or specification be amended from the drawings forming the Base Date Design Information (except in respect of Value Engineering identified in Appendices C or D to this Schedule Part 4);
 - 1.2 be amended from the scope shown on the Base Date Design Information and Infraco Proposals as a consequence of any Third Party Agreement (except in connection with changes in respect of Provisional Sums identified in Appendix B); and

- 1.3 be amended from the drawings forming the Base Date Design Information and Infraco Proposals as a consequence of the requirements of any Approval Body.

For the avoidance of doubt normal development and completion of designs means the evolution of design through the stages of preliminary to construction stage and excludes changes of design principle, shape and form and outline specification.

- 2 Design delivery by the SDS Provider has been aligned with the Infraco construction delivery programme as set out in Schedule Part 15 (*Programme*).
- 3 The Deliverables prepared by the SDS Provider prior to the date of this Agreement comply with the Infraco Proposals and the Employer's Requirements.
- 4 That the Design Delivery Programme as defined in the SDS Agreement is the same as the programme set out in Schedule Part 15 (*Programme*).
- 5 That the Infraco shall not suffer any loss and expense of whatever nature as a consequence of any matter identified in the "Assumptions and Constraints Report" in Appendix 2 of the SDS Novation Agreement, including without prejudice to the foregoing generality the following:
- 5.1 the modifications to the SDS Provider's design process and approvals and consents periods;
- 5.2 any assumptions or dependencies;
- 5.3 any matter identified as being at the risk of **tie** or subject to instruction from **tie**;
- 5.4 any instruction issued by **tie**;
- 5.5 subject to Clause 10.18, any acceleration (save where Infraco itself decides to accelerate); or
- 5.6 any strategy.
- 6 That the tram fleet shall comprise 27 Trams.
- 7 That the Trams meet the DKE parameters mentioned in the track alignment criteria document (ULE90130-SW-SPN-00001 v2.1).
- 8 There shall be no impact on the traction power supply system (as demonstrated by the power simulation modelling) as a consequence of a change to the input parameters used in the Traction Power Simulation Modelling.
- 9 Except for normal development and completion of designs (as defined in 1 above), there shall be no changes to the design resulting from the impact of the kinematic envelope of the Trams on the civils design.
- 10 The Urban Traffic Controls (UTC) will allow and have no adverse impact on the Tram operations including run time and punctuality of services as set out in the Employer's Requirements.
- 11 That in carrying out the Infraco Works in accordance with this Agreement, it shall not be necessary to undertake any works outwith the "Earthworks Outline" (as

defined in paragraph 3.6 below). The Infraco shall not encounter any below ground obstructions or voids, soft material or any contamination however the price for excavation and earthworks is inclusive of any differences between differing sub-soils that may prevail within the Earthworks Outline.

- 12 Subject to paragraph 9 below, in respect of the highways work in Princes Street, Shandwick Place, Haymarket Junction and St Andrew Square, Infraco shall be required only to plane back the existing road structure to a sound base at the underside of the new surface course and replacement of surface course suitable for purpose to suit the revised road surface profile. Full depth reconstruction as the current designs in this area shall not be required.
- 13 In respect of the Highways and Drainage works at Picardy Place, London Road and York Place and St Andrew Square, Infraco shall only be obliged to carry out works to the extent shown on the Base Date Design Information.
- 14 Road construction shall be 35mm thin surface course on 55mm binder course on 110mm base course and 250mm type 1 sub-base.
- 15 The roads as reconstructed in accordance with the SDS design will be adopted by CEC and 'handed back' on or prior to Service Commencement and thereafter CEC shall undertake routine maintenance (sweeping, litter, salting, normal wear and tear and the like) at no cost to Infraco. However for the avoidance of doubt, Infraco remains responsible for any defects in design or construction.
- 16 Flexible footpath surfacing shall be 30mm HRA on 50mm DBM on 150mm Type 1 base.
- 17 In respect of footways provided the Infraco has used reasonable endeavours to protect existing kerbs and flags, during the carrying out of the Infraco Works, these existing kerbs and flags can be re-used where available and minimal reinstatement behind kerb lines is required i.e. not wall to wall.
- 18 Full footway reconstruction in Leith Walk is not required beyond the allowance made in areas where kerb lines are being re-sited.
- 19 That in respect of Tower Place Bridge, Victoria Dock Bridge and Lindsay Road retaining wall, Infraco shall only be obliged to carry out works to the extent shown in accordance with the Base Date Design Information.
- 20 That in respect of Morrison Supermarket at the Gyle the Infraco shall not be required to carry out any works in respect of the retaining wall.
- 21 That in respect of the Depot excavation works, (i) the volume of excavation shall be 80,000m³, and (ii) the depot excavation will be handed over to Infraco pumped dry with a firm sound formation.
- 22 That in circumstances where, to maintain the Programme, the Infraco carries out works or procures materials or works prior to the issue of Issue for Construction drawings, no amendment to the works carried out, or works or materials procured shall be required as a consequence of the subsequent issue of the relevant Issue for Construction drawings.
- 23 That the Code of Construction Practice will be followed by Infraco except where relaxations from the hours of working outside the hours specified in the Code of

Construction Practice are specifically stated in Schedule Part 15 (*Programme*) and that CEC shall grant such relaxations in circumstances where the Infraco has submitted a competent application in order to achieve such relaxation.

- 24 That in relation to Utilities the MUDFA Contractor and/or Utility shall have completed the diversion of any utilities in accordance with the requirements of the Programme save for utilities diversions to be carried out by the Infraco pursuant to the expenditure of the Provisional Sums noted in Appendix B.
- 25 That the Possessions (as defined in Clause 16.1) shall be available as noted in the Programme at Schedule Part 15 (*Programme*).
- 26 Network Rail shall comply with its obligations under the Asset Protection Agreement and the Bridge Agreements as defined in Clause 16.1.
- 27 That, save to the extent that the Infraco fails to comply with its obligations under Clause 16 of this Agreement to provide information properly and reasonably requested in a full and timely manner to Network Rail in the process of developing the APA Works Programme, that neither the timing nor the terms of Network Rail's approval of the APA Works Programme shall adversely affect the Programme.
- 28 Trackslab depth is 385mm with formation condition of 10% CBR.
- 29 That there shall be no special floating track measures required for vibration
- 30 That no protective measures are required in relation to protected trees however new trees will be provided for any trees removed in accordance with the Environmental Management Plan.
- 31 That the Archaeological Officer shall not delay or disrupt the Infraco Works.
- 32 That the programming assumptions set out in Schedule Part 15 (*Programme*) remain true in all respects.
- 33 That third parties shall not carry out works which impact upon the Infraco Works.
- 34 That stray current protection proposals as contained within the Infraco Proposals shall be approved by all relevant Approval Bodies where Infraco has made a competent application .
- 35 That Consent shall be obtained (within a reasonable time having regard to the progress of the Infraco Works) for the use of Railway Ballast from Markle Mains Quarry.
- 36 Demolition or alteration of existing buildings shall only be required as follows:

Demolition
 - Caledonian Ale House (Plot 33)
 - Redpath McLean Office Russell Road (Plot 68)
 - Simloch Property Roseburn Street (Plot 75)
 - Viking International Roseburn Street (Plot 79)

- JB McLean lean-to Roseburn Street (Plot 92)
 - National Car Rental Roseburn Street (Plot 103)
 - Busy Bee Catering Balgreen Road (Plot 130)
 - ATC Hut Stenhouse Drive (plot 150)
- 37 Asbestos shall not be discovered or identified in buildings to be demolished or altered.
- 38 All CCTV cameras and other road equipment will be connected back to the nearest Open Transport Network (OTN) node in either a sub-station or Tramstop.
- 39 That compliance with the Infraco's obligation pursuant to Clause 18.17B and under Schedule Part 13 Section A (Third Party Agreements) to give "due and proper cognisance to third party requirements" (and similar obligations such as to have "due and proper regard to such third party requirements") under the Third Party Agreements shall not cause any delay or disruption to the carrying out of the Infraco Works, on the basis that the Infraco shall have used reasonable endeavours to mitigate the impact of such compliance and that any such third party requirements could not reasonably have been foreseen by an experienced contractor executing works in the operating environment of a UK city.
- 40 That any conditions attaching to any licence or similar arrangement entered into between **tie** and a third party entered into pursuant to any agreement included in Schedule Part 13 Section A (Third Party Agreements) shall not cause any delay or disruption to the carrying out of the Infraco Works, on the basis that the Infraco shall provide all reasonable assistance to **tie** to ensure compliance at all times with any such conditions and shall use all reasonable endeavours to mitigate the impact of such conditions in the carrying out of the Infraco Works.
- 41 That the Standards (as defined in Clause 16.1):
- (a) In relation to NR Immunisation (as defined in Appendix I to this Part 4 of the Schedule) shall be and shall be in the same terms as those which were in force on 12th October 2007; and
 - (b) In relation to the remainder of the APA Works (as defined in Clause 16.1) shall be and shall be in the same terms as those which were in force at the date of this Agreement.
- 42 That design support during the construction period will be provided by the SDS Provider.
- 43 The Public Realm Design Workbook will not introduce any new requirements into the Prior Approvals process which are in addition to the existing requirements set out in the Tram Design Manual and the City of Edinburgh Council's Standard for Streets.
- 3.5 The Contract Price has been fixed on the basis of inter alia the Base Case Assumptions noted herein. If now or at any time the facts or circumstances differ in any way from the Base Case Assumptions (or any part of them) such Notified Departure will be deemed to be a Mandatory **tie** Change requiring a change to the Employer's Requirements and/or the Infraco Proposals or otherwise requiring the Infraco to take account of the Notified Departure in the

Contract Price and/or Programme in respect of which **tie** will be deemed to have issued a **tie** Notice of Change on the date that such Notified Departure is notified by either Party to the other. For the avoidance of doubt **tie** shall pay to the Infraco, to the extent not taken into account in the Estimate provided pursuant to Clause 80.24.1, any additional loss and expense incurred by the Infraco as a consequence of the delay between the notification of the Notified Departure and the actual date (not the deemed date) that **tie** issues a **tie** Change Order, such payment to be made by **tie** following evaluation, agreement or determination of such additional loss and expense pursuant to Clause 65 (Compensation Events) as if the delay was itself a Compensation Event.

3.6 Earthworks Outline in this Schedule Part 4 means:

3.6.1 the finished earthworks levels and dimensions (prior to topsoiling) for the construction, where specified, of

- (a) carriageway, hard shoulder, hard strip, footway, paved area, central reserve, verge, side slope;
- (b) underside of (i) trackslab, (ii) grasstrack concrete, and (iii) ballast;
- (c) sub-base;
- (d) fill on sub-base material, base and capping;
- (e) contiguous filter material, lightweight aggregate infill;
- (f) surface water channels;
- (g) landscape areas, environmental bunds.

In all cases of filter drains, except narrow filter drains, the Earthworks Outline shall be the top of the filter material.

3.6.2 Where capping or stabilisation to form capping is required by the design in cutting or embankment, the Earthworks Outline shall be as defined in paragraph 3.6.1 i.e. as the top of capping.

3.6.3 Where an embankment is required by the design to be surcharged, the Earthworks Outline shall be defined as in paragraph 3.6.1 and exclude the surcharge.

3.6.4 Where permanent storage or stockpiling of topsoil is required, the Earthworks Outline shall be as defined in paragraph 3.6.1 and exclude stored topsoil.

3.6.5 Where the ground has been subjected to the treatment in respect of ground improvement, mine workings, swallow holes and the like, for the purpose of the definition of Earthworks Outline the existing ground level shall be the level obtained on completion of any such treatment of the areas affected.

Sub-soil Level is defined as the level of the ground after the removal of topsoil.

Surcharge is defined as material placed for the purpose of loading for the periods specified in the design.

4.0 PROVISIONAL SUMS

4.1 Provisional Sums have been allowed for items listed in Appendix B.

- 4.2 These are in two tables. The first table represents Defined Provisional Sums. The second table represents Undefined Provisional Sums.
- 4.3 The procedure for the expenditure of the Provisional Sums is as set out in this section.
- 4.4 Provisional Sums requiring an instruction are those for which a "trigger date" has been identified in Tables 1 and 2 below. Where the "trigger date" is stated to be "not applicable", this is a Provisional Sum not requiring instruction.
- 4.5 Provisional Sums requiring Instruction
- 4.5.1 **tie** shall, in conjunction with (where reasonably requested by **tie**) the Infraco and the Infraco Parties, prepare the defined requirements and specification for Provisional Sums which require an instruction sufficiently ahead of Programme so as to achieve the **tie** Notice of Change by the date shown as the trigger date in Tables 1 and 2 below.
- 4.5.2 Not later than the dates set out in column entitled "trigger date" of the Provisional Sums Tables **tie** shall issue a **tie** Notice of Change instructing the works to which the Provisional Sums requiring Instruction apply, which **tie** Change shall be a Mandatory **tie** Change. Failure by **tie** to issue a **tie** Notice of Change in accordance with this paragraph shall be a Compensation Event to which Clause 65 applies
- 4.5.3 After agreement or determination of a **tie** Change for works to which a Provisional Sum applies, the Provisional Sum and, in the case of Defined Provisional Sums the provisional allowance for programming, planning and pricing Preliminaries shall be removed from the Contract Price and Milestone Schedule and the Programme and shall be replaced by the value of the **tie** Change and programme adjustment determined in accordance with Clause 80.
- 4.6 Provisional Sums not requiring an Instruction
- 4.6.1 Where work is carried out in respect of a Provisional Sum which is not a Provisional Sum requiring Instruction, the carrying out of such works will be deemed to be a **tie** Change.
- 4.6.2 After agreement or determination of the **tie** Change which is deemed to have occurred pursuant to paragraph 4.6.1, the Provisional Sum and, in the case of Defined Provisional Sums the provisional allowance for programming, planning and pricing Preliminaries shall be removed from the Contract Price and Milestone Schedule and the Programme and shall be replaced by the value of the **tie** Change and programme adjustment determined in accordance with Clause 80.
- 4.7 SDS Provisional Sums
- 4.7.1 In addition to the SDS Price Infraco shall be entitled to be paid and include in any Application for Milestone Payment amounts properly due to be paid to the SDS Provider pursuant to the SDS Agreement in respect of Extended Construction Support and Design Support Team notwithstanding the amount set out as SDS Provisional Sums in paragraph 2.5.
- 4.7.2 Infraco will be entitled to add a head office overhead and profit percentage of 10% to amounts payable to the SDS Provider under the SDS Agreement where such amounts when aggregated with amounts previously paid to the SDS Provider

exceed £5,000,000 but, for the avoidance of doubt, such percentage shall only be applied to the amount in excess of £5,000,000.

5.0 VALUE ENGINEERING (VE) THAT HAS BEEN TAKEN INTO FIRM PRICE

5.1 The Parties have agreed Value Engineering opportunities / savings as noted in Appendix C.

5.2.1 Subject to the provisions applying to Value Engineering opportunities which are Design to Cost these VE opportunities / savings are not simply targets but are fixed and firm reductions which are reflected in the Contract Price as at the date of this Agreement.

5.3 Infraco shall implement a Value Engineering opportunity provided that:

5.3.1 where the implementation of the Value Engineering opportunity requires instruction by **tie**, **tie** have issued such instruction (which shall be a **tie** Change) sufficiently ahead of the Programme to allow the Value Engineering opportunity to be realised;

5.3.2 the Value Engineering opportunity is technically feasible;

5.3.3 any Consents required for the implementation of the Value Engineering opportunity are obtained and designs Issued for Construction by the date set out in the Programme; and

5.3.4 any other Key Qualification applying to the Value Engineering opportunity have been achieved.

5.4 NOT USED.

5.5 To the extent that a Value Engineering opportunity is implemented:

5.5.1 the Employer's Requirements and Infraco Proposals shall be amended to take into account the changes to the Infraco Works as a result of such implementation;

5.6 To the extent that a Value Engineering opportunity is not implemented:

5.6.1 Infraco shall carry out the Infraco Works without the amendment to the Employer's Requirements and Infraco Proposals which would have been made had the Value Engineering opportunity been implemented; and

5.6.2 Infraco and **tie** shall agree amendments to the Schedule Part 5 (*Milestone Payments*) to increase the Contract Price by the saving applying to the Value Engineering opportunity set out in Appendix C and Infraco shall be entitled to include in its next Application for Payment and **tie** shall pay to Infraco the design costs incurred by Infraco in considering the Value Engineering opportunity up to a maximum amount of £25,000 per Value Engineering opportunity.

5.7 Where a Key Condition to achieving a Value Engineering opportunity is "Design to Cost":

5.7.1 before implementing the Value Engineering opportunity and sufficiently ahead of the Programme so as not to prejudice the delivery of the Value Engineering opportunity Infraco shall deliver to **tie** an Estimate setting out the net cost or saving of implementing the Value Engineering opportunity (including design costs); and

- 5.7.2 **tie** shall confirm within 10 Business Days of receipt of the Estimate if **tie** wishes Infraco to proceed with the Value Engineering opportunity.
- 5.7.3 If **tie** confirms that it wishes Infraco to proceed with the Value Engineering opportunity,
- (a) the Employer's Requirements and Infraco Proposals shall be amended to take into account the changes to the Infraco Works as a result of such implementation; and
 - (b) Infraco and **tie** shall agree amendments to the Schedule Part 5 (Milestone Schedule) to amend the Contract Price by the difference (if any) between the saving applying to the Value Engineering opportunity set out in Appendix C and the actual saving set out in the Estimate provided to **tie** in accordance with paragraph 5.7.1 and Infraco shall be entitled to claim in its next Application for Payment and **tie** shall pay to Infraco the design costs incurred by Infraco in considering the Value Engineering opportunity up to a maximum amount of £25,000 per Value Engineering opportunity.
- 5.7.4 If **tie** confirms that it does not wish Infraco to proceed with the Value Engineering opportunity paragraph 5.6 shall apply. **tie** shall be deemed not to wish Infraco to proceed with a Value Engineering opportunity which is design to cost if it fails to respond to an Estimate in accordance with paragraph 5.7.2;
- 5.7.5 Infraco shall use reasonable endeavours to achieve the savings for each Value Engineering opportunity.

6.0 FURTHER VALUE ENGINEERING (VE)

- 6.1 Further Value Engineering opportunities / savings as noted in Appendix D
- 6.2 This further VE represents that which either one or both Parties is unable to commit to at this stage and will still be considered as a potential target. There are two sub-categories, those with an estimated saving carried to the summary and those as an unspecified item.
- 6.3 These will be adjusted by applying the provisions of Clause 80 (*tie Changes*). For the avoidance of doubt, no VE that has already be considered by the Parties or that may subsequently be proposed by **tie** will be considered as a shared saving under Clause 81.3 (*Infraco Changes*).

7.0 UTILITIES DIVERSIONS TO BE CARRIED OUT BY INFRACO

- 7.1 Although **tie** has let the MUDFA Contract (Multiple Utilities Diversion Framework Arrangement) to carry out the diversion of utility apparatus in the path of the proposed tram route prior to Infraco Works, it will be necessary for some of these works to be delivered by Infraco for the reasons such as:
- they may be unrecorded and not discovered until the Infraco Works are commenced
 - they may be discovered during the MUDFA Works but left to avoid a programme overlap or other technical reason
 - they may be intrinsically linked to the Infraco Works

- they may require such significant reinstatement work that to carry out under MUDFA may result in significant abortive works

7.2.1 Where Infraco has been advised of the existence of utility apparatus in advance, whether identified to date or following discovery during the MUDFA Works, any adjustment to the Contract Sum will be made by applying the provisions of Clause 80 (*tie Changes*).

7.3 Those identified to date are noted in Appendix F.

8.0 SCHEDULES OF RATES

8.1 Rates for certain items have been established for determining the value of **tie** Changes as noted in Appendix F.

8.2 The rates contained in the appendix F are inclusive of overheads and profit are to be used for the purpose of agreeing changes (positive and negative)

8.3 Rates for SDS are as noted in the SDS Agreement / SDS Novation Agreement which also set out the mechanism that shall apply in respect of any design associated with **tie** Changes.

9.0 ROADS RECONSTRUCTION

9.1 **tie** shall (and shall procure that CEC shall) support re-design proposals through the Development Workshop (as defined in the SDS Novation Agreement) which the SDS Provider may develop to align their design deliverables with Pricing Assumption 12.

9.2 The maximum aggregated entitlement for the Infraco shall be eight weeks in relation to a Notified Departure (including any relief, time or additional cost) concerning the combined effect of Pricing Assumption 12 and programming assumption 9.1.4.

9.3 The recovery of additional cost by the Infraco under Clause 80 (*tie Change*) following a Notified Departure with regard to Pricing Assumption 12 shall be capped at an aggregate amount of £1,500,000 (one million five hundred thousand pounds), save with regard to any claim for additional cost arising from delay caused by the SDS Provider's redesign of any roads reconstruction or the requirement to revert to the SDS Provider's initial design for such roads reconstruction.

APPENDIX A

CONSTRUCTION WORKS PRICE ANALYSIS

A1 CONSTRUCTION WORKS PRICE ANALYSIS

| | | |
|--|----------------------------|----------------------|
| Lump Sum Firm and Fixed Price | | £ 231,797,342 |
| | | |
| Deduct Identified Value Engineering | Taken To Firm Price | £ 9,965,006 |
| | (See Appendix C) | |
| Firm Price | | £ 221,832,336 |
| | | |
| Deduct Further Value Engineering | (see Appendix D) | £ 2,670,000 |
| | | |
| Sub Total | | £ 219,162,336 |
| | | |
| Add Defined Provisional Sums | (see Appendix B) | £ 11,434,316 |
| | | |
| Add Undefined Provisional Sums | (see Appendix B) | £ 8,011,012 |
| | | |
| Construction Works Price | | £ 238,607,664 |

APPENDIX A2

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|---|------|--------|---------------|----------------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| | Contractual Requirements | | | | |
| A110 | Contractor's bond | sum | 1.00 | £1,317,093.79 | £1,317,093.79 |
| A120 | Professional Indemnity Insurance | sum | 1.00 | £0.00 | £0.00 |
| A130 | Marine Cargo Insurance | sum | 1.00 | £0.00 | £0.00 |
| A140 | All other insurance required by the Contract | sum | 1.00 | £1,633,046.22 | £1,633,046.22 |
| A150 | Administration of all insurances required under the Contract including but without limitation Employee's Compensation and Statutory Employee's Compensation Levy. | sum | 1.00 | £0.00 | £0.00 |
| A160 | Progress Reporting in accordance with the Contract. | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Specified Requirements | | | | |
| | Accommodation for the Engineer's and Client's Staff; establish and remove | | | | |
| A211.1 | offices | sum | 1.00 | £82,309.91 | £82,309.91 |
| | | | | | |
| | Accommodation for the Engineer's and Client's Staff for Railway Systems and Operations and Maintenance Departments; establish and handover | | | | |
| A211.2 | offices | sum | 1.00 | £0.00 | £0.00 |
| A211.3 | depot office | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Accommodation for the Community Liaison Officers; establish and remove | | | | |
| A211.4 | offices | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Accommodation for O&M maintenance staffs; establish and remove | | | | |
| A211.5 | container offices | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Facilities for the O&M maintenance; establish and handover | | | | |
| A211.6 | diesel fuel station | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Accommodation for the Engineer's and Client's Staff; maintain and operate | | | | |
| A211.7 | offices | wk | 169.00 | £1,900.51 | £321,186.78 |
| | Prelims and General Items - Page 1 | | | | £3,353,636.70 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|--|------|--------|-----------|--------------------|
| | | | | | |
| | Accommodation for the Engineer's and Client's staff for Tram Systems and Operations and Maintenance Departments; maintain and operate | | | | |
| A211.8 | offices | wk | | | |
| A211.9 | depot office | wk | | | |
| | | | | | |
| | Accommodation for the Community Liaison Officers; maintain and operate | | | | |
| A211.10 | offices | wk | | | |
| | | | | | |
| | Accommodation for O&M maintenance staffs; maintain and operate | | | | |
| A211.11 | container offices | wk | | | |
| | | | | | |
| | Facilities for the O&M maintenance; maintain and operate | | | | |
| A211.12 | diesel fuel station | wk | | | |
| | | | | | |
| | Services for Engineer's and Client's Staff; establish and remove | | | | |
| A221.1 | transport vehicles | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Services for Engineer's and Client's Staff; maintain and operate | | | | |
| A221.2 | transport vehicles | wk | 169.00 | £1,219.95 | £206,171.25 |
| | | | | | |
| | Services for Engineer's and Client's Staff; establish and remove | | | | |
| A222.1 | telephone | sum | 1.00 | £0.00 | £0.00 |
| A229.1 | computing and networking facilities | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Services for Engineer's and Client's Staff for Tram Systems and Operations and Maintenance Department; maintain and operate | | | | |
| A222.2 | telephone | sum | 1.00 | £0.00 | £0.00 |
| A229.2 | computing and networking facilities | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Prelims and General Items - Page 2 | | | | £206,171.25 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|--|------|------|-----------|--------------|
| | | | | | |
| | Services for community Liaison Officers; establish and remove | | | | |
| A222.3 | telephone | sum | 1.00 | £0.00 | £0.00 |
| A229.3 | computing facilities | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Services for Engineer's and Client's Staff; maintain and operate | | | | |
| A222.4 | telephone | wk | | | |
| A229.4 | computing and networking facilities | wk | | | |
| | | | | | |
| | Services for Engineer's and Client's Staff for Railway Systems and Operations and Maintenance Department; maintain and operate | | | | |
| A222.5 | telephone | wk | | | |
| A229.5 | computing and networking facilities | wk | | | |
| | | | | | |
| | Services for Community Liaison Officers; maintain and operate | | | | |
| A222.6 | telephone | wk | | | |
| A229.6 | computing facilities | wk | | | |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff; establish and handover | | | | |
| A231.1 | office equipment | sum | 1.00 | £0.00 | £0.00 |
| A233.1 | surveying equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.1 | photographic equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.2 | safety equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.3 | audio and visual equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff for Railway Systems and Operations and Maintenance Departments; establish and handover | | | | |
| A231.2 | office equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.4 | safety equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| | Prelims and General Items - Page 3 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL |
|-----------|--|------|--------|-----------|-------------------|
| | | | | | £ |
| | | | | | |
| | Equipment for use by the Community Liaison Officers; establish and handover | | | | |
| A231.3 | office equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff; maintain and operate | | | | |
| A231.4 | office equipment | wk | | | |
| A233.2 | surveying equipment | wk | 169.00 | £0.00 | £0.00 |
| A239.5 | photographic equipment | wk | 169.00 | £112.61 | £19,031.33 |
| A239.6 | safety equipment | wk | | | |
| A239.7 | audio and visual equipment | wk | | | |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff for Tramway Systems and Operations and Maintenance Departments; maintain and operate | | | | |
| A231.5 | office equipment | wk | | | |
| A239.8 | safety equipment | wk | | | |
| | | | | | |
| | Equipment for use by the Community Liaison Officers; maintain and operate | | | | |
| A231.6 | office equipment | wk | | | |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff; establish and remove | | | | |
| A241.1 | drivers | sum | 1.00 | £0.00 | £0.00 |
| A250.1 | testing of materials | sum | 1.00 | £0.00 | £0.00 |
| A260.1 | testing of the works | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff for Tram Systems and Operations and Maintenance Departments; establish and remove | | | | |
| A249.1 | general cleaning and tea services | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| | Prelims and General Items - Page 4 | | | | £19,031.33 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|---|------|------|-----------|--------------|
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff; maintain and operate | | | | |
| A241.2 | drivers | wk | | | |
| A250.2 | testing of materials | wk | | | |
| A260.2 | testing of the works | wk | | | |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff for Tram Systems and Operation and Maintenance Departments; maintain and operate | | | | |
| A249.2 | general cleaning and tea services | wk | | | |
| | | | | | |
| | Other Specified Requirements | | | | |
| | General and special attendances for Project Contractors & Third Parties | | | | |
| A710.1 | TRAMCO | sum | 1.00 | £0.00 | £0.00 |
| A710.2 | MUDFA | sum | 1.00 | £0.00 | £0.00 |
| A710.3 | Advance Works Contractor | sum | 1.00 | £0.00 | £0.00 |
| A710.4 | Network Rail | sum | 1.00 | £0.00 | £0.00 |
| A710.5 | First Scotrail | sum | 1.00 | £0.00 | £0.00 |
| A710.6 | Others (ref Schedule 13) | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Environmental requirements and Environmental Monitoring and Assessment Programme; establish and remove | | | | |
| A790.1 | air pollution | sum | 1.00 | £0.00 | £0.00 |
| A790.2 | noise pollution | sum | 1.00 | £0.00 | £0.00 |
| A790.3 | water pollution | sum | 1.00 | £0.00 | £0.00 |
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| | | | | | |
| | | | | | |
| | Prelims and General Items - Page 5 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|---|------|------|-----------|--------------|
| | | | | | |
| | Environmental requirements and Environmental Monitoring and Assessment Programme; maintain, monitor and report | | | | |
| A790.4 | air pollution | wk | | | |
| A790.5 | noise pollution | wk | | | |
| A790.6 | water pollution | wk | | | |
| | | | | | |
| | Other requirements | | | | |
| A790.7 | quality management; establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.8 | site cleaning; establish, remove maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.9 | compliance of existing trees protection, treatment and transplantation requirements; establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.10 | durability requirements; establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.11 | reliability demonstration plan, establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.12 | instrumentation and monitoring works for all elements of the Works; establish and remove | sum | 1.00 | £0.00 | £0.00 |
| A790.13 | instrumentation and monitoring works for all elements of the Works; maintain, monitor, audit and report | wk | | | |
| A790.14 | independent checking engineer | sum | 1.00 | £0.00 | £0.00 |
| A790.15 | building services coordination team | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Contractor's Requirements | | | | |
| | Contractor's design costs | sum | 1.00 | £0.00 | £0.00 |
| A810.01 | develop, complete and design of all outstanding works associated with Onboard Supervisory and Comms Equipment - Item Code A1(1) | sum | 1.00 | £0.00 | £0.00 |
| A810.02 | develop, complete and design of all outstanding works associated with Track and Formation - Item Code B1 | sum | 1.00 | £0.00 | £0.00 |
| A810.03 | develop, complete and design of all outstanding works associated with Tamstops - Item Code B2 | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| | Prelims and General Items - Page 6 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL |
|---|---|------|------|-----------|--------------|
| | | | | | £ |
| A810.04 | develop, complete and design of all outstanding Architectural Builder's Works and Finishes Works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.05 | develop, complete and design of all outstanding electrical and mechanical works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.06 | develop, complete and design of all outstanding structural works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.07 | develop, complete and design of all outstanding depot maintenance equipment works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.08 | develop, complete and design of all outstanding highways works - Item Code B4 | sum | 1.00 | £0.00 | £0.00 |
| A810.09 | develop, complete and design of all outstanding Substation Building works - Item Code B5 | sum | 1.00 | £0.00 | £0.00 |
| A810.10 | develop, complete and design of all outstanding wayside equipment cabinet works - Item Code B5 | sum | 1.00 | £0.00 | £0.00 |
| A810.11 | develop, complete and design of all outstanding structure works cabinets - Item Code B6 | sum | 1.00 | £0.00 | £0.00 |
| A810.12 | develop, complete and design of all outstanding Supervisory and Control Systems works - Item Codes C, C1 and C2 | sum | 1.00 | £0.00 | £0.00 |
| A810.13 | develop, complete and design of all outstanding Tramstop Equipment works - Item Code C3 | sum | 1.00 | £0.00 | £0.00 |
| A810.14 | develop, complete and design of all outstanding Depot Equipment works - Item Code C4 | sum | 1.00 | £0.00 | £0.00 |
| A810.15 | develop, complete and design of all outstanding traction power system works - Item Code D1 | sum | 1.00 | £0.00 | £0.00 |
| A810.16 | develop, complete and design of all outstanding OHLE works - Item Code D2 | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Documentation and Manuals | | | | |
| A810.17 | prepare, submit and update Operation and Maintenance Manuals for all Civil and Building works | sum | 1.00 | £0.00 | £0.00 |
| A810.18 | prepare, submit and update all Operation and Maintenance Manuals for Onboard Supervisory and Comms Equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| Prelims and General Items - Page 7 | | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL |
|-----------|--|------|------|-----------|-------|
| | | | | | £ |
| A810.19 | prepare, submit and update all Operation and Maintenance Manuals for Track and Formation works | sum | 1.00 | £0.00 | £0.00 |
| A810.20 | prepare, submit and update Operation and Maintenance Manuals for depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.21 | prepare, submit and update Operation and Maintenance Manuals for all Supervisory and Control systems | sum | 1.00 | £0.00 | £0.00 |
| A810.22 | prepare, submit and update Operation and Maintenance Manuals for all Tramstop Equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.23 | prepare, submit and update Operation and Maintenance Manuals for all Traction Power systems, equipment and works | sum | 1.00 | £0.00 | £0.00 |
| A810.24 | prepare, submit and update Operation and Maintenance Manuals for all OHLE systems, equipment and works | sum | 1.00 | £0.00 | £0.00 |
| A810.25 | prepare, maintain and submit necessary as-constructed drawings and survey records | sum | 1.00 | £0.00 | £0.00 |
| A810.26 | prepare and submit Manufacturers' Design Warranties for all equipment installed as part of the Tram System | sum | 1.00 | £0.00 | £0.00 |
| A810.27 | prepare, submit and update hazard analysis report for depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.28 | prepare, submit and update life cycle cost report for depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.29 | prepare and conduct training courses on operation and maintenance of depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.30 | prepare and conduct training courses on operation and maintenance of all Supervisory and Control Systems | sum | 1.00 | £0.00 | £0.00 |
| A810.31 | prepare and conduct training courses on operation and maintenance of all Traction Power and OHLE systems | sum | 1.00 | £0.00 | £0.00 |
| A810.32 | prepare and conduct training courses on operation and maintenance of all Tramstop Equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
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| | | | | | |
| | | | | | |
| | Prelims and General Items - Page 8 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL |
|-------------|--|------|------|-----------|--------------|
| | | | | | £ |
| | | | | | |
| | Supply, erect and remove on completion | | | | |
| A821 | offices - Main and Satellite | sum | 1.00 | £0.00 | £0.00 |
| A822 | laboratories | sum | 1.00 | £0.00 | £0.00 |
| A823 | cabins | sum | 1.00 | £0.00 | £0.00 |
| A824 | stores and workshops | sum | 1.00 | £0.00 | £0.00 |
| A825 | canteens and mess rooms | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Supply, install and remove on completion | | | | |
| A831 | electricity supply | sum | 1.00 | £0.00 | £0.00 |
| A832 | water supply | sum | 1.00 | £0.00 | £0.00 |
| A833 | site communication facilities | sum | 1.00 | £0.00 | £0.00 |
| A834 | temporary drainage and sewage disposal | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| A271 | Temporary works | | | | |
| | The Contractor shall insert hereinafter such temporary works items and sums required to carry out the works under Section A of the Project. | | | | |
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| | | | | | |
| | Prelims and General Items - Page 9 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|--|------|--------|---------------|----------------------|
| | METHOD RELATED CHARGES | | | | |
| | METHOD RELATED CHARGES | | | | |
| A | Site management and supervision | | | | |
| | Sub-Section 2A | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 5A | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 5B | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 5C | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 6 | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 7A | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | The Contractor shall insert hereinafter such additional items and pages as he deems necessary and include same on the Collection Summary Sheets | | | | |
| | High Level Section A Establish Sections & Sites (fixed) | sum | 1.00 | £1,468,820.91 | £1,468,820.91 |
| | High Level Section A Supervision (Time Related) | sum | 1.00 | £2,722,909.01 | £2,722,909.01 |
| | High Level Section A Maintain Section Offices(Time Related) | wks | 169.00 | £3,338.23 | £564,160.76 |
| | | | | | |
| | Depot Subcontractor Section A Supervision | sum | 1.00 | £1,147,709.95 | £1,147,709.95 |
| | Depot Subcontractor Section A Establish Site Services Welfare etc. | sum | 1.00 | £272,581.11 | £272,581.11 |
| | Depot Subcontractor Section A Scaffolding & Misc Plant | sum | 1.00 | £717,318.72 | £717,318.72 |
| | Depot Subcontractor Section A Insurance & Bond | sum | 1.00 | £243,888.36 | £243,888.36 |
| | Depot Subcontractor Section A Establish and Maintain Compound | sum | 1.00 | £54,734.29 | £54,734.29 |
| | Depot Subcontractor Section A Non productive Labour | sum | 1.00 | £283,893.23 | £283,893.23 |
| | | | | | |
| | BB1 Section A Preliminaries | sum | 1.00 | £6,735,461.39 | £6,735,461.39 |
| | | | | | |
| | SC1 Section A Supervision (Time Related) | sum | 1.00 | £2,508,921.74 | £2,508,921.74 |
| | SC1 Section A Preliminaries (Fixed) | sum | 1.00 | £1,131,799.42 | £1,131,799.42 |
| | SC1 Section A Preliminaries (Time Related) | sum | 1.00 | £2,689,179.73 | £2,689,179.73 |
| | SC1 Section A Insurance & Bond | sum | 1.00 | £197,862.46 | £197,862.46 |
| | | | | | |
| | SC2 Section A Preliminaries (Fixed) | sum | 1.00 | £319,460.04 | £319,460.04 |
| | SC2 Section A Preliminaries (Time related) | sum | 1.00 | £1,432,030.43 | £1,432,030.43 |

| | | | | | |
|--|--|-----|------|-------------|-----------------------|
| | SC2 Section A Provisional Sum for Landowner Compensation Payments for land taken outside wayleave during construction period | sum | 1.00 | £146,882.09 | £146,882.09 |
| | Method Related Charges - Page 1 | | | | £22,637,613.65 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|---|------|------|-------------|-------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| | Contractual Requirements | | | | |
| A110 | Contractor's bond | sum | 1.00 | £670,742.81 | £670,742.81 |
| A120 | Professional Indemnity Insurance | sum | 1.00 | £0.00 | £0.00 |
| A130 | Marine Cargo Insurance | sum | 1.00 | £0.00 | £0.00 |
| A140 | All other insurance required by the Contract | sum | 1.00 | £881,247.16 | £881,247.16 |
| A150 | Administration of all insurances required under the Contract including but without limitation Employee's Compensation and Statutory Employee's Compensation Levy. | sum | 1.00 | £0.00 | £0.00 |
| A160 | Progress Reporting in accordance with the Contract. | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Specified Requirements | | | | |
| | Accommodation for the Engineer's and Client's Staff; establish and remove | | | | |
| A211.1 | offices | sum | 1.00 | £44,320.72 | £44,320.72 |
| | | | | | |
| | Accommodation for the Engineer's and Client's Staff for Railway Systems and Operations and Maintenance Departments; establish and handover | | | | |
| A211.2 | offices | sum | 1.00 | £0.00 | £0.00 |
| A211.3 | depot office | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Accommodation for the Community Liaison Officers; establish and remove | | | | |
| A211.4 | offices | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Accommodation for O&M maintenance staffs; establish and remove | | | | |
| A211.5 | container offices | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Facilities for the O&M maintenance; establish and handover | | | | |
| A211.6 | diesel fuel station | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |

| | | | | | |
|---|--|----|--------|-----------|----------------------|
| | Accommodation for the Engineer's and Client's Staff; maintain and operate | | | | |
| A211.7 | offices | wk | 169.00 | £1,023.35 | £172,946.73 |
| Prelims and General Items - Page 1 | | | | | £1,769,257.42 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|--|------|--------|-----------|-------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| | | | | | |
| | Accommodation for the Engineer's and Client's staff for Tram Systems and Operations and Maintenance Departments; maintain and operate | | | | |
| A211.8 | offices | wk | | | |
| A211.9 | depot office | wk | | | |
| | | | | | |
| | Accommodation for the Community Liaison Officers; maintain and operate | | | | |
| A211.10 | offices | wk | | | |
| | | | | | |
| | Accommodation for O&M maintenance staffs; maintain and operate | | | | |
| A211.11 | container offices | wk | | | |
| | | | | | |
| | Facilities for the O&M maintenance; maintain and operate | | | | |
| A211.12 | diesel fuel station | wk | | | |
| | | | | | |
| | Services for Engineer's and Client's Staff; establish and remove | | | | |
| A221.1 | transport vehicles | sum | | | |
| | | | | | |
| | Services for Engineer's and Client's Staff; maintain and operate | | | | |
| A221.2 | transport vehicles | wk | 169.00 | £656.90 | £111,015.29 |
| | | | | | |
| | Services for Engineer's and Client's Staff; establish and remove | | | | |
| A222.1 | telephone | sum | 1.00 | £0.00 | £0.00 |
| A229.1 | computing and networking facilities | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Services for Engineer's and Client's Staff for Tram Systems and Operations and Maintenance Department; maintain and operate | | | | |
| A222.2 | telephone | sum | 1.00 | £0.00 | £0.00 |
| A229.2 | computing and networking facilities | sum | 1.00 | £0.00 | £0.00 |

| | | | | | |
|--|------------------------------------|--|--|--|-------------|
| | | | | | |
| | Prelims and General Items - Page 2 | | | | £111,015.29 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|--|------|------|-----------|------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| | | | | | |
| | Services for community Liaison Officers; establish and remove | | | | |
| A222.3 | telephone | sum | 1.00 | £0.00 | £0.00 |
| A229.3 | computing facilities | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Services for Engineer's and Client's Staff; maintain and operate | | | | |
| A222.4 | telephone | wk | | | |
| A229.4 | computing and networking facilities | wk | | | |
| | | | | | |
| | Services for Engineer's and Client's Staff for Railway Systems and Operations and Maintenance Department; maintain and operate | | | | |
| A222.5 | telephone | wk | | | |
| A229.5 | computing and networking facilities | wk | | | |
| | | | | | |
| | Services for Community Liaison Officers; maintain and operate | | | | |
| A222.6 | telephone | wk | | | |
| A229.6 | computing facilities | wk | | | |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff; establish and handover | | | | |
| A231.1 | office equipment | sum | 1.00 | £0.00 | £0.00 |
| A233.1 | surveying equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.1 | photographic equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.2 | safety equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.3 | audio and visual equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff for Railway Systems and Operations and Maintenance Departments; establish and handover | | | | |
| A231.2 | office equipment | sum | 1.00 | £0.00 | £0.00 |
| A239.4 | safety equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Prelims and General Items - Page 3 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|---|--|------|--------|-----------|-------------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| | | | | | |
| | Equipment for use by the Community Liaison Officers; establish and handover | | | | |
| A231.3 | office equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff; maintain and operate | | | | |
| A231.4 | office equipment | wk | | | |
| A233.2 | surveying equipment | wk | 169.00 | £0.00 | £0.00 |
| A239.5 | photographic equipment | wk | 169.00 | £60.64 | £10,247.64 |
| A239.6 | safety equipment | wk | | | |
| A239.7 | audio and visual equipment | wk | | | |
| | | | | | |
| | Equipment for use by the Engineer's and Client's Staff for Tramway Systems and Operations and Maintenance Departments; maintain and operate | | | | |
| A231.5 | office equipment | wk | | | |
| A239.8 | safety equipment | wk | | | |
| | | | | | |
| | Equipment for use by the Community Liaison Officers; maintain and operate | | | | |
| A231.6 | office equipment | wk | | | |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff; establish and remove | | | | |
| A241.1 | drivers | sum | 1.00 | £0.00 | £0.00 |
| A250.1 | testing of materials | sum | 1.00 | £0.00 | £0.00 |
| A260.1 | testing of the works | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff for Tram Systems and Operations and Maintenance Departments; establish and remove | | | | |
| A249.1 | general cleaning and tea services | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| Prelims and General Items - Page 4 | | | | | £10,247.64 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|---|------|------|-----------|--------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff; maintain and operate | | | | |
| A241.2 | drivers | wk | | | |
| A250.2 | testing of materials | wk | | | |
| A260.2 | testing of the works | wk | | | |
| | | | | | |
| | Attendance upon the Engineer's and Client's Staff for Tram Systems and Operation and Maintenance Departments; maintain and operate | | | | |
| A249.2 | general cleaning and tea services | wk | | | |
| | | | | | |
| | Other Specified Requirements | | | | |
| | General and special attendances for Project Contractors & Third Parties | | | | |
| A710.1 | TRAMCO | sum | 1.00 | £0.00 | £0.00 |
| A710.2 | MUDFA | sum | 1.00 | £0.00 | £0.00 |
| A710.3 | Advance Works Contractor | sum | 1.00 | £0.00 | £0.00 |
| A710.4 | Network Rail | sum | 1.00 | £0.00 | £0.00 |
| A710.5 | First Scotrail | sum | 1.00 | £0.00 | £0.00 |
| A710.6 | Others (ref Schedule 13) | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Environmental requirements and Environmental Monitoring and Assessment Programme; establish and remove | | | | |
| A790.1 | air pollution | sum | 1.00 | £0.00 | £0.00 |
| A790.2 | noise pollution | sum | 1.00 | £0.00 | £0.00 |
| A790.3 | water pollution | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Environmental requirements and Environmental Monitoring and Assessment Programme; maintain, monitor and report | | | | |
| A790.4 | air pollution | wk | | | |
| A790.5 | noise pollution | wk | | | |
| | Prelims and General Items - Page 5 | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|---|---|------|------|-----------|--------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| A790.6 | water pollution | wk | | | |
| | | | | | |
| | Other requirements | | | | |
| A790.7 | quality management; establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.8 | site cleaning; establish, remove maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.9 | compliance of existing trees protection, treatment and transplantation requirements; establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.10 | durability requirements; establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.11 | reliability demonstration plan, establish, remove, maintain and operate | sum | 1.00 | £0.00 | £0.00 |
| A790.12 | instrumentation and monitoring works for all elements of the Works; establish and remove | sum | 1.00 | £0.00 | £0.00 |
| A790.13 | instrumentation and monitoring works for all elements of the Works; maintain, monitor, audit and report | wk | | | |
| A790.14 | independent checking engineer | sum | 1.00 | £0.00 | £0.00 |
| A790.15 | building services coordination team | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Contractor's Requirements | | | | |
| | Contractor's design costs | sum | 1 | £0.00 | £0.00 |
| A810.01 | develop, complete and design of all outstanding works associated with Onboard Supervisory and Comms Equipment - Item Code A1(1) | sum | 1.00 | £0.00 | £0.00 |
| A810.02 | develop, complete and design of all outstanding works associated with Track and Formation - Item Code B1 | sum | 1.00 | £0.00 | £0.00 |
| A810.03 | develop, complete and design of all outstanding works associated with Tamstops - Item Code B2 | sum | 1.00 | £0.00 | £0.00 |
| A810.04 | develop, complete and design of all outstanding Architectural Builder's Works and Finishes Works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.05 | develop, complete and design of all outstanding electrical and mechanical works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| Prelims and General Items - Page 6 | | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|---|---|------|------|-----------|--------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| A810.06 | develop, complete and design of all outstanding structural works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.07 | develop, complete and design of all outstanding depot maintenance equipment works - Item Code B3 | sum | 1.00 | £0.00 | £0.00 |
| A810.08 | develop, complete and design of all outstanding highways works - Item Code B4 | sum | 1.00 | £0.00 | £0.00 |
| A810.09 | develop, complete and design of all outstanding Substation Building works - Item Code B5 | sum | 1.00 | £0.00 | £0.00 |
| A810.10 | develop, complete and design of all outstanding wayside equipment cabinet works - Item Code B5 | sum | 1.00 | £0.00 | £0.00 |
| A810.11 | develop, complete and design of all outstanding structure works cabinets - Item Code B6 | sum | 1.00 | £0.00 | £0.00 |
| A810.12 | develop, complete and design of all outstanding Supervisory and Control Systems works - Item Codes C, C1 and C2 | sum | 1.00 | £0.00 | £0.00 |
| A810.13 | develop, complete and design of all outstanding Tramstop Equipment works - Item Code C3 | sum | 1.00 | £0.00 | £0.00 |
| A810.14 | develop, complete and design of all outstanding Depot Equipment works - Item Code C4 | sum | 1.00 | £0.00 | £0.00 |
| A810.15 | develop, complete and design of all outstanding traction power system works - Item Code D1 | sum | 1.00 | £0.00 | £0.00 |
| A810.16 | develop, complete and design of all outstanding OHLE works - Item Code D2 | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Documentation and Manuals | | | | |
| A810.17 | prepare, submit and update Operation and Maintenance Manuals for all Civil and Building works | sum | 1.00 | £0.00 | £0.00 |
| A810.18 | prepare, submit and update all Operation and Maintenance Manuals for Onboard Supervisory and Comms Equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.19 | prepare, submit and update all Operation and Maintenance Manuals for Track and Formation works | sum | 1.00 | £0.00 | £0.00 |
| A810.20 | prepare, submit and update Operation and Maintenance Manuals for depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| Prelims and General Items - Page 7 | | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|---|--|------|------|-----------|--------------|
| | PRELIMINARIES AND GENERAL ITEMS | | | | |
| | | | | | |
| A810.21 | prepare, submit and update Operation and Maintenance Manuals for all Supervisory and Control systems | sum | 1.00 | £0.00 | £0.00 |
| A810.22 | prepare, submit and update Operation and Maintenance Manuals for all Tramstop Equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.23 | prepare, submit and update Operation and Maintenance Manuals for all Traction Power systems, equipment and works | sum | 1.00 | £0.00 | £0.00 |
| A810.24 | prepare, submit and update Operation and Maintenance Manuals for all OHLE systems, equipment and works | sum | 1.00 | £0.00 | £0.00 |
| A810.25 | prepare, maintain and submit necessary as-constructed drawings and survey records | sum | 1.00 | £0.00 | £0.00 |
| A810.26 | prepare and submit Manufacturers' Design Warranties for all equipment installed as part of the Tram System | sum | 1.00 | £0.00 | £0.00 |
| A810.27 | prepare, submit and update hazard analysis report for depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.28 | prepare, submit and update life cycle cost report for depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.29 | prepare and conduct training courses on operation and maintenance of depot maintenance equipment | sum | 1.00 | £0.00 | £0.00 |
| A810.30 | prepare and conduct training courses on operation and maintenance of all Supervisory and Control Systems | sum | 1.00 | £0.00 | £0.00 |
| A810.31 | prepare and conduct training courses on operation and maintenance of all Traction Power and OHLE systems | sum | 1.00 | £0.00 | £0.00 |
| A810.32 | prepare and conduct training courses on operation and maintenance of all Tramstop Equipment | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | Supply, erect and remove on completion | | | | |
| A821 | offices - Main and Satellite | sum | 1.00 | £0.00 | £0.00 |
| A822 | laboratories | sum | 1.00 | £0.00 | £0.00 |
| A823 | cabins | sum | 1.00 | £0.00 | £0.00 |
| A824 | stores and workshops | sum | 1.00 | £0.00 | £0.00 |
| A825 | canteens and mess rooms | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | | | | | |
| Prelims and General Items - Page 8 | | | | | £0.00 |

| Item Code | DESCRIPTION | UNIT | QTY | Unit Rate | TOTAL £ |
|-----------|--|------|--------|---------------|---------------|
| | METHOD RELATED CHARGES | | | | |
| | | | | | |
| | | | | | |
| | METHOD RELATED CHARGES | | | | |
| A | Site management and supervision | | | | |
| | Sub-Section 1A | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 1B | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 1C | sum | 1.00 | £0.00 | £0.00 |
| | Sub-Section 1D | sum | 1.00 | £0.00 | £0.00 |
| | | | | | |
| | The Contractor shall insert hereinafter such additional items and pages as he deems necessary and include same on the Collection Summary Sheets | | | | |
| | BB Section B Preliminaries (Fixed) | sum | 1.00 | £636,770.13 | £636,770.13 |
| | BB Section B Preliminaries (Time Related)) | sum | 1.00 | £1,853,812.54 | £1,853,812.54 |
| | | | | | |
| | SC1 Section B Preliminaries | sum | 1.00 | Included | £0.00 |
| | | | | | |
| | SC2 Section B Preliminaries | sum | 1.00 | £2,868,332.94 | £2,868,332.94 |
| | | | | | |
| | SC3 Section B Preliminaries (Fixed) | sum | 1.00 | £2,536,622.51 | £2,536,622.51 |
| | SC3 Section B Preliminaries (Time Related) | sum | 1.00 | £2,270,208.00 | £2,270,208.00 |
| | SC3 Section B Supervision (Time Related) | sum | 1.00 | £2,153,869.77 | £2,153,869.77 |
| | | | | | |
| | High Level Section B Establish Sections & Sites (fixed) | sum | 1.00 | £801,175.04 | £801,175.04 |
| | High Level Section B Packages Supervision | sum | 1.00 | £1,485,223.10 | £1,485,223.10 |
| | High Level Section B Maintain Section Offices(Time Related) | wks | 169.00 | £3,338.23 | £564,160.76 |

| | | | | | |
|--|--|--|--|--|-----------------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Method Related Charges - Page 1 | | | | £15,170,174.79 |

APPENDIX B

PROVISIONAL SUMS AND THE MECHANISM FOR THEIR ADJUSTMENT

1.0 Summary of Provisional Sums

- 1.1 The following tables summarises the Provisional Sums included within the Infraco Works:
- 1.2 Table 1 notes the Defined Provisional Sums for which Infraco has deemed to have made a provisional allowance for programming and planning. Preliminaries for Defined Provisional Sums has not been priced by Infraco and the appropriate Preliminaries required to carry out the Defined Provisional Sums will be valued in accordance with the spreadsheet contained in Appendix F herein.
- 1.3 Table 2 notes the Undefined Provisional Sums for which Infraco has not deemed to have made allowance for programming, planning and pricing Preliminaries.

2.0 Table 1 – Defined Provisional Sums

| Item | Description of Provision Sum | trigger date | provisional duration | £ |
|------------------------|---|--|--|-------------------|
| 1 | Pumped surface water outfall at A8 underpass (by depot) | 01 June 08 | 6 months | £100,000 |
| 2 | Scottish Power connections to the Depot and Ingliston Park & Ride | not applicable | Depot 2 weeks (Feb 09) IPR 2 weeks (Nov 09) | £750,000 |
| 3 | Relocation of Ancient Monuments – this relates to those monuments noted on the route [SDS drawings ULE 90130-01-HRL 0003B, 6B, 7B, 10B, 12B, 13B, 14B, 15B & 24B refer] – it does not include cleaning and/or restoration | 20 Business Day after BBS raise any queries in respect of issued information | Haymarket War Memorial 4 weeks (Mid Nov 08 – Mid Dec 08) | £53,700 |
| 4 | Additional cost of Network Rail compliant ballast | 20 Business Day after BBS provide spec. | 26 months (Oct 08 – Nov 10) | £300,000 |
| 5 | Extra over for revised alignment to Picardy Place, York Place and London Road junctions (see also next item) | 01 January 09 | 23 months (March 09 – Jan 11) | £3,340,324 |
| 6 | Extra over for major utility diversions Picardy Place, York Place and London Road junctions | 01 January 09 | 23 months (March 09 – Jan 11) | £3,000,000 |
| 7 | Extra over for shell grip at junctions | 01 August 08 | 29 months (Aug 08 – Jan 11) | £319,343 |
| Carried forward | | | | £7,863,367 |

| Item | Description of Provision Sum | trigger date | duration | £ |
|--------------|--|--|-----------------------------|--------------------|
| | Brought forward | | | £7,863,367 |
| 8 | Allowance for Scottish Power connections to new street lights and new traffic signals | not applicable | 29 months (Aug 08 – Jan 11) | £115,287 |
| 9 | Allowance for demolition of existing Leith Walk substation (if required) [SDS drawings ULE 90130-01-SUB- 00023 rev 2, 00046 rev 1,00047 rev 1 and 00051 rev 1 refer] | 20 Business Day after BBS raise any queries in respect of issued information | 3 months (Aug 08 – Jan 11) | £55,662 |
| 10 | Urban Traffic Controls [UTC] associated with the delivery of the alignment | 01 August 08 | 29 months (Aug 08 – Jan 11) | £2,500,000 |
| 11 | Scottish Power connections to Phase 1a sub-stations (8nr x £50,000) | not applicable | 21 months(Nov 08 – July 10) | £400,000 |
| 12 | Various Forth Ports requirements including the revised alignment of track at Casino Square, relocated tramstop, junction amendments and removal of 'kink' in alignment from Constitution Street, footpath on south side of Tower Place Bridge and Victoria Dock Bridge | 01 October 08 | 25 months (Jan 09 – Jan 11) | £150,000 |
| 13 | Forth Ports requirements at Ocean Terminal amendments | 01 October 08 | 3 months (Aug 09 – Oct 09) | £350,000 |
| Total | | | | £11,434,316 |

3.0 Table 2 – Undefined Provisional Sums

| Item | Description of Provision Sum | Trigger date | £ |
|--------------|---|--|-------------------|
| 1 | Accommodation Works | not applicable | £1,000,000 |
| 2 | Allowance for minor utility diversions | 01 October 08 | £750,000 |
| 3 | PICOPS / COSS / Possession Protection Staff support when undertaking works adjacent or over the railway – see also 4b) below | not applicable | £755,307 |
| 4 | Archaeological Officer – impact on productivity | not applicable | £405,755 |
| 5 | Additional Crew Relief Facilities at Haymarket [SDS drawings ULE 90130-02-STP-000126 REV 1 and 000127 rev 1 refer] | 20 Business Day after BBS raise any queries in respect of issued information | £49,950 |
| 6 | Urban Traffic Controls [UTC] associated with the wider area impacts | 01 January 10 | £2,500,000 |
| 7 | Forth Ports requirements for design and construction of by-pass road to adoptable standard | 01 October 08 | £400,000 |
| 8 | Forth Ports requirements for Lindsay Road amendments | 01 October 08 | £1,750,000 |
| 9 | Royal Bank of Scotland requirement for enhancement of Gogarburn Tramstop | 01 October 08 | £400,000 |
| Total | | | £8,011,012 |

4.0 Basis

- a) Relocation of Ancient Monuments applies to those on the route only. Any works in respect of ancient monuments in George Street are undefined.
- b) Any costs in connection with PICOPS / COSS / Possession Protection Staff as Network Rail possession support when undertaking works adjacent or over the railway in respect of item 3 of Table 2 above shall relate solely to the possessions planned at signature of the Infraco Contract. This possession support will be adjusted in the event that Network Rail varies the requirement for PICOPS / COSS or otherwise amends the possession arrangement. However if the possession is amended or extended due to Infraco over-running then any additional possession support will not be recoverable.

5.0 Requirement to co-operate

- 5.1 Infraco shall co-operate with **tie** in the provision of design and pricing information required to satisfy the requirements of the Forth Ports Agreement.
- 5.2 Infraco shall co-operate with **tie** in the provision of pricing information required to satisfy the requirements of the Royal Bank of Scotland Agreement in connection with Gogarburn Tramstop (outline design provided by others).

APPENDIX C

IDENTIFIED VALUE ENGINEERING [VE]

1.0 The following table summarises the agreed identified VE opportunities / savings which are fixed and firm reductions, save for the Key Qualifications noted:

| Item | Description of Identified VE Saving | £ | Notes | Key Qualifications |
|------------------------|--|-----------|--|--|
| 1 | Delete depot pumping station / storm tanks by utilizing existing gravity system | -£193,526 | tie may need to add in cost of a small pump | Subject to tie issuing an instruction to implement the VE opportunity. tie carries specification/acceptance risk and cost of additional pump |
| 2 | Build part of Depot now with provision to expand in the future / reduce size of car park facilities | -£230,000 | Initial supply of 100 car parking places agreed | Subject to tie issuing an instruction to implement the VE opportunity. |
| 3 | Delete split vehicle accommodation system at Depot - requirement dependant on tram vehicle selection | -£27,500 | Accommodation bodies are in Tram Suppliers offer | Subject to tie issuing an instruction to implement the VE opportunity. |
| 4 | Rationalise scope requirement Track Maintenance Equipment at Depot and consider renting | -£27,500 | | Subject to tie issuing an instruction to implement the VE opportunity. |
| 5 | Deletion of one pavement (inner) to Depot | -£36,000 | Shown on latest site plan drawings | Subject to tie issuing an instruction to implement the VE opportunity. |
| 6 | Delete requirement for concrete apron to security fence at Depot | -£6,080 | | Subject to tie issuing an instruction to implement the VE opportunity. |
| Carried forward | | -£520,606 | | |

| Item | Description of Identified VE Saving | £ | Notes | Key Qualifications |
|------|--|-------------|---|--|
| | Brought forward | -£520,606 | | |
| 7 | <p>Consolidated VE items including those which result from changes to initial design driven by proximity to BAA runway and EARL decision as follows:</p> <ul style="list-style-type: none"> • changes to initial Depot design driven by proximity to BAA runway (reduced bulk excavation) • reductions in structural loadings (gantry crane reduced in capacity and size impacting on building frame and envelope) • reduction in staff accommodation provision (reduced operational workforce reducing messing facilities, changing rooms, locker space, etc.) • reduction in fit out specification • reduction in domestic utility capacity (reduced building volume and accommodation provision) | -£2,200,000 | Includes reductions in structural loadings (gantry crane reduced in capacity and size impacting on building frame and envelope), reductions in staff accommodation provision (reduced operational workforce reducing messing facilities, changing rooms, locker space, etc.). | Design to cost but compliant with current technical/design info |
| 8 | Delete standby generator and substitute with hardstanding and power connection for portable generator | -£150,000 | | Subject to the issuing an instruction to implement the VE opportunity. |
| 9 | Material recovery and reprocessing (Infracore); 2 options - reconstituted planings & Type 1R | -£500,000 | | Level of saving is subject to adjustment of quantity of this item based on the final design. |
| | Carried forward | -£3,370,606 | | |

| Item | Description of Identified VE Saving | | Notes | Key Qualifications |
|------|---|-------------|---|--|
| | Brought forward | -£3,370,606 | | |
| 10 | Reduce kerb and associated re-instatement of pavement | -£100,000 | | Level of saving is subject to adjustment of quantity of this item based on the final design. |
| 11 | Reduce drainage run from guideway | -£100,000 | | Level of saving is subject to adjustment of quantity of this item based on the final design. |
| 12 | Edinburgh Park Viaduct various savings including use of cross heads to eliminate temp works, steel or concrete beams | -£1,470,000 | This assumes continuation with 7 span structure | Subject to approval of NEL / CEC and subject to designing to cost |
| 13 | Carricknowe Bridge parapet – downgrade from P6 / P5 to N2 (reduce cost of parapet plus knock on effect on deck design / cost) | -£85,000 | | Subject to approval of design by Network Rail |
| | Carried forward | -£5,125,606 | | |

| Item | Description of Identified VE Saving | £ | Notes | Key Qualifications |
|------|--|-------------|--|--|
| | Brought forward | -£5,125,606 | | |
| 14 | A8 Underpass – various initiatives | -£850,000 | Changing to a contiguous piled wall/leaner designs | Subject to being able to design to cost |
| 15 | Roseburn Street Viaduct – various initiatives | -£1,375,000 | | Subject to approval of stakeholders – Network Rail and SRU and |
| 16 | Water of Leith initiatives | -£150,000 | | Subject to being Designed to Cost |
| 17 | Eight maintenance walkway structures – delete or reduce | -£250,000 | | Subject to being Designed to Cost |
| 18 | Class 7 material conversion | -£300,000 | | Level of saving is subject to adjustment of quantity of fill required by the final design. |
| 19 | Optimize the work site lengths wherever practical to ensure efficient construction outputs | -£300,000 | | Subject to programme development with CEC |
| 20 | Accept more disruption over shorter period to maximize efficiency of construction operations | -£100,000 | | Subject to programme development with CEC |
| 21 | Option to lease UPS provision from supplier rather than purchase | -£300,000 | | Subject to agreement of Operator |
| | Carried forward | -£8,750,606 | | |

| Item | Description of Identified VE Saving | £ | Notes | Key Qualifications |
|--------------|--|--------------------|-------|---|
| | Brought forward | -£8,750,606 | | |
| 22 | PM integration including shared resources and co-location | -£500,000 | | Subject to BBS / tie agreeing savings in resources and facilities items from BBS and tie costs. |
| 23 | Noise attenuation (outside of Roseburn Corridor) 3,650m of fencing | -£50,000 | | Subject to property owners' claims. |
| 24 | Reduce ballasted track thickness from 300mm to 200mm | -£200,000 | | |
| 25 | Urban Traffic Controls (UTC) associated with wider area impacts | -464,400 | | subject to tie issuing an instruction to implement the related Unidentified Provisional Sum at Item 6 in Table 2 |
| Total | | -£9,965,006 | | |

APPENDIX D

FURTHER VALUE ENGINEERING [VE]

1.0 The following table summarises provisional further VE opportunities / savings:

| Item | Description of Identified VE Saving | | Key Qualifications |
|--------------|--|--------------------|----------------------------------|
| 1 | Further project management integration over 3 years | -£500,000 | Joint target |
| 2 | SDS design scope economy, variation and reduction | -£500,000 | Joint target |
| 3 | Tramstops – standard finishes to circa 20% - 30% of stops | -£500,000 | Joint target |
| 4 | Picardy Place level flexing – MUDFA savings | -£500,000 | tie led initiative |
| 5 | Picardy Place level flexing – construction savings | -£500,000 | Joint initiative |
| 6 | Value engineer finishes on Edinburgh Park Viaduct and other structures | -£170,000 | Subject to approval of NEL / CEC |
| Total | | -£2,670,000 | |

APPENDIX E

UTILITIES DIVERSIONS TO BE CARRIED OUT BY INFRACO

Please refer to Schedule Part 41 (*Ground Conditions and Utilities Information*)

APPENDIX F
SCHEDULE OF RATES

APPENDIX G

PROCESS FOR AGREEMENT OF VALUE OF TIE CHANGES

1.0 Generally

- 1.1 The valuation of any **tie** Changes shall be made in accordance with Clause 80.6
- 1.2 Where Clause 80.6.3 or 80.6.4 applies and to the extent that they apply to a **tie** Change then the valuation shall be on the basis of Actual Cost or estimated Actual Cost.
- 1.3 In respect of a valuation of any work under 1.2 the **tie** Representative shall apply head office overheads and profit percentages to the appropriate elements of Actual Cost as follows:
- | | | |
|-----|-------------------------|-----|
| (a) | Civil Engineering works | 10% |
| (b) | Systems and Track works | 17% |

In all cases where a **tie** Change is being valued in accordance with Clause 80.6, Site related overhead (Preliminaries) shall be valued and added as follows:

7.4% to be added to Actual Cost to cover the Consortium Preliminaries and associated elements as set out in Spreadsheet 1 in Appendix F.

If appropriate to the particular **tie** Change, any other Preliminaries elements, valued in accordance with the Spreadsheet 2 set out in Appendix F.

- 1.4 The amount of the overheads and profit percentage calculated as part of the valuation of Variations shall be added in the case where the valuation results in an addition and shall be deducted where the valuation results in an omission.
- 1.5 Where 1.2 above is the basis of the valuation of **tie** Changes then the following items shall not be included as Actual Costs under the Infraco Contract.
1. Costs not justified by the Infraco's accounts and records.
 2. Costs not payable under the Infraco Contract.
 3. Costs arising from the Infraco's Design errors.
 4. Costs arising in respect of loss or damage except as provided for under the Agreement.
 5. Costs which should have not been paid to a sub-contractor in accordance with the relevant sub-contract.
 6. Costs arising from people who are part of the Head Office Overhead.

APPENDIX H

BASE DATE DESIGN INFORMATION

All of the Drawings available to Infraco up to and including 25th November 2007.

APPENDIX I
NETWORK RAIL IMMUNISATION

1. Words defined in Clause 16 or Part 1 of the Schedule shall have the same meaning in this Appendix I to Part 4 of the Schedule. Additionally, for the purposes of this Appendix I;
 - 1.1 **"Immunisation Programme"** shall mean the series of linked tasks, defined in the form of a Gantt chart in the Infraco's schedule of works, to be completed within a predetermined time that when executed to completion will result in NR Immunisation;
 - 1.2 **"Infraco's Immunisation Strategy"** shall mean the defined set of processes documented in the Infraco's NR EMC Strategy Plan; and
 - 1.3 **"NR Immunisation"** shall mean, in so far as indicated in Infraco's Immunisation Strategy as intended to be carried out on the Network, works to mitigate the potential effects to the Railway of electromagnetic interference due to effects of coupled energy or stray current from the operation of the Edinburgh Tram Network traction system.
2. The Infraco has agreed to undertake the NR Immunisation, including management of associated works, programme and approvals together with obligations in relation to the same set out in Clause 16 (*Interface with Network Rail*), subject to Network Rail approving the Infraco Immunisation Strategy in writing before 31 July 2008. In the event that Network Rail have been unable to determine whether or not to approve the Infraco Immunisation Strategy by 31 July 2008 due to material delay on the part of the Infraco in the provision of relevant information reasonably required by Network Rail through **tie**, the deadline for approval specified in this paragraph shall be extended to such later date as the Parties, acting reasonably shall agree.
3. In the event that Network Rail approve the NR Immunisation prior to the deadline referred to in paragraph 2 above:
 - 3.1 Infraco shall procure the delivery of the NR Immunisation;
 - 3.2 subject to any liability in relation to NR Immunisation and associated Possessions being addressed under Clauses 16.72 or 16.73, **tie** shall pay to Infraco 100% of the cost of NR Immunisation subject to a cap for the total cost of such works of £3 million;
 - 3.3 Infraco and **tie** shall jointly to carry out value engineering investigations in respect of NR Immunisation;
 - 3.4 in the event that the actual cost of procuring the NR Immunisation is less than £3 million then **tie** shall (in the case of Infraco, in addition to sums paid or due to be paid under paragraph 3.2) pay one third of the difference between the actual cost and £3 million to both Network Rail and Infraco and be entitled to retain the remaining third of that difference;
 - 3.5 in so far as the cost of NR Immunisation exceeds £3 million, Infraco shall be responsible for 100% of the proportion of that cost in excess of £3 million but not exceeding £3.375 million;
 - 3.6 subject to any liability in relation to NR Immunisation and associated Possessions being addressed under Clauses 16.72 or 16.73, in so far as the cost of NR Immunisation exceeds £3.375 million but does not exceed £4.125 million, **tie** shall pay Infraco 50% of the

proportion of that cost in excess of £3.375 million in addition to all sums due to Infraco pursuant to paragraph 3.2;

- 3.7 subject to any liability in relation to NR Immunisation and associated Possessions (as defined in Clause 16) being addressed under Clauses 16.72 or 16.73, **tie** shall pay Infraco 100% of the cost of NR Immunisation in so far as the cost of such works exceeds £4.125 million.
4. The Infraco Immunisation Strategy is based on the Infraco or its sub-contractors carrying out all the works and supplying all equipment for the NR Immunisation.
 5. Network Rail Costs as defined for the purposes of the Asset Protection Agreement shall be excluded in the calculation of the cost of the NR Immunisation for paragraph 3. All such Network Rail Costs shall be borne by **tie**.
 6. Delays to NR Immunisation attributable to Network Rail shall be Compensation Events to the extent that such delays are not directly due to Infraco failure to comply with its obligations under this Agreement.
 7. The Infraco's liability to **tie** in respect of or arising out of NR Immunisation shall be subject to the limitations as provided for in Clauses 16.72 and 16.73.
 8. In the event that Network Rail do not accept the Infraco Immunisation Strategy by the deadline specified in paragraph 2 above, **tie** shall instruct the Infraco on how to proceed in respect of NR Immunisation and such instructions shall be Compensation Events and a **tie** Change (for any resulting additional or changed work required by **tie**) under the Infraco Contract.
 9. In the event of paragraph 8 applying, the **tie** Change shall (subject to evaluation) omit an allowance of £2.2 million for NR Immunisation and add back any additional work to be undertaken to by the Infraco to support **tie** in delivering an alternative immunisation solution to mitigate the potential effects to the Railway of electromagnetic interference due to effects of coupled energy or stray current from the operation of the Edinburgh Tram Network traction system ("Alternative Solution").
 10. In the event that the Infraco does not undertake the NR Immunisation or Alternative Solution works in full, all electromagnetic interference or corrosion due to effects of coupled energy or stray current from the operation of the Edinburgh Tram Network related obligations, in the Infraco Contract (including without prejudice to the foregoing Clause 16 and any relevant Third Party Agreements in Part 13 Section A of the Schedule) shall be the subject of a **tie** Change.
 11. For the avoidance of doubt, **tie** shall pay to the Infraco, to the extent not taken into account in the **tie** Change arising pursuant to paragraph 8, any costs and expenses incurred as a consequence of the delay between the deadline specified in paragraph 2 and the actual date (and not the deemed date) that **tie** issue a **tie** Change Order. Such costs and expenses shall be evaluated pursuant to Clause 65 (*Compensation Events*) on the basis that such delay is itself a Compensation Event.
 12. **tie** accepts that the Infraco may commence the work to deliver the NR Immunisation under the Mobilisation and Advance Works Agreement.
 13. All sums due to Infraco pursuant to this Appendix I shall be paid in accordance with Clause 66 (*Payment of the Contract Price*) and not Clause 67 (*Payment in respect of Applications for Milestone Payments*).

Spreadsheet No 1 - Appendix 2 Schedule Part 4

| DESCRIPTION | Section A £ | Section B £ | Total BB | Fixed | | | Time-Related | | |
|---|----------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|-------------|
| | | | | Section A £ | Section B £ | Total BB | Section A £ | Section B £ | Total BB |
| PRELIMINARIES AND GENERAL ITEMS | | | | | | | | | |
| Contractual Requirements Section A | | | | | | | | | |
| Contractor's bond | 1,317,094 | | 1,317,094 | | | | 0 | | 0 |
| All other insurance required by the Contract | 1,633,046 | | 1,633,046 | | | | 1,633,046 | | 1,633,046 |
| Accommodation for the Engineer's and Client's Staff; establish and remove offices | 82,310 | | 82,310 | | | | 0 | | 0 |
| Accommodation for the Engineer's and Client's Staff; maintain and operate offices | 321,187 | | 321,187 | | | | 0 | | 0 |
| Services for Engineer's and Client's Staff; maintain and operate transport vehicles | 206,171 | | 206,171 | | | | 0 | | 0 |
| Equipment for use by the Engineer's and Client's Staff; maintain and operate photographic equipment | 19,031 | | 19,031 | | | | 0 | | 0 |
| Consortium Supervision | 2,686,374 | | 2,686,374 | | | | 2,686,374 | | 2,686,374 |
| Consortium Office Hire | 202,048 | | 202,048 | | | | 202,048 | | 202,048 |
| Consortium Office Maintenance | 591,300 | | 591,300 | | | | 591,300 | | 591,300 |
| Consortium Surveying Instruments Maintenance | 25,978 | | 25,978 | | | | 25,978 | | 25,978 |
| Consortium IT Equipment | 304,986 | | 304,986 | | | | 304,986 | | 304,986 |
| Consortium Testing | 609,974 | | 609,974 | | | | 609,974 | | 609,974 |
| Consortium Establish/Remove Offices | 292,756 | | 292,756 | | | | 0 | | 0 |
| Consortium Establish/Remove Surveying Equipment | 18,299 | | 18,299 | | | | | | 0 |
| Consortium costs Incurred during facilitated negotiation phase | 2,198,312 | | 2,198,312 | | | | | | 0 |
| Contractual Requirements - Section B | | | | | | | | | |
| Contractor's bond | | 670,743 | 670,743 | | | | | 0 | 0 |
| All other insurance required by the Contract | | 881,247 | 881,247 | | | | | 881,247 | 881,247 |
| Accommodation for the Engineer's and Client's Staff; establish and remove offices | | 44,321 | 44,321 | | | | | 0 | 0 |
| Accommodation for the Engineer's and Client's Staff; maintain and operate offices | | 172,947 | 172,947 | | | | | 0 | 0 |
| Services for Engineer's and Client's Staff; maintain and operate transport vehicles | | 111,015 | 111,015 | | | | | 0 | 0 |
| Equipment for use by the Engineer's and Client's Staff; maintain and operate photographic equipment | | 10,248 | 10,248 | | | | | 0 | 0 |
| Consortium Supervision | | 1,446,509 | 1,446,509 | | | | | 1,446,509 | 1,446,509 |
| Consortium Office Hire | | 108,795 | 108,795 | | | | | 108,795 | 108,795 |
| Consortium Office Maintenance | | 318,392 | 318,392 | | | | | 318,392 | 318,392 |
| Consortium Surveying Instruments Maintenance | | 13,988 | 13,988 | | | | | 13,988 | 13,988 |
| Consortium IT Equipment | | 164,223 | 164,223 | | | | | 164,223 | 164,223 |
| Consortium Testing | | 328,448 | 328,448 | | | | | 328,448 | 328,448 |
| Consortium Establish/Remove Offices | | 157,638 | 157,638 | | | | | 0 | 0 |
| Consortium Establish/Remove Surveying Equipment | | 9,853 | 9,853 | | | | | | 0 |
| Subtotal | 10,508,867 | 4,438,367 | 14,947,235 | 0 | 0 | 0 | 6,053,707 | 3,261,603 | 9,315,310 |
| METHOD RELATED CHARGES | | | | | | | | | |
| High Level Section A Establish Sections & Sites (fixed) | 1,468,821 | | 1,468,821 | | | | | | 0 |
| High Level Section A Supervision (Time Related) | 2,722,909 | | 2,722,909 | | | | 0 | | 0 |
| High Level Section A Maintain Section Offices(Time Related) | 564,161 | | 564,161 | | | | 0 | | 0 |
| Depot Subcontractor Section A Supervision | 1,147,710 | | 1,147,710 | | | | 0 | | 0 |
| Depot Subcontractor Section A Establish Site Services Welfare etc. | 272,581 | | 272,581 | | | | | | 0 |
| Depot Subcontractor Section A Scaffolding & Misc Plant | 717,319 | | 717,319 | | | | 0 | | 0 |
| Depot Subcontractor Section A Insurance & Bond | 243,888 | | 243,888 | | | | 0 | | 0 |
| Depot Subcontractor Section A Establish and Maintain Compound | 54,734 | | 54,734 | | | | 0 | | 0 |
| Depot Subcontractor Section A Non productive Labour | 283,893 | | 283,893 | | | | 0 | | 0 |
| BB1 Section A Preliminaries | 6,735,461 | | 6,735,461 | | | | 0 | | 0 |
| SC1 Section A Supervision (Time Related) | 2,508,922 | | 2,508,922 | | | | 0 | | 0 |
| SC1 Section A Preliminaries (Fixed) | 1,131,799 | | 1,131,799 | | | | | | 0 |
| SC1 Section A Preliminaries (Time Related) | 2,689,180 | | 2,689,180 | | | | 0 | | 0 |
| SC1 Section A Insurance & Bond | 197,862 | | 197,862 | | | | 0 | | 0 |
| SC2 Section A Preliminaries (Fixed) | 319,460 | | 319,460 | | | | | | 0 |
| SC2 Section A Preliminaries (Time related) | 1,432,030 | | 1,432,030 | | | | 0 | | 0 |
| SC2 Section A Provisional Sum for Landowner Compensation Payments for land taken outside wayleave during construction | 146,882 | | 146,882 | | | | | | 0 |
| BB Section B Preliminaries (Fixed) | | 636,770 | 636,770 | | | | | | 0 |
| BB Section B Preliminaries (Time Related)) | | 1,853,813 | 1,853,813 | | | | | 0 | 0 |
| SC2 Section B Preliminaries | | 2,868,333 | 2,868,333 | | | | | 0 | 0 |
| SC3 Section B Preliminaries (Fixed) | | 2,536,623 | 2,536,623 | | | | | | 0 |
| SC3 Section B Preliminaries (Time Related) | | 2,270,208 | 2,270,208 | | | | | 0 | 0 |
| SC3 Section B Supervision (Time Related) | | 2,153,870 | 2,153,870 | | | | | 0 | 0 |
| High Level Section B Establish Sections & Sites (fixed) | | 801,175 | 801,175 | | | | | | 0 |
| High Level Section B Packages Supervision | | 1,485,223 | 1,485,223 | | | | | 0 | 0 |
| High Level Section B Maintain Section Offices(Time Related) | | 564,161 | 564,161 | | | | | 0 | 0 |
| Subtotal | 22,637,614 | 15,170,175 | 37,807,788 | | | | 0 | 0 | 0 |
| Grand Total (Gross Prelims) | 33,146,481 | 19,608,542 | 52,755,023 | | | | 6,053,707 | 3,261,603 | 9,315,310 |
| Escalation (prelims pro-rata) | | | | | | | -2,045,890 | -1,102,280 | -3,148,171 |
| Grand Total (Nett Prelims) | 33,146,481 | 19,608,542 | 52,755,023 | | | | 4,007,817 | 2,159,323 | 6,167,139 |
| Construction Cost (=Total Contract Value less Prelims) | | | | | | | | | 83,239,714 |
| Prelims - % | | | | | | | | | 7.4% |

Note
The Prelims percentage shown above is to be added to cover all items marked in red as an addition to Actual Cost.

Spreadsheet No 2 - Appendix F Schedule Part 4

| DESCRIPTION | Section A £ | Section B £ | Total BB | Fixed | | | Time-Related | | |
|---|----------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|-------------|
| | | | | Section A £ | Section B £ | Total BB | Section A £ | Section B £ | Total BB |
| PRELIMINARIES AND GENERAL ITEMS | | | | | | | | | |
| Contractual Requirements Section A | | | | | | | | | |
| Contractor's bond | 1,317,094 | | 1,317,094 | | | 0 | 1,317,094 | | 1,317,094 |
| All other insurance required by the Contract | 1,633,046 | | 1,633,046 | | | 0 | 1,633,046 | | 1,633,046 |
| Accommodation for the Engineer's and Client's Staff; establish and remove offices | 82,310 | | 82,310 | 82,310 | | 82,310 | | | 0 |
| Accommodation for the Engineer's and Client's Staff; maintain and operate offices | 321,187 | | 321,187 | | | 0 | 321,187 | | 321,187 |
| Services for Engineer's and Client's Staff; maintain and operate transport vehicles | 206,171 | | 206,171 | | | 0 | 206,171 | | 206,171 |
| Equipment for use by the Engineer's and Client's Staff; maintain and operate photographic equipment | 19,031 | | 19,031 | | | 0 | 19,031 | | 19,031 |
| Consortium Supervision | 2,686,374 | | 2,686,374 | | | 0 | 2,686,374 | | 2,686,374 |
| Consortium Office Hire | 202,048 | | 202,048 | | | 0 | 202,048 | | 202,048 |
| Consortium Office Maintenance | 591,300 | | 591,300 | | | 0 | 591,300 | | 591,300 |
| Consortium Surveying Instruments Maintenance | 25,978 | | 25,978 | | | 0 | 25,978 | | 25,978 |
| Consortium IT Equipment | 304,986 | | 304,986 | | | 0 | 304,986 | | 304,986 |
| Consortium Testing | 609,974 | | 609,974 | | | 0 | 609,974 | | 609,974 |
| Consortium Establish/Remove Offices | 292,756 | | 292,756 | 292,756 | | 292,756 | | | 0 |
| Consortium Establish/Remove Surveying Equipment | 18,299 | | 18,299 | 18,299 | | 18,299 | | | 0 |
| Consortium costs Incurred during facilitated negotiation phase | 2,198,312 | | 2,198,312 | 2,198,312 | | 2,198,312 | | | 0 |
| Contractual Requirements - Section B | | | | | | | | | |
| Contractor's bond | | 670,743 | 670,743 | | | 0 | | 670,743 | 670,743 |
| All other insurance required by the Contract | | 881,247 | 881,247 | | | 0 | | 881,247 | 881,247 |
| Accommodation for the Engineer's and Client's Staff; establish and remove offices | | 44,321 | 44,321 | | 44,321 | 44,321 | | | 0 |
| Accommodation for the Engineer's and Client's Staff; maintain and operate offices | | 172,947 | 172,947 | | | 0 | | 172,947 | 172,947 |
| Services for Engineer's and Client's Staff; maintain and operate transport vehicles | | 111,015 | 111,015 | | | 0 | | 111,015 | 111,015 |
| Equipment for use by the Engineer's and Client's Staff; maintain and operate photographic equipment | | 10,248 | 10,248 | | | 0 | | 10,248 | 10,248 |
| Consortium Supervision | | 1,446,509 | 1,446,509 | | | 0 | | 1,446,509 | 1,446,509 |
| Consortium Office Hire | | 108,795 | 108,795 | | | 0 | | 108,795 | 108,795 |
| Consortium Office Maintenance | | 318,392 | 318,392 | | | 0 | | 318,392 | 318,392 |
| Consortium Surveying Instruments Maintenance | | 13,988 | 13,988 | | | 0 | | 13,988 | 13,988 |
| Consortium IT Equipment | | 164,223 | 164,223 | | | 0 | | 164,223 | 164,223 |
| Consortium Testing | | 328,448 | 328,448 | | | 0 | | 328,448 | 328,448 |
| Consortium Establish/Remove Offices | | 157,638 | 157,638 | | 157,638 | 157,638 | | | 0 |
| Consortium Establish/Remove Surveying Equipment | | 9,853 | 9,853 | | 9,853 | 9,853 | | | 0 |
| Subtotal | 10,508,867 | 4,438,367 | 14,947,235 | 2,591,677 | 211,812 | 2,803,489 | 7,917,190 | 4,226,556 | 12,143,746 |
| METHOD RELATED CHARGES | | | | | | | | | |
| High Level Section A Establish Sections & Sites (fixed) | 1,468,821 | | 1,468,821 | 1,468,821 | | 1,468,821 | | | 0 |
| High Level Section A Supervision (Time Related) | 2,722,909 | | 2,722,909 | | | 0 | 2,722,909 | | 2,722,909 |
| High Level Section A Maintain Section Offices(Time Related) | 564,161 | | 564,161 | | | 0 | 564,161 | | 564,161 |
| Depot Subcontractor Section A Supervision | 1,147,710 | | 1,147,710 | | | 0 | 1,147,710 | | 1,147,710 |
| Depot Subcontractor Section A Establish Site Services Welfare etc. | 272,581 | | 272,581 | 272,581 | | 272,581 | | | 0 |
| Depot Subcontractor Section A Scaffolding & Misc Plant | 717,319 | | 717,319 | | | 0 | 717,319 | | 717,319 |
| Depot Subcontractor Section A Insurance & Bond | 243,888 | | 243,888 | | | 0 | 243,888 | | 243,888 |
| Depot Subcontractor Section A Establish and Maintain Compound | 54,734 | | 54,734 | 10,947 | | 10,947 | | 43,787 | 43,787 |
| Depot Subcontractor Section A Non productive Labour | 283,893 | | 283,893 | | | 0 | 283,893 | | 283,893 |
| BB1 Section A Preliminaries | 6,735,461 | | 6,735,461 | 1,347,092 | | 1,347,092 | 5,388,369 | | 5,388,369 |
| SC1 Section A Supervision (Time Related) | 2,508,922 | | 2,508,922 | | | 0 | 2,508,922 | | 2,508,922 |
| SC1 Section A Preliminaries (Fixed) | 1,131,799 | | 1,131,799 | 1,131,799 | | 1,131,799 | | | 0 |
| SC1 Section A Preliminaries (Time Related) | 2,689,180 | | 2,689,180 | | | 0 | 2,689,180 | | 2,689,180 |
| SC1 Section A Insurance & Bond | 197,862 | | 197,862 | | | 0 | 197,862 | | 197,862 |
| SC2 Section A Preliminaries (Fixed) | 319,460 | | 319,460 | 319,460 | | 319,460 | | | 0 |
| SC2 Section A Preliminaries (Time related) | 1,432,030 | | 1,432,030 | | | 0 | 1,432,030 | | 1,432,030 |
| SC2 Section A Provisional Sum for Landowner Compensation Payments for land taken outside wayleave during construction | 146,882 | | 146,882 | 146,882 | | 146,882 | | | 0 |
| BB Section B Preliminaries (Fixed) | | 636,770 | 636,770 | | 636,770 | 636,770 | | | 0 |
| BB Section B Preliminaries (Time Related)) | | 1,853,813 | 1,853,813 | | | 0 | | 1,853,813 | 1,853,813 |
| SC2 Section B Preliminaries | | 2,868,333 | 2,868,333 | | 573,667 | 573,667 | | 2,294,666 | 2,294,666 |
| SC3 Section B Preliminaries (Fixed) | | 2,536,623 | 2,536,623 | | 2,536,623 | 2,536,623 | | | 0 |
| SC3 Section B Preliminaries (Time Related) | | 2,270,208 | 2,270,208 | | | 0 | | 2,270,208 | 2,270,208 |
| SC3 Section B Supervision (Time Related) | | 2,153,870 | 2,153,870 | | | 0 | | 2,153,870 | 2,153,870 |
| High Level Section B Establish Sections & Sites (fixed) | | 801,175 | 801,175 | | 801,175 | 801,175 | | | 0 |
| High Level Section B Packages Supervision | | 1,485,223 | 1,485,223 | | | 0 | | 1,485,223 | 1,485,223 |
| High Level Section B Maintain Section Offices(Time Related) | | 564,161 | 564,161 | | | 0 | | 564,161 | 564,161 |
| Subtotal | 22,637,614 | 15,170,175 | 37,807,788 | 4,697,583 | 4,548,234 | 9,245,817 | 17,940,031 | 10,621,941 | 28,561,971 |
| Grand Total (Gross Prelims) | 33,146,481 | 19,608,542 | 52,755,023 | 7,289,259 | 4,760,046 | 12,049,306 | 25,857,221 | 14,848,496 | 40,705,717 |
| Escalation (covering all BB works) | -11,462,775 | -6,366,135 | -17,828,910 | -2,520,785 | -1,545,403 | -4,066,188 | -8,941,990 | -4,820,732 | -13,762,722 |
| Grand Total (Nett Prelims) | 21,683,706 | 13,242,407 | 34,926,113 | 4,768,475 | 3,214,643 | 7,983,118 | 16,915,231 | 10,027,764 | 26,942,995 |

Note Above Gross Prelims include 10% head office overhead and profit



**THIS IS SCHEDULE PART 5 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

Infraco Contract - Schedule Part 5 (*Milestone Payment Schedule*)

Erratum Sheet

Spare Parts and Infrastructure Mobilisation amounts will be subject to indexation at the date of payment using RPIX to a maximum aggregate amount of £50,000.

USB00000073_0003

| 2009 | | | | | | | | | | | | | 2009 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Subtotal |
| 31-Jan-2009 | 28-Feb-2009 | 28-Mar-2009 | 25-Apr-2009 | 23-May-2009 | 20-Jun-2009 | 18-Jul-2009 | 15-Aug-2009 | 12-Sep-2009 | 10-Oct-2009 | 07-Nov-2009 | 05-Dec-2009 | 02-Jan-2010 | GBP |

[illegible]

| 2010 | | | | | | | | | | | | | 2010 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | Subtotal |
| 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | GBP |

[illegible][illegible][illegible]

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 | 531 | 532 | 533 | 534 | 535 | 536 | 537 | 538 | 539 | 540 | 541 | 542 | 543 | 544 | 545 | 546 | 547 | 548 | 549 | 550 | 551 | 552 | 553 | 554 | 555 | 556 | 557 | 558 | 559 | 560 | 561 | 562 | 563 | 564 | 565 | 566 | 567 | 568 | 569 | 570 | 571 | 572 | 573 | 574 | 575 | 576 | 577 | 578 | 579 | 580 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | 588 | 589 | 590 | 591 | 592 | 593 | 594 | 595 | 596 | 597 | 598 | 599 | 600 | 601 | 602 | 603 | 604 | 605 | 606 | 607 | 608 | 609 | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | 619 | 620 | 621 | 622 | 623 | 624 | 625 | 626 | 627 | 628 | 629 | 630 | 631 | 632 | 633 | 634 | 635 | 636 | 637 | 638 | 639 | 640 | 641 | 642 | 643 | 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 | 654 | 655 | 656 | 657 | 658 | 659 | 660 | 661 | 662 | 663 | 664 | 665 | 666 | 667 | 668 | 669 | 670 | 671 | 672 | 673 | 674 | 675 | 676 | 677 | 678 | 679 | 680 | 681 | 682 | 683 | 684 | 685 | 686 | 687 | 688 | 689 | 690 | 691 | 692 | 693 | 694 | 695 | 696 | 697 | 698 | 699 | 700 | 701 | 702 | 703 | 704 | 705 | 706 | 707 | 708 | 709 | 710 | 711 | 712 | 713 | 714 | 715 | 716 | 717 | 718 | 719 | 720 | 721 | 722 | 723 | 724 | 725 | 726 | 727 | 728 | 729 | 730 | 731 | 732 | 733 | 734 | 735 | 736 | 737 | 738 | 739 | 740 | 741 | 742 | 743 | 744 | 745 | 746 | 747 | 748 | 749 | 750 | 751 | 752 | 753 | 754 | 755 | 756 | 757 | 758 | 759 | 760 | 761 | 762 | 763 | 764 | 765 | 766 | 767 | 768 | 769 | 770 | 771 | 772 | 773 | 774 | 775 | 776 | 777 | 778 | 779 | 780 | 781 | 782 | 783 | 784 | 785 | 786 | 787 | 788 | 789 | 790 | 791 | 792 | 793 | 794 | 795 | 796 | 797 | 798 | 799 | 800 | 801 | 802 | 803 | 804 | 805 | 806 | 807 | 808 | 809 | 810 | 811 | 812 | 813 | 814 | 815 | 816 | 817 | 818 | 819 | 820 | 821 | 822 | 823 | 824 | 825 | 826 | 827 | 828 | 829 | 830 | 831 | 832 | 833 | 834 | 835 | 836 | 837 | 838 | 839 | 840 | 841 | 842 | 843 | 844 | 845 | 846 | 847 | 848 | 849 | 850 | 851 | 852 | 853 | 854 | 855 | 856 | 857 | 858 | 859 | 860 | 861 | 862 | 863 | 864 | 865 | 866 | 867 | 868 | 869 | 870 | 871 | 872 | 873 | 874 | 875 | 876 | 877 | 878 | 879 | 880 | 881 | 882 | 883 | 884 | 885 | 886 | 887 | 888 | 889 | 890 | 891 | 892 | 893 | 894 | 895 | 896 | 897 | 898 | 899 | 900 | 901 | 902 | 903 | 904 | 905 | 906 | 907 | 908 | 909 | 910 | 911 | 912 | 913 | 914 | 915 | 916 | 917 | 918 | 919 | 920 | 921 | 922 | 923 | 924 | 925 | 926 | 927 | 928 | 929 | 930 | 931 | 932 | 933 | 934 | 935 | 936 | 937 | 938 | 939 | 940 | 941 | 942 | 943 | 944 | 945 | 946 | 947 | 948 | 949 | 950 | 951 | 952 | 953 | 954 | 955 | 956 | 957 | 958 | 959 | 960 | 961 | 962 | 963 | 964 | 965 | 966 | 967 | 968 | 969 | 970 | 971 | 972 | 973 | 974 | 975 | 976 | 977 | 978 | 979 | 980 | 981 | 982 | 983 | 984 | 985 | 986 | 987 | 988 | 989 | 990 | 991 | 992 | 993 | 994 | 995 | 996 | 997 | 998 | 999 | 1000 |
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Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The BILFINGER Group

BILFINGER BERGER



Year
Period
Period End

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

Project Total

00A Mobilisation

00A1 Mobilisation

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00A6 Mobilisation

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00A42 Mobilisation

00C Preliminaries - Siemens

00C1 Preliminaries - Siemens

00C2 Preliminaries - Siemens

00C3 Preliminaries - Siemens

00C4 Preliminaries - Siemens

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00C6 Preliminaries - Siemens

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00C15 Preliminaries - Siemens

00C16 Preliminaries - Siemens

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00C31 Preliminaries - Siemens

00C32 Preliminaries - Siemens

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00C34 Preliminaries - Siemens

00C35 Preliminaries - Siemens

| Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period |
|----------------|------|------------|----------|----------|--------------|------------|
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| Year | Period | Period End |
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| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | |
|----|----|----|----|----|--|---|---------------|
| | | | | | Mth 6 | SDS Interface Month 6 | SDS Int |
| | | | | | Mth 7 | SDS Interface Month 7 | SDS Int |
| | | | | | Mth 8 | SDS Interface Month 8 | SDS Int |
| | | | | | Mth 9 | SDS Interface Month 9 | SDS Int |
| | | | | | Mth 10 | SDS Interface Month 10 | SDS Int |
| | | | | | Mth 11 | SDS Interface Month 11 | SDS Int |
| | | | | | Mth 12 | SDS Interface Month 12 | SDS Int |
| | | | | | Mth 13 | SDS Interface Month 13 | SDS Int |
| | | | | | 00F Incentivisation | | |
| | | | | | 00F Incentivisation | | |
| | | | | | Incentivisation | | |
| | | | | | Section A | Incentivisation | Incent |
| | | | | | Section B | Incentivisation | Incent |
| | | | | | Section C | Incentivisation | Incent |
| | | | | | Section D | Incentivisation | Incent |
| | | | | | 01A Newhaven Road (inc. to Foot of the Walk (exc.)) | | |
| | | | | | 01A Newhaven Road (inc. to Ocean Terminal (exc.)) | | |
| | | | | | Newhaven to Ocean Terminal | | |
| | | | | | E & M Installations | | |
| | | | | | A17000 | Access for E&M works installation (01A) | SCC 1A |
| | | | | | A16990 | Access for visual inspection for E&M works installation (01A) | SCC 1A |
| | | | | | A17000 | Access for visual inspection to cable pits for cable laying (01A) | SCC 1A |
| | | | | | A17040 | Access to cable pits for cable laying (01A) | SCC 1A |
| | | | | | A17050 | Install Electrical Cables | SCC 1A |
| | | | | | A17060 | Install Fibre Optic Cables | SCC 1A |
| | | | | | A17070 | Install Signalling Wayside Equipment | SCC 1A |
| | | | | | A17080 | Install Electrical Cables | SCC 1A |
| | | | | | A17020 | Overhead Catenary Line | OLE 1A |
| | | | | | A17020 | Overhead Catenary Line | OLE 1A |
| | | | | | London Road Retaining Walls (W1) | | |
| | | | | | Retaining Wall | | |
| | | | | | 5 | Wall B Contiguous Bored Piles | Structures 1A |
| | | | | | 5 | Wall B Contiguous Bored Piles | Structures 1A |
| | | | | | 5 | Wall B Contiguous Bored Piles | Structures 1A |
| | | | | | 5 | Wall B Contiguous Bored Piles | Structures 1A |
| | | | | | 5 | Wall B Contiguous Bored Piles | Structures 1A |
| | | | | | A1710 | Wall A Reinforced Earth | Structures 1A |
| | | | | | A1710 | Wall A Parapet Wall | Structures 1A |
| | | | | | Snagging | | |
| | | | | | Roadworks | | |
| | | | | | A1100 | CH 0300 to 0700 - one half | Highways 1A |
| | | | | | A1100 | CH 0300 to 0700 | Highways 1A |
| | | | | | Snagging | | |
| | | | | | A1110 | CH 0700 to 0850 | Highways 1A |
| | | | | | Snagging | | |
| | | | | | A1090 | CH 0300 to 0300 - One Half | Highways 1A |
| | | | | | A1090 | CH 0300 to 0300 | Highways 1A |
| | | | | | Snagging | | |
| | | | | | Con. Milestone | | |
| | | | | | Completion of Infraco Construction works to road re-installment and fully re-opened to public (21) | | |
| | | | | | Trackwork Ch 8 - 285 | | |
| | | | | | A15870 | Establish Traffic Management & Temp. Fencing | Track 1A |
| | | | | | A15880 | Excavate box | Track 1A |
| | | | | | A15890 | Excavate, lay and concrete ducts | Track 1A |
| | | | | | A16000 | Excavate and construct OLE bases | Track - BB 1A |
| | | | | | A16010 | Set Track (265m) - 60% | Track 1A |
| | | | | | A16010 | Set Track (265m) - 40% | Track 1A |
| | | | | | A16020 | Place upper concrete and cure | Track 1A |
| | | | | | A16030 | Street Surface finishes | Track 1A |
| | | | | | A16040 | Remove fencing and Traffic Management | Track 1A |
| | | | | | Snagging | | |
| | | | | | Trackwork Ch 285 - 425 | | |
| | | | | | A15890 | Establish Traffic Management & Temp. Fencing | Track 1A |
| | | | | | A15900 | Excavate box | Track 1A |
| | | | | | A15910 | Excavate, lay and concrete ducts | Track 1A |
| | | | | | A15920 | Excavate and construct OLE bases | Track - BB 1A |
| | | | | | A15930 | Set Track (160m) | Track 1A |
| | | | | | A15940 | Place upper concrete and cure | Track 1A |
| | | | | | A15950 | Street Surface finishes | Track 1A |
| | | | | | A15960 | Remove fencing and Traffic Management | Track 1A |
| | | | | | Snagging | | |
| | | | | | Trackwork Ch 425 - 475 | | |
| | | | | | A15810 | Establish Traffic Management & Temp. Fencing | Track 1A |
| | | | | | A15820 | Excavate box | Track 1A |
| | | | | | A15830 | Excavate, lay and concrete ducts | Track 1A |
| | | | | | A15840 | Excavate and construct OLE bases | Track - BB 1A |
| | | | | | A15850 | Set Track (50m) | Track 1A |
| | | | | | A15860 | Place upper concrete and cure | Track 1A |
| | | | | | A15870 | Street Surface finishes | Track 1A |
| | | | | | A15880 | Remove fencing and Traffic Management | Track 1A |
| | | | | | Snagging | | |
| | | | | | Trackwork Ch 475 - 605 | | |
| | | | | | A15730 | Establish Traffic Management & Temp. Fencing | Track 1A |
| | | | | | A15740 | Excavate box | Track 1A |
| | | | | | A15750 | Excavate, lay and concrete ducts | Track 1A |
| | | | | | A15760 | Excavate and construct OLE bases | Track - BB 1A |
| | | | | | A15770 | Set Track (125m) | Track 1A |
| | | | | | A15780 | Place upper concrete and cure | Track 1A |
| | | | | | A15790 | Street Surface finishes | Track 1A |
| | | | | | A15800 | Remove fencing and Traffic Management | Track 1A |
| | | | | | Snagging | | |
| | | | | | Trackwork Ch 605 - 735 | | |
| | | | | | A15650 | Establish Traffic Management & Temp. Fencing | Track 1A |
| | | | | | A15660 | Excavate box | Track 1A |
| | | | | | A15670 | Excavate, lay and concrete ducts | Track 1A |
| | | | | | A15680 | Excavate and construct OLE bases | Track - BB 1A |
| | | | | | A15690 | Set Track (100m) | Track 1A |
| | | | | | A15700 | Place upper concrete and cure | Track 1A |
| | | | | | A15710 | Street Surface finishes | Track 1A |
| | | | | | A15720 | Remove fencing and Traffic Management | Track 1A |
| | | | | | Snagging | | |
| | | | | | Trackwork Ch 735 - 850 | | |
| | | | | | A15700 | Establish Traffic Management & Temp. Fencing | Track 1A |
| | | | | | A15800 | Excavate box | Track 1A |
| | | | | | A15900 | Excavate, lay and concrete ducts | Track 1A |
| | | | | | A16000 | Excavate and construct OLE bases | Track - BB 1A |
| | | | | | A16010 | Set Track (150m) | Track 1A |
| | | | | | A16020 | Place upper concrete and cure | Track 1A |
| | | | | | A16030 | Street Surface finishes | Track 1A |
| | | | | | A16040 | Remove fencing and Traffic Management | Track 1A |
| | | | | | Snagging | | |
| | | | | | Newhaven Road Trackstop | | |
| | | | | | Trackstop | | |
| | | | | | 8 | Civil and Building Works | Trackstop 1A |
| | | | | | 8 | Snagging | Trackstop 1A |
| | | | | | 8 | Order REC Supply | Trackstop 1A |

| Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period |
|----------------|-------|-------------|-------------|----------|--------------|------------|
| 292,307.89 | 7.7% | 14-Sep-08 | 11-Oct-08 | 28 | 10 | 10 |
| 292,307.89 | 7.7% | 12-Oct-08 | 08-Nov-08 | 28 | 11 | 11 |
| 292,307.89 | 7.7% | 09-Nov-08 | 06-Dec-08 | 28 | 12 | 12 |
| 292,307.89 | 7.7% | 07-Dec-08 | 03-Jan-09 | 28 | 13 | 13 |
| 292,307.89 | 7.7% | 04-Jan-09 | 31-Jan-09 | 28 | 14 | 14 |
| 292,307.89 | 7.7% | 01-Feb-09 | 28-Feb-09 | 28 | 15 | 15 |
| 292,307.89 | 7.7% | 01-Mar-09 | 28-Mar-09 | 28 | 16 | 16 |
| 292,307.89 | 7.7% | 29-Mar-09 | 26-Apr-09 | 28 | 17 | 17 |
| 4,800,000.00 | 100% | 25-Mar-2010 | 16-Jul-2011 | 479 | 29 | 46 |
| 4,800,000.00 | 100% | 25-Mar-2010 | 16-Jul-2011 | 479 | 29 | 46 |
| 4,800,000.00 | 100% | 25-Mar-2010 | 16-Jul-2011 | 479 | 29 | 46 |
| 1,200,000.00 | 25.0% | 25-Mar-2010 | 25-Mar-2010 | 1 | 29 | 28 |
| 1,200,000.00 | 25.0% | 23-Apr-2010 | 23-Apr-2010 | 1 | 30 | 29 |
| 1,200,000.00 | 25.0% | 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 39 |
| 1,200,000.00 | 25.0% | 16-Jul-2011 | 16-Jul-2011 | 1 | 46 | 46 |
| 15,692,627.78 | 100% | 04-Sep-2008 | 17-Jan-2011 | 866 | 9 | 40 |
| 5,363,487.72 | 100% | 05-Nov-2008 | 24-Sep-2010 | 691 | 11 | 37 |
| 599,356.90 | 100% | 21-Apr-10 | 05-Jul-10 | 76 | 30 | 33 |
| - | 0.0% | 21-Apr-10 | 21-Apr-10 | 1 | 30 | 30 |
| - | 0.0% | 21-Apr-10 | 21-Apr-10 | 1 | 30 | 30 |
| - | 0.0% | 24-May-10 | 24-May-10 | 1 | 32 | 32 |
| - | 0.0% | 24-May-10 | 07-Jun-10 | 15 | 32 | 32 |
| 222,504.72 | 37.1% | 21-Jun-10 | 02-Jul-10 | 12 | 33 | 33 |
| 5,993.57 | 1.0% | 08-Jun-10 | 21-Jun-10 | 14 | 32 | 33 |
| - | 0.0% | 24-May-10 | 07-Jun-10 | 15 | 32 | 32 |
| 185,429.30 | 30.9% | 07-Jun-10 | 05-Jul-10 | 29 | 32 | 33 |
| 185,429.30 | 30.9% | 07-Jun-10 | 05-Jul-10 | 29 | 32 | 33 |
| 1,468,331.00 | 100% | 05-Nov-08 | 22-Jun-09 | 230 | 11 | 21 |
| 140,364.77 | 9.9% | 02-Nov-08 | 05-Dec-08 | 31 | 11 | 12 |
| 140,364.77 | 9.9% | 06-Dec-08 | 05-Jan-09 | 31 | 12 | 14 |
| 140,364.77 | 9.9% | 05-Jan-09 | 03-Feb-09 | 31 | 14 | 15 |
| 140,364.77 | 9.9% | 05-Feb-09 | 05-Mar-09 | 28 | 15 | 16 |
| 140,364.77 | 9.9% | 06-Mar-09 | 08-Apr-09 | 35 | 16 | 17 |
| 436,094.31 | 29.7% | 09-Apr-09 | 09-May-09 | 31 | 17 | 18 |
| 290,729.54 | 19.8% | 10-May-09 | 22-Jun-09 | 45 | 18 | 20 |
| 14,083.31 | 1.0% | 20-Jun-09 | 20-Jun-09 | 1 | 20 | 21 |
| 182,024.93 | 27.0% | 03-Sep-09 | 03-Oct-09 | 31 | 22 | 23 |
| 128,016.62 | 18.6% | 04-Oct-09 | 11-Nov-09 | 40 | 23 | 25 |
| 3,232.74 | 0.5% | 17-Nov-09 | 10-Dec-09 | 24 | 25 | 26 |
| 120,015.58 | 17.5% | 03-Nov-08 | 30-Apr-09 | 179 | 11 | 18 |
| 1,212.28 | 0.2% | 02-Mar-10 | 02-Apr-10 | 32 | 18 | 19 |
| 120,015.58 | 17.5% | 03-Apr-10 | 12-May-10 | 41 | 30 | 31 |
| 2,424.56 | 0.4% | 12-May-10 | 12-May-10 | 1 | 31 | 32 |
| 27,506.04 | 4.8% | 29-Oct-09 | 01-Mar-10 | 124 | 24 | 30 |
| - | 0.0% | 29-Oct-09 | 02-Nov-09 | 5 | 24 | 24 |
| - | 0.0% | 02-Nov-09 | 17-Nov-09 | 16 | 24 | 25 |
| - | 0.0% | 17-Nov-09 | 10-Dec-09 | 24 | 25 | 26 |
| 20,819.43 | 3.6% | 17-Nov-09 | 10-Dec-09 | 24 | 25 | 26 |
| 330,072.08 | 57.2% | 12-Jan-10 | 15-Feb-10 | 35 | 27 | 28 |
| 165,036.04 | 28.4% | 13-Jan-10 | 15-Feb-10 | 35 | 27 | 28 |
| - | 0.0% | 15-Jan-10 | 18-Feb-10 | 35 | 27 | 28 |
| - | 0.0% | 19-Feb-10 | 26-Feb-10 | 8 | 28 | 28 |
| 27,506.01 | 4.8% | 01-Mar-10 | 01-Mar-10 | 1 | 29 | 30 |
| 5,767.07 | 1.0% | 01-Mar-10 | 01-Mar-10 | 1 | 29 | 30 |
| 345,200.23 | 100% | 19-Jun-09 | 02-Sep-09 | 76 | 19 | 23 |
| 16,607.40 | 4.8% | 19-Jun-09 | 23-Jun-09 | 5 | 19 | 20 |
| 132,859.20 | 38.2% | 23-Jun-09 | 01-Jul-09 | 9 | 20 | 20 |
| 12,570.22 | 3.6% | 01-Jul-09 | 14-Jul-09 | 14 | 20 | 20 |
| 166,074.00 | 47.7% | 05-Aug-09 | 19-Aug-09 | 15 | 21 | 22 |
| - | 0.0% | 10-Aug-09 | 24-Aug-09 | 15 | 21 | 22 |
| - | 0.0% | 25-Aug-09 | 01-Sep-09 | 8 | 22 | 22 |
| 16,607.40 | 4.8% | 02-Sep-09 | 02-Sep-09 | 1 | 22 | 22 |
| 3,482.00 | 1.0% | 02-Sep-09 | 02-Sep-09 | 1 | 22 | 23 |
| 108,812.57 | 100% | 26-Feb-09 | 06-Apr-09 | 40 | 15 | 18 |
| 5,189.81 | 4.8% | 26-Feb-09 | 27-Feb-09 | 2 | 15 | 15 |
| - | 0.0% | 02-Mar-09 | 03-Mar-09 | 2 | 16 | 16 |
| 31,136.88 | 28.6% | 04-Mar-09 | 06-Mar-09 | 3 | 16 | 16 |
| 3,628.19 | 3.6% | 04-Mar-09 | 06-Mar-09 | 3 | 16 | 16 |
| - | 0.0% | 20-Mar-09 | 26-Mar-09 | 7 | 16 | 16 |
| 62,277.75 | 57.2% | 25-Mar-09 | 31-Mar-09 | 7 | 16 | 17 |
| - | 0.0% | 01-Apr-09 | 03-Apr-09 | 3 | 17 | 17 |
| 5,189.81 | 4.8% | 06-Apr-09 | 06-Apr-09 | 1 | 17 | 17 |
| 1,088.13 | 1.0% | 06-Apr-09 | 06-Apr-09 | 1 | 17 | 18 |
| 272,631.43 | 100% | 16-Dec-08 | 25-Feb-09 | 72 | 13 | 16 |
| 12,974.53 | 4.8% | 16-Dec-08 | 17-Dec-08 | 2 | 13 | 13 |
| - | 0.0% | 18-Dec-08 | 07-Jan-09 | 21 | 13 | 14 |
| 77,847.19 | 28.6% | 08-Jan-09 | 12-Jan-09 | 14 | 14 | 14 |
| 9,820.49 | 3.6% | 08-Jan-09 | 19-Jan-09 | 12 | 14 | 14 |
| - | 0.0% | 29-Jan-09 | 11-Feb-09 | 14 | 14 | 15 |
| 155,694.38 | 57.2% | 03-Feb-09 | 16-Feb-09 | 14 | 15 | 15 |
| - | 0.0% | 17-Feb-09 | 24-Feb-09 | 8 | 15 | 15 |
| 12,974.53 | 4.8% | 25-Feb-09 | 25-Feb-09 | 1 | 15 | 15 |
| 2,720.31 | 1.0% | 25-Feb-09 | 25-Feb-09 | 1 | 15 | 1 |

| Programme Data | | | | | 2008 | | | | | | | | | | | | | 2008 |
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| 2126 | 2127 | 2128 | 2129 | 2130 | 2131 | 2132 | 2133 | 2134 | 2135 | 2136 | 2137 | 2138 | 2139 | 2140 | 2141 | 2142 | 2143 | 2144 | 2145 | 2146 | 2147 | 2148 | 2149 | 2150 | 2151 | 2152 | 2153 | 2154 | 2155 | 2156 | 2157 | 2158 | 2159 | 2160 | 2161 | 2162 | 2163 | 2164 | 2165 | 2166 | 2167 | 2168 | 2169 | 2170 | 2171 | 2172 | 2173 | 2174 | 2175 | 2176 | 2177 | 2178 | 2179 | 2180 | 2181 | 2182 | 2183 | 2184 | 2185 | 2186 | 2187 | 2188 | 2189 | 2190 | 2191 | 2192 | 2193 | 2194 | 2195 | 2196 | 2197 | 2198 | 2199 | 2200 | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 | 2480 | 2481 | 2482 | 2483 | 2484 | 2485 | 2486 | 2487 | 2488 | 2489 | 2490 | 2491 | 2492 | 2493 | 2494 | 2495 | 2496 | 2497 | 2498 | 2499 | 2500 | 2501 | 2502 | 2503 | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 | 2512 | 2513 | 2514 | 2515 | 2516 | 2517 | 2518 | 2519 | 2520 | 2521 | 2522 | 2523 | 2524 | 2525 | 2526 | 2527 | 2528 | 2529 | 2530 | 2531 | 2532 | 2533 | 2534 | 2535 | 2536 | 2537 | 2538 | 2539 | 2540 | 2541 | 2542 | 2543 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 | 2550 | 2551 | 2552 | 2553 | 2554 | 2555 | 2556 | 2557 | 2558 | 2559 | 2560 | 2561 | 2562 | 2563 | 2564 | 2565 | 2566 | 2567 | 2568 | 2569 | 2570 | 2571 | 2572 | 2573 | 2574 | 2575 | 2576 | 2577 | 2578 | 2579 | 2580 | 2581 | 2582 | 2583 | 2584 | 2585 | 2586 | 2587 | 2588 | 2589 | 2590 | 2591 | 2592 | 2593 | 2594 | 2595 | 2596 | 2597 | 2598 | 2599 | 2600 | 2601 | 2602 | 2603 | 2604 | 2605 | 2606 | 2607 | 2608 | 2609 | 2610 | 2611 | 2612 | 2613 | 2614 | 2615 | 2616 | 2617 | 2618 | 2619 | 2620 | 2621 | 2622 | 2623 | 2624 | 2625 | 2626 | 2627 | 2628 | 2629 | 2630 | 2631 | 2632 | 2633 | 2634 | 2635 | 2636 | 2637 | 2638 | 2639 | 2640 | 2641 | 2642 | 2643 | 2644 | 2645 | 2646 | 2647 | 2648 | 2649 | 2650 | 2651 | 2652 | 2653 | 2654 | 2655 | 2656 | 2657 | 2658 | 2659 | 2660 | 2661 | 2662 | 2663 | 2664 | 2665 | 2666 | 2667 | 2668 | 2669 | 2670 | 2671 | 2672 | 2673 | 2674 | 2675 | 2676 | 2677 | 2678 | 2679 | 2680 | 2681 | 2682 | 2683 | 2684 | 2685 | 2686 | 2687 | 2688 | 2689 | 2690 | 2691 | 2692 | 2693 | 2694 | 2695 | 2696 | 2697 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| 2841 | 2842 | 2843 | 2844 | 2845 | 2846 | 2847 | 2848 | 2849 | 2850 | 2851 | 2852 | 2853 | 2854 | 2855 | 2856 | 2857 | 2858 | 2859 | 2860 | 2861 | 2862 | 2863 | 2864 | 2865 | 2866 | 2867 | 2868 | 2869 | 2870 | 2871 | 2872 | 2873 | 2874 | 2875 | 2876 | 2877 | 2878 | 2879 | 2880 | 2881 | 2882 | 2883 | 2884 | 2885 | 2886 | 2887 | 2888 | 2889 | 2890 | 2891 | 2892 | 2893 | 2894 | 2895 | 2896 | 2897 | 2898 | 2899 | 2900 | 2901 | 2902 | 2903 | 2904 | 2905 | 2906 | 2907 | 2908 | 2909 | 2910 | 2911 | 2912 | 2913 | 2914 | 2915 | 2916 | 2917 | 2918 | 2919 | 2920 | 2921 | 2922 | 2923 | 2924 | 2925 | 2926 | 2927 | 2928 | 2929 | 2930 | 2931 | 2932 | 2933 | 2934 | 2935 | 2936 | 2937 | 2938 | 2939 | 2940 | 2941 | 2942 | 2943 | 2944 | 2945 | 2946 | 2947 | 2948 | 2949 | 2950 | 2951 | 2952 | 2953 | 2954 | 2955 | 2956 | 2957 | 2958 | 2959 | 2960 | 2961 | 2962 | 2963 | 2964 | 2965 | 2966 | 2967 | 2968 | 2969 | 2970 | 2971 | 2972 | 2973 | 2974 | 2975 | 2976 | 2977 | 2978 | 2979 | 2980 | 2981 | 2982 | 2983 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| 3127 | 3128 | 3129 | 3130 | 3131 | 3132 | 3133 | 3134 | 3135 | 3136 | 3137 | 3138 | 3139 | 3140 | 3141 | 3142 | 3143 | 3144 | 3145 | 3146 | 3147 | 3148 | 3149 | 3150 | 3151 | 3152 | 3153 | 3154 | 3155 | 3156 | 3157 | 3158 | 3159 | 3160 | 3161 | 3162 | 3163 | 3164 | 3165 | 3166 | 3167 | 3168 | 3169 | 3170 | 3171 | 3172 | 3173 | 3174 | 3175 | 3176 | 3177 | 3178 | 3179 | 3180 | 3181 | 3182 | 3183 | 3184 | 3185 | 3186 | 3187 | 3188 | 3189 | 3190 | 3191 | 3192 | 3193 | 3194 | 3195 | 3196 | 3197 | 3198 | 3199 | 3200 | 3201 | 3202 | 3203 | 3204 | 3205 | 3206 | 3207 | 3208 | 3209 | 3210 | 3211 | 3212 | 3213 | 3214 | 3215 | 3216 | 3217 | 3218 | 3219 | 3220 | 3221 | 3222 | 3223 | 3224 | 3225 | 3226 | 3227 | 3228 | 3229 | 3230 | 3231 | 3232 | 3233 | 3234 | 3235 | 3236 | 3237 | 3238 | 3239 | 3240 | 3241 | 3242 | 3243 | 3244 | 3245 | 3246 | 3247 | 3248 | 3249 | 3250 | 3251 | 3252 | 3253 | 3254 | 3255 | 3256 | 3257 | 3258 | 3259 | 3260 | 3261 | 3262 | 3263 | 3264 | 3265 | 3266 | 3267 | 3268 | 3269 | 3270 | 3271 | 3272 | 3273 | 3274 | 3275 | 3276 | 3277 | 3278 | 3279 | 3280 | 3281 | 3282 | 3283 | 3284 | 3285 | 3286 | 3287 | 3288 | 3289 | 3290 | 3291 | 3292 | 3293 | 3294 | 3295 | 3296 | 3297 | 3298 | 3299 | 3300 | 3301 | 3302 | 3303 | 3304 | 3305 | 3306 | 3307 | 3308 | 3309 | 3310 | 3311 | 3312 | 3313 | 3314 | 3315 | 3316 | 3317 | 3318 | 3319 | 3320 | 3321 | 3322 | 3323 | 3324 | 3325 | 3326 | 3327 | 3328 | 3329 | 3330 | 3331 | 3332 | 3333 | 3334 | 3335 | 3336 | 3337 | 3338 | 3339 | 3340 | 3341 | 3342 | 3343 | 3344 | 3345 | 3346 | 3 |
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| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal |
| 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 06-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | GSP |

USB00000073_0026

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | | Contract Value | %age | Programme Date 19-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 02-Feb-2008 | 01-Mar-2008 | 02-Mar-2008 | 03-Mar-2008 | 04-Mar-2008 | 05-Mar-2008 | 06-Mar-2008 | 07-Mar-2008 | 08-Mar-2008 | 09-Mar-2008 | 10-Mar-2008 | 11-Mar-2008 | 12-Mar-2008 | 13-Mar-2008 | 2008 | Subtotal | G&P | |
|--|----|----|----|----|--------------|--|-----------|---------------------|------------|-----------------------------|------------|-----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|----------|-----|---|
| | | | | | Snagging | Snagging | Highways | 1B | 3,790.19 | 1.0% | | | | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| McDonald Road Trackwork | | | | | | | | 302,963.44 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | S38 | Order REC Supply | Trams Eq | 1B | - | 0.0% | 04-Feb-10 | 04-Feb-10 | 1 | 28 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Construction | | Trams Eq | 1B | - | 0.0% | 23-Apr-08 | 23-Apr-08 | 1 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | |
| | | | | | S90 | Civil Engineering And Building Works | Tramstops | 1B | 86,598.68 | 28.6% | 28-Sep-09 | 15-Nov-09 | 49 | 23 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | S90 | Civil Engineering And Building Works | Tramstops | 1B | 86,598.68 | 28.6% | 16-Nov-09 | 11-Jun-10 | 58 | 25 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Tramstops | 1B | 1,749.47 | 0.6% | | | | 27 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A2600 | Deliver and Install Shelter | Tramstops | 1B | 57,732.45 | 18.1% | 18-Mar-10 | 01-Apr-10 | 15 | 29 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Tramstops | 1B | 1,883.16 | 0.2% | | | | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A4510 | Package Test Tramstop | Trams Eq | 1B | 68,904.59 | 22.8% | 15-Jun-10 | 22-Jun-10 | 8 | 32 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A4480 | Install LV Power Supply and LV Power Equipment | Trams Eq | 1B | - | 0.0% | 01-Apr-10 | 10-May-10 | 40 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A4480 | Install Telecom Equipment | Trams Eq | 1B | - | 0.0% | 08-Jun-10 | 10-Jun-10 | 30 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A4500 | Install Station Control Equipment + AFC Equipment | Trams Eq | 1B | - | 0.0% | 15-Jun-10 | 15-Jun-10 | 37 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A4479 | Access for E&M Tram Stop installation (01B Balloir Street) | Trams Eq | 1B | - | 0.0% | 01-Apr-10 | 01-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A4479 | Access for visual inspection for E&M Tram Stop installation (01B Balloir Street) | Trams Eq | 1B | - | 0.0% | 02-Mar-10 | 02-Mar-10 | 1 | 29 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Trams Eq | 1B | 696.01 | 0.2% | | | | 33 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | | | | 9,915,993.00 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 1,591,588.62 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| OIC McDonald Road (inc.) to Princess Street West (exc.) | | | | | | | | 1,591,588.62 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | OLE | Overhead Catenary Line - One Half | OLE | 1C | 228,615.57 | 35.2% | 10-Sep-10 | 29-Oct-10 | 50 | 35 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A3500 | Overhead Catenary Line | OLE | 1C | 362,443.72 | 23.0% | 10-Sep-10 | 29-Oct-10 | 50 | 35 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | | OLE | 1C | 8,902.62 | 0.6% | | | | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3600 | Install Electrical Cables | SCC | 1C | 151,303.21 | 10.1% | 24-Sep-10 | 21-Oct-10 | 28 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3670 | Install Fibre Optic Cables | SCC | 1C | 151,303.21 | 10.1% | 24-Sep-10 | 21-Oct-10 | 28 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3800 | Install Signalling Wayside Equipment | SCC | 1C | 151,303.21 | 10.1% | 22-Oct-10 | 22-Nov-10 | 32 | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3845 | Installation of poles and building fixings | SCC | 1C | 151,303.21 | 10.1% | 16-Jul-10 | 09-Sep-10 | 56 | 33 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3844 | Access for E&M wayside installation (01C) | SCC | 1C | - | 0.0% | 16-Jul-10 | 16-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A3869 | Access to cable pits for cable laying (01C) | SCC | 1C | - | 0.0% | 24-Sep-10 | 24-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3843 | Access for visual inspection for E&M wayside installation (01C) | SCC | 1C | - | 0.0% | 16-Jun-10 | 16-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3868 | Access for visual inspection to cable pits for cable laying (01C) | SCC | 1C | - | 0.0% | 21-Jul-10 | 21-Jul-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | SCC | 1C | 6,113.26 | 0.4% | | | | 38 | 39 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | 2,761,174.77 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| McDonald Road Trackwork | | | | | | | | 2,761,174.77 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | OLE | Overhead Catenary Line - One Half | OLE | 1C | 228,615.57 | 35.2% | 10-Sep-10 | 29-Oct-10 | 50 | 35 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3500 | Overhead Catenary Line | OLE | 1C | 362,443.72 | 23.0% | 10-Sep-10 | 29-Oct-10 | 50 | 35 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | | OLE | 1C | 8,902.62 | 0.6% | | | | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3600 | Install Electrical Cables | SCC | 1C | 151,303.21 | 10.1% | 24-Sep-10 | 21-Oct-10 | 28 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3670 | Install Fibre Optic Cables | SCC | 1C | 151,303.21 | 10.1% | 24-Sep-10 | 21-Oct-10 | 28 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3800 | Install Signalling Wayside Equipment | SCC | 1C | 151,303.21 | 10.1% | 22-Oct-10 | 22-Nov-10 | 32 | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3845 | Installation of poles and building fixings | SCC | 1C | 151,303.21 | 10.1% | 16-Jul-10 | 09-Sep-10 | 56 | 33 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3844 | Access for E&M wayside installation (01C) | SCC | 1C | - | 0.0% | 16-Jul-10 | 16-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3869 | Access to cable pits for cable laying (01C) | SCC | 1C | - | 0.0% | 24-Sep-10 | 24-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3843 | Access for visual inspection for E&M wayside installation (01C) | SCC | 1C | - | 0.0% | 16-Jun-10 | 16-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3868 | Access for visual inspection to cable pits for cable laying (01C) | SCC | 1C | - | 0.0% | 21-Jul-10 | 21-Jul-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | SCC | 1C | 6,113.26 | 0.4% | | | | 38 | 39 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | 2,761,174.77 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| McDonald Road Trackwork | | | | | | | | 2,761,174.77 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | OLE | Overhead Catenary Line - One Half | OLE | 1C | 228,615.57 | 35.2% | 10-Sep-10 | 29-Oct-10 | 50 | 35 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3500 | Overhead Catenary Line | OLE | 1C | 362,443.72 | 23.0% | 10-Sep-10 | 29-Oct-10 | 50 | 35 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | | OLE | 1C | 8,902.62 | 0.6% | | | | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3600 | Install Electrical Cables | SCC | 1C | 151,303.21 | 10.1% | 24-Sep-10 | 21-Oct-10 | 28 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3670 | Install Fibre Optic Cables | SCC | 1C | 151,303.21 | 10.1% | 24-Sep-10 | 21-Oct-10 | 28 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3800 | Install Signalling Wayside Equipment | SCC | 1C | 151,303.21 | 10.1% | 22-Oct-10 | 22-Nov-10 | 32 | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3845 | Installation of poles and building fixings | SCC | 1C | 151,303.21 | 10.1% | 16-Jul-10 | 09-Sep-10 | 56 | 33 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3844 | Access for E&M wayside installation (01C) | SCC | 1C | - | 0.0% | 16-Jul-10 | 16-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3869 | Access to cable pits for cable laying (01C) | SCC | 1C | - | 0.0% | 24-Sep-10 | 24-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3843 | Access for visual inspection for E&M wayside installation (01C) | SCC | 1C | - | 0.0% | 16-Jun-10 | 16-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A3868 | Access for visual inspection to cable pits for cable laying (01C) | SCC | 1C | - | 0.0% | 21-Jul-10 | 21-Jul-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | SCC | 1C | 6,113.26 | 0.4% | | | | 38 | 39 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | 2,761,174.77 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| McDonald Road Trackwork | | | | | | | | 2,761,174.77 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | OLE | Overhead Catenary Line - One Half | OLE | 1C | | | | | | | | | | | | | | | | | | | | | | | | | |



| Year |
|------------|
| Period |
| Period End |

| Activity ID | | | | | Activity Name | | | | | Contract Value | | | | | Kilograms | | | | | Programme Dates | | | | | Start Period | | | | | End Period | | | | | 2009 | | | | | | | | | | | | 2009 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | Kilograms | Start Date | End Date | Duration | Start Period | End Period | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Subtotal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Snagging | | | | | Highways | | | | | 1B | 3,790.19 | 1.0% | | | 18 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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USB00000073_0030

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| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Track | IC | Contract Value | %age | Programme Dates 15-Apr-08 Start Date | End Date | Duration | Start Period | End Period | 2010 Subtotal | 2010 GBP | |
|----|----|----|----|----|------------------|--|-------|----|-------------------|------------|--|-----------|-----------|--------------|------------|------------------|-------------|---------|
| | | | | | A16800 | Establish Traffic Management & Temp. Fencing | Track | 1C | - | 0.0% | 12-Jul-10 | 13-Jul-10 | 2 | 33 | 33 | - | - | |
| | | | | | A16800 | Excavate box | Track | 1C | - | 0.0% | 14-Jul-10 | 21-Jul-10 | 8 | 33 | 34 | - | - | |
| | | | | | A16800 | Excavate, lay and concrete ducts | Track | 1C | - | 0.0% | 22-Jul-10 | 07-Sep-10 | 48 | 34 | 33 | - | - | |
| | | | | | A16810 | Excavate and construct OLE bases | Track | BB | 1C | 7,017.57 | 1.6% | 22-Jul-10 | 07-Sep-10 | 48 | 34 | 35 | - | - |
| | | | | | A16820 | Set Track (150m) | Track | BB | 1C | 195,779.10 | 43.8% | 08-Sep-10 | 29-Sep-10 | 22 | 36 | 36 | 7,018 | 7,018 |
| | | | | | A16830 | Place upper concrete and cure | Track | BB | 1C | 195,779.10 | 43.8% | 13-Sep-10 | 04-Oct-10 | 22 | 36 | 36 | - | 195,779 |
| | | | | | A16840 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 05-Oct-10 | 07-Oct-10 | 3 | 36 | 36 | - | 195,779 |
| | | | | | A16850 | Remove fencing and Traffic Management | Track | BB | 1C | 43,506.47 | 9.7% | 08-Oct-10 | 08-Oct-10 | 1 | 36 | 37 | - | 43,506 |
| | | | | | Snagging | | Track | 1C | 4,465.35 | 1.0% | - | - | - | 36 | 37 | - | 4,465 | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13660 | Dummy | Track | 1C | - | 0.0% | 20-Jan-10 | 22-Mar-10 | 62 | 27 | 29 | - | - | |
| | | | | | A16860 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 20-Jan-10 | 21-Jan-10 | 2 | 27 | 27 | - | - | |
| | | | | | A16870 | Excavate box | Track | 1C | - | 0.0% | 22-Jan-10 | 28-Jan-10 | 8 | 27 | 27 | 21,753 | 21,753 | |
| | | | | | A16880 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 01-Feb-10 | 11-Feb-10 | 11 | 28 | 28 | - | - | |
| | | | | | A16890 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 01-Feb-10 | 11-Feb-10 | 11 | 28 | 28 | - | - |
| | | | | | A16900 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 12-Feb-10 | 26-Feb-10 | 15 | 28 | 28 | 6,015 | 6,015 |
| | | | | | A16910 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 17-Feb-10 | 03-Mar-10 | 15 | 28 | 29 | - | - |
| | | | | | A16920 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 04-Mar-10 | 08-Mar-10 | 5 | 29 | 29 | - | - |
| | | | | | A16930 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 09-Mar-10 | 09-Mar-10 | 1 | 29 | 29 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 30 | 31 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,753 | 21,753 | |
| | | | | | A16760 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - | |
| | | | | | A16770 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - |
| | | | | | A16780 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | 6,015 | 6,015 |
| | | | | | A16790 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | - |
| | | | | | A16800 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | - |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,753 | 21,753 | |
| | | | | | A16760 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - | |
| | | | | | A16770 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - |
| | | | | | A16780 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | 6,015 | 6,015 |
| | | | | | A16790 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | - |
| | | | | | A16800 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | - |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,753 | 21,753 | |
| | | | | | A16760 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - | |
| | | | | | A16770 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - |
| | | | | | A16780 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | 6,015 | 6,015 |
| | | | | | A16790 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | - |
| | | | | | A16800 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | - |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,753 | 21,753 | |
| | | | | | A16760 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - | |
| | | | | | A16770 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - |
| | | | | | A16780 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | 6,015 | 6,015 |
| | | | | | A16790 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | - |
| | | | | | A16800 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | - |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,753 | 21,753 | |
| | | | | | A16760 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - | |
| | | | | | A16770 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - |
| | | | | | A16780 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | 6,015 | 6,015 |
| | | | | | A16790 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | - |
| | | | | | A16800 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | - |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,753 | 21,753 | |
| | | | | | A16760 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - | |
| | | | | | A16770 | Excavate and construct OLE bases | Track | BB | 1C | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | - |
| | | | | | A16780 | Set Track (150m) | Track | BB | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | 6,015 | 6,015 |
| | | | | | A16790 | Place upper concrete and cure | Track | BB | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | - |
| | | | | | A16800 | Street Surface finishes | Track | BB | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | - |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | BB | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | - |
| | | | | | Snagging | | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | 21,753 | 21,753 |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | 445,535 | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | - | |
| | | | | | A16740 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | - | |
| | | | | | A16750 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | 21,75 | | |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Track | IC | Contract Value | %age | Programme Date 12-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2011 Subtotal GBP |
|----|----|----|----|----|------------------|--|-------|----|-------------------|-------|-----------------------------|------------|----------|----------|--------------|------------|-------------------------|
| | | | | | A16800 | Establish Traffic Management & Temp. Fencing | Track | 1C | - | 0.0% | 12-Jul-10 | 13-Jul-10 | 2 | 33 | 33 | - | |
| | | | | | A16800 | Excavate box | Track | 1C | - | 0.0% | 14-Jul-10 | 21-Jul-10 | 8 | 33 | 34 | - | |
| | | | | | A16800 | Excavate, lay and concrete ducts | Track | 1C | - | 0.0% | 22-Jul-10 | 07-Sep-10 | 48 | 34 | 33 | - | |
| | | | | | A16810 | Excavate and construct OLE bases | Track | BB | 7,017.57 | 1.6% | 22-Jul-10 | 07-Sep-10 | 48 | 34 | 35 | - | |
| | | | | | A16820 | Set Track (150m) | Track | 1C | 195,778.10 | 43.8% | 08-Sep-10 | 29-Sep-10 | 22 | 35 | 36 | - | |
| | | | | | A16830 | Place upper concrete and cure | Track | 1C | 195,778.10 | 43.8% | 13-Sep-10 | 04-Oct-10 | 22 | 36 | 36 | - | |
| | | | | | A16840 | Street Surface finishes | Track | 1C | - | 0.0% | 05-Oct-10 | 07-Oct-10 | 3 | 36 | 36 | - | |
| | | | | | A16850 | Remove fencing and Traffic Management | Track | 1C | 43,506.47 | 9.7% | 08-Oct-10 | 08-Oct-10 | 1 | 36 | 36 | - | |
| | | | | | A16860 | Snagging | Track | 1C | 4,465.48 | 1.0% | - | - | - | 36 | 37 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13660 | Dummy | Track | 1C | - | 0.0% | 20-Jan-10 | 22-Mar-10 | 62 | 27 | 29 | - | |
| | | | | | A16860 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 20-Jan-10 | 21-Jan-10 | 2 | 27 | 27 | - | |
| | | | | | A16870 | Excavate box | Track | 1C | - | 0.0% | 22-Jan-10 | 29-Jan-10 | 8 | 27 | 27 | - | |
| | | | | | A16880 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 01-Feb-10 | 11-Feb-10 | 11 | 28 | 28 | - | |
| | | | | | A16890 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 01-Feb-10 | 11-Feb-10 | 11 | 28 | 28 | - | |
| | | | | | A16900 | Set Track (150m) | Track | 1C | - | 0.0% | 12-Feb-10 | 26-Feb-10 | 15 | 28 | 28 | - | |
| | | | | | A16910 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 17-Feb-10 | 03-Mar-10 | 15 | 28 | 29 | - | |
| | | | | | A16920 | Street Surface finishes | Track | 1C | - | 0.0% | 04-Mar-10 | 08-Mar-10 | 5 | 29 | 29 | - | |
| | | | | | A16930 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 09-Mar-10 | 09-Mar-10 | 1 | 29 | 29 | - | |
| | | | | | A16940 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 30 | 31 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | 1C | - | 0.0% | 29-Apr-10 | 01-Jul-10 | 64 | 31 | 33 | - | |
| | | | | | A16940 | Establish Traffic Management & Temp. Fencing | Track | 1C | 21,753.23 | 4.9% | 29-Apr-10 | 30-Apr-10 | 2 | 31 | 31 | - | |
| | | | | | A16950 | Excavate box | Track | 1C | - | 0.0% | 04-May-10 | 11-May-10 | 8 | 31 | 31 | - | |
| | | | | | A16960 | Excavate, lay and concrete ducts | Track | 1C | 65,259.70 | 14.6% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16970 | Excavate and construct OLE bases | Track | BB | 6,015.06 | 1.4% | 12-May-10 | 24-May-10 | 13 | 31 | 32 | - | |
| | | | | | A16980 | Set Track (150m) | Track | 1C | - | 0.0% | 28-May-10 | 14-Jun-10 | 18 | 32 | 32 | - | |
| | | | | | A16990 | Place upper concrete and cure | Track | 1C | 326,298.50 | 73.2% | 03-Jun-10 | 17-Jun-10 | 15 | 32 | 32 | - | |
| | | | | | A16800 | Street Surface finishes | Track | 1C | - | 0.0% | 18-Jun-10 | 22-Jun-10 | 5 | 32 | 33 | - | |
| | | | | | A16810 | Remove fencing and Traffic Management | Track | 1C | 21,753.23 | 4.9% | 23-Jun-10 | 23-Jun-10 | 1 | 33 | 33 | - | |
| | | | | | A16820 | Snagging | Track | 1C | 4,455.35 | 1.0% | - | - | - | 33 | 34 | - | |
| | | | | | Trackwork | | | | 445,535.07 | | | | | | | | |
| | | | | | A13670 | Dummy | Track | | | | | | | | | | |

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| Contract Value | Usage | Programme D 15-Apr-08 | | | Start Period | End Period | |
|----------------|-------|--------------------------|-----------|----------|--------------|------------|----|
| | | Start Date | End Date | Duration | | | |
| 56,590.50 | 27.7% | 05-Feb-09 | 15-Mar-09 | 39 | 15 | 16 | |
| 56,590.50 | 27.7% | 05-Feb-09 | 08-May-09 | 55 | 15 | 18 | |
| 1,143.25 | 0.6% | | | | 15 | 18 | |
| 37,727.28 | 18.4% | 20-Jul-09 | 07-Sep-09 | 50 | 21 | 22 | |
| 381.08 | 0.2% | | | | 23 | 23 | |
| | 0.0% | 08-Jun-09 | 08-Jun-09 | 1 | 19 | 19 | |
| 51,678.74 | 25.3% | 16-Nov-09 | 23-Nov-09 | 8 | 25 | 25 | |
| | 0.0% | 12-Oct-09 | 12-Oct-09 | 30 | 24 | 24 | |
| | 0.0% | 12-Oct-09 | 09-Nov-09 | 29 | 24 | 25 | |
| | 0.0% | 12-Oct-09 | 16-Nov-09 | 36 | 24 | 25 | |
| | 0.0% | 07-Sep-09 | 07-Sep-09 | 1 | 22 | 22 | |
| | 0.0% | 06-Aug-09 | 06-Aug-09 | 1 | 21 | 21 | |
| 522.01 | 0.3% | | | | 25 | 26 | |
| | 0.0% | | | | 30 | 31 | |
| 204,634.14 | | | | | | | |
| 56,590.50 | 27.7% | 05-Sep-09 | 31-Oct-09 | 53 | 22 | 24 | |
| 56,590.50 | 27.7% | 01-Nov-09 | 12-Jan-10 | 74 | 24 | 27 | |
| 1,143.25 | 0.6% | | | | 27 | 28 | |
| 37,727.28 | 18.4% | 07-Oct-10 | 21-Jan-10 | 15 | 27 | 28 | |
| 381.08 | 0.2% | | | | 28 | 28 | |
| | 0.0% | 22-Dec-09 | 22-Oct-09 | 1 | 24 | 24 | |
| 51,678.74 | 25.3% | 01-Apr-10 | 09-Apr-10 | 9 | 30 | 30 | |
| | 0.0% | 21-Jan-10 | 25-Feb-10 | 36 | 27 | 28 | |
| | 0.0% | 25-Feb-10 | 25-Mar-10 | 29 | 28 | 29 | |
| | 0.0% | 25-Feb-10 | 01-Mar-10 | 36 | 28 | 30 | |
| | 0.0% | 04-Feb-10 | 25-Feb-10 | 22 | 28 | 28 | |
| | 0.0% | 23-Nov-09 | 29-Nov-09 | 7 | 38 | 38 | |
| | 0.0% | 21-Dec-09 | 21-Jan-10 | 1 | 27 | 27 | |
| | 0.0% | 22-Dec-09 | 22-Dec-09 | 1 | 26 | 26 | |
| 522.01 | 0.3% | | | | 30 | 31 | |
| | 0.0% | | 09-Apr-10 | | | | |
| | 0.0% | | 09-Apr-10 | | | | |
| 6,112,236.13 | | | | | | | |
| 1,234,307.42 | | | | | | | |
| 1,234,307.42 | | | | | | | |
| 123,350.30 | 10.0% | 19-Apr-10 | 21-May-10 | 33 | 30 | 31 | |
| 893.40 | 40.0% | 21-May-10 | 21-May-10 | 1 | 30 | 31 | |
| 6,229.81 | 0.5% | | | | 16 | 31 | 32 |
| 151,303.21 | 12.3% | 20-May-10 | 19-May-10 | 16 | 31 | 31 | |
| 151,303.21 | 12.3% | 19-May-10 | 19-May-10 | 1 | 31 | 31 | |
| 151,303.21 | 12.3% | 05-Jun-10 | 07-Jun-10 | 19 | 31 | 32 | |
| 151,303.21 | 12.3% | 05-Jun-10 | 06-Jun-10 | 12 | 30 | 31 | |
| | 0.0% | 05-Jun-10 | 05-Jun-10 | 30 | 30 | 30 | |
| | 0.0% | 04-May-10 | 04-May-10 | 1 | 31 | 31 | |
| | 0.0% | 03-May-10 | 03-May-10 | 1 | 29 | 29 | |
| | 0.0% | 31-Mar-10 | 31-Mar-10 | 1 | 30 | 30 | |
| 6,113.26 | 0.5% | | | | 32 | 33 | |
| 2,443,727.87 | | | | | | | |
| 139,744.85 | | | | | | | |
| 34,841.21 | | | | | | | |
| 17,295.50 | 49.5% | 05-Jan-09 | 06-Jan-09 | 2 | 14 | 14 | |
| | 0.0% | 07-Jan-09 | 13-Jan-09 | 7 | 14 | 14 | |
| | 0.0% | 14-Jan-09 | 16-Jan-09 | 5 | 15 | 15 | |
| | 0.0% | 19-Jan-09 | 20-Jan-09 | 2 | 14 | 14 | |
| | 0.0% | 21-Jan-09 | 23-Jan-09 | 3 | 14 | 14 | |
| | 0.0% | 26-Jan-09 | 30-Jan-09 | 5 | 14 | 14 | |
| 17,295.50 | 49.5% | 02-Feb-09 | 02-Feb-09 | 1 | 15 | 15 | |
| 34,841.21 | 1.0% | | | | 15 | 16 | |
| 34,841.21 | | | | | | | |
| 17,295.50 | 49.5% | 03-Feb-09 | 04-Feb-09 | 2 | 15 | 15 | |
| | 0.0% | 05-Feb-09 | 06-Feb-09 | 2 | 15 | 15 | |
| | 0.0% | 06-Feb-09 | 12-Feb-09 | 7 | 15 | 15 | |
| | 0.0% | 08-Feb-09 | 13-Feb-09 | 5 | 15 | 15 | |
| | 0.0% | 23-Mar-09 | 25-Mar-09 | 3 | 16 | 16 | |
| | 0.0% | 13-Feb-09 | 19-Feb-09 | 7 | 15 | 15 | |
| | 0.0% | 26-Mar-09 | 26-Mar-09 | 1 | 16 | 16 | |
| | 0.0% | 13-Feb-09 | 23-Feb-09 | 11 | 15 | 16 | |
| 17,295.50 | 49.5% | 27-Mar-09 | 27-Mar-09 | 1 | 16 | 16 | |
| 34,841.21 | 1.0% | | | | 16 | 17 | |
| 34,841.21 | | | | | | | |
| 17,295.50 | 49.5% | 31-Mar-09 | 31-Mar-09 | 2 | 17 | 17 | |
| | 0.0% | 01-Apr-09 | 02-Apr-09 | 2 | 17 | 17 | |
| | 0.0% | 02-Apr-09 | 07-Apr-09 | 6 | 17 | 17 | |
| | 0.0% | 03-Apr-09 | 08-Apr-09 | 6 | 17 | 17 | |
| | 0.0% | 09-Apr-09 | 09-Apr-09 | 1 | 17 | 17 | |
| | 0.0% | 13-Apr-09 | 15-Apr-09 | 3 | 17 | 17 | |
| | 0.0% | 08-Apr-09 | 14-Apr-09 | 7 | 17 | 17 | |
| | 0.0% | 16-Apr-09 | 16-Apr-09 | 1 | 17 | 17 | |
| | 0.0% | 16-Apr-09 | 16-Apr-09 | 9 | 17 | 17 | |
| 17,295.50 | 49.5% | 17-Apr-09 | 17-Apr-09 | 1 | 17 | 17 | |
| 34,841.21 | 1.0% | | | | 17 | 18 | |
| 34,841.21 | | | | | | | |
| 17,295.50 | 49.5% | 21-Oct-09 | 22-Oct-09 | 2 | 24 | 24 | |
| | 0.0% | 23-Oct-09 | 28-Oct-09 | 6 | 24 | 24 | |
| | 0.0% | 23-Oct-09 | 28-Oct-09 | 6 | 24 | 24 | |
| | 0.0% | 27-Oct-09 | 30-Oct-09 | 4 | 24 | 24 | |
| | 0.0% | 02-Nov-09 | 05-Nov-09 | 4 | 24 | 24 | |
| | 0.0% | 06-Nov-09 | 07-Jan-10 | 70 | 24 | 25 | |
| | 0.0% | 30-Oct-09 | 26-Nov-10 | 21 | 24 | 27 | |
| | 0.0% | 20-Nov-09 | 26-Nov-09 | 7 | 25 | 25 | |
| 17,295.50 | 49.5% | 08-Jan-10 | 08-Jan-10 | 1 | 27 | 27 | |
| 34,841.21 | 1.0% | | | | 27 | 28 | |
| 34,841.21 | | | | | | | |
| 17,295.50 | 49.5% | 21-Dec-09 | 21-Dec-09 | 2 | 15 | 15 | |
| | 0.0% | 01-Feb-09 | 01-Feb-09 | 2 | 15 | 15 | |
| 38,915.77 | 9.9% | 05-Feb-09 | 03-Mar-09 | 27 | 15 | 16 | |
| 77,831.55 | 19.8% | 19-Feb-09 | 21-Apr-09 | 69 | 15 | 17 | |
| 77,831.55 | 19.8% | 19-Feb-09 | 13-May-09 | 15 | 18 | 18 | |
| 77,831.55 | 19.8% | 22-May-09 | 22-May-09 | 9 | 18 | 18 | |
| 77,831.55 | 19.8% | 19-Feb-09 | 21-Apr-09 | 69 | 15 | 18 | |
| | 0.0% | 26-May-09 | 26-May-09 | 1 | 19 | 19 | |
| | 0.0% | 26-May-09 | 26-May-09 | 7 | 17 | 18 | |
| 19,457.89 | 5.0% | 27-May-09 | 27-May-09 | 1 | 19 | 19 | |
| 3,930.89 | 1.0% | | 27-May-09 | | 19 | 20 | |
| 393,088.64 | | | | | | | |
| 19,457.89 | 5.0% | 13-Feb-09 | 14-Feb-09 | 2 | 15 | 15 | |
| 38,915.77 | 9.9% | 02-Feb-09 | 01-Mar-09 | 27 | 15 | 16 | |
| 38,915.77 | 9.9% | 19-Feb-09 | 21-Apr-09 | 69 | 15 | 17 | |
| 77,831.55 | 19.8% | 29-Apr-09 | 29-Jun-09 | 15 | 18 | 18 | |
| 77,831.55 | 19.8% | 18-Jun-09 | 13-May-10 | 42 | 19 | 21 | |
| 77,831.55 | 19.8% | 19-Feb-09 | 28-Apr-09 | 69 | 15 | 18 | |
| | 0.0% | 30-Jul-09 | 30-Jul-09 | 1 | 21 | 21 | |
| 19,457.89 | 5.0% | 22-Apr-09 | 20-Aug-09 | 7 | 17 | 18 | |
| 3,930.89 | 1.0% | 31-Jul-09 | 08-Sep-09 | 40 | 21 | 22 | |
| 228,193.95 | | | | | | | |

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| Year |
|------------|
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates 15-Apr-08 Start Date | End Date | Duration | Start Period | End Period | 2009 Subtotal GBP | |
|----|----|----|----|----|--|--|----------------|-------|--|-----------|----------|--------------|------------|-------------------------|---------|
| | | | | | Phase 2 - 1st Half | | 75,975.18 | | 23-Apr-09 | 23-Apr-09 | | | | 75,975.18 | |
| | | | | | A6320 | Establish Traffic Management & Temp. Fencing | 3,503.53 | 4.6% | 03-Feb-09 | 04-Feb-09 | 2 | 15 | 15 | 3,504 | 3,504 |
| | | | | | A6330 | Excavate box | - | 0.0% | 05-Feb-09 | 06-Feb-09 | 2 | 15 | 15 | - | - |
| | | | | | A6340 | Excavate, lay and concrete ducts | - | 0.0% | 09-Feb-09 | 11-Feb-09 | 3 | 15 | 15 | - | - |
| | | | | | A6350 | Excavate and construct OLE bases | 1,676.40 | 2.2% | 09-Feb-09 | 11-Feb-09 | 3 | 15 | 15 | 1,676 | 1,676 |
| | | | | | A6370 | Set Track (900m) | - | 0.0% | 16-Feb-09 | 19-Feb-09 | 4 | 15 | 15 | - | - |
| | | | | | A6380 | Place upper concrete and cure | 63,063.48 | 83.0% | 19-Feb-09 | 24-Feb-09 | 6 | 15 | 15 | 63,063 | 63,063 |
| | | | | | A6390 | Street Surface finishes | 7,007.05 | 9.2% | 25-Feb-09 | 27-Feb-09 | 3 | 15 | 15 | 7,007 | 7,007 |
| | | | | | Snagging | 724.72 | 1.0% | - | - | - | 15 | 16 | 725 | 725 | |
| | | | | | Phase 2 - 2nd Half | | 67,274.79 | | 23-Apr-09 | 23-Apr-09 | | | | 67,274.79 | |
| | | | | | A6410 | Excavate box | - | 0.0% | 02-Mar-09 | 03-Mar-09 | 2 | 16 | 16 | - | - |
| | | | | | A6420 | Excavate, lay and concrete ducts | - | 0.0% | 04-Mar-09 | 06-Mar-09 | 3 | 16 | 16 | - | - |
| | | | | | A6450 | Set Track | - | 0.0% | 09-Mar-09 | 12-Mar-09 | 4 | 16 | 16 | - | - |
| | | | | | A6460 | Place upper concrete and cure | - | 0.0% | 12-Mar-09 | 17-Mar-09 | 6 | 16 | 16 | - | - |
| | | | | | A6470 | Street Surface finishes | 63,063.48 | 93.7% | 18-Mar-09 | 20-Mar-09 | 3 | 16 | 16 | 63,063 | 63,063 |
| | | | | | A6480 | Remove fencing and Traffic Management | 3,503.53 | 5.2% | 23-Mar-09 | 23-Mar-09 | 1 | 16 | 16 | 3,504 | 3,504 |
| | | | | | Snagging | 707.78 | 1.1% | - | - | - | 16 | 17 | 708 | 708 | |
| | | | | | Phase 3a - 1st Half | | 21,741.50 | | 23-Apr-09 | 23-Apr-09 | | | | 21,741.50 | |
| | | | | | A6860 | Establish Traffic Management & Temp. Fencing | - | 0.0% | 20-Apr-09 | 21-Apr-09 | 2 | 17 | 17 | - | - |
| | | | | | A6870 | Excavate box | - | 0.0% | 22-Apr-09 | 22-Apr-09 | 1 | 17 | 17 | - | - |
| | | | | | A6700 | Excavate, lay and concrete ducts | 3,153.17 | 14.5% | 23-Apr-09 | 24-Apr-09 | 2 | 17 | 17 | 3,153 | 3,153 |
| | | | | | A6710 | Excavate and construct OLE bases | 502.92 | 2.3% | 23-Apr-09 | 24-Apr-09 | 2 | 17 | 17 | 503 | 503 |
| | | | | | A6730 | Set Track (30m) | - | 0.0% | 18-Jun-09 | 23-Jun-09 | 6 | 19 | 20 | - | - |
| | | | | | A6740 | Place upper concrete and cure | 15,765.87 | 72.5% | 23-Jun-09 | 26-Jun-09 | 4 | 20 | 20 | 15,766 | 15,766 |
| | | | | | A6750 | Street Surface finishes | 2,102.12 | 9.7% | 29-Jun-09 | 01-Jul-09 | 3 | 20 | 20 | 2,102 | 2,102 |
| | | | | | Snagging | 217.41 | 1.0% | - | - | - | 20 | 21 | 217 | 217 | |
| | | | | | Phase 3a - 2nd Half | | 21,233.49 | | 23-Apr-09 | 23-Apr-09 | | | | 21,233.49 | |
| | | | | | A6760 | Excavate box | - | 0.0% | 02-Jul-09 | 03-Jul-09 | 1 | 20 | 20 | - | - |
| | | | | | A6770 | Excavate, lay and concrete ducts | - | 0.0% | 03-Jul-09 | 06-Jul-09 | 4 | 20 | 20 | - | - |
| | | | | | A6800 | Set Track | - | 0.0% | 09-Jul-09 | 14-Jul-09 | 6 | 20 | 20 | - | - |
| | | | | | A6810 | Place upper concrete and cure | - | 0.0% | 14-Jul-09 | 17-Jul-09 | 4 | 20 | 20 | - | - |
| | | | | | A6820 | Street Surface finishes | 18,919.04 | 89.1% | 20-Jul-09 | 22-Jul-09 | 3 | 21 | 21 | 18,919 | 18,919 |
| | | | | | A6830 | Remove fencing and Traffic Management | 2,102.12 | 9.9% | 23-Jul-09 | 23-Jul-09 | 1 | 21 | 21 | 2,102 | 2,102 |
| | | | | | Snagging | 212.33 | 1.0% | - | - | - | 21 | 22 | 212 | 212 | |
| | | | | | Phase 4 - 1st Half | | 21,741.50 | | 23-Apr-09 | 23-Apr-09 | | | | 21,741.50 | |
| | | | | | A6840 | Establish Traffic Management & Temp. Fencing | - | 0.0% | 24-Jul-09 | 27-Jul-09 | 4 | 21 | 21 | - | - |
| | | | | | A6850 | Excavate box | - | 0.0% | 28-Jul-09 | 28-Jul-09 | 1 | 21 | 21 | - | - |
| | | | | | A6860 | Excavate, lay and concrete ducts | 3,153.17 | 14.5% | 29-Jul-09 | 30-Jul-09 | 2 | 21 | 21 | 3,153 | 3,153 |
| | | | | | A6870 | Excavate and construct OLE bases | 502.92 | 2.3% | 29-Jul-09 | 30-Jul-09 | 2 | 21 | 21 | 503 | 503 |
| | | | | | A6880 | Set Track (30m) | - | 0.0% | 17-Sep-09 | 22-Sep-09 | 6 | 23 | 23 | - | - |
| | | | | | A6900 | Place upper concrete and cure | 15,765.87 | 72.5% | 22-Sep-09 | 25-Sep-09 | 4 | 23 | 23 | 15,766 | 15,766 |
| | | | | | A6910 | Street Surface finishes | 2,102.12 | 9.7% | 28-Sep-09 | 30-Sep-09 | 3 | 23 | 23 | 2,102 | 2,102 |
| | | | | | Snagging | 217.41 | 1.0% | - | - | - | 23 | 24 | 217 | 217 | |
| | | | | | Phase 4 - 2nd Half | | 21,233.49 | | 23-Apr-09 | 23-Apr-09 | | | | 21,233.49 | |
| | | | | | A6920 | Excavate box | - | 0.0% | 01-Oct-09 | 01-Oct-09 | 1 | 23 | 23 | - | - |
| | | | | | A6930 | Excavate, lay and concrete ducts | - | 0.0% | 02-Oct-09 | 05-Oct-09 | 4 | 23 | 23 | - | - |
| | | | | | A6960 | Set Track | - | 0.0% | 06-Oct-09 | 09-Oct-09 | 4 | 23 | 23 | - | - |
| | | | | | A6970 | Place upper concrete and cure | 18,919.04 | 89.1% | 08-Oct-09 | 14-Oct-09 | 6 | 23 | 24 | 18,919 | 18,919 |
| | | | | | A6980 | Street Surface finishes | - | 0.0% | 15-Oct-09 | 19-Oct-09 | 5 | 24 | 24 | - | - |
| | | | | | A6990 | Remove fencing and Traffic Management | 2,102.12 | 9.9% | 20-Oct-09 | 20-Oct-09 | 1 | 24 | 24 | 2,102 | 2,102 |
| | | | | | Snagging | 212.33 | 1.0% | - | - | - | 24 | 25 | 212 | 212 | |
| | | | | | Princes Street Ch 230 - 0.180 - 1365 | | 1,289,249.70 | | 23-Apr-09 | 23-Apr-09 | | | | 1,289,250 | |
| | | | | | Trackwork | | 1,289,249.70 | | 23-Apr-09 | 23-Apr-09 | | | | 1,289,250 | |
| | | | | | A13760 | Establish Traffic Management & Temp. Fencing | - | 0.0% | 03-Feb-09 | 04-Feb-09 | 2 | 15 | 15 | - | - |
| | | | | | A13770 | Excavate box | 189,190.44 | 14.7% | 05-Feb-09 | 26-Mar-09 | 60 | 15 | 16 | 189,190 | 189,190 |
| | | | | | A13780 | Excavate, lay and concrete ducts | - | 0.0% | 12-Feb-09 | 29-Apr-09 | 77 | 15 | 18 | - | - |
| | | | | | A13790 | Excavate and construct OLE bases | 15,087.63 | 1.2% | 12-Feb-09 | 29-Apr-09 | 77 | 15 | 18 | 15,088 | 15,088 |
| | | | | | A13810 | Set Track (900m) - 1st half | 378,380.87 | 29.3% | 31-Mar-09 | 17-Jun-09 | 79 | 17 | 19 | 378,381 | 378,381 |
| | | | | | A13810 | Set Track (900m) | 441,444.35 | 34.2% | 31-Mar-09 | 17-Jun-09 | 79 | 17 | 19 | 441,444 | 441,444 |
| | | | | | A13830 | Place Upper Concrete and Cure | 126,126.96 | 9.8% | 23-Jun-09 | 30-Jun-09 | 8 | 20 | 21 | 126,127 | 126,127 |
| | | | | | A13830 | Place Upper Concrete and Cure | 126,126.96 | 9.8% | 03-Apr-09 | 23-Jun-09 | 81 | 17 | 19 | 126,127 | 126,127 |
| | | | | | Snagging | 12,892.50 | 1.0% | - | - | - | 21 | 22 | 12,892 | 12,892 | |
| | | | | | 8103 Shadwick Place (inc) to Haymarket (exc) | | 2,433,536.95 | | 23-Apr-09 | 23-Apr-09 | | | | 2,433,537 | |
| | | | | | Shadwick Place Tram Stop | | 2,433,536.95 | | 23-Apr-09 | 23-Apr-09 | | | | 2,433,537 | |
| | | | | | Tramstop | | 2,433,536.95 | | 23-Apr-09 | 23-Apr-09 | | | | 2,433,537 | |
| | | | | | A281 | Order REC Supply | 566,420.67 | 0.0% | 26-Nov-08 | 26-Nov-08 | 1 | 25 | 25 | - | - |
| | | | | | A2810 | Deliver and Install Shelter | 106,134.62 | 18.7% | 11-Feb-10 | 25-Feb-10 | 15 | 28 | 28 | 106,135 | 106,135 |
| | | | | | Snagging | 1,072.07 | 0.2% | - | - | - | 28 | 29 | 1,072 | 1,072 | |
| | | | | | A4670 | Package Test Tramstop | 137,809.98 | 24.3% | 10-May-10 | 17-May-10 | 8 | 31 | 31 | 137,810 | 137,810 |
| | | | | | A4640 | Install LV Power Supply and LV Power Equipment | - | 0.0% | 25-Feb-10 | 01-Apr-10 | 36 | 28 | 30 | - | - |
| | | | | | A4650 | Install Telecom Equipment | - | 0.0% | 01-Apr-10 | 30-Apr-10 | 30 | 30 | 31 | - | - |
| | | | | | A4660 | Install Station Control Equipment + AFC Equipment | - | 0.0% | 01-Apr-10 | 10-May-10 | 40 | 30 | 31 | - | - |
| | | | | | A4639 | Access for E&M Tram Stop installation (01D Shadwick Place) | - | 0.0% | 25-Feb-10 | 25-Feb-10 | 1 | 28 | 28 | - | - |
| | | | | | A4638 | Access for visual inspection for E&M Tram Stop installation (01D Shadwick Place) | - | 0.0% | 26-Jan-10 | 26-Jan-10 | 1 | 27 | 27 | - | - |
| | | | | | Snagging | 1,392.02 | 0.2% | - | - | - | 31 | 32 | 1,392 | 1,392 | |
| | | | | | 640 | Completion of Envelope | 159,201.84 | 28.1% | 01-Nov-08 | 14-Jan-10 | 76 | 24 | 27 | 159,202 | 159,202 |
| | | | | | 640 | Civil Engineering And Building Works | 159,201.84 | 28.1% | 11-Sep-09 | 31-Oct-09 | 51 | 22 | 24 | 159,202 | 159,202 |
| | | | | | Snagging | 1,608.10 | 0.3% | - | - | - | 27 | 28 | 1,608 | 1,608 | |
| | | | | | Haymarket Ch 1205 - 1125 | | 169,191.29 | | 23-Apr-09 | 23-Apr-09 | | | | 169,191 | |
| | | | | | Roadworks | | 169,191.29 | | 23-Apr-09 | 23-Apr-09 | | | | 169,191 | |
| | | | | | Phase 1 | | 16,188.55 | | 23-Apr-09 | 23-Apr-09 | | | | 16,188.55 | |
| | | | | | A6230 | Establish Traffic Management & Temp. Fencing | 9,008.28 | 49.5% | 05-Jan-09 | 06-Jan-09 | 2 | 14 | 14 | 9,008 | 9,008 |
| | | | | | A6400 | Remove island surfacing and exc. to formation | - | 0.0% | 07-Jan-09 | 12-Jan-09 | 6 | 14 | 14 | - | - |
| | | | | | A6410 | Construct Kerb lines | - | 0.0% | 13-Jan-09 | 14-Jan-09 | 2 | 14 | 14 | - | - |
| | | | | | A6420 | Move Gullies | - | 0.0% | 15-Jan-09 | 16-Jan-09 | 2 | 14 | 14 | - | - |
| | | | | | A6430 | Sub base | - | 0.0% | 19-Jan-09 | 20-Jan-09 | 2 | 14 | 14 | - | - |
| | | | | | A6440 | Roadbase/course/wearing course/temp ramps | - | 0.0% | 21-Jan-09 | 23-Jan-09 | 3 | 14 | 14 | - | - |
| | | | | | A6450 | Pavement Works | - | 0.0% | 15-Jan-09 | 21-Jan-09 | 7 | 14 | 14 | - | - |
| | | | | | A6460 | White Lines | - | 0.0% | 26-Jan-09 | 26-Jan-09 | 1 | 14 | 14 | - | - |
| | | | | | A6470 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 15-Jan-09 | 21-Jan-09 | 7 | 14 | 14 | - | - |
| | | | | | A6475 | Remove fencing and Traffic Management | 9,008.28 | 49.5% | 27-Jan-09 | 27-Jan-09 | 1 | 14 | 14 | 9,008 | 9,008 |
| | | | | | Snagging | 181.99 | 1.0% | - | - | - | 14 | 15 | 182 | 182 | |
| | | | | | Phase 2 | | 16,188.55 | | 23-Apr-09 | 23-Apr-09 | | | | 16,188.55 | |
| | | | | | A6480 | Establish Traffic Management & Temp. Fencing | 9,008.28 | 49.5% | 28-Jan-09 | 29-Jan-09 | 2 | 14 | 14 | 9,008 | 9,008 |
| | | | | | A6490 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 30-Jan-09 | 02-Feb-09 | 4 | 14 | 14 | - | - |
| | | | | | A6500 | Construct Kerb lines | - | 0.0% | 03-Feb-09 | 04-Feb-09 | 2 | 15 | 15 | - | - |
| | | | | | A6510 | Reset Gullies | - | 0.0% | 05-Feb-09 | 06-Feb-09 | 1 | 15 | 15 | - | - |
| | | | | | A6520 | Surface new channel | - | 0.0% | 06-Feb-09 | 06-Feb-09 | 1 | 15 | 15 | - | - |
| | | | | | A6540 | Pavement Works | - | 0.0% | 05-Feb-09 | 25-Feb-09 | 21 | 15 | 15 | - | - |
| | | | | | A6550 | White Lines | - | 0.0% | 09-Feb-09 | 09-Feb-09 | 1 | 15 | 15 | - | - |
| | | | | | A6560 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 05-Feb-09 | 09-Feb-09 | 5 | 15 | 15 | - | - |
| | | | | | A6565 | Remove fencing and Traffic Management | 9,008.28 | 49.5% | 12-Feb-09 | 12-Feb-09 | 1 | 15 | 15 | 9,008 | 9,008 |
| | | | | | Snagging | 181.99 | 1.0% | - | - | - | 15 | 16 | 182 | 182 | |
| | | | | | Phase 4a | | 16,188.55 | | 23-Apr-09 | 23-Apr-09 | | | | 16,188.55 | |
| | | | | | A6720 | Establish Traffic Management & Temp. Fencing | 9,008.28 | 49.5% | 30-Mar-09 | 31-Mar-09 | 2 | 17 | 17 | 9,008 | 9,008 |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 |
|----|----|----|----|----|---|---------------|---------------------|-------|------------------------------|------------------|----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| | | | | | | | | | | | | | | | 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | Subtotal GBP |
| | | | | | Phase 2 - 1st Half | | 75,975.18 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6320 Establish Traffic Management & Temp. Fencing | Track 1D | 3,503.53 | 4.6% | 03-Feb-09 | 04-Feb-09 | 2 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6330 Excavate box | Track 1D | - | 0.0% | 05-Feb-09 | 06-Feb-09 | 2 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6340 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 09-Feb-09 | 11-Feb-09 | 3 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6350 Excavate and construct OLE bases | Track - BB 1D | 1,676.40 | 2.2% | 09-Feb-09 | 11-Feb-09 | 3 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6370 Set Track (100m) | Track 1D | - | 0.0% | 16-Feb-09 | 19-Feb-09 | 4 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6380 Place upper concrete and cure | Track 1D | 63,063.48 | 83.0% | 19-Feb-09 | 24-Feb-09 | 6 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6390 Street Surface finishes | Track 1D | 7,007.66 | 9.2% | 25-Feb-09 | 27-Feb-09 | 3 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 724.72 | 1.0% | | | | 15 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Phase 2 - 2nd Half | | 67,274.79 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6410 Excavate box | Track 1D | - | 0.0% | 02-Mar-09 | 03-Mar-09 | 2 | 16 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6420 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 04-Mar-09 | 06-Mar-09 | 3 | 16 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6450 Set Track | Track 1D | - | 0.0% | 09-Mar-09 | 12-Mar-09 | 4 | 16 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6460 Place upper concrete and cure | Track 1D | - | 0.0% | 12-Mar-09 | 17-Mar-09 | 6 | 16 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6470 Street Surface finishes | Track 1D | 63,063.48 | 93.7% | 18-Mar-09 | 20-Mar-09 | 3 | 16 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6480 Remove fencing and Traffic Management | Track 1D | 3,503.53 | 5.2% | 23-Mar-09 | 23-Mar-09 | 1 | 16 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 707.78 | 1.1% | | | | 16 | 17 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Phase 3a - 1st Half | | 21,741.50 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6850 Establish Traffic Management & Temp. Fencing | Track 1D | - | 0.0% | 20-Apr-09 | 21-Apr-09 | 2 | 17 | 17 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6860 Excavate box | Track 1D | - | 0.0% | 22-Apr-09 | 22-Apr-09 | 1 | 17 | 17 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6700 Excavate, lay and concrete ducts | Track 1D | 3,153.17 | 14.5% | 23-Apr-09 | 24-Apr-09 | 2 | 17 | 17 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6710 Excavate and construct OLE bases | Track - BB 1D | 502.92 | 2.2% | 23-Apr-09 | 24-Apr-09 | 2 | 17 | 17 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6730 Set Track (30m) | Track 1D | - | 0.0% | 18-Jun-09 | 23-Jun-09 | 6 | 19 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6740 Place upper concrete and cure | Track 1D | 15,765.87 | 72.5% | 23-Jun-09 | 26-Jun-09 | 4 | 20 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6750 Street Surface finishes | Track 1D | 2,102.12 | 9.7% | 29-Jun-09 | 01-Jul-09 | 3 | 20 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 217.41 | 1.0% | | | | 20 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Phase 3a - 2nd Half | | 21,233.49 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6770 Excavate box | Track 1D | - | 0.0% | 02-Jul-09 | 03-Jul-09 | 1 | 20 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6770 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 03-Jul-09 | 06-Jul-09 | 4 | 20 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6800 Set Track | Track 1D | - | 0.0% | 09-Jul-09 | 14-Jul-09 | 6 | 20 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6810 Place upper concrete and cure | Track 1D | - | 0.0% | 14-Jul-09 | 17-Jul-09 | 4 | 20 | 20 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6820 Street Surface finishes | Track 1D | 18,919.04 | 89.1% | 20-Jul-09 | 22-Jul-09 | 3 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6830 Remove fencing and Traffic Management | Track 1D | 2,102.12 | 9.5% | 23-Jul-09 | 23-Jul-09 | 1 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 212.33 | 1.0% | | | | 21 | 22 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Phase 4 - 1st Half | | 21,741.50 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6840 Establish Traffic Management & Temp. Fencing | Track 1D | - | 0.0% | 24-Jul-09 | 27-Jul-09 | 4 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6850 Excavate box | Track 1D | - | 0.0% | 28-Jul-09 | 28-Jul-09 | 1 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6860 Excavate, lay and concrete ducts | Track 1D | 3,153.17 | 14.5% | 29-Jul-09 | 30-Jul-09 | 2 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6870 Excavate and construct OLE bases | Track - BB 1D | 502.92 | 2.2% | 29-Jul-09 | 30-Jul-09 | 2 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6880 Set Track (30m) | Track 1D | 15,765.87 | 72.5% | 17-Sep-09 | 22-Sep-09 | 6 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6900 Place upper concrete and cure | Track 1D | - | 0.0% | 22-Sep-09 | 25-Sep-09 | 4 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6910 Street Surface finishes | Track 1D | 2,102.12 | 9.7% | 28-Sep-09 | 30-Sep-09 | 3 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 217.41 | 1.0% | | | | 23 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Phase 4 - 2nd Half | | 21,233.49 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6930 Excavate box | Track 1D | - | 0.0% | 01-Oct-09 | 01-Oct-09 | 1 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6930 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 02-Oct-09 | 05-Oct-09 | 4 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6960 Set Track | Track 1D | - | 0.0% | 06-Oct-09 | 09-Oct-09 | 4 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6970 Place upper concrete and cure | Track 1D | 18,919.04 | 89.1% | 08-Oct-09 | 14-Oct-09 | 6 | 23 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6980 Street Surface finishes | Track 1D | - | 0.0% | 15-Oct-09 | 19-Oct-09 | 5 | 24 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6990 Remove fencing and Traffic Management | Track 1D | 2,102.12 | 9.5% | 20-Oct-09 | 20-Oct-09 | 1 | 24 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 212.33 | 1.0% | | | | 24 | 25 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Princes Street Ch 200 - A 1980 - 1960 | | 1,289,249.70 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Trackwork | | 1,289,249.70 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13760 Establish Traffic Management & Temp. Fencing | Track 1D | - | 0.0% | 03-Feb-09 | 04-Feb-09 | 2 | 15 | 15 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13770 Excavate box | Track 1D | 189,190.44 | 14.7% | 05-Feb-09 | 26-Mar-09 | 50 | 15 | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13780 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 12-Feb-09 | 29-Apr-09 | 77 | 15 | 18 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13790 Excavate and construct OLE bases | Track - BB 1D | 15,087.63 | 1.2% | 12-Feb-09 | 29-Apr-09 | 77 | 15 | 18 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13810 Set Track (900m) - 1st Half | Track 1D | 378,380.87 | 29.3% | 31-Mar-09 | 17-Jun-09 | 79 | 17 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13810 Set Track (900m) | Track 1D | 441,444.35 | 34.2% | 31-Mar-09 | 17-Jun-09 | 79 | 17 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13830 Street Surface finishes | Track 1D | 126,126.96 | 9.8% | 23-Jun-09 | 30-Jul-09 | 38 | 20 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A13830 Place Upper Concrete and Cure | Track 1D | 126,126.96 | 9.8% | 03-Aug-09 | 22-Aug-09 | 81 | 17 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Track 1D | 12,892.50 | 1.0% | | | | 21 | 22 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 610 Shadwick Place (inc) to Haymarket (exc) | | 2,433,536.95 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Tramstop | | 566,420.67 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A2810 Order REC Supply | Trams Eq 1D | - | 0.0% | 26-Nov-09 | 26-Nov-09 | | | | | | | | | | | | | | | | | | |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates Start Date End Date Duration | Start Period End Period | 2011 Subtotal | 2011 GBP |
|----|----|----|----|----|--|---------------|---------------------|-------|---|-------------------------|------------------|-------------|
| | | | | | Phase 2 - 1st Half | | 75,975.18 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A8320 Establish Traffic Management & Temp. Fencing | Track 1D | 3,503.53 | 4.6% | 03-Feb-09 04-Feb-09 2 | 15 15 | - | - |
| | | | | | A8330 Excavate box | Track 1D | - | 0.0% | 06-Feb-09 06-Feb-09 2 | 15 15 | - | - |
| | | | | | A8340 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 09-Feb-09 11-Feb-09 3 | 15 15 | - | - |
| | | | | | A8350 Excavate and construct OLE bases | Track - BB | 1,676.40 | 2.2% | 09-Feb-09 11-Feb-09 3 | 15 15 | - | - |
| | | | | | A8370 Set Track (100m) | Track 1D | - | 0.0% | 16-Feb-09 18-Feb-09 4 | 15 15 | - | - |
| | | | | | A8380 Place upper concrete and cure | Track 1D | 63,063.48 | 83.0% | 19-Feb-09 24-Feb-09 6 | 15 15 | - | - |
| | | | | | A8390 Street Surface finishes | Track 1D | 7,007.05 | 9.2% | 16-Feb-09 18-Feb-09 4 | 15 15 | - | - |
| | | | | | Snagging | Track 1D | 724.72 | 1.0% | 25-Feb-09 27-Feb-09 3 | 15 16 | - | - |
| | | | | | Phase 2 - 2nd Half | | 67,274.79 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A8410 Excavate box | Track 1D | - | 0.0% | 02-Mar-09 03-Mar-09 2 | 16 16 | - | - |
| | | | | | A8420 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 04-Mar-09 06-Mar-09 3 | 16 16 | - | - |
| | | | | | A8430 Set Track | Track 1D | - | 0.0% | 09-Mar-09 12-Mar-09 4 | 16 16 | - | - |
| | | | | | A8440 Place upper concrete and cure | Track 1D | - | 0.0% | 12-Mar-09 17-Mar-09 6 | 16 16 | - | - |
| | | | | | A8470 Street Surface finishes | Track 1D | 63,063.48 | 93.7% | 18-Mar-09 20-Mar-09 3 | 16 16 | - | - |
| | | | | | A8480 Remove fencing and Traffic Management | Track 1D | 3,503.53 | 5.2% | 23-Mar-09 23-Mar-09 1 | 16 16 | - | - |
| | | | | | Snagging | Track 1D | 707.78 | 1.1% | - | 16 17 | - | - |
| | | | | | Phase 3a - 1st Half | | 21,741.50 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A8580 Establish Traffic Management & Temp. Fencing | Track 1D | - | 0.0% | 20-Apr-09 21-Apr-09 2 | 17 17 | - | - |
| | | | | | A8590 Excavate box | Track 1D | - | 0.0% | 23-Apr-09 24-Apr-09 2 | 17 17 | - | - |
| | | | | | A8700 Excavate, lay and concrete ducts | Track 1D | 3,153.17 | 14.5% | 23-Apr-09 24-Apr-09 2 | 17 17 | - | - |
| | | | | | A8710 Excavate and construct OLE bases | Track - BB | 502.92 | 2.3% | 23-Apr-09 24-Apr-09 2 | 17 17 | - | - |
| | | | | | A8730 Set Track (50m) | Track 1D | - | 0.0% | 18-Jun-09 23-Jun-09 6 | 19 20 | - | - |
| | | | | | A8740 Place upper concrete and cure | Track 1D | 15,765.87 | 72.5% | 23-Jun-09 26-Jun-09 4 | 20 20 | - | - |
| | | | | | A8750 Street Surface finishes | Track 1D | 2,102.12 | 9.7% | 23-Jun-09 01-Jul-09 3 | 20 20 | - | - |
| | | | | | Snagging | Track 1D | 217.41 | 1.0% | - | 20 21 | - | - |
| | | | | | Phase 3a - 2nd Half | | 21,233.49 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A8760 Excavate box | Track 1D | - | 0.0% | 03-Jul-09 03-Jul-09 1 | 20 20 | - | - |
| | | | | | A8770 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 03-Jul-09 06-Jul-09 4 | 20 20 | - | - |
| | | | | | A8800 Set Track | Track 1D | - | 0.0% | 09-Jul-09 14-Jul-09 6 | 20 20 | - | - |
| | | | | | A8810 Place upper concrete and cure | Track 1D | - | 0.0% | 14-Jul-09 17-Jul-09 4 | 20 20 | - | - |
| | | | | | A8820 Street Surface finishes | Track 1D | 18,919.04 | 89.1% | 20-Jul-09 22-Jul-09 3 | 21 21 | - | - |
| | | | | | A8830 Remove fencing and Traffic Management | Track 1D | 2,102.12 | 9.9% | 23-Jul-09 23-Jul-09 1 | 21 21 | - | - |
| | | | | | Snagging | Track 1D | 217.41 | 1.0% | - | 21 22 | - | - |
| | | | | | Phase 4 - 1st Half | | 21,741.50 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A8840 Establish Traffic Management & Temp. Fencing | Track 1D | - | 0.0% | 24-Jul-09 27-Jul-09 4 | 21 21 | - | - |
| | | | | | A8850 Excavate box | Track 1D | - | 0.0% | 28-Jul-09 28-Jul-09 1 | 21 21 | - | - |
| | | | | | A8860 Excavate, lay and concrete ducts | Track 1D | 3,153.17 | 14.5% | 29-Jul-09 30-Jul-09 2 | 21 21 | - | - |
| | | | | | A8870 Excavate and construct OLE bases | Track - BB | 502.92 | 2.3% | 29-Jul-09 30-Jul-09 2 | 21 21 | - | - |
| | | | | | A8890 Set Track (50m) | Track 1D | 15,765.87 | 72.5% | 17-Sep-09 22-Sep-09 6 | 23 23 | - | - |
| | | | | | A8900 Place upper concrete and cure | Track 1D | - | 0.0% | 22-Sep-09 25-Sep-09 4 | 23 23 | - | - |
| | | | | | A8910 Street Surface finishes | Track 1D | 2,102.12 | 9.7% | 28-Sep-09 30-Sep-09 3 | 23 23 | - | - |
| | | | | | Snagging | Track 1D | 217.41 | 1.0% | - | 23 24 | - | - |
| | | | | | Phase 4 - 2nd Half | | 21,233.49 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A8920 Excavate box | Track 1D | - | 0.0% | 01-Oct-09 01-Oct-09 1 | 23 23 | - | - |
| | | | | | A8930 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 02-Oct-09 05-Oct-09 4 | 23 23 | - | - |
| | | | | | A8960 Set Track | Track 1D | - | 0.0% | 06-Oct-09 09-Oct-09 4 | 23 23 | - | - |
| | | | | | A8970 Place upper concrete and cure | Track 1D | 18,919.04 | 89.1% | 09-Oct-09 14-Oct-09 6 | 23 23 | - | - |
| | | | | | A8980 Street Surface finishes | Track 1D | - | 0.0% | 15-Oct-09 19-Oct-09 5 | 24 24 | - | - |
| | | | | | A8990 Remove fencing and Traffic Management | Track 1D | 2,102.12 | 9.9% | 20-Oct-09 20-Oct-09 1 | 24 24 | - | - |
| | | | | | Snagging | Track 1D | 217.41 | 1.0% | - | 24 25 | - | - |
| | | | | | Process Street Ch 289 - R. 1899 - 1969 | | 1,289,249.70 | | | | | |
| | | | | | Trackwork | | 1,289,249.70 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | Phase 1 | | | | | | | |
| | | | | | A13760 Establish Traffic Management & Temp. Fencing | Track 1D | - | 0.0% | 03-Feb-09 04-Feb-09 2 | 15 15 | - | - |
| | | | | | A13770 Excavate box | Track 1D | 189,190.44 | 14.7% | 05-Feb-09 26-Mar-09 50 | 15 16 | - | - |
| | | | | | A13780 Excavate, lay and concrete ducts | Track 1D | - | 0.0% | 12-Feb-09 29-Apr-09 77 | 15 18 | - | - |
| | | | | | A13790 Excavate and construct OLE bases | Track - BB | 10,087.63 | 1.2% | 12-Feb-09 29-Apr-09 77 | 15 18 | - | - |
| | | | | | A13810 Set Track (950m) - 1st Half | Track 1D | 378,380.87 | 29.3% | 31-Mar-09 17-Jun-09 79 | 17 19 | - | - |
| | | | | | A13810 Set Track (950m) | Track 1D | 441,444.35 | 34.2% | 31-Mar-09 17-Jun-09 79 | 17 19 | - | - |
| | | | | | A13830 Street Surface finishes | Track 1D | 126,126.96 | 9.8% | 23-Jun-09 30-Jul-09 38 | 20 21 | - | - |
| | | | | | A13860 Place Upper Concrete and Cure | Track 1D | 126,126.96 | 9.8% | 03-Apr-09 22-Jun-09 81 | 17 20 | - | - |
| | | | | | Snagging | Track 1D | 12,892.50 | 1.0% | - | 21 22 | - | - |
| | | | | | 91D Shadwick Place (inc.) to Haymarket (exc.) | | 2,433,536.95 | | | | | |
| | | | | | Revised Pace Trail Stop | | | | | | | |
| | | | | | Tramstop | | 566,420.67 | | | | | |
| | | | | | A281 Order REC Supply | Trams Ex 1D | - | 0.0% | 26-Nov-09 26-Nov-09 1 | 25 25 | - | - |
| | | | | | A2810 Deliver and Install Shelter | Tramstops 1D | 106,134.62 | 18.7% | 11-Feb-10 25-Feb-10 15 | 28 28 | - | - |
| | | | | | Snagging | Tramstops 1D | 1,072.07 | 0.2% | - | 28 29 | - | - |
| | | | | | A4670 Package Test Tramstop | Trams Ex 1D | 137,809.98 | 24.3% | 31-May-10 17-May-10 8 | 31 31 | - | - |
| | | | | | A4640 Install LV Power Supply and LV Power Equipment | Trams Ex 1D | - | 0.0% | 25-Feb-10 01-Apr-10 36 | 28 30 | - | - |
| | | | | | A4650 Install Telecom Equipment | Trams Ex 1D | - | 0.0% | 01-Apr-10 30-Apr-10 30 | 30 31 | - | - |
| | | | | | A4660 Install Station Control Equipment + AFC Equipment | Trams Ex 1D | - | 0.0% | 01-Apr-10 10-May-10 40 | 30 31 | - | - |
| | | | | | A4639 Access for E&M Tram Stop installation (91D Shadwick Place) | Trams Ex 1D | - | 0.0% | 25-Feb-10 25-Feb-10 1 | 28 28 | - | - |
| | | | | | A4638 Access for visual inspection for E&M Tram Stop installation (91D Shadwick Place) | Trams Ex 1D | - | 0.0% | 26-Jan-10 26-Jan-10 1 | 27 27 | - | - |
| | | | | | Snagging | Trams Ex 1D | 1,392.02 | 0.2% | - | 31 31 | - | - |
| | | | | | A40 Completion of Envelope | Tramstops 1D | 150,201.94 | 26.1% | 01-Nov-09 14-Jan-10 76 | 24 27 | - | - |
| | | | | | A40 Civil Engineering And Building Works | Tramstops 1D | 150,201.94 | 26.1% | 11-Sep-09 31-Oct-09 51 | 22 24 | - | - |
| | | | | | Snagging | Tramstops 1D | 1,608.10 | 0.3% | - | 27 28 | - | - |
| | | | | | Haymarket Ch 1299 - 1125 | | 109,191.29 | | | | | |
| | | | | | Roadworks | | 10,186.55 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | Phase 1 | | | | | | | |
| | | | | | A6430 Establish Traffic Management & Temp. Fencing | Highways 1D | 9,008.28 | 49.9% | 05-Jan-09 06-Jan-09 2 | 14 14 | - | - |
| | | | | | A6440 Remove island surfacing and exc. to formation | Highways 1D | - | 0.0% | 07-Jan-09 12-Jan-09 6 | 14 14 | - | - |
| | | | | | A6410 Construct Kerb Lines | Highways 1D | - | 0.0% | 13-Jan-09 14-Jan-09 2 | 14 14 | - | - |
| | | | | | A6420 Move Gullies | Highways 1D | - | 0.0% | 15-Jan-09 16-Jan-09 2 | 14 14 | - | - |
| | | | | | A6430 Sub base | Highways 1D | - | 0.0% | 19-Jan-09 20-Jan-09 2 | 14 14 | - | - |
| | | | | | A6440 Roadbase/base course/wearing course/temp ramps | Highways 1D | - | 0.0% | 21-Jan-09 23-Jan-09 3 | 14 14 | - | - |
| | | | | | A6450 Pavement Works | Highways 1D | - | 0.0% | 15-Jan-09 21-Jan-09 7 | 14 14 | - | - |
| | | | | | A6460 White Lines | Highways 1D | - | 0.0% | 26-Jan-09 26-Jan-09 1 | 14 14 | - | - |
| | | | | | A6470 Street Lighting / Traffic Signals / Road Signs | Highways 1D | - | 0.0% | 15-Jan-09 21-Jan-09 7 | 14 14 | - | - |
| | | | | | A6475 Remove fencing and Traffic Management | Highways 1D | 9,008.28 | 49.9% | 27-Jan-09 27-Jan-09 1 | 14 14 | - | - |
| | | | | | Snagging | Highways 1D | 181.99 | 1.0% | - | 14 15 | - | - |
| | | | | | Phase 2 | | 18,188.55 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A6480 Establish Traffic Management & Temp. Fencing | Highways 1D | 9,008.28 | 49.9% | 28-Jan-09 29-Jan-09 2 | 14 14 | - | - |
| | | | | | A6490 Excavate for new channel and kerb line / remove existing kerbs | Highways 1D | - | 0.0% | 30-Jan-09 02-Feb-09 4 | 14 15 | - | - |
| | | | | | A6500 Construct Kerb Lines | Highways 1D | - | 0.0% | 03-Feb-09 04-Feb-09 2 | 15 15 | - | - |
| | | | | | A6510 Reset Gullies | Highways 1D | - | 0.0% | 05-Feb-09 06-Feb-09 1 | 15 15 | - | - |
| | | | | | A6520 Surface new channel | Highways 1D | - | 0.0% | 06-Feb-09 06-Feb-09 1 | 15 15 | - | - |
| | | | | | A6540 Pavement Works | Highways 1D | - | 0.0% | 05-Feb-09 25-Feb-09 21 | 15 15 | - | - |
| | | | | | A6550 White Lines | Highways 1D | - | 0.0% | 09-Feb-09 09-Feb-09 1 | 15 15 | - | - |
| | | | | | A6560 Street Lighting / Traffic Signals / Road Signs | Highways 1D | - | 0.0% | 05-Feb-09 09-Feb-09 5 | 15 15 | - | - |
| | | | | | A6565 Remove fencing and Traffic Management | Highways 1D | 9,008.28 | 49.9% | 12-Feb-09 12-Feb-09 1 | 15 15 | - | - |
| | | | | | Snagging | Highways 1D | 181.99 | 1.0% | - | 15 16 | - | - |
| | | | | | Phase 4a | | 18,188.55 | | 23-Apr-09 23-Apr-09 | | | |
| | | | | | A6720 Establish Traffic Management & Temp. Fencing | Highways 1D | 9,008.28 | 49.9% | 30-Mar-09 31-Mar-09 2 | 17 17 | - | - |
| | | | | | A6740 Remove island surfacing and exc. to formation | Highways 1D | - | 0.0% | 01-Apr-09 07-Apr-09 7 | 17 17 | - | - |
| | | | | | A6750 Construct Kerb Lines | Highways 1D | - | 0.0% | 08-Apr-09 14-Apr-09 7 | 17 17 | - | - |
| | | | | | A6760 Move Gullies | Highways 1D | - | 0.0% | 15-Apr-09 16-Apr-09 2 | 17 17 | - | - |
| | | | | | A6770 Sub base | Highways 1D | - | 0.0% | 17-Apr-09 21-Apr-09 5 | 17 17 | - | - |
| | | | | | A6780 Roadbase/base course/wearing course/temp ramps | Highways 1D | - | 0.0% | 23-Apr-09 27-Apr-09 5 | 17 18 | - | - |
| | | | | | A6790 Pavement Works | Highways 1D | - | 0.0% | 15-Apr-09 22-Apr-09 8 | 17 17 | - | - |
| | | | | | A6800 White Lines | Highways 1D | - | 0.0% | 28-Apr-09 28-Apr-09 1 | 18 18 | - | - |
| | | | | | A6810 Street Lighting / Traffic Signals / Road Signs | Highways 1D | - | 0.0% | 15-Apr-09 23-Apr-09 9 | 17 17 | - | - |
| | | | | | A6775 Place of wearing course | Highways 1D | - | 0.0% | 22-Apr-09 22-Apr-09 1 | 17 17 | - | - |
| | | | | | A6815 Remove fencing and Traffic Management | Highways 1D | 9,008.28 | 49.9% | 28-Apr-09 28-Apr-09 1 | 18 18 | - | - |
| | | | | | Snagging | Highways 1D | 181.99 | 1.0% | - | 18 19 | - | - |
| | | | | | | | | | | | | |

| | | | | | | | Programme Dates | | | | 2008 | | | | | | | | | | | | | 2008 | | | | | | |
|--------------------|--|--|-----------|-----------|---------------------------|--|-----------------|-----------|------------|-----------|--|--------------|------------|-------------|-------------|---|----|----|---|---|---|---|----|----------|----|-----|------|---|---|---|
| | | | | | | | 15-Apr-08 | | Period | | | | | | | | | | | | | | | Subtotal | | | | | | |
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 02-Feb-2008 | 01-Mar-2008 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 2008 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | GBP | | | | |
| Torphen | A6890 | Pavement Works | Highways | ID | A6890 | White Lines | - | 0.0% | 12-May-09 | 28-May-09 | 17 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A6900 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 26-May-09 | 26-May-09 | 1 | 19 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A6910 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 12-May-09 | 20-May-09 | 9 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A6870 | Plane of wearing course | - | 0.0% | 19-May-09 | 19-May-09 | 1 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A6915 | Remove fencing and Traffic Management | 9,008.28 | 49.5% | 27-May-09 | 27-May-09 | 1 | 19 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | 181.99 | 1.0% | - | - | - | 19 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 6b | 16,198.55 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7240 | Establish Traffic Management & Temp. Fencing | 9,008.28 | 49.5% | 30-Jul-09 | 31-Jul-09 | 2 | 21 | 21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7250 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 07-Sep-09 | 08-Sep-09 | 2 | 22 | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7260 | Construct Kerb lines | - | 0.0% | 08-Sep-09 | 15-Sep-09 | 7 | 22 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Torphen | A7270 | Reset Gullies | Highways | ID | A7270 | Reset Gullies | - | 0.0% | 10-Sep-09 | 16-Sep-09 | 7 | 22 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A7280 | Surface new channel | - | 0.0% | 17-Sep-09 | 18-Sep-09 | 2 | 23 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7290 | Pavement Works | - | 0.0% | 16-Sep-09 | 05-Oct-09 | 21 | 23 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7310 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 16-Sep-09 | 24-Sep-09 | 9 | 23 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7315 | Remove fencing and Traffic Management | 9,008.28 | 49.5% | 07-Oct-09 | 07-Oct-09 | 1 | 23 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | 181.99 | 1.0% | - | - | - | 23 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 7 | 16,198.55 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7320 | Establish Traffic Management & Temp. Fencing | 9,008.28 | 49.5% | 28-Oct-09 | 27-Oct-09 | 2 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7330 | Replace north junction kerb line | - | 0.0% | 28-Oct-09 | 04-Nov-09 | 8 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7340 | Rebuild splitter island | - | 0.0% | 05-Nov-09 | 12-Nov-09 | 8 | 24 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Torphen | A7350 | White Lines / Traffic Signals / Road Signs | Highways | ID | A7350 | White Lines / Traffic Signals / Road Signs | - | 0.0% | 28-Oct-09 | 02-Nov-09 | 6 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A7355 | Remove fencing and Traffic Management | 9,008.28 | 49.5% | 13-Nov-09 | 13-Nov-09 | 1 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | 181.99 | 1.0% | - | - | - | 25 | 26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 3 - North Pavement | 53,867.70 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7680 | Establish Traffic Management & Temp. Fencing | 26,664.51 | 49.5% | 23-Mar-10 | 06-Apr-10 | 15 | 29 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7695 | Remove fencing and Traffic Management | 26,664.51 | 49.5% | 07-Apr-10 | 07-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | 538.68 | 1.0% | - | - | - | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Phase 3 - South Pavement | 53,867.70 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7700 | Establish Traffic Management & Temp. Fencing | 26,664.51 | 49.5% | 08-Apr-10 | 09-Apr-10 | 2 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7710 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 12-Apr-10 | 13-Apr-10 | 2 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Torphen | A7720 | Construct Kerb lines | Highways | ID | A7720 | Construct Kerb lines | - | 0.0% | 14-Apr-10 | 16-Apr-10 | 3 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A7730 | Reset Gullies | - | 0.0% | 19-Apr-10 | 20-Apr-10 | 2 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7740 | Surface new channel | - | 0.0% | 21-Apr-10 | 21-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7750 | Pavement Works | - | 0.0% | 19-Apr-10 | 27-Apr-10 | 9 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7760 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 19-Apr-10 | 21-Apr-10 | 3 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7765 | Remove fencing and Traffic Management | 26,664.51 | 49.5% | 22-Apr-10 | 22-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | 538.68 | 1.0% | 23-Apr-09 | 23-Apr-09 | 1 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 3 - Splitter Island | 53,867.70 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7770 | Establish Traffic Management & Temp. Fencing | 26,664.51 | 49.5% | 23-Apr-10 | 24-Apr-10 | 4 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7780 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 27-Apr-10 | 28-Apr-10 | 2 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Torphen | A7790 | Construct Kerb lines | Highways | ID | A7790 | Construct Kerb lines | - | 0.0% | 28-Apr-10 | 04-May-10 | 7 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A7800 | Reset Gullies | - | 0.0% | 29-Apr-10 | 05-May-10 | 7 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7810 | Surface new channel | - | 0.0% | 05-May-10 | 06-May-10 | 1 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7820 | Pavement Works | - | 0.0% | 05-May-10 | 26-May-10 | 22 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7830 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 05-May-10 | 07-May-10 | 3 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7835 | Remove fencing and Traffic Management | 26,664.51 | 49.5% | 14-May-10 | 14-May-10 | 1 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | 538.68 | 1.0% | 23-Apr-09 | 23-Apr-09 | 1 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 1 - South Pavement | 78,617.73 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7840 | Establish Traffic Management & Temp. Fencing | 19,457.89 | 49.5% | 08-Jan-10 | 07-Jan-10 | 2 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7850 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 11-Jan-10 | 14-Jan-10 | 4 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Torphen | A7860 | Construct Kerb lines | Highways | ID | A7860 | Construct Kerb lines | - | 0.0% | 12-Jan-10 | 15-Jan-10 | 4 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A7870 | Reset Gullies | - | 0.0% | 18-Jan-10 | 19-Jan-10 | 2 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7880 | Surface new channel | - | 0.0% | 18-Jan-10 | 19-Jan-10 | 2 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7885 | Remove fencing and Traffic Management | 19,457.89 | 49.5% | 20-Jan-10 | 20-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | 393.09 | 1.0% | - | - | - | 27 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 1 - North Pavement | 39,308.86 | - | 23-Apr-09 | 23-Apr-09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7900 | Establish Traffic Management & Temp. Fencing | 19,457.89 | 49.5% | 21-Jan-10 | 22-Jan-10 | 2 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7900 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 25-Jan-10 | 25-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7910 | Construct Kerb lines | - | 0.0% | 26-Jan-10 | 27-Jan-10 | 2 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Torphen | A7920 | Reset Gullies | Highways | ID | A7920 | Reset Gullies | - | 0.0% | 28-Jan-10 | 28-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - |
| A7930 | Surface new channel | - | 0.0% | 28-Jan-10 | | | | | | 28-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| A7935 | Remove fencing and Traffic Management | 19,457.89 | 49.5% | 01-Feb-10 | | | | | | 01-Feb-10 | 1 | 28 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Snagging | 393.09 | 1.0% | - | - | | | | | | - | 28 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| CVE Milestone | Completion of Infraco Construction works to road re-instatement and fully re-opened to public (10) | - | 0.0% | - | | | | | | - | - | 01-Feb-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| CVE Milestone | Complete construction of permanent measures following 1900 sign-off (25) | - | 0.0% | - | | | | | | - | - | 01-Feb-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| CVE Milestone | ve completion Approval - Haymarket to Prince Street West (15/05) | - | 0.0% | - | | | | | | - | - | 01-Feb-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| CVE Milestone | Commission Section 10 Haymarket to Prince Street West (10/04) | - | 0.0% | - | | | | | | - | - | 01-Feb-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Phase 3 - 1st half | 358,147.42 | - | 23-Apr-09 | 23-Apr-09 | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Torphen | A8180 | Establish Traffic Management & Temp. Fencing | Highways | ID | | | | | | A8180 | Establish Traffic Management & Temp. Fencing | 106,369.78 | 29.7% | 08-Sep-09 | 10-Sep-09 | 2 | 22 | 22 | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A8190 | Excavate for new channel and kerb line / remove existing kerbs | - | 0.0% | 11-Sep-09 | 08-Oct-09 | 26 | 22 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A8200 | Construct Kerb lines | - | 0.0% | 16-Sep-09 | 16-Oct-09 | 31 | 23 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A8210 | Reset Gullies | 141,826.38 | 39.8% | 30-Sep-09 | 20-Oct-09 | 21 | 23 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A8240 | Street Lighting / Traffic Signals / Road Signs | - | 0.0% | 19-Oct-09 | 27-Oct-09 | 9 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A8230 | Pavement Works | - | 0.0 | | | | | | | | | | | | | | | | | | | | | | |

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| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | | | Contract Value | %age | Programme Dates 15-Apr-09 | Start Date | End Date | Duration | Start Period | End Period | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | | | |
|----|----|----|----|----|---------------------------|--|----------|----|----------------|-------|------------------------------|------------|----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|----------|---|---|
| | | | | | | | | | | | | | | | | | 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | 2010 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Subtotal | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | GBP | | |
| | | | | | A6890 | Pavement Works | Highways | 1D | - | 0.0% | 12-May-09 | 28-May-09 | 17 | 18 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| | | | | | A6890 | White Lines | Highways | 1D | - | 0.0% | 26-May-09 | 26-May-09 | 1 | 19 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A68910 | Street Lighting / Traffic Signals / Road Signs | Highways | 1D | - | 0.0% | 12-May-09 | 20-May-09 | 9 | 18 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A6870 | Plane of wearing course | Highways | 1D | - | 0.0% | 19-May-09 | 19-May-09 | 1 | 18 | 18 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A6815 | Remove fencing and Traffic Management | Highways | 1D | 9,008.28 | 49.5% | 27-May-09 | 27-May-09 | 1 | 19 | 19 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | | Highways | 1D | 181.89 | 1.0% | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 6b | | | | 18,189.55 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7240 | Establish Traffic Management & Temp. Fencing | Highways | 1D | 9,008.28 | 49.5% | 30-Jul-09 | 31-Jul-09 | 2 | 21 | 21 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7250 | Excavate for new channel and kerb line / remove existing kerbs | Highways | 1D | - | 0.0% | 07-Sep-09 | 08-Sep-09 | 2 | 22 | 22 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7260 | Construct Kerb lines | Highways | 1D | - | 0.0% | 09-Sep-09 | 15-Sep-09 | 7 | 22 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7270 | Reset Gullies | Highways | 1D | - | 0.0% | 10-Sep-09 | 16-Sep-09 | 7 | 22 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7280 | Surface new channel | Highways | 1D | - | 0.0% | 17-Sep-09 | 18-Sep-09 | 2 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7290 | Pavement Works | Highways | 1D | - | 0.0% | 16-Sep-09 | 06-Oct-09 | 21 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7310 | Street Lighting / Traffic Signals / Road Signs | Highways | 1D | - | 0.0% | 16-Sep-09 | 24-Sep-09 | 9 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7315 | Remove fencing and Traffic Management | Highways | 1D | 9,008.28 | 49.5% | 07-Oct-09 | 07-Oct-09 | 1 | 23 | 23 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Highways | 1D | 181.89 | 1.0% | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 7 | | | | 18,189.55 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7320 | Establish Traffic Management & Temp. Fencing | Highways | 1D | 9,008.28 | 49.5% | 26-Oct-09 | 27-Oct-09 | 2 | 24 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7330 | Replace north junction kerb line | Highways | 1D | - | 0.0% | 28-Oct-09 | 04-Nov-09 | 8 | 24 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7340 | Rebuild splitter island | Highways | 1D | - | 0.0% | 05-Nov-09 | 12-Nov-09 | 8 | 24 | 25 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7350 | White Lines / Traffic Signals / Road Signs | Highways | 1D | - | 0.0% | 28-Oct-09 | 02-Nov-09 | 6 | 24 | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7355 | Remove fencing and Traffic Management | Highways | 1D | 9,008.28 | 49.5% | 13-Nov-09 | 13-Nov-09 | 1 | 25 | 25 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Highways | 1D | 181.89 | 1.0% | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Terpion On 1125 - 940 | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Phase 3 - North Pavement | | | | 53,867.70 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | A7680 | Establish Traffic Management & Temp. Fencing | Highways | 1D | 26,664.51 | 49.5% | 19-Mar-10 | 22-Mar-10 | 4 | 29 | 29 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7690 | Replace north kerb line | Highways | 1D | - | 0.0% | 23-Mar-10 | 06-Apr-10 | 15 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7695 | Remove fencing and Traffic Management | Highways | 1D | 26,664.51 | 49.5% | 07-Apr-10 | 07-Apr-10 | 1 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Highways | 1D | 538.68 | 1.0% | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Phase 3 - South Pavement | | | | 53,867.70 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7700 | Establish Traffic Management & Temp. Fencing | Highways | 1D | 26,664.51 | 49.5% | 08-Apr-10 | 09-Apr-10 | 2 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7710 | Excavate for new channel and kerb line / remove existing kerbs | Highways | 1D | - | 0.0% | 12-Apr-10 | 13-Apr-10 | 2 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7720 | Construct Kerb lines | Highways | 1D | - | 0.0% | 14-Apr-10 | 16-Apr-10 | 3 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7730 | Reset Gullies | Highways | 1D | - | 0.0% | 19-Apr-10 | 20-Apr-10 | 2 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7740 | Surface new channel | Highways | 1D | - | 0.0% | 19-Apr-10 | 21-Apr-10 | 3 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7750 | Pavement Works | Highways | 1D | - | 0.0% | 19-Apr-10 | 27-Apr-10 | 9 | 30 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7760 | Street Lighting / Traffic Signals / Road Signs | Highways | 1D | - | 0.0% | 19-Apr-10 | 21-Apr-10 | 3 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7765 | Remove fencing and Traffic Management | Highways | 1D | 26,664.51 | 49.5% | 22-Apr-10 | 22-Apr-10 | 1 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Highways | 1D | 538.68 | 1.0% | 23-Apr-09 | 23-Apr-09 | 1 | 30 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Phase 3 - Splitter Island | | | | 53,867.70 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7770 | Establish Traffic Management & Temp. Fencing | Highways | 1D | 26,664.51 | 49.5% | 23-Apr-10 | 26-Apr-10 | 4 | 30 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7780 | Excavate for new channel and kerb line / remove existing kerbs | Highways | 1D | - | 0.0% | 27-Apr-10 | 28-Apr-10 | 2 | 31 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7790 | Construct Kerb lines | Highways | 1D | - | 0.0% | 28-Apr-10 | 04-May-10 | 7 | 31 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7800 | Reset Gullies | Highways | 1D | - | 0.0% | 29-Apr-10 | 05-May-10 | 7 | 31 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A7810 | Surface new channel | Highways | 1D | - | 0.0% | 06-May-10 | 06-May-10 | 1 | 31 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7820 | Pavement Works | Highways | 1D | - | 0.0% | 05-May-10 | 26-May-10 | 22 | 31 | 32 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7830 | Street Lighting / Traffic Signals / Road Signs | Highways | 1D | - | 0.0% | 05-May-10 | 07-May-10 | 3 | 31 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7835 | Remove fencing and Traffic Management | Highways | 1D | 26,664.51 | 49.5% | 14-May-10 | 14-May-10 | 1 | 31 | 31 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Highways | 1D | 538.68 | 1.0% | 23-Apr-09 | 23-Apr-09 | 1 | 31 | 32 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | West Mainline - 1st Half | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Phase 1 - South Pavement | | | | 78,617.73 | | 23-Apr-09 | 23-Apr-09 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7840 | Establish Traffic Management & Temp. Fencing | Highways | 1D | 39,308.86 | 49.5% | 08-Jan-10 | 07-Jan-10 | 2 | 27 | 27 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7850 | Excavate for new channel and kerb line / remove existing kerbs | Highways | 1D | - | 0.0% | 08-Jan-10 | 11-Jan-10 | 4 | 27 | 27 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7860 | Construct Kerb lines | Highways | 1D | - | 0.0% | 11-Jan-10 | 14-Jan-10 | 4 | 27 | 27 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7870 | Reset Gullies | Highways | 1D | - | 0.0% | 12-Jan-10 | 15-Jan-10 | 4 | 27 | 27 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7880 | Surface new channel | Highways | 1D | - | 0.0% | 18-Jan-10 | 19-Jan-10 | 2 | 27 | 27 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A7885 | Remove fencing and Traffic Management | Highways | 1D | 19,457.89 | 49.5% | 20-Jan-10 | 20-Jan-10 | 1 | 27 | 27 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | | Highways | 1D | 393.09 | 1.0% | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Phase 1 - North Pavement | | | | 39,308.86 | | 23-Apr-09 | 23-Apr-09 | | </ | | | | | | | | | | | | | | | | | | | |

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| | | | | | Programme Data | | | | | 2008 | | | | | | | | | | | | | 2008 |
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| | | | | | Start Date | | | | | End Date | | | | | | | | | | | | | 8 |
| | | | | | Duration | | | | | Start Period | | | | | | | | | | | | | 9 |
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3133 | 3134 | 3135 | 3136 | 3137 | 3138 | 3139 | 3140 | 3141 | 3142 | 3143 | 3144 | 3145 | 3146 | 3147 | 3148 | 3149 | 3150 | 3151 | 3152 | 3153 | 3154 | 3155 | 3156 | 3157 | 3158 | 3159 | 3160 | 3161 | 3162 | 3163 | 3164 | 3165 | 3166 | 3167 | 3168 | 3169 | 3170 | 3171 | 3172 | 3173 | 3174 | 3175 | 3176 | 3177 | 3178 | 3179 | 3180 | 3181 | 3182 | 3183 | 3184 | 3185 | 3186 | 3187 | 3188 | 3189 | 3190 | 3191 | 3192 | 3193 | 3194 | 3195 | 3196 | 3197 | 3198 | 3199 | 3200 | 3201 | 3202 | 3203 | 3204 | 3205 | 3206 | 3207 | 3208 | 3209 | 3210 | 3211 | 3212 | 3213 | 3214 | 3215 | 3216 | 3217 | 3218 | 3219 | 3220 | 3221 | 3222 | 3223 | 3224 | 3225 | 3226 | 3227 | 3228 | 3229 | 3230 | 3231 | 3232 | 3233 | 3234 | 3235 | 3236 | 3237 | 3238 | 3239 | 3240 | 3241 | 3242 | 3243 | 3244 | 3245 | 3246 | 3247 | 3248 | 3249 | 3250 | 3251 | 3252 | 3253 | 3254 | 3255 | 3256 | 3257 | 3258 | 3259 | 3260 | 3261 | 3262 | 3263 | 3264 | 3265 | 3266 | 3267 | 3268 | 3269 | 3270 | 3271 | 3272 | 3273 | 3274 | 3275 | 3276 | 3277 | 3278 | 3279 | 3280 | 3281 | 3282 | 3283 | 3284 | 3285 | 3286 | 3287 | 3288 | 3289 | 3290 | 3291 | 3292 | 3293 | 3294 | 3295 | 3296 | 3297 | 3298 | 3299 | 3300 | 3301 | 3302 | 3303 | 3304 | 3305 | 3306 | 3307 | 3308 | 3309 | 3310 | 3311 | 3312 | 3313 | 3314 | 3315 | 3316 | 3317 | 3318 | 3319 | 3320 | 3321 | 3322 | 3323 | 3324 | 3325 | 3326 | 3327 | 3328 | 3329 | 3330 | 3331 | 3332 | 3333 | 3334 | 3335 | 3336 | 3337 | 3338 | 3339 | 3340 | 3341 | 3342 | 3343 |
|----|----|----|----|----|-------------|---------------|----------------|------|------------|----------|----------|--------------|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------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USB00000073_0050

| L1 | | | | | L2 | | | | | L3 | | | | | L4 | | | | | L5 | | | | | Activity ID | | | | | Activity Name | | | | | Contract Value | | | | | %age | | | | | Programme Dates | | | | | Start Date | | | | | End Date | | | | | Duration | | | | | Start Period | | | | | End Period | | | | | 2008 | | | | | 2008 | | | | | 2008 | | | | | 2008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 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| Year |
|------------|
| Period |
| Period End |

| | | | | Programme Dates | | | | | | | | | | 2009 | | | | | | | | | | | | 2009 | | | | | | |
|---|----|----|----|-----------------|-------------|--|------------|----------------|------------|------------|--------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----|----|--------|----|----------|---------|---|---------|--|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Subtotal | | | | |
| | | | | | | | | | | | 31-Jan-2009 | 28-Feb-2009 | 28-Mar-2009 | 25-Apr-2009 | 23-May-2009 | 20-Jun-2009 | 18-Jul-2009 | 15-Aug-2009 | 12-Sep-2009 | 10-Oct-2009 | 07-Nov-2009 | 05-Dec-2009 | 02-Jan-2010 | GBP | | | | | | | | |
| Haymarket Terrace Substation | | | | | | | | | | | 1,150.02 | 0.0% | | | | | | | | | | | | | | | | | | | | |
| Substation | | | | | | | | | | | 746,724.87 | | | | | | | | | | | | | | | | | | | | | |
| 336 | | | | | | Completion of envelope | Subst - BB | 2A | 227,515.86 | 30.5% | 01-Feb-09 | 23-Mar-09 | 52 | 15 | 16 | - | - | - | - | - | - | - | - | - | - | 71,056 | - | 142,115 | 672,797 | | | |
| 336 | | | | | | Civil Engineering and Building Works | Subst - BB | 2A | 227,515.86 | 30.5% | 09-Dec-08 | 31-Jan-09 | 54 | 13 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | 227,516 | | | |
| 336 | | | | | | Snagging | Subst - BB | 2A | 4,096.28 | 0.6% | | | | 16 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 4,096 | | | |
| 336 | | | | | | Order REC supply from Scottish Power | Subst - S | 2A | | 0.0% | 17-Nov-08 | 17-Nov-08 | 1 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A6503 | | | | | | Power Interfaced from Public Net available into HV cable | Subst - S | 2A | | 0.0% | 24-Mar-09 | 24-Mar-09 | 1 | 16 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A6560 | | | | | | Installation of TPS Equipment | Subst - S | 2A | 71,056.48 | 9.5% | 26-Oct-09 | 08-Dec-09 | 44 | 24 | 26 | - | - | - | - | - | - | - | - | - | - | - | - | - | 71,056 | | | |
| A6540 | | | | | | Install LV Power Supply and LV Power Equipment | Subst - S | 2A | 71,056.48 | 9.5% | 12-Oct-09 | 02-Nov-09 | 22 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | 71,056 | | | |
| A6570 | | | | | | Testing and Commissioning | Subst - S | 2A | 71,056.48 | 9.5% | 08-Dec-09 | 11-Jan-10 | 35 | 26 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | 71,056 | | | |
| A6560 | | | | | | Install Telecom and Scada | Subst - S | 2A | 71,056.48 | 9.5% | 16-Nov-09 | 08-Dec-09 | 23 | 25 | 26 | - | - | - | - | - | - | - | - | - | - | - | - | - | 71,056 | | | |
| A2099 | | | | | | Access for E&M Substation installation (O2A Haymarket Terrace) | Subst - S | 2A | | 0.0% | 24-Mar-09 | 24-Mar-09 | 1 | 16 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A2098 | | | | | | Access for visual inspection for E&M Substation installation (O2A Haymarket Terrace) | Subst - S | 2A | | 0.0% | 20-Feb-09 | 20-Feb-09 | 1 | 15 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| | | | | | | Snagging | Subst - S | 2A | 2,870.97 | 0.4% | | | | 1 | 27 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Haymarket Station Tram Stop | | | | | | | | | | | 344,478.05 | | | | | | | | | | | | | | | | | | | | | |
| Tramstop | | | | | | | | | | | 90,378.97 | 26.2% | 23-Oct-08 | 15-Dec-08 | 54 | 11 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | 254,099 | |
| 135 | | | | | | Civil Engineering and Building Works | Tramstops | 2A | 90,378.97 | 26.2% | 16-Dec-08 | 05-Feb-09 | 53 | 13 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 135 | | | | | | Snagging | Tramstops | 2A | 1,825.84 | 0.0% | | | | 11 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A2480 | | | | | | Deliver and install Shelter | Tramstops | 2A | 60,252.65 | 17.5% | 10-Aug-09 | 24-Aug-09 | 15 | 21 | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | 90,379 | | | |
| 3rd Party | | | | | | Third Party Sign-off | Tramstop | Eq | 608.61 | 0.2% | | | | 22 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1,826 | | | |
| 488 | | | | | | Order REC Supply | Trams Eq | 2A | 25,000.00 | 7.3% | 23-Mar-09 | 12-May-09 | 51 | 16 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | 60,253 | | | |
| A4710 | | | | | | Package Test Tramstop | Trams Eq | 2A | | 0.0% | 26-Jun-09 | 26-Jun-09 | 1 | 20 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | 609 | | | |
| A4680 | | | | | | Install LV Power Supply and LV Power Equipment | Trams Eq | 2A | 75,272.67 | 21.9% | 02-Nov-09 | 09-Nov-09 | 8 | 24 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | 25,000 | | | |
| A4690 | | | | | | Install Telecom Equipment | Trams Eq | 2A | | 0.0% | 24-Aug-09 | 28-Sep-09 | 36 | 22 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | 75,273 | | | |
| A4700 | | | | | | Install Station Control Equipment + AFC Equipment | Trams Eq | 2A | | 0.0% | 28-Sep-09 | 26-Oct-09 | 29 | 23 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | 75,273 | | | |
| A6170 | | | | | | Installation of SIG-interlocking cubicle | Trams Eq | 2A | | 0.0% | 28-Sep-09 | 02-Nov-09 | 36 | 23 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A6180 | | | | | | Commissioning of SIG-interlocking cubicle | Trams Eq | 2A | | 0.0% | 07-Sep-09 | 28-Sep-09 | 22 | 22 | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4670 | | | | | | Access for E&M Tram Stop installation (O2A Haymarket Station) | Trams Eq | 2A | | 0.0% | 22-Oct-09 | 28-Oct-09 | 7 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4678 | | | | | | Access for visual inspection for E&M Tram Stop installation (O2A Haymarket Station) | Trams Eq | 2A | | 0.0% | 24-Aug-09 | 24-Aug-09 | 1 | 22 | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| | | | | | | Snagging | Trams Eq | 2A | 760.33 | 0.2% | 23-Jul-09 | 23-Jul-09 | 1 | 21 | 21 | - | - | - | - | - | - | - | - | - | - | - | - | - | 760 | | | |
| OSA Roseburn Junction (exc.) to Balgreen Road (inc.) | | | | | | | | | | | 19,029.80 | 39.0% | | | | | | | | | | | | | | | | | | | | |
| OSA1 Roseburn Junction (exc.) to Balgreen Road (inc.) | | | | | | | | | | | 1,149,116.30 | | | | | | | | | | | | | | | | | | | | | |
| Roseburn Junction (exc.) to Balgreen Road (inc.) | | | | | | | | | | | 1,149,116.30 | | | | | | | | | | | | | | | | | | | | | |
| E & M Installations | | | | | | | | | | | 1,149,116.30 | | | | | | | | | | | | | | | | | | | | | |
| A4090 | | | | | | Overhead Catenary Line - One Hall | O&E | 5A | 361,565.63 | 31.7% | 10-Sep-10 | 08-Nov-10 | 61 | 35 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4090 | | | | | | Overhead Catenary Line - One Hall | O&E | 5A | 242,637.75 | 21.1% | 10-Sep-10 | 09-Nov-10 | 61 | 35 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Snagging | | | | | | Snagging | O&E | 5A | 2,450.89 | 0.2% | | | | 36 | 39 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4100 | | | | | | Install Electrical Cables | SCC | 5A | 133,667.58 | 11.6% | 24-Sep-10 | 11-Oct-10 | 18 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4110 | | | | | | Install Fibre Optic Cables | SCC | 5A | 133,667.58 | 11.6% | 24-Sep-10 | 11-Oct-10 | 18 | 36 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4120 | | | | | | Install Signalling Wayside Equipment | SCC | 5A | 133,667.58 | 11.6% | 12-Oct-10 | 27-Oct-10 | 16 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4085 | | | | | | Installation of poles and building fittings | SCC | 5A | 133,667.58 | 11.6% | 17-Aug-10 | 09-Sep-10 | 24 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4084 | | | | | | Access for E&M wayside installation (OSA) | SCC | 5A | | 0.0% | 17-Aug-10 | 17-Aug-10 | 1 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4099 | | | | | | Access to cable pits for cable laying (OSA) | SCC | 5A | | 0.0% | 24-Sep-10 | 24-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4083 | | | | | | Access for visual inspection for E&M wayside installation (OSA) | SCC | 5A | | 0.0% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| A4088 | | | | | | Access for visual inspection to cable pits for cable laying (OSA) | SCC | 5A | | 0.0% | 25-Aug-10 | 25-Aug-10 | 1 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| | | | | | | Snagging | SCC | 5A | 5,400.71 | 0.5% | | | | 37 | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| OSA2 Roseburn Junction (exc.) to Murrayfield (inc.) | | | | | | | | | | | 5,897,666.36 | | | | | | | | | | | | | | | | | | | | | |
| Russell Road Underbridge (S20) | | | | | | | | | | | 1,185,158.06 | | | | | | | | | | | | | | | | | | | | | |
| Bridge | | | | | | | | | | | 117,330.04 | 9.9% | 08-May-08 | 31-Jul-08 | 85 | 5 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| 103 | | | | | | Piling | Structures | 5A | 175,995.96 | 14.9% | 08-May-08 | 31-Jul-08 | 85 | 5 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 228 | | | | | | Base | Structures | 5A | 117,330.04 | 9.9% | 01-Aug-08 | 12-Sep-08 | 43 | 8 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 429 | | | | | | Abutments | Structures | 5A | 58,665.32 | 5.0% | 01-Sep-08 | 31-Oct-08 | 61 | 9 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 429 | | | | | | Wing Walls | Structures | 5A | 175,995.96 | 14.9% | 01-Sep-08 | 31-Oct-08 | 61 | 9 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 439 | | | | | | Deck | Structures | 5A | 234,661.28 | 19.8% | 27-Oct-08 | 19-Jan-09 | 85 | 11 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 439 | | | | | | Parapets | Structures | 5A | 175,995.96 | 14.9% | 27-Oct-08 | 19-Jan-09 | 85 | 11 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| 449 | | | | | | Bridge Finishes | Structures | 5A | 117,330.04 | 9.9% | 03-Nov-08 | 09-Feb-09 | 99 | 11 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Snagging | | | | | | Snagging | Structures | 5A | 11,851.58 | 0.0% | | | | 15 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Russell Road Bridge (S20) (4) | | | | | | | | | | | 11,851.58 | 0.0% | 06-Feb-09 | | | | | | | | | | | | | | | | | | | |
| Retaining Wall | | | | | | | | | | | 2,038,152.60 | | | | | | | | | | | | | | | | | | | | | |
| 107 | | | | | | Site Clearance | Structures | 5A | 99,651.07 | 4.9% | 15-May-08 | 12-Jun-08 | 29 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | | | | | | | |



| Year |
|------------|
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Track | 2A | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | |
|----|----|----|----|----|--|--|------------|----|----------------------|-------|------------|-----------|----------|--------------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|------|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | | | 1,150.02 | 0.0% | | | | 11 | 12 | | | | | | | | | | | | | | | |
| | | | | | Haymarket Station Substation | | | | 746,724.87 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 336 | Civil Engineering and Building Works | Subst - BB | 2A | 227,515.86 | 30.9% | 01-Feb-09 | 23-Mar-09 | 52 | 15 | 16 | | | | | | | | | | | | | | | |
| | | | | | 336 | Civil Engineering and Building Works | Subst - BB | 2A | 227,515.86 | 30.9% | 09-Dec-08 | 31-Jan-09 | 54 | 16 | 17 | | | | | | | | | | | | | | | |
| | | | | | 336 | Snagging | Subst - BB | 2A | 4,086.29 | 0.6% | | | | | | | | | | | | | | | | | | | | |
| | | | | | 326 | Order REC supply from Scottish Power | Subst - S | 2A | | 0.0% | 17-Nov-08 | 17-Nov-08 | 1 | 12 | 12 | | | | | | | | | | | | | | | |
| | | | | | A65630 | Power Interf from Public available into HV cable | Subst - S | 2A | | 0.0% | 24-Mar-09 | 24-Mar-09 | 1 | 16 | 16 | | | | | | | | | | | | | | | |
| | | | | | A6560 | Installation of TPS Equipment | Subst - S | 2A | 71,056.48 | 9.5% | 26-Oct-09 | 08-Dec-09 | 44 | 24 | 26 | | | | | | | | | | | | | | | |
| | | | | | A65640 | Install LV Power Supply and LV Power Equipment | Subst - S | 2A | 71,056.48 | 9.5% | 12-Oct-09 | 02-Nov-09 | 22 | 24 | 24 | | | | | | | | | | | | | | | |
| | | | | | A65670 | Testing and Commissioning | Subst - S | 2A | 71,056.48 | 9.5% | 11-Jan-10 | 35 | 28 | 27 | | | | | | | | | | | | | | | | |
| | | | | | A65660 | Install Telecom and Scada | Subst - S | 2A | 71,056.48 | 9.5% | 16-Nov-09 | 08-Dec-09 | 23 | 25 | 26 | | | | | | | | | | | | | | | |
| | | | | | A2899 | Access for E&M Substation installation (02A Haymarket Terrace) | Subst - S | 2A | | 0.0% | 24-Mar-09 | 24-Mar-09 | 1 | 16 | 16 | | | | | | | | | | | | | | | |
| | | | | | A2088 | Access for visual inspection for E&M Substation installation (02A Haymarket Terrace) | Subst - S | 2A | | 0.0% | 20-Feb-09 | 20-Feb-09 | 1 | 15 | 15 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | Subst - S | 2A | 2,870.97 | 0.4% | | | | 27 | 28 | | | | | | | | | | | | | | | |
| | | | | | Haymarket Station Tram Stop | | | | 344,478.05 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 135 | Civil Engineering and Building Works | Tramstop | 2A | 90,378.97 | 26.2% | 23-Oct-08 | 15-Dec-08 | 54 | 11 | 13 | | | | | | | | | | | | | | | |
| | | | | | 135 | Civil Engineering and Building Works | Tramstop | 2A | 90,378.97 | 26.2% | 16-Dec-08 | 05-Feb-09 | 53 | 15 | 16 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | Tramstop | 2A | 1,852.84 | 0.5% | | | | | | | | | | | | | | | | | | | | |
| | | | | | A2480 | Deliver and install Shelter | Tramstop | 2A | 60,252.65 | 17.5% | 10-Aug-09 | 24-Aug-09 | 15 | 21 | 22 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | Tramstop | 2A | 608.61 | 0.2% | | | | | | | | | | | | | | | | | | | | |
| | | | | | 3rd Party | Third Party Sign-off | Tramstop | 2A | 25,000.00 | 7.3% | 23-Mar-09 | 12-May-09 | 51 | 16 | 18 | | | | | | | | | | | | | | | |
| | | | | | 488 | Order REC Supply | Tramstop | 2A | | 0.0% | 26-Jun-09 | 26-Jun-09 | 1 | 20 | 20 | | | | | | | | | | | | | | | |
| | | | | | A4710 | Package Test Tramstop | Tramstop | 2A | 75,272.67 | 21.9% | 02-Nov-09 | 09-Nov-09 | 8 | 24 | 25 | | | | | | | | | | | | | | | |
| | | | | | A4680 | Install LV Power Supply and LV Power Equipment | Tramstop | 2A | | 0.0% | 24-Aug-09 | 28-Sep-09 | 36 | 22 | 23 | | | | | | | | | | | | | | | |
| | | | | | A4690 | Install Telecom Equipment | Tramstop | 2A | | 0.0% | 28-Sep-09 | 26-Oct-09 | 29 | 23 | 24 | | | | | | | | | | | | | | | |
| | | | | | A4700 | Install Station Control Equipment + AFC Equipment | Tramstop | 2A | | 0.0% | 28-Sep-09 | 02-Nov-09 | 36 | 23 | 24 | | | | | | | | | | | | | | | |
| | | | | | A6170 | Installation of SIG-interlocking cubicle | Tramstop | 2A | | 0.0% | 07-Sep-09 | 28-Sep-09 | 22 | 22 | 23 | | | | | | | | | | | | | | | |
| | | | | | A6180 | Commissioning of SIG-interlocking cubicle | Tramstop | 2A | | 0.0% | 22-Oct-09 | 28-Oct-09 | 7 | 24 | 24 | | | | | | | | | | | | | | | |
| | | | | | A6170 | Access for E&M Tram Stop installation (02A Haymarket Station) | Tramstop | 2A | | 0.0% | 24-Aug-09 | 24-Aug-09 | 1 | 22 | 22 | | | | | | | | | | | | | | | |
| | | | | | A6478 | Access for visual inspection for E&M Tram Stop installation (02A Haymarket Station) | Tramstop | 2A | | 0.0% | 23-Jul-09 | 23-Jul-09 | 1 | 21 | 21 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | Tramstop | 2A | 760.33 | 0.2% | | | | 25 | 26 | | | | | | | | | | | | | | | |
| | | | | | 05A Roseburn Junction (exc.) to Balgreen Road (inc.) | | | | 19,029,806.39 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 05A1 Roseburn Junction (exc.) to Balgreen Road (inc.) | | | | 1,149,116.30 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | E & M Installations | | | | 1,149,116.30 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | A4090 | Overhead Category Line - One Half | O&E | 5A | 361,956.43 | 31.7% | 10-Sep-10 | 09-Nov-10 | 61 | 35 | 38 | | | | | | | | | | | | | | | |
| | | | | | A4090 | Overhead Category Line | O&E | 5A | 242,637.75 | 21.1% | 10-Sep-10 | 09-Nov-10 | 61 | 35 | 38 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | O&E | 5A | 2,450.89 | 0.2% | | | | | | | | | | | | | | | | | | | | |
| | | | | | A4100 | Install Electrical Cables | SCC | 5A | 133,667.58 | 11.6% | 24-Sep-10 | 11-Oct-10 | 18 | 36 | 39 | | | | | | | | | | | | | | | |
| | | | | | A4110 | Install Fibre Optic Cables | SCC | 5A | 133,667.58 | 11.6% | 24-Sep-10 | 11-Oct-10 | 18 | 36 | 39 | | | | | | | | | | | | | | | |
| | | | | | A4120 | Install Signalling Wayside Equipment | SCC | 5A | 133,667.58 | 11.6% | 12-Oct-10 | 27-Oct-10 | 16 | 37 | 37 | | | | | | | | | | | | | | | |
| | | | | | A4085 | Installation of poles and building fittings | SCC | 5A | 133,667.58 | 11.6% | 17-Aug-10 | 09-Sep-10 | 24 | 35 | 35 | | | | | | | | | | | | | | | |
| | | | | | A4084 | Access for E&M wayside installation (05A) | SCC | 5A | | 0.0% | 17-Aug-10 | 17-Aug-10 | 1 | 35 | 35 | | | | | | | | | | | | | | | |
| | | | | | A4099 | Access to cable pits for cable laying (05A) | SCC | 5A | | 0.0% | 24-Sep-10 | 24-Sep-10 | 1 | 36 | 36 | | | | | | | | | | | | | | | |
| | | | | | A4093 | Access for visual inspection for E&M wayside installation (05A) | SCC | 5A | | 0.0% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | | | | | | | | | | | | | | | |
| | | | | | A4098 | Access for visual inspection to cable pits for cable laying (05A) | SCC | 5A | | 0.0% | 25-Aug-10 | 25-Aug-10 | 1 | 35 | 35 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | SCC | 5A | 5,400.71 | 0.5% | | | | 37 | 38 | | | | | | | | | | | | | | | |
| | | | | | 05A2 Roseburn Junction (exc.) to Murrayfield (inc.) | | | | 5,997,066.26 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Russell Road Underbridge (S20) | | | | 1,185,158.08 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 103 | Excavation | Structures | 5A | 117,330.04 | 9.9% | 08-May-08 | 31-Jul-08 | 85 | 5 | 8 | | | | | | | | | | | | | | | |
| | | | | | 103 | Piling | Structures | 5A | 175,995.96 | 14.9% | 08-May-08 | 31-Jul-08 | 85 | 5 | 8 | | | | | | | | | | | | | | | |
| | | | | | S28 | Bases | Structures | 5A | 117,330.04 | 9.9% | 01-Aug-08 | 12-Sep-08 | 43 | 8 | 9 | | | | | | | | | | | | | | | |
| | | | | | 429 | Abutments | Structures | 5A | 58,665.32 | 5.0% | 01-Sep-08 | 31-Oct-08 | 61 | 9 | 11 | | | | | | | | | | | | | | | |
| | | | | | 429 | Wing Walls | Structures | 5A | 175,995.96 | 14.9% | 01-Sep-08 | 31-Oct-08 | 61 | 9 | 11 | | | | | | | | | | | | | | | |
| | | | | | 439 | Deck | Structures | 5A | 234,661.28 | 19.8% | 27-Oct-08 | 19-Jan-09 | 85 | 11 | 11 | | | | | | | | | | | | | | | |
| | | | | | 439 | Parapets | Structures | 5A | 175,995.96 | 14.9% | 27-Oct-08 | 19-Jan-09 | 85 | 11 | 14 | | | | | | | | | | | | | | | |
| | | | | | 449 | Bridge Finishes | Structures | 5A | 117,330.04 | 9.9% | 03-Nov-08 | 09-Feb-09 | 99 | 11 | 15 | | | | | | | | | | | | | | | |
| | | | | | Snagging | Snagging | Structures | 5A | 11,851.08 | 1.0% | | | | 15 | 16 | | | | | | | | | | | | | | | |
| | | | | | 05A3 Roseburn Junction (exc.) to Murrayfield (inc.) | | | | 1,185,158.08 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Retaining Wall | | | | 2,038,153.09 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 107 | Site Clearance | Structures | 5A | 99,651.07 | 4.9% | 15-May-08 | 12-Jun-08 | 29 | 5 | 8 | | | | | | | | | | | | | | | |
| | | | | | 250 | Demolish Existing Buildings | Structures | 5A | 199,302.15 | 9.8% | 13-Jun-08 | 22-Aug-08 | 71 | 6 | 9 | | | | | | | | | | | | | | | |
| | | | | | 138 | Temporary Access Road | Structures | 5A | | 0.0% | 18-Aug-08 | 06-Sep-08 | 19 | 9 | 9 | | | | | | | | | | | | | | | |
| | | | | | 348 | Bored Piling | Structures | 5A | 99,651.07 | 4.9% | 08-Sep-08 | 26-Sep-08 | 19 | 9 | 10 | | | | | | | | | | | | | | | |
| | | | | | 370 | Pile Caps | Structures | 5A | 199,302.15 | 9.8% | 12-Jan-09 | 12-Jan-09 | 57 | 12 | 12 | | | | | | | | | | | | | | | |
| | | | | | 659 | Retaining Wall | Structures | 5A | 199,302.15 | 9.8% | 13-Jan-09 | 16-Mar-09 | 63 | 14 | 16 | | | | | | | | | | | | | | | |
| | | | | | 669 | Waterproofing | Structures | 5A | 199,302.15 | 9.8% | 17-Mar-09 | 14-Apr-09 | 29 | 16 | 17 | | | | | | | | | | | | | | | |
| | | | | | 679 | Imported Fill - 50% | Structures | 5A | 199,302.15 | 9.8% | 31-Mar-09 | 18-Jun-09 | 80 | 17 | 19 | | | | | | | | | | | | | | | |
| | | | | | 679 | Imported Fill | Structures | 5A | 298,953.22 | 14.7% | 31-Mar-09 | 18-Jun-09 | 80 | 1 | | | | | | | | | | | | | | | | |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Track | 2A | Contract Value | %age | Programme Date 12-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2011 Subtotal GBP |
|----|----|----|----|----|--|--|------------|----|----------------------|-------|-----------------------------|------------|----------|----------|--------------|------------|-------------------------|
| | | | | | Snagging | Snagging | Track | 2A | 1,150.02 | 0.0% | | | | | 11 | 12 | |
| | | | | | Haymarket Substation | | | | 746,724.87 | | | | | | | | |
| | | | | | 336 | Completion of envelope | Subst - BB | 2A | 227,515.86 | 30.5% | 01-Feb-09 | 23-Mar-09 | 52 | 15 | 16 | | |
| | | | | | 336 | Civil Engineering and Building Works | Subst - BB | 2A | 227,515.86 | 30.5% | 09-Dec-08 | 31-Jan-09 | 54 | 13 | 15 | | |
| | | | | | Snagging | Snagging | Subst - BB | 2A | 4,566.28 | 0.6% | | | | 16 | 17 | | |
| | | | | | 326 | Order REC supply from Scottish Power | Subst - S | 2A | - | 0.0% | 17-Nov-08 | 17-Nov-08 | 1 | 12 | 12 | | |
| | | | | | A6630 | Power Interfacing Cable available inc HV cable | Subst - S | 2A | - | 0.0% | 24-Mar-09 | 24-Mar-09 | 1 | 16 | 16 | | |
| | | | | | A6650 | Installation of TPS Equipment | Subst - S | 2A | 71,056.48 | 9.5% | 26-Oct-09 | 08-Dec-09 | 44 | 24 | 26 | | |
| | | | | | A6640 | Install LV Power Supply and LV Power Equipment | Subst - S | 2A | 71,056.48 | 9.5% | 12-Oct-09 | 02-Nov-09 | 22 | 24 | 24 | | |
| | | | | | A6570 | Testing and Commissioning | Subst - S | 2A | 71,056.48 | 9.5% | 08-Dec-09 | 11-Jan-10 | 35 | 26 | 27 | | |
| | | | | | A6660 | Install Telecom and Scads | Subst - S | 2A | 71,056.48 | 9.5% | 16-Nov-09 | 08-Dec-09 | 23 | 25 | 26 | | |
| | | | | | A2699 | Access for E&M Substation installation (ODA Haymarket Terrace) | Subst - S | 2A | - | 0.0% | 24-Mar-09 | 24-Mar-09 | 1 | 16 | 16 | | |
| | | | | | A2698 | Access for visual inspection for E&M Substation installation (ODA Haymarket Terrace) | Subst - S | 2A | - | 0.0% | 20-Feb-09 | 20-Feb-09 | 1 | 15 | 15 | | |
| | | | | | Snagging | Snagging | Subst - S | 2A | 2,870.97 | 0.4% | | | | 27 | 28 | | |
| | | | | | Haymarket Station Train Stop | | | | 344,475.05 | | | | | | | | |
| | | | | | 135 | Civil Engineering and Building Works | Tramstop | 2A | 90,378.97 | 26.2% | 23-Oct-08 | 15-Dec-08 | 54 | 11 | 13 | | |
| | | | | | 135 | Civil Engineering and Building Works | Tramstop | 2A | 90,378.97 | 26.2% | 16-Dec-08 | 05-Feb-09 | 53 | 13 | 15 | | |
| | | | | | Snagging | Snagging | Tramstop | 2A | 1,825.84 | 0.5% | | | | 15 | 16 | | |
| | | | | | A2480 | Deliver and Install Shelter | Tramstop | 2A | 60,252.65 | 17.5% | 10-Aug-09 | 24-Aug-09 | 15 | 21 | 22 | | |
| | | | | | Snagging | Snagging | Tramstop | 2A | 60,252.65 | 17.5% | | | | 22 | 23 | | |
| | | | | | 3rd Party | Third Party Sign-off | Tramstop | 2A | 25,000.00 | 7.3% | 23-Mar-09 | 12-May-09 | 51 | 16 | 18 | | |
| | | | | | 489 | Order REC Supply | Tramstop | 2A | - | 0.0% | 26-Jun-09 | 26-Jun-09 | 1 | 20 | 20 | | |
| | | | | | A4710 | Package Test Tramstop | Tramstop | 2A | 75,272.67 | 21.9% | 02-Nov-09 | 09-Nov-09 | 8 | 24 | 25 | | |
| | | | | | A4680 | Install LV Power Supply and LV Power Equipment | Tramstop | 2A | - | 0.0% | 24-Aug-09 | 28-Sep-09 | 36 | 22 | 23 | | |
| | | | | | A4680 | Install Telecom Equipment | Tramstop | 2A | - | 0.0% | 28-Sep-09 | 28-Oct-09 | 29 | 23 | 24 | | |
| | | | | | A4700 | Install Station Control Equipment + AFC Equipment | Tramstop | 2A | - | 0.0% | 28-Sep-09 | 02-Nov-09 | 36 | 23 | 24 | | |
| | | | | | A6170 | Installation of SIG-interlocking cubicle | Tramstop | 2A | - | 0.0% | 07-Sep-09 | 28-Sep-09 | 22 | 22 | 23 | | |
| | | | | | A6180 | Commissioning of SIG-interlocking cubicle | Tramstop | 2A | - | 0.0% | 22-Oct-09 | 28-Oct-09 | 7 | 24 | 24 | | |
| | | | | | A4679 | Access for E&M Train Stop installation (ODA Haymarket Station) | Tramstop | 2A | - | 0.0% | 24-Aug-09 | 24-Aug-09 | 1 | 22 | 22 | | |
| | | | | | A4678 | Access for visual inspection for E&M Train Stop installation (ODA Haymarket Station) | Tramstop | 2A | - | 0.0% | 23-Jul-09 | 23-Jul-09 | 1 | 21 | 21 | | |
| | | | | | Snagging | Snagging | Tramstop | 2A | 760.33 | 0.2% | | | | 25 | 26 | | |
| | | | | | 65 Roseburn Junction (inc.) to Balgreen Road (inc.) | | | | 19,029,806.39 | | | | | | | | |
| | | | | | 65A1 Roseburn Junction (inc.) to Balgreen Road (inc.) | | | | 1,145,116.30 | | | | | | | | |
| | | | | | E & M Installations | | | | 1,145,116.30 | | | | | | | | |
| | | | | | A4000 | Overhead Catenary Line - One Half | OLE | 5A | 362,556.43 | 31.7% | 10-Sep-10 | 09-Nov-10 | 61 | 35 | 38 | | |
| | | | | | A4090 | Overhead Catenary Line | OLE | 5A | 242,637.75 | 21.1% | 10-Sep-10 | 09-Nov-10 | 61 | 35 | 38 | | |
| | | | | | Snagging | Snagging | OLE | 5A | 2,450.89 | 0.2% | | | | 38 | 39 | | |
| | | | | | A4100 | Install Electrical Cables | SCC | 5A | 133,667.58 | 11.6% | 24-Sep-10 | 11-Oct-10 | 18 | 36 | 37 | | |
| | | | | | A4110 | Install Fibre Optic Cables | SCC | 5A | 133,667.58 | 11.6% | 24-Sep-10 | 11-Oct-10 | 18 | 36 | 37 | | |
| | | | | | A4120 | Install Signalling Wayside Equipment | SCC | 5A | 133,667.58 | 11.6% | 12-Oct-10 | 27-Oct-10 | 16 | 37 | 37 | | |
| | | | | | A4006 | Installation of poles and building hangars | SCC | 5A | 133,667.58 | 11.6% | 17-Aug-10 | 09-Sep-10 | 24 | 35 | 36 | | |
| | | | | | A4084 | Access for E&M wayside installation (OSA) | SCC | 5A | - | 0.0% | 17-Aug-10 | 17-Aug-10 | 1 | 35 | 35 | | |
| | | | | | A4089 | Access to cable pits for cable laying (OSA) | SCC | 5A | - | 0.0% | 24-Sep-10 | 24-Sep-10 | 1 | 36 | 36 | | |
| | | | | | A4083 | Access for visual inspection for E&M wayside installation (OSA) | SCC | 5A | - | 0.0% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | | |
| | | | | | A4098 | Access for visual inspection to cable pits for cable laying (OSA) | SCC | 5A | - | 0.0% | 25-Aug-10 | 25-Aug-10 | 1 | 35 | 35 | | |
| | | | | | Snagging | Snagging | SCC | 5A | 5,400.71 | 0.5% | | | | 37 | 38 | | |
| | | | | | 65A2 Roseburn Junction (inc.) to Murrayfield (inc.) | | | | 5,997,666.36 | | | | | | | | |
| | | | | | Russell Road Underbridge (S20) | | | | 1,185,158.00 | | | | | | | | |
| | | | | | 103 | Excavation | Structures | 5A | 117,330.64 | 9.9% | 08-May-08 | 31-Jul-08 | 85 | 5 | 8 | | |
| | | | | | 103 | Piling | Structures | 5A | 175,995.96 | 14.9% | 08-May-08 | 31-Jul-08 | 85 | 5 | 8 | | |
| | | | | | 238 | Bases | Structures | 5A | 117,330.64 | 9.9% | 12-Aug-08 | 05-Sep-08 | 19 | 9 | 9 | | |
| | | | | | 429 | Abutments | Structures | 5A | 58,665.32 | 5.0% | 01-Sep-08 | 31-Oct-08 | 61 | 9 | 11 | | |
| | | | | | 429 | Wing Walls | Structures | 5A | 175,995.96 | 14.9% | 01-Sep-08 | 31-Oct-08 | 61 | 9 | 11 | | |
| | | | | | 439 | Deck | Structures | 5A | 234,661.28 | 19.8% | 19-Jan-09 | 19-Jan-09 | 85 | 11 | 14 | | |
| | | | | | 439 | Parapets | Structures | 5A | 175,995.96 | 14.9% | 27-Oct-08 | 19-Jan-09 | 85 | 11 | 14 | | |
| | | | | | 449 | Bridge Finishes | Structures | 5A | 117,330.64 | 9.9% | 03-Nov-08 | 09-Feb-09 | 99 | 11 | 15 | | |
| | | | | | Snagging | Snagging | Structures | 5A | 11,851.08 | 1.0% | | | | 15 | 16 | | |
| | | | | | Ort - Milestone | Completion of Russell Road Bridge (S20) (4) | Structures | 5A | - | 0.0% | 08-Feb-09 | | | | | | |
| | | | | | Russell Road Retaining Walls (W3 and W4) | | | | 2,038,153.00 | | | | | | | | |
| | | | | | 107 | Site Clearance | Structures | 5A | 99,651.07 | 4.9% | 15-May-08 | 12-Jun-08 | 29 | 5 | 6 | | |
| | | | | | 250 | Demolish Existing Buildings | Structures | 5A | 199,302.15 | 9.8% | 15-May-08 | 22-Aug-08 | 71 | 6 | 9 | | |
| | | | | | 338 | Temporary Access Road | Structures | 5A | 0.00 | 0.0% | 18-Aug-08 | 05-Sep-08 | 19 | 9 | 9 | | |
| | | | | | 348 | Bored Piling | Structures | 5A | 99,651.07 | 4.9% | 08-Sep-08 | 26-Sep-08 | 19 | 9 | 10 | | |
| | | | | | 370 | Pile Caps | Structures | 5A | 199,302.15 | 9.8% | 17-Nov-08 | 12-Jan-09 | 57 | 12 | 14 | | |
| | | | | | 659 | Retaining Wall | Structures | 5A | 199,302.15 | 9.8% | 13-Jan-09 | 16-Mar-09 | 63 | 14 | 16 | | |
| | | | | | 669 | Waterproofing | Structures | 5A | 199,302.15 | 9.8% | 17-Mar-09 | 14-Apr-09 | 29 | 16 | 17 | | |
| | | | | | 679 | Imported Fill - 50% | Structures | 5A | 199,302.15 | 9.8% | 18-Jun-09 | 18-Jun-09 | 80 | 17 | 19 | | |
| | | | | | 679 | Imported Fill | Structures | 5A | 298,953.22 | 14.7% | 31-Mar-09 | 18-Jun-09 | 80 | 17 | 19 | | |
| | | | | | 689 | Parapet | Structures | 5A | 298,953.22 | 14.7% | 29-May-09 | 02-Jul-09 | 35 | 19 | 20 | | |
| | | | | | 689 | Road Reinstate | Structures | 5A | 199,302.15 | 9.8% | 03-Jul-09 | 07-Aug-09 | 36 | 20 | 21 | | |
| | | | | | Snagging | Snagging | Structures | 5A | 20,131.53 | 1.8% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | | |
| | | | | | 3rd Party | Third Party Sign-off | Structures | 5A | 25,000.00 | 2.2% | | | | 19 | 20 | | |
| | | | | | Murrayfield Train Stop Retaining Wall (W4) | | | | 1,054,567.80 | | | | | | | | |
| | | | | | 108 | Site Clearance | Structures | 5A | 52,297.10 | 4.4% | 26-Jun-08 | 25-Jun-08 | 28 | 6 | 7 | | |
| | | | | | 182 | Foundations | Structures | 5A | 52,297.10 | 4.4% | 26-Jun-08 | 16-Jul-08 | 21 | 7 | 7 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 52,297.10 | 4.4% | 10-Jul-08 | 31-Jul-08 | 22 | 7 | 8 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 104,594.19 | 8.8% | 01-Aug-08 | 31-Aug-08 | 31 | 8 | 9 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 104,594.19 | 8.8% | 01-Sep-08 | 30-Sep-08 | 30 | 9 | 10 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 104,594.19 | 8.8% | 01-Oct-08 | 31-Oct-08 | 31 | 10 | 11 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 104,594.19 | 8.8% | 01-Nov-08 | 30-Nov-08 | 30 | 11 | 12 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 104,594.19 | 8.8% | 01-Dec-08 | 31-Dec-08 | 31 | 12 | 13 | | |
| | | | | | 217 | Reinforced Earth Wall - One Seventh Length | Structures | 5A | 104,594.19 | 8.8% | 01-Jan-09 | 23-Jan-09 | 24 | 13 | 14 | | |
| | | | | | 418 | Coping | Structures | 5A | 104,594.19 | 8.8% | 26-Jan-09 | 13-Feb-09 | 19 | 14 | 15 | | |
| | | | | | 440 | Steps | Structures | 5A | 104,594.19 | 8.8% | 26-Jan-09 | 27-May-09 | 122 | 14 | 19 | | |
| | | | | | 428 | Handrail | Structures | 5A | 52,297.10 | 5.0% | 16-Feb-09 | 27-Feb-09 | 12 | 15 | 15 | | |
| | | | | | Snagging | Snagging | Structures | 5A | 10,565.07 | 1.0% | | | | 19 | 20 | | |
| | | | | | Trackwork | | | | 1,226,064.83 | | | | | | | | |
| | | | | | 240 | Fencing | Track | 5A | 107,874.34 | 8.9% | 03-Feb-10 | 16-Feb-10 | 14 | 28 | 28 | | |
| | | | | | 253 | Track Finishes | Track | 5A | - | 0.0% | 12-Jan-10 | 02-Feb-10 | 22 | 27 | 28 | | |
| | | | | | 1049 | CBM Ducts | Track | 5A | 181,811.48 | 13.2% | 14-Aug-09 | 27-Aug-09 | 14 | 21 | 22 | | |
| | | | | | 1059 | Track Laying ROU - MUR - 1 Half | Track | 5A | 431,497.27 | 35.2% | 04-Dec-09 | 11-Jan-10 | 39 | 25 | 27 | | |
| | | | | | 1059 | Track Laying ROU - MUR | Track | 5A | 377,560.12 | 30.8% | 04-Dec-09 | 11-Jan-10 | 39 | 25 | 27 | | |
| | | | | | 1029 | Bulk Excavation - Sub Base | Track | 5A | - | 0.0% | 03-Jul-09 | 16-Jul-09 | 14 | 20 | 21 | | |
| | | | | | 1039 | OLE Foundations - Drainage | Track - BB | 5A | 35,704.89 | 2.9% | 17-Jul-09 | 13-Aug-09 | 28 | 20 | 21 | | |
| | | | | | Snagging | Snagging | Track | 5A | 11,257.05 | 0.9% | | | | 28 | 29 | | |
| | | | | | B&Q Highway works | Track</ | | | | | | | | | | | |

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| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | Subtotal | 2010 |
|--------------------------------------|----|----|----|----|-----------------|---|----------------|------|------------|-----------|-----------|--------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|----------|---------|
| | | | | | | | | | Start Date | End Date | Duration | Start Period | End Period | 30-Jan-10 | 27-Feb-10 | 27-Mar-10 | 24-Apr-10 | 22-May-10 | 19-Jun-10 | 17-Jul-10 | 14-Aug-10 | 11-Sep-10 | 09-Oct-10 | 06-Nov-10 | 04-Dec-10 | 01-Jan-11 | | GBP | GBP |
| Prosser Street Viaduct (S21A) | | | | | | | 1,748,455.00 | | | | | | | | | | | | | | | | | | | | | | |
| Bridge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 10751 | Remove Scrotal Oil Tanks | Structures | 5A | 29-Aug-08 | 29-Aug-08 | 1 | 9 | 9 | - | - | - | 170,622 | 42,235 | - | - | - | - | - | - | - | - | - | - | 212,857 |
| | | | | | 109 | Bankseat at Grid line A | Structures | 5A | 20-Jan-09 | 21-Apr-09 | 92 | 14 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 172 | Pier B | Structures | 5A | 127,966.53 | 7.3% | 20-Jan-09 | 20-May-09 | 121 | 14 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 207 | Pier C | Structures | 5A | 127,966.53 | 7.3% | 31-Mar-09 | 04-Jun-09 | 66 | 17 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 398 | Pier D | Structures | 5A | 127,966.53 | 7.3% | 15-Apr-09 | 18-Jun-09 | 65 | 17 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 408 | Pier E | Structures | 5A | 127,966.53 | 7.3% | 29-Apr-09 | 02-Jul-09 | 65 | 18 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 420 | Bankseat at Gridline F | Structures | 5A | 127,966.53 | 7.3% | 29-May-09 | 02-Jul-09 | 35 | 19 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 430 | Structural steelwork | Structures | 5A | 341,244.09 | 19.5% | 12-Jan-09 | 23-Jul-09 | 42 | 19 | 21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 729 | Deck Concrete | Structures | 5A | 426,555.11 | 24.4% | 24-Jul-09 | 23-Oct-09 | 92 | 21 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 739 | Finishes | Structures | 5A | 170,622.05 | 9.8% | 26-Oct-09 | 20-Apr-10 | 177 | 24 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 739 | Snagging | Structures | 5A | 17,234.55 | 1.0% | | | | | | | | | | | | | | | | | | | |
| | | | | | 3rd Party | Third Party Sign-off | Structures | 5A | 25,000.00 | 1.4% | | | | | | | | | | | | | | | | | | | |
| Murrayfield Retaining Walls (S21B) | | | | | | | 1,496,667.00 | | | | | | | | | | | | | | | | | | | | | | |
| Retaining Wall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 110 | Site Clearance | Structures | 5A | 22,847.52 | 4.9% | 25-Jun-08 | 22-Jul-08 | 28 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 197 | Foundations | Structures | 5A | 72,847.52 | 4.9% | 09-Jul-08 | 22-Jul-08 | 14 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 378 | Reinforced Earth Wall - One Third | Structures | 5A | 72,847.52 | 4.9% | 23-Jul-08 | 13-Aug-08 | 22 | 8 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 388 | Reinforced Earth Wall - One Third | Structures | 5A | 291,390.07 | 19.5% | 07-Aug-08 | 31-Aug-08 | 25 | 8 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 388 | Reinforced Earth Wall - One Third | Structures | 5A | 291,390.07 | 19.5% | 01-Sep-08 | 30-Sep-08 | 30 | 9 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 388 | Reinforced Earth Wall - One Third | Structures | 5A | 364,237.58 | 24.3% | 01-Oct-08 | 19-Dec-08 | 80 | 10 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 400 | Coping | Structures | 5A | 72,847.52 | 4.9% | 19-Dec-08 | 22-Jan-09 | 35 | 13 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 410 | Handrail | Structures | 5A | 218,542.55 | 14.6% | 23-Jan-09 | 05-Feb-09 | 14 | 14 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 10760 | Murrayfield Stadium Accommodation Works | Structures | 5A | | 0.0% | 02-Jun-08 | 25-Aug-08 | 85 | 6 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | Structures | 5A | 14,716.87 | 1.0% | | | | | | | | | | | | | | | | | | | |
| | | | | | 3rd Party | Third Party Sign-off | Structures | 5A | 25,000.00 | 1.7% | | | | | | | | | | | | | | | | | | | |
| Murrayfield Stadium Underpass (S21C) | | | | | | | 214,675.00 | | | | | | | | | | | | | | | | | | | | | | |
| Underpass | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 112 | Site Clearance | Structures | 5A | 9,388.91 | 4.4% | 09-Jun-08 | 20-Jun-08 | 12 | 6 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 187 | Temporary Works - Demolition | Structures | 5A | 18,777.83 | 8.7% | 23-Jun-08 | 18-Jul-08 | 26 | 7 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 358 | Earthworks | Structures | 5A | 18,777.83 | 8.7% | 21-Jul-08 | 01-Aug-08 | 12 | 8 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 368 | Base | Structures | 5A | 18,777.83 | 8.7% | 05-Aug-08 | 18-Aug-08 | 14 | 8 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 380 | Walls | Structures | 5A | 37,555.65 | 17.5% | 19-Aug-08 | 15-Sep-08 | 28 | 9 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 390 | Roof | Structures | 5A | 46,944.56 | 21.9% | 15-Sep-08 | 13-Oct-08 | 28 | 10 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 709 | Parapet Walls | Structures | 5A | 18,777.83 | 8.7% | 07-Oct-08 | 27-Oct-08 | 21 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 719 | Finishes | Structures | 5A | 18,777.83 | 8.7% | 26-Oct-08 | 10-Nov-08 | 14 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | Structures | 5A | 1,896.75 | 0.9% | | | | | | | | | | | | | | | | | | | |
| | | | | | 3rd Party | Third Party Sign-off | Structures | 5A | 25,000.00 | 11.6% | | | | | | | | | | | | | | | | | | | |
| Murrayfield Retaining Walls (S21D) | | | | | | | 726,943.00 | | | | | | | | | | | | | | | | | | | | | | |
| Retaining Wall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 10760 | Murrayfield Stadium Accommodation Works (dummy) | Structures | 5A | | 0.0% | 02-Jun-08 | 25-Aug-08 | 85 | 6 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 10760 | Completion of SRU Murrayfield Accommodation works | Structures | 5A | | 0.0% | 02-Jun-08 | 25-Aug-08 | 85 | 6 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Completion of SRU Murrayfield Accommodation works (B) | Structures | 5A | | 0.0% | 02-Jun-08 | 25-Aug-08 | 85 | 6 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 1111 | Site Clearance | Structures | 5A | 35,241.18 | 4.8% | 28-Oct-08 | 10-Nov-08 | 14 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 438 | Foundations | Structures | 5A | 35,241.18 | 4.8% | 11-Nov-08 | 02-Dec-08 | 22 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 448 | Reinforced Earth Wall | Structures | 5A | 140,964.71 | 19.1% | 25-Nov-08 | 31-Dec-08 | 37 | 12 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 448 | Reinforced Earth Wall | Structures | 5A | 140,964.71 | 19.1% | 01-Jan-09 | 28-Feb-09 | 59 | 13 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 448 | Reinforced Earth Wall | Structures | 5A | 140,964.71 | 19.1% | 01-Mar-09 | 07-May-09 | 69 | 16 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 450 | Coping | Structures | 5A | 140,964.71 | 19.1% | 01-Mar-09 | 07-May-09 | 69 | 16 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 460 | Handrail | Structures | 5A | 21,447.07 | 2.7% | 08-May-09 | 29-May-09 | 22 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 460 | Handrail | Structures | 5A | 21,447.07 | 2.7% | 01-Jun-09 | 12-Jun-09 | 12 | 19 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | Structures | 5A | 7,119.43 | 1.0% | | | | | | | | | | | | | | | | | | | |
| | | | | | 3rd Party | Third Party Sign-off | Structures | 5A | 25,000.00 | 3.4% | | | | | | | | | | | | | | | | | | | |
| Water of Leith Bridge (S21E) | | | | | | | 1,228,469.00 | | | | | | | | | | | | | | | | | | | | | | |
| Bridge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 113 | Leaf Pier - Construct Cofferdam | Structures | 5A | 59,175.72 | 4.8% | 08-May-09 | 04-Sep-09 | 120 | 18 | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| 2011 | | | | | | | | | | | | | 2011 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal |
| 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | GBP |

USB00000073 0058

| L1 L2 L3 L4 L5 Activity ID Activity Name | | | | Contract Value %age | | Programme Dates 13-Apr-08 13-Apr-08 | | Start Date End Date | | Start Period End Period | | 2009 2010 | | | | | | | | | | | | 2009 | |
|---|--|--|--|---------------------|--|-------------------------------------|--|---------------------|--|-------------------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| | | | | | | | | | | | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Subtotal |
| | | | | | | | | | | | | 31-Jan-2009 | 28-Feb-2009 | 28-Mar-2009 | 25-Apr-2009 | 23-May-2009 | 20-Jun-2009 | 18-Jul-2009 | 15-Aug-2009 | 12-Sep-2009 | 10-Oct-2009 | 07-Nov-2009 | 05-Dec-2009 | 02-Jan-2010 | GBP |
| 050 Balgownie Road (exc.) to Edinburgh Park (inc.) | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| 0501 Balgownie Road (exc.) to Edinburgh Park (inc.) | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| Balgownie Road to Edinburgh Park | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| E & M Installations | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
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| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
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| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 11,856,262 |
| A4130 Overhead Catenary Line - One Sixth | | | | | | | | | | | | | | | | | | | | | | | | | |

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| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | | | | Contract Value | %age | Programme Dates 12-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2011 | | | | | | | | | | | | | | 2011 | | |
|---|---------------------|----------------|----|----|--|--|------------|----|----|----------------|-------|------------------------------|------------|----------|----------|--------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------|---|---|
| | | | | | | | | | | | | | | | | | | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal | | | |
| | | | | | | | | | | | | | | | | | | 29-Jan-11 | 26-Feb-11 | 26-Mar-11 | 23-Apr-11 | 21-May-11 | 18-Jun-11 | 16-Jul-11 | 13-Aug-11 | 10-Sep-11 | 08-Oct-11 | 05-Nov-11 | 03-Dec-11 | 31-Dec-11 | GBP | | | |
| 0584 | Saughton Road North | Track | BB | 58 | 1534 | OLE Foundations - Drainage | Track | BB | 58 | 18,443.11 | 0.8% | 23-Sep-08 | 23-Oct-08 | 31 | 10 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | 1533 | Earthworks - Subbase | Track | BB | 58 | 359,350.96 | 14.7% | 26-Aug-08 | 22-Sep-08 | 28 | 9 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | 1609 | Bottom Ballast - Ducts | Track | BB | 58 | 239,567.31 | 9.8% | 24-Oct-08 | 25-Nov-08 | 33 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | 1619 | Track laying - 50% | Track | BB | 58 | 718,701.92 | 29.5% | 16-Jan-09 | 13-Feb-09 | 29 | 14 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | 1629 | Track laying | Track | BB | 58 | 588,918.27 | 24.6% | 16-Jan-09 | 13-Feb-09 | 29 | 14 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | 1629 | Top Ballast | Track | BB | 58 | 239,567.31 | 9.8% | 16-Feb-09 | 06-Mar-09 | 19 | 15 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 1639 | Fencing & Trackside Finishes | Track | BB | 58 | 239,567.31 | 9.8% | 09-Mar-09 | 08-Apr-09 | 31 | 16 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 24,385.01 | 1.0% | - | - | - | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 1,397,496.53 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 8,350.55 | 0.3% | 15-Sep-08 | 16-Oct-08 | 32 | 10 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 0584 | Saughton Road North | Track | BB | 58 | 1543 | Earthworks - Subbase - 50% | Track | BB | 58 | 192,742.79 | 14.7% | 28-Jul-08 | 12-Sep-08 | 47 | 8 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 1543 | Earthworks - Subbase | Track | BB | 58 | 192,742.79 | 14.7% | 28-Jul-08 | 12-Sep-08 | 47 | 8 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 1659 | Track laying - 50% | Track | BB | 58 | 385,485.08 | 29.5% | 02-Dec-08 | 20-Jan-09 | 50 | 12 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 1659 | Track laying - 50% | Track | BB | 58 | 385,485.08 | 29.5% | 02-Dec-08 | 20-Jan-09 | 50 | 12 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 1679 | Fencing & Finishes | Track | BB | 58 | 128,495.19 | 9.8% | 21-Jan-09 | 05-Feb-09 | 16 | 14 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 13,074.07 | 1.0% | - | - | - | 15 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 283,546.57 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 77,039.41 | 27.2% | 21-Jan-09 | 28-Feb-09 | 39 | 14 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 77,039.41 | 27.2% | 01-Mar-09 | 22-Apr-09 | 54 | 16 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Track | BB | 58 | 1,556.35 | 0.0% | - | - | - | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 0584 | Saughton Road North | Track | BB | 58 | A2080 | Deliver and Install Shelter | Tramstop | BB | 58 | 51,359.61 | 18.1% | 16-Feb-10 | 02-Mar-10 | 15 | 28 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | Snagging | Snagging | Tramstop | BB | 58 | 518.78 | 0.2% | - | - | - | 29 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Order REC Supply | Order REC Supply | Tramstop | BB | 58 | 518.78 | 0.2% | 05-Jan-10 | 05-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Package Test Tramstop | Package Test Tramstop | Tramstop | BB | 58 | 18,818.17 | 6.6% | 13-May-10 | 20-May-10 | 8 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Install LV Power Supply and LV Power Equipment | Install LV Power Supply and LV Power Equipment | Tramstop | BB | 58 | 18,818.17 | 6.6% | 02-Mar-10 | 07-Apr-10 | 37 | 29 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Install Telecom Equipment | Install Telecom Equipment | Tramstop | BB | 58 | 18,818.17 | 6.6% | 07-Apr-10 | 06-May-10 | 30 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Install Station Control Equipment + AFC Equipment | Install Station Control Equipment + AFC Equipment | Tramstop | BB | 58 | 18,818.17 | 6.6% | 07-Apr-10 | 13-May-10 | 37 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Access for E&M Train Stop installation (058 Saughton Road North) | Access for E&M Train Stop installation (058 Saughton Road North) | Tramstop | BB | 58 | - | 0.0% | 02-Mar-10 | 02-Mar-10 | 1 | 29 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Access for visual inspection for E&M Train Stop installation (058 Saughton Road North) | Access for visual inspection for E&M Train Stop installation (058 Saughton Road North) | Tramstop | BB | 58 | - | 0.0% | 29-Jan-10 | 29-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Tramstop | BB | 58 | 760.33 | 0.3% | - | - | - | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 0584 Saughton Road North (exc.) to South Gyle Access (inc.) | | | | | | | | | | 4,589,921.67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 0584 | Saughton Road North | Substation | BB | 58 | 265 | Completion of envelope | Subst. | BB | 58 | 449,846.04 | 18.0% | 01-Mar-09 | 17-Apr-09 | 49 | 16 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| | | | | | 266 | Civil Engineering and Building Works | Subst. | BB | 58 | 80,965.67 | 18.0% | 16-Jan-09 | 28-Feb-09 | 44 | 14 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Subst. | BB | 58 | 817.84 | 0.2% | - | - | - | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 256 | Order REC supply from Scottish Power | Subst. | S | 58 | - | 0.0% | 13-Dec-08 | 12-Dec-08 | 1 | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A0880 | Power Infeed from Public Net available inc HV cable | Subst. | S | 58 | - | 0.0% | 20-Apr-09 | 20-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A0900 | Installation of TPS Equipment | Subst. | S | 58 | 71,056.48 | 15.8% | 28-Apr-10 | 11-Jun-10 | 45 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | A0880 | Install LV Power Supply and LV Power Equipment | Subst. | S | 58 | 71,056.48 | 15.8% | 14-Apr-10 | 06-May-10 | 23 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A0920 | Testing and Commissioning | Subst. | S | 58 | 71,056.48 | 15.8% | 11-Jun-10 | 01-Jul-10 | 21 | 32 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A0910 | Install Telecom and Scada | Subst. | S | 58 | 71,056.48 | 15.8% | 20-May-10 | 11-Jun-10 | 23 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A2258 | Access for E&M Substation installation (058 Bankhead Drive) | Subst. | S | 58 | - | 0.0% | 29-Apr-09 | 29-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 0584 | Saughton Road North | Substation | BB | 58 | A2258 | Access for visual inspection for E&M Substation installation (058 Bankhead Drive) | Subst. | S | 58 | - | 0.0% | 29-Apr-09 | 29-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Subst. | S | 58 | 2,870.97 | 0.6% | - | - | - | 32 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 0584 Saughton Road North (exc.) to South Gyle Access (inc.) | | | | | | | | | | 83,271.17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 0584 | Saughton Road North | Retaining Wall | BB | 58 | 127 | Retaining Wall Construction | Structures | BB | 58 | 57,694.23 | 69.3% | 11-Jun-08 | 08-Jul-08 | 28 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | Snagging | Snagging | Structures | BB | 58 | 276.84 | 0.3% | - | - | - | 8 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | 3rd Party | Third Party Sign-off | Structures | BB | 58 | 25,000.00 | 30.0% | - | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 0584 Saughton Road North (exc.) to South Gyle Access (inc.) | | | | | | | | | | 83,271.17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 0584 | Saughton Road North | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

USB00000073_0067



| Year |
|------------|
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2009 | 2009 | 2009 |
|--|----|----|----|----|-------------------------|--|----------------|--------|------------------------------|------------|----------|----------|--------------|------------|------|------|------|
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | 166 | Civil Engineering and Building Works | 77,039.41 | 37.3% | 01-Nov-09 | 09-Dec-09 | 40 | 24 | 26 | | | | |
| | | | | | Snagging | Snagging | 1,556.35 | 0.8% | | | | 26 | 27 | | | | |
| | | | | | A2110 | Deliver and install Shelter | 51,359.61 | 24.0% | | | | 15 | 27 | | | | |
| | | | | | Snagging | Snagging | 518.78 | 0.3% | | | | 27 | 28 | | | | |
| | | | | | 268 | Order REC Supply | | 0.0% | | | | 1 | 25 | | | | |
| | | | | | A3310 | Package Test Tramstop | 18,818.17 | 8.1% | | | | 8 | 30 | | | | |
| | | | | | A5280 | Install LV Power Supply and LV Power Equipment | 18,818.17 | 9.1% | | | | 36 | 27 | | | | |
| | | | | | A5290 | Install Telecom Equipment | 18,818.17 | 9.1% | | | | 39 | 29 | | | | |
| | | | | | A5300 | Install Station Control Equipment + AFC Equipment | 18,818.17 | 9.1% | | | | 37 | 29 | | | | |
| | | | | | A5279 | Access for E&M Tram Stop installation (668 Edinburgh Park) | | 0.0% | | | | 1 | 27 | | | | |
| | | | | | A5278 | Access for visual inspection for E&M Tram Stop installation (658 Edinburgh Park) | | 0.0% | | | | 1 | 26 | | | | |
| | | | | | Snagging | Snagging | 760.33 | 0.4% | | | | 30 | 31 | | | | |
| Edinburgh Park Station to Edinburgh Park Tramway (954m) | | | | | | | | | | | | | | | | | |
| | | | | | 490 | OLE Foundations - Drainage | 13,577.94 | 0.7% | | | | 29 | 17 | | | | |
| | | | | | 203 | Earthworks - Subbase | 185,991.35 | 9.2% | | | | 17 | 17 | | | | |
| | | | | | 629 | Track Formation - Ducts | 185,991.35 | 9.2% | | | | 26 | 18 | | | | |
| | | | | | 639 | Track laying | 743,965.38 | 36.7% | | | | 63 | 20 | | | | |
| | | | | | 639 | Track laying | 557,974.04 | 27.5% | | | | 63 | 20 | | | | |
| | | | | | 649 | Track Finishes | | 0.0% | | | | 21 | 22 | | | | |
| | | | | | 869 | Fencing | 185,991.35 | 9.2% | | | | 14 | 23 | | | | |
| | | | | | Snagging | Snagging | 18,524.16 | 0.9% | | | | 24 | 25 | | | | |
| | | | | | Highways | Highways BoQ works | 135,399.30 | 6.1% | | | | 23 | 24 | | | | |
| | | | | | Snagging | Snagging | 1,367.67 | 0.7% | | | | 24 | 25 | | | | |
| Edinburgh to Bolton Bridge 1827 Shortcuts Possibilities | | | | | | | | | | | | | | | | | |
| | | | | | 2,748,172.54 | | | | | | | | | | | | |
| | | | | | 23-Apr-09 | 23-Apr-09 | | | | | | | | | | | |
| | | | | | 41 | Establishment | | 0.0% | | | | 232 | 8 | 19 | | | |
| | | | | | 42 | Temporary Fencing | | 0.0% | | | | 1 | 8 | 8 | | | |
| | | | | | 363 | Haul Roads | | 0.0% | | | | 7 | 8 | 8 | | | |
| | | | | | 184 | Possession 1 (12hrs) | | 0.0% | | | | 1 | 8 | 8 | | | |
| | | | | | A14 | Remove Protection Barrier and Crash deck | | 0.0% | | | | 1 | 18 | 18 | | | |
| | | | | | A14120 | Possession 2 (12hrs) | | 0.0% | | | | 1 | 8 | 8 | | | |
| | | | | | A14130 | Network Rail Protection Barrier | | 0.0% | | | | 2 | 8 | 8 | | | |
| | | | | | A12 | Possession 5 (12hrs) | | 0.0% | | | | 1 | 18 | 18 | | | |
| | | | | | 758 | Steelwork | 119,485.76 | 100.0% | | | | 4 | 8 | 8 | | | |
| | | | | | 479 | Shuttering | | 0.0% | | | | 3 | 8 | 8 | | | |
| | | | | | 1101 | Concrete | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 758 | Steelwork | 119,485.76 | 100.0% | | | | 6 | 9 | 9 | | | |
| | | | | | 579 | Shuttering | | 0.0% | | | | 7 | 9 | 9 | | | |
| | | | | | 1111 | Concrete | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 292 | Ballast Wall | | 0.0% | | | | 7 | 9 | 9 | | | |
| | | | | | 513 | Cladding | | 0.0% | | | | 7 | 9 | 10 | | | |
| | | | | | 426 | Excavation | 119,485.76 | 100.0% | | | | 2 | 8 | 8 | | | |
| | | | | | 267 | Blinding | | 0.0% | | | | 1 | 8 | 8 | | | |
| | | | | | 748 | Maze Concrete Footing | 119,485.76 | 100.0% | | | | 4 | 10 | 10 | | | |
| | | | | | 469 | Place Fill | | 0.0% | | | | 15 | 11 | 11 | | | |
| | | | | | 101 | Build Wall units | | 0.0% | | | | 15 | 11 | 11 | | | |
| | | | | | 212 | Place Casing Units | | 0.0% | | | | 7 | 11 | 11 | | | |
| | | | | | 122 | South Abutment | 238,971.53 | 50.0% | | | | 68 | 8 | 11 | | | |
| | | | | | 738 | Maze Concrete Footing | 119,485.76 | 50.0% | | | | 2 | 10 | 10 | | | |
| | | | | | 459 | Place Fill | | 0.0% | | | | 15 | 10 | 10 | | | |
| | | | | | A14160 | Build Wall units | | 0.0% | | | | 15 | 10 | 10 | | | |
| | | | | | A102 | Place Casing Units | | 0.0% | | | | 5 | 11 | 11 | | | |
| | | | | | 436 | Excavation | | 0.0% | | | | 2 | 8 | 8 | | | |
| | | | | | 277 | Blinding | | 0.0% | | | | 1 | 8 | 8 | | | |
| | | | | | 778 | Steelwork | | 0.0% | | | | 6 | 8 | 9 | | | |
| | | | | | 689 | Shuttering | | 0.0% | | | | 3 | 9 | 9 | | | |
| | | | | | A111 | Concrete | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 758 | Steelwork | 119,485.76 | 100.0% | | | | 6 | 9 | 9 | | | |
| | | | | | 599 | Shuttering | | 0.0% | | | | 7 | 9 | 9 | | | |
| | | | | | 1121 | Concrete | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 322 | Ballast Wall | | 0.0% | | | | 7 | 9 | 10 | | | |
| | | | | | 523 | Cladding | | 0.0% | | | | 7 | 10 | 10 | | | |
| | | | | | 19 | Pier 1 | 119,485.76 | 100.0% | | | | 65 | 8 | 10 | | | |
| | | | | | 81 | Concrete | | 0.0% | | | | 2 | 9 | 9 | | | |
| | | | | | 191 | Steel fixing | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 201 | Shuttering | | 0.0% | | | | 6 | 8 | 9 | | | |
| | | | | | 202 | Steel fixing | | 0.0% | | | | 1 | 17 | 17 | | | |
| | | | | | 383 | Shuttering | | 0.0% | | | | 5 | 10 | 10 | | | |
| | | | | | 393 | Concrete | | 0.0% | | | | 4 | 10 | 10 | | | |
| | | | | | Excavation and Blinding | | 0.0% | | | | 4 | 10 | 10 | | | | |
| | | | | | 860 | Excavation | | 0.0% | | | | 1 | 17 | 17 | | | |
| | | | | | 800 | Blinding | | 0.0% | | | | 2 | 8 | 8 | | | |
| | | | | | 134 | Pier 2 | 119,485.76 | 100.0% | | | | 67 | 8 | 11 | | | |
| | | | | | 120 | Excavation and Blinding | | 0.0% | | | | 1 | 17 | 17 | | | |
| | | | | | 290 | Blinding | | 0.0% | | | | 2 | 8 | 8 | | | |
| | | | | | Base Construction | | 0.0% | | | | 1 | 8 | 8 | | | | |
| | | | | | 241 | Concrete | | 0.0% | | | | 2 | 9 | 9 | | | |
| | | | | | 251 | Steel fixing | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 261 | Shuttering | | 0.0% | | | | 6 | 9 | 9 | | | |
| | | | | | 232 | Steel fixing | | 0.0% | | | | 1 | 17 | 17 | | | |
| | | | | | 403 | Shuttering | | 0.0% | | | | 5 | 10 | 10 | | | |
| | | | | | 413 | Concrete | | 0.0% | | | | 4 | 11 | 11 | | | |
| | | | | | 369 | Pier 3 | 119,485.76 | 100.0% | | | | 71 | 8 | 11 | | | |
| | | | | | Excavation and Blinding | | 0.0% | | | | 1 | 17 | 17 | | | | |
| | | | | | 810 | Blinding | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 820 | Excavation | | 0.0% | | | | 2 | 8 | 8 | | | |
| | | | | | Base Construction | | 0.0% | | | | 2 | 9 | 9 | | | | |
| | | | | | 211 | Concrete | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 221 | Steel fixing | | 0.0% | | | | 5 | 9 | 9 | | | |
| | | | | | 231 | Shuttering | | 0.0% | | | | 6 | 9 | 9 | | | |
| | | | | | Columns | | 0.0% | | | | 1 | 17 | 17 | | | | |
| | | | | | 222 | Steel fixing | | 0.0% | | | | 5 | 11 | 11 | | | |
| | | | | | A1103 | Shuttering | | 0.0% | | | | 4 | 11 | 11 | | | |
| | | | | | A113 | Concrete | | 0.0% | | | | 4 | 11 | 11 | | | |
| | | | | | 174 | Pier 4 | 119,485.76 | 100.0% | | | | 73 | 9 | 11 | | | |
| | | | | | Excavation and Blinding | | 0.0% | | | | 1 | 17 | 17 | | | | |
| | | | | | 850 | Excavation | | 0.0% | | | | 2 | 8 | 8 | | | |
| | | | | | 860 | Blinding | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | Base Construction | | 0.0% | | | | 2 | 9 | 9 | | | | |
| | | | | | 331 | Concrete | | 0.0% | | | | 1 | 9 | 9 | | | |
| | | | | | 341 | Steel fixing | | 0.0% | | | | 5 | 9 | 9 | | | |
| | | | | | 351 | Shuttering | | 0.0% | | | | 6 | 9 | 9 | | | |
| | | | | | Columns | | 0.0% | | | | 1 | 17 | 17 | | | | |
| | | | | | 242 | Steel fixing | | 0.0% | | | | 5 | 11 | 11 | | | |
| | | | | | A123 | Shuttering | | 0.0% | | | | 4 | 11 | 11 | | | |
| | | | | | A133 | Concrete | | 0.0% | | | | 4 | 11 | 11 | | | |

USB00000073_0069

USB00000073_0070

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

| | | | | | | |
|--|--|--|--|--|---|--|
| | | | | | Pier 5 | |
| | | | | | Excavation and Blinding | |
| | | | | | Excavation | |
| | | | | | Blinding | |
| | | | | | Base Construction | |
| | | | | | Concrete | |
| | | | | | Steel fixing | |
| | | | | | Shuttering | |
| | | | | | Columns | |
| | | | | | Steel fixing | |
| | | | | | Shuttering | |
| | | | | | Concrete | |
| | | | | | Pier 6 | |
| | | | | | Excavation and Blinding | |
| | | | | | Excavation | |
| | | | | | Blinding | |
| | | | | | Base Construction | |
| | | | | | Concrete | |
| | | | | | Steel fixing | |
| | | | | | Shuttering | |
| | | | | | Columns | |
| | | | | | Steel fixing | |
| | | | | | Shuttering | |
| | | | | | Concrete | |
| | | | | | Pier 7 | |
| | | | | | Excavation and Blinding | |
| | | | | | Excavation | |
| | | | | | Blinding | |
| | | | | | Base Construction | |
| | | | | | Concrete | |
| | | | | | Steel fixing | |
| | | | | | Shuttering | |
| | | | | | Columns | |
| | | | | | Steel fixing | |
| | | | | | Shuttering | |
| | | | | | Concrete | |
| | | | | | Superstructure - Span South Ramp to Pier 1 | |
| | | | | | Fix Bearings | |
| | | | | | Temporary Beam Supports | |
| | | | | | Place Beams | |
| | | | | | Deck Reinforcement | |
| | | | | | Permanent Formwork | |
| | | | | | Deck Shuttering | |
| | | | | | Cast Deck | |
| | | | | | Cast Deck | |
| | | | | | Cast Parapet Beams | |
| | | | | | Superstructure - Span Pier 1 to Pier 2 | |
| | | | | | Fix Bearings | |
| | | | | | Temporary Beam Supports | |
| | | | | | Place Beams | |
| | | | | | Deck Reinforcement | |
| | | | | | Permanent Formwork | |
| | | | | | Deck Shuttering | |
| | | | | | Cast Deck | |
| | | | | | Cast Deck | |
| | | | | | Cast Parapet Beams | |
| | | | | | Superstructure - Span Pier 2 to Pier 3 | |
| | | | | | Fix Bearings | |
| | | | | | Temporary Beam Supports | |
| | | | | | Place Beams | |
| | | | | | Deck Reinforcement | |
| | | | | | Permanent Formwork | |
| | | | | | Deck Shuttering | |
| | | | | | Cast Deck | |
| | | | | | Cast Deck | |
| | | | | | Cast Parapet Beams | |
| | | | | | Superstructure - Span Pier 3 to Pier 4 | |
| | | | | | Fix Bearings | |
| | | | | | Temporary Beam Supports | |
| | | | | | Place Beams | |
| | | | | | Deck Reinforcement | |
| | | | | | Permanent Formwork | |
| | | | | | Deck Shuttering | |
| | | | | | Cast Deck | |
| | | | | | Cast Deck | |
| | | | | | Cast Parapet Beams | |
| | | | | | Superstructure - Span Pier 4 to Pier 5 | |
| | | | | | Fix Bearings | |
| | | | | | Temporary Beam Supports | |
| | | | | | Place Beams | |
| | | | | | Deck Reinforcement | |
| | | | | | Permanent Formwork | |
| | | | | | Deck Shuttering | |
| | | | | | Cast Deck | |
| | | | | | Cast Deck | |
| | | | | | Cast Parapet Beams | |
| | | | | | Superstructure - Span Pier 5 to Pier 6 | |
| | | | | | Fix Bearings | |
| | | | | | Temporary Beam Supports | |
| | | | | | Place Beams | |
| | | | | | Deck Reinforcement | |
| | | | | | Permanent Formwork | |
| | | | | | Deck Shuttering | |
| | | | | | Cast Deck | |
| | | | | | Cast Deck | |
| | | | | | Cast Parapet Beams | |
| | | | | | Superstructure - Deck Finishes | |
| | | | | | Waterproofing | |
| | | | | | Expansion Joints | |

| Contract Value | %age | Programme Dates Start Date | End Date | Duration | Start Period | End Period | 1 02-Feb-2008 | 2 01-Mar-2008 | 3 29-Mar-2008 | 4 26-Apr-2008 | 5 24-May-2008 | 6 21-Jun-2008 | 7 19-Jul-2008 | 8 16-Aug-2008 | 9 13-Sep-2008 | 10 11-Oct-2008 | 11 08-Nov-2008 | 12 06-Dec-2008 | 13 03-Jan-2009 | 2008 Subtotal GBP |
|----------------|--------|-------------------------------|-----------|----------|--------------|------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 06-Nov-08 | 93 | 16 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 07-Aug-08 | 2 | 8 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 08-Aug-08 | 2 | 9 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 12-Sep-08 | 5 | 9 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 15-Sep-08 | 6 | 9 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 27-Oct-08 | 5 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 06-Nov-08 | 4 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 12-Aug-08 | 2 | 9 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 13-Aug-08 | 1 | 8 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 29-Aug-08 | 2 | 9 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 10 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 19-Sep-08 | 5 | 10 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 07-Nov-08 | 5 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 13-Nov-08 | 4 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 15-Aug-08 | 2 | 8 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 18-Aug-08 | 1 | 9 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 10 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 30-Sep-08 | 1 | 10 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 26-Sep-08 | 5 | 10 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 14-Nov-08 | 5 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 20-Nov-08 | 4 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 16-Oct-08 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 17-Oct-08 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 18-Nov-08 | 21 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 21-Nov-08 | 33 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 03-Nov-08 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 10-Nov-08 | 1 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 24-Nov-08 | 1 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 23-Apr-09 | 23-Apr-09 | 1 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | 06-Aug-08 | 16-Oct-08 | 7 | 10 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 119,485.76 |
| 119,485.76 | 100.0% | | | | | | | | | | | | | | | | | | | |

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| Year |
| Period |
| Period End |

| |
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| Year |
| Period |
| Period End |

| 2011 | | | | | | | | | | | | | 2011 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal |
| 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | GPR |

USB00000073_0074



| Activity | | | | | Contract Value | | Ytd | | Programme Dates | | Start Date | | End Date | | Duration | | Start Period | | End Period | | 2008 | | | | | | | | | | | | | 2008 | | | | | |
|---------------------|----|----|----|----|--|--|----------------------|-----|-----------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|--------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | | | 15-Apr-08 | 16-Apr-08 | 17-Apr-08 | 18-Apr-08 | 19-Apr-08 | 20-Apr-08 | 21-Apr-08 | 22-Apr-08 | 23-Apr-08 | 24-Apr-08 | 25-Apr-08 | 26-Apr-08 | 27-Apr-08 | 28-Apr-08 | 29-Apr-08 | 30-Apr-08 | 01-May-08 | 02-May-08 | 03-May-08 | 04-May-08 | 05-May-08 | 06-May-08 | 07-May-08 | 08-May-08 | 09-May-08 | 10-May-08 | 11-May-08 | 12-May-08 | 13-May-08 | Subtotal | GBP |
| Trackwork | | | | | 493 | Parapet Rails | Structures | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Trackwork | | | | | 503 | Walkway Construction | Structures | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Trackwork | | | | | 258 | Trackwork | Structures | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Trackwork | | | | | 339 | Concreted Slabs | Structures | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Trackwork | | | | | 90 | S27 Edinburgh Park Station bridge - Fix Rails | Structures | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 51 | M & E Works | SCC | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 52 | OLE Supports | SCC | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 373 | Catenary Cables | SCC | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A14140 | Posession 5 (12hrs) | SCC | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A14150 | OLE Supports and Catenary over Tracks | OLE | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Snagging | Snagging | Third Party Sign-off | OLE | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 3rd Party | 3rd Party Sign-off | Structures | SB | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Crit. Milestone | Completion of Edinburgh Park Station Bridge (2) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 90C Edinburgh Park (exc) to Gogarburn (inc.) | 90C Edinburgh Park (exc) to Gogarburn (inc.) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 90C Edinburgh Park (exc) to Gogarburn (inc.) | 90C Edinburgh Park (exc) to Gogarburn (inc.) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Edinburgh Park to Depot | Edinburgh Park to Depot | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A41170 | Overhead Catenary Line | OLE | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Snagging | Snagging | OLE | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A41180 | Install Electrical Cables | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4190 | Install Fibre Optic Cables | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4200 | Install Signalling Wayside Equipment | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4165 | Installation of poles and building fittings | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4164 | Access for E&M wayside installation (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4179 | Access to cable pits for cable laying (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4163 | Access for visual inspection for E&M wayside installation (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A4178 | Access for visual inspection to cable pits for cable laying (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Snagging | Snagging | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 2700.36 | 2700.36 | 0.4% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 638,870.09 | 638,870.09 | 100% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16930 | Overhead Catenary Line | OLE | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Snagging | Snagging | OLE | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16960 | Install Electrical Cables | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16970 | Install Fibre Optic Cables | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16980 | Install Signalling Wayside Equipment | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16920 | Installation of poles and building fittings Section 5c: Edin Park Central to Gogarburn | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16910 | Access for E&M wayside installation (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16950 | Access to cable pits for cable laying (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16900 | Access for visual inspection for E&M wayside installation (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16940 | Access for visual inspection to cable pits for cable laying (05C) | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Snagging | Snagging | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 2700.36 | 2700.36 | 0.4% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | 638,870.09 | 638,870.09 | 100% | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16930 | Overhead Catenary Line | OLE | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | Snagging | Snagging | OLE | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16960 | Install Electrical Cables | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16970 | Install Fibre Optic Cables | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16980 | Install Signalling Wayside Equipment | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | A16920 | Installation of poles and building fittings Section 5c: Edin Park Central to Gogarburn | SCC | SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| E & M Installations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

USB00000073_0076

USB00000073_0077

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | | | | Contract Value | %age | Programme Dates 12-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2011 | | | | | | | | | | | | | | 2011 | |
|---------------------|--------|---------------|----------------------|------------|-------------|---------------|--|--|--|----------------|------|------------------------------|------------|-----------|-----------|--------------|------------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---|
| | | | | | | | | | | | | | | | | | | | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal | |
| | | | | | | | | | | | | | | | | | | | 29-Jan-11 | 26-Feb-11 | 26-Mar-11 | 23-Apr-11 | 21-May-11 | 18-Jun-11 | 16-Jul-11 | 13-Aug-11 | 10-Sep-11 | 08-Oct-11 | 05-Nov-11 | 03-Dec-11 | 31-Dec-11 | GBP | |
| Trackwork | 503 | Parapet Rails | Walkway Construction | Structures | 5B | | | | | | | 03-Mar-09 | 28-Apr-09 | 57 | 16 | 18 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | | | | | | | | 119,485.76 | 100.0% | 24-Apr-09 | 22-May-09 | 29 | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 238,970.93 | 100% | 16-Apr-09 | 30-Apr-09 | 15 | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 16-Apr-09 | 30-Apr-09 | 15 | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 50.0% | 16-Apr-09 | 29-Apr-09 | 14 | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 50.0% | 24-Apr-09 | 30-Apr-09 | 7 | 17 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 537,943.93 | 100% | 01-May-09 | 24-May-09 | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 24-May-09 | 24 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| E & M Installations | 51 | M & E Works | OLE Supports | SCC | 5B | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| E & M Installations | A14140 | OLE Supports | OLE Supports | SCC | 5B | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| E & M Installations | A14150 | OLE Supports | OLE Supports | SCC | 5B | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| E & M Installations | A14178 | OLE Supports | OLE Supports | SCC | 5B | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 01-May-09 | 06-May-09 | 6 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | 119,485.76 | 22.2% | 07-May-09 | 13-May-09 | 7 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| E & M Installations | A14178 | OLE Supports | OLE Supports | SCC | 5B | | | | | | | 119,485.76 | 0.0% | 23-May-09 | 23-May-09 | 1 | 18 | 19 | | | | | | | | | | | | | | | |

USB00000073 0079

USB00000073_0080

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| Year |
| Period |
| Desired End |

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USB00000073_0085

USB00000073_0086



| | | | | | | | Programme Dated | | Year | | 2008 | | | | | | | | | | | | | 2008 | | | |
|----|----|----|----|----|-----------------------------|---|-----------------|-------|------------|-----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Subtotal |
| | | | | | | | | | | | | | | 02-Feb-2008 | 01-Mar-2008 | 20-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | GBP |
| | | | | | 389 | Track Laying IPR to AIR - 50% | 663,342.34 | 29.1% | 22-Oct-09 | 03-Dec-09 | 43 | 24 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 389 | Track Laying IPR to AIR - 50% | 663,342.34 | 29.1% | 22-Oct-09 | 03-Dec-09 | 43 | 24 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A2350 | Fencing & Trackside Finishes | 221,114.11 | 9.7% | 18-Dec-09 | 25-Jan-10 | 39 | 26 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | 22,586.54 | 1.0% | | | | 27 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Highways | Highways BoQ works | 25,716.74 | 1.1% | | | | 26 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | 250.77 | 0.0% | | | | 27 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Edinburgh Airport Tram Stop | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Tramstop | | 267,921.57 | 100% | 04-Dec-09 | 25-Jun-10 | 204 | 25 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 160 | Civil Engineering and Building Works | 157,327.26 | 54.6% | 04-Dec-09 | 18-Mar-10 | 105 | 25 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | 1,589.16 | 0.6% | | | | 29 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A1180 | Deliver and Install Shelter | 52,442.42 | 18.2% | 23-Mar-10 | 07-Apr-10 | 16 | 29 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | 529.72 | 0.2% | | | | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | 208 | Order REC Supply | - | 0.0% | 09-Feb-10 | 09-Feb-10 | 1 | 28 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A5470 | Package Test Tramstop | 15,054.53 | 5.2% | 18-Jun-10 | 25-Jun-10 | 8 | 32 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A5440 | Install LV Power Supply and LV Power Equipment | 15,054.53 | 5.2% | 07-Apr-10 | 13-May-10 | 37 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A5460 | Install Telecom Equipment | 15,054.53 | 5.2% | 13-May-10 | 11-Jun-10 | 30 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A5460 | Install Station Control Equipment + AFC Equipment | 15,054.53 | 5.2% | 13-May-10 | 18-Jun-10 | 37 | 31 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6360 | Installation of SIG-interlocking cubicle | 15,054.53 | 5.2% | 21-Apr-10 | 05-May-10 | 15 | 30 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A6370 | Commissioning of SIG-interlocking cubicle | - | 0.0% | 13-May-10 | 19-May-10 | 7 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A5439 | Access for E&M Tram Stop installation (OTA Edinburgh Airport) | - | 0.0% | 07-Apr-10 | 07-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | A5438 | Access for visual inspection for E&M Tram Stop installation (OTA Edinburgh Airport) | - | 0.0% | 08-Mar-10 | 08-Mar-10 | 1 | 29 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Snagging | Snagging | 760.33 | 0.3% | | | | 33 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Preliminary only | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Crit. Milestone | 1st Completion Approval - Gogar to Edinburgh Airport (1) (23) | 0 | 0.0% | | | | | | 30-May-10 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Construction complete Line 12 (36) | 0 | 0.0% | | | | | | 09-Jan-11 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Delivery of 1st Train (37) | 0 | 0.0% | | | | | | 02-Mar-10 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Delivery of 9th Train (38) | 0 | 0.0% | | | | | | 02-May-10 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Delivery of 27th Train (39) | 0 | 0.0% | | | | | | 12-Dec-10 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Acceptance of Shadow Running Safety Management System by ICP (40) | 0 | 0.0% | | | | | | 09-Jan-10 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Acceptance of Passenger Service Safety Management System by ICP (41) | 0 | 0.0% | | | | | | 08-Jan-11 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Acceptance of Journey Time Requirement test (42) | 0 | 0.0% | | | | | | 05-Apr-11 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | Wheel / Rail Interface (43) | 0 | 0.0% | | | | | | 02-Mar-10 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Crit. Milestone | RAMS Acceptance (44) | 0 | 0.0% | | | | | | 09-Jan-11 | - | - | - | - | - | - | - | - | - | - | - | - | - |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|-------------------------------------|----|----|----|----|--|--|
| | | | | | 389 | Track Laying IPR to AIR - 50% |
| | | | | | 389 | Track Laying IPR to AIR - 50% |
| | | | | | A2350 | Fencing & Trackside Finishes |
| | | | | | Snagging | Snagging |
| | | | | | Highways | Highways BoD works |
| | | | | | Snagging | Snagging |
| Edinburgh Airport Train Stop | | | | | | |
| | | | | | Tramstop | |
| | | | | | 169 | Civil Engineering and building Works |
| | | | | | Snagging | Snagging |
| | | | | | A1880 | Deliver and Install Shelter |
| | | | | | Snagging | Snagging |
| | | | | | 208 | Order REC Supply |
| | | | | | A5470 | Package Test Tramstop |
| | | | | | Install LV Power Supply and LV Power Equipment | |
| | | | | | A5460 | Install Telecom Equipment |
| | | | | | A5450 | Install Station Control Equipment + AFC Equipment |
| | | | | | A5360 | Installation of SIG-interlocking outside |
| | | | | | A5370 | Commissioning of SIG interlocking outside |
| | | | | | Access for E&M Train Stop installation (OTA Edinburgh Airport) | |
| | | | | | Access for visual inspection for E&M Train Stop installation (OTA Edinburgh Airport) | |
| | | | | | A5438 | Snagging |
| | | | | | Snagging | |
| Prerequisites | | | | | | |
| | | | | | CfR: Milestone | Complete Completion Approval - Glasgow to Edinburgh Airport (1) (23) |
| | | | | | CfR: Milestone | Construction complete - Line 1 & 2 (24) |
| | | | | | CfR: Milestone | Delivery of 1st Train (25) |
| | | | | | CfR: Milestone | Delivery of 5th Train (26) |
| | | | | | CfR: Milestone | Delivery of 21st Train (29) |
| | | | | | CfR: Milestone | Acceptance of Shadow Running Safety Management System by ICP (40) |
| | | | | | CfR: Milestone | Acceptance of Passenger Service Safety Management System by ICP (41) |
| | | | | | CfR: Milestone | Acceptance of Journey Time Requirement (42) |
| | | | | | CfR: Milestone | Wyehead / Penetration (43) |

| 2010 | | | | | | | | | | | | | 2010 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | Subtotal |
| 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | RSP |

| | | Programme Dates | | | Start Period | End Period |
|-------------------|-------------|------------------|------------------|------------|--------------|------------|
| Contract Value | %age | Start Date | End Date | Duration | | |
| 663,342.34 | 29.1% | 22-Oct-09 | 03-Dec-09 | 43 | 24 | 25 |
| 663,342.34 | 29.1% | 22-Oct-09 | 03-Dec-09 | 43 | 24 | 25 |
| 221,114.11 | 9.7% | 18-Dec-09 | 25-Jan-10 | 39 | 26 | 28 |
| 22,536.54 | 1.0% | | | | 27 | 28 |
| 25,716.74 | 1.1% | | | | 26 | 27 |
| 259.77 | 0.0% | | | | 27 | 28 |
| 287,621.57 | 100% | 04-Dec-09 | 25-Jan-10 | 204 | 25 | 34 |
| 157,327.26 | 54.6% | 04-Dec-09 | 18-Mar-10 | 105 | 25 | 29 |
| 1,598.16 | 0.6% | 23-Mar-10 | | | 29 | 30 |
| 52,442.42 | 18.2% | 23-Mar-10 | 07-Apr-10 | 16 | 29 | 30 |
| 529.72 | 0.2% | | | | 30 | 31 |
| | 0.0% | 09-Feb-10 | 09-Feb-10 | 1 | 28 | 28 |
| 15,054.53 | 5.2% | 18-Jun-10 | 25-Jun-10 | 8 | 32 | 33 |
| 15,054.53 | 5.2% | 07-May-10 | 13-May-10 | 37 | 30 | 31 |
| 15,054.53 | 5.2% | 13-May-10 | 11-Jun-10 | 30 | 31 | 32 |
| 15,054.53 | 5.2% | 13-May-10 | 18-Jun-10 | 37 | 31 | 32 |
| 15,054.53 | 5.2% | 21-Apr-10 | 05-May-10 | 15 | 30 | 31 |
| | 0.0% | 13-May-10 | 19-May-10 | 7 | 31 | 31 |
| | 0.0% | 07-May-10 | 07-Apr-10 | 1 | 30 | 30 |
| | 0.0% | 08-Mar-10 | 03-Mar-10 | 1 | 29 | 29 |
| 780.33 | 0.3% | | | | 33 | 34 |
| 0 | 0.0% | | 30-May-10 | | | |
| 0 | 0.0% | | 09-MAR-11 | | | |
| 0 | 0.0% | | 05-Mar-10 | | | |
| 0 | 0.0% | | 09-Mar-10 | | | |
| 0 | 0.0% | | 12-Dec-10 | | | |
| 0 | 0.0% | | 09-Jan-10 | | | |
| 0 | 0.0% | | 09-Jan-11 | | | |
| 0 | 0.0% | | 09-Jan-11 | | | |
| 0 | 0.0% | | 05-Jan-11 | | | |
| 0 | 0.0% | | 05-Jan-11 | | | |

| 2010 | | | | | | | | | | | | | 2010 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | Subtotal |
| 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | GBP |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 221,114 | - | - | - | - | - | - | - | - | - | - | - | - | 221,114 |
| 25,717 | 22,537 | - | - | - | - | - | - | - | - | - | - | - | 22,537 |
| - | 260 | - | - | - | - | - | - | - | - | - | - | - | 260 |
| - | - | 157,327 | 54,032 | 30,639 | 30,109 | 15,055 | 760 | - | - | - | - | - | 287,922 |
| - | - | 157,327 | - | - | - | - | - | - | - | - | - | - | 157,327 |
| - | - | - | 1,989 | - | - | - | - | - | - | - | - | - | 1,989 |
| - | - | - | 52,442 | - | - | - | - | - | - | - | - | - | 52,442 |
| - | - | - | - | 530 | - | - | - | - | - | - | - | - | 530 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | 15,055 | - | - | - | - | - | - | 15,055 |
| - | - | - | - | - | - | - | 15,055 | - | - | - | - | - | 15,055 |
| - | - | - | - | - | 15,055 | - | - | - | - | - | - | - | 15,055 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | 760 | - | - | - | - | - | 760 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | | | | | | | | | | |

| | |
|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |

The Authority of Greater



| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

| Contract Value | %age |
|----------------|------|
|----------------|------|

| Programme Dated | | 15-Apr-08 | | Duration | | Start Period | | End Period | |
|-----------------|----------|------------|----------|------------|----------|--------------|----------|------------|----------|
| Start Date | End Date | Start Date | End Date | Start Date | End Date | Start Date | End Date | Start Date | End Date |


| Year | | Period | | Period Start | |
|-------------|-------------|-------------|-------------|--------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 02-Feb-2008 | 01-Mar-2008 | 20-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 |

| 2008 | | | | | | | |
|----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 |

| 2008 |
|----------|
| Subtotal |
| GBP |

| | |
|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |

The Multi-Phase Group



BILFINGER

BERGER

The Multi-Phase Group



BILFINGER

BERGER



| |
|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

| Contract Value | %age |
|----------------|------|
|----------------|------|

| Programme Dates | | Duration | Start Period | End Period |
|-----------------|----------|----------|--------------|------------|
| Start Date | End Date | | | |

| 2009 | | | | | | | | | | | | | | 2009 | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|----------|--|
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | | Subtotal | |
| 31-Jan-2009 | 28-Feb-2009 | 28-Mar-2009 | 25-Apr-2009 | 23-May-2009 | 20-Jun-2009 | 18-Jul-2009 | 15-Aug-2009 | 12-Sep-2009 | 10-Oct-2009 | 07-Nov-2009 | 05-Dec-2009 | 02-Jan-2010 | | GBP | |

| | |
|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |

The Authority
Contract





| |
|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

| Contract Value | %age |
|----------------|------|
|----------------|------|

| Programme Dates | | Duration | Start Period | End Period |
|-----------------|----------|----------|--------------|------------|
| Start Date | End Date | | | |

| 2010 | | | | | | | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 |

| 2010 |
|----------|
| Subtotal |
| GBP |

| | |
|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |

The ASUR Service Group



| |
|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

| Contract Value | %age |
|----------------|------|
|----------------|------|

| Programme Dates | | Duration | Start Period | End Period |
|-----------------|----------|----------|--------------|------------|
| Start Date | End Date | | | |

| 2011 | | | | | | | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
| 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 |

| 2011 |
|----------|
| Subtotal |
| GBP |

Project Edinburgh Tram Network
Subject Milestone Payment Schedule
Currency GBP

The Multi-Supplier Gateway

BILFINGER BERGER

SIEMENS

Year
Period

| L1 L2 L3 L4 L5 Activity ID Activity Name | | | | | Contract Value | %age | Programme Dates | | Start Period | End Period | 2008 | | | | | | | | | | | | | 2009 | |
|--|--|--|--|--|----------------|--------|-----------------|-------------|--------------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| | | | | | | | Start Date | End Date | Duration | Start Period | End Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Subtotal |
| | | | | | | | | | | | | 02-Feb-2008 | 01-Mar-2008 | 29-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | GBP |
| Project Total | | | | | 95,791,633.91 | | 12-May-2008 | 10-Jun-2011 | 1120 | 5 | 45 | - | - | - | - | 11,008,325 | 1,100,832 | 148,002 | - | - | - | 1,651,249 | 9,687,326 | - | 23,595,734 |
| 00A Mobilisation | | | | | 11,008,324.98 | | 12-May-2008 | 12-May-2008 | 1 | 5 | 5 | - | - | - | - | 11,008,325 | 1,100,832 | 148,002 | - | - | - | 1,651,249 | 9,687,326 | - | 23,595,734 |
| 00AT Mobilisation | | | | | 11,008,324.98 | | 12-May-2008 | 12-May-2008 | 1 | 5 | 5 | - | - | - | - | 11,008,325 | - | - | - | - | - | - | - | - | 11,008,325 |
| Mobilisation | | | | | 11,008,324.98 | 100% | 12-May-08 | 12-May-08 | 1 | 5 | 5 | - | - | - | - | 11,008,325 | - | - | - | - | - | - | - | - | 11,008,325 |
| 0 | | | | | 11,008,324.98 | 100.0% | 12-May-08 | 12-May-08 | 1 | 5 | 5 | - | - | - | - | 11,008,325 | - | - | - | - | - | - | - | - | 11,008,325 |
| Pre-delivery Activities | | | | | 30,531,318.65 | | 12-May-08 | 10-Jun-09 | 590 | 6 | 27 | - | - | - | - | 1,100,832 | 148,002 | - | - | - | - | - | - | - | 12,587,409 |
| 1 | | | | | 1,100,832.50 | 3.7% | 10-Jun-08 | 10-Jun-08 | 1 | 6 | 6 | - | - | - | - | - | 1,100,832 | - | - | - | - | - | - | - | 1,100,832 |
| 1A | | | | | 148,001.81 | 0.5% | 10-Jun-08 | 10-Jun-08 | 1 | 7 | 7 | - | - | - | - | - | - | 148,002 | - | - | - | - | - | - | 148,002 |
| 2 | | | | | 1,651,248.75 | 5.5% | 17-Nov-08 | 17-Nov-08 | 1 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | | | | 1,651,248.75 | 5.5% | 03-Nov-08 | 03-Nov-08 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 | | | | | 0.00 | 0.0% | 05-May-09 | 05-May-09 | 1 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | | | | | 9,687,326.98 | 32.2% | 25-Nov-08 | 25-Nov-08 | 1 | 12 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6 | | | | | 3,302,497.49 | 11.0% | 02-Jun-09 | 02-Jun-09 | 1 | 19 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 7 | | | | | 3,302,497.49 | 11.0% | 10-Nov-09 | 10-Nov-09 | 1 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 | | | | | 3,302,497.49 | 11.0% | 25-Nov-09 | 25-Nov-09 | 1 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9 | | | | | 3,852,913.74 | 12.8% | 05-Jan-10 | 05-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | | | | | 3,302,497.49 | 11.0% | 12-Jan-10 | 12-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10A | | | | | 481,026.87 | 1.6% | 20-Jan-10 | 20-Jan-10 | 1 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00B Delivery & Commissioning of Trams | | | | | 9,137,827.83 | | 09-Apr-2010 | 04-Feb-2011 | 302 | 30 | 41 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00B1 Delivery & Commissioning of Trams | | | | | 9,137,827.83 | | 09-Apr-2010 | 04-Feb-2011 | 302 | 30 | 41 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Delivery & Commissioning of Trams | | | | | 9,137,827.83 | 100% | 09-Apr-10 | 04-Feb-11 | 302 | 30 | 41 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 | | | | | 1,651,248.75 | 18.1% | 09-Apr-10 | 04-Aug-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11A | | | | | 74,000.90 | 0.8% | 20-Apr-10 | 20-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 | | | | | 1,651,248.75 | 18.1% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 13 | | | | | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 14 | | | | | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15 | | | | | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 16 | | | | | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 17 | | | | | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18 | | | | | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 19 | | | | | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | | | | | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21 | | | | | 110,083.25 | 1.2% | 15-Jun-10 | 15-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 22 | | | | | 110,083.25 | 1.2% | 05-Jul-10 | 05-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23 | | | | | 110,083.25 | 1.2% | 15-Jun-10 | 15-Jun-10 | 1 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 24 | | | | | 110,083.25 | 1.2% | 05-Jul-10 | 05-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25 | | | | | 110,083.25 | 1.2% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25A | | | | | 37,000.45 | 0.4% | 20-Jul-10 | 20-Jul-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | | | | | 110,083.25 | 1.2% | 04-Aug-10 | 04-Aug-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 27 | | | | | 110,083.25 | 1.2% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28 | | | | | 110,083.25 | 1.2% | 04-Aug-10 | 04-Aug-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 29 | | | | | 110,083.25 | 1.2% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30 | | | | | 110,083.25 | 1.2% | 04-Aug-10 | 04-Aug-10 | 1 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | | | | | 110,083.25 | 1.2% | 16-Aug-10 | 16-Aug-10 | 1 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | | | | | 110,083.25 | 1.2% | 03-Sep-10 | 03-Sep-10 | 1 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | | | | | 110,083.25 | 1.2% | 16-Aug-10 | 16-Aug-10 | 1 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 34 | | | | | 110,083.25 | 1.2% | 03-Sep-10 | 03-Sep-10 | 1 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35 | | | | | 110,083.25 | 1.2% | 15-Sep-10 | 15-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36 | | | | | 110,083.25 | 1.2% | 05-Oct-10 | 05-Oct-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 37 | | | | | 110,083.25 | 1.2% | 15-Sep-10 | 15-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38 | | | | | 110,083.25 | 1.2% | 05-Oct-10 | 05-Oct-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 39 | | | | | 110,083.25 | 1.2% | 15-Sep-10 | 15-Sep-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 40 | | | | | 110,083.25 | 1.2% | 05-Oct-10 | 05-Oct-10 | 1 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 41 | | | | | 110,083.25 | 1.2% | 15-Oct-10 | 15-Oct-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 42 | | | | | 110,083.25 | 1.2% | 04-Nov-10 | 04-Nov-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 43 | | | | | 110,083.25 | 1.2% | 15-Oct-10 | 15-Oct-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 44 | | | | | 110,083.25 | 1.2% | 04-Nov-10 | 04-Nov-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 45 | | | | | 110,083.25 | 1.2% | 15-Oct-10 | 15-Oct-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 46 | | | | | 110,083.25 | 1.2% | 04-Nov-10 | 04-Nov-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 47 | | | | | 110,083.25 | 1.2% | 15-Nov-10 | 15-Nov-10 | 1 | 38</ | | | | | | | | | | | | | | | |

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Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Edinburgh Tramway Company

BILFINGER BERGER

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Year
Period
Period End

| | | | | Contract Value | | Percentage | | Start Date | | End Date | | Start Date | | End Date | | 2010 | | | | | | | | | | | | 2010 | | |
|---|----|----|----|----------------|--|----------------|------------|-------------|-------------|------------|----------|------------|----------|------------|----------|-----------|----|----|-----------|---------|-----------|-----------|---------|---------|---------|---------|---------|---------|------------|-----------|
| L1 | L2 | L3 | L4 | Activity ID | Activity Name | Contract Value | Percentage | Start Date | End Date | Start Date | End Date | Start Date | End Date | Start Date | End Date | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | Subtotal | GBP |
| Project Total | | | | | | 55,781,633.91 | | 12-May-2009 | 04-Jun-2011 | 11-10 | 5 | 5 | 5 | 5 | 5 | 7,636,417 | - | - | 2,820,082 | 440,333 | 2,311,748 | 1,651,249 | 367,250 | 440,333 | 660,499 | 660,499 | 660,499 | 330,250 | 17,885,161 | |
| 000 Mobilisation & Commissioning of Trams | | | | | | 11,008,324.98 | | 12-May-2009 | 12-May-2009 | 1 | 5 | 5 | 5 | 5 | 5 | 7,636,417 | - | - | 2,820,082 | 440,333 | 2,311,748 | 1,651,249 | 367,250 | 440,333 | 660,499 | 660,499 | 660,499 | 330,250 | 17,885,161 | |
| 00A1 Mobilisation | | | | | | 11,008,324.98 | | 12-May-2009 | 12-May-2009 | 1 | 5 | 5 | 5 | 5 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mobilisation | | | | | | 11,008,324.98 | 100% | 12-May-09 | 12-May-09 | 1 | 5 | 5 | 5 | 5 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 0 | | | | | Contract Award | 11,008,324.98 | 100.0% | 12-May-09 | 12-May-09 | 1 | 5 | 5 | 5 | 5 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pre-delivery Activities | | | | | | 30,132,318.61 | | 15-Jun-09 | 20-Jun-09 | 5 | 6 | 6 | 6 | 6 | 6 | 7,636,417 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7,636,417 |
| 1A | | | | | Approval of Preliminary Design (Pre-Works Development Services) | 1,000,832.50 | 3.3% | 10-Jun-09 | 10-Jun-09 | 1 | 6 | 6 | 6 | 6 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2 | | | | | Delivery of Mock-Up (Pre-Works Development Services) | 1,480,011.81 | 0.5% | 10-Jul-09 | 10-Jul-09 | 1 | 7 | 7 | 7 | 7 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | | | | Approval of Final Design/Mock-Up (Pre-Works Development Services) | 1,651,248.75 | 5.5% | 03-Nov-09 | 03-Nov-09 | 1 | 11 | 11 | 11 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 | | | | | Obtaining Approvals and Consents for Tram (Pre-Works Development Services) | 9,687,325.98 | 0.0% | 05-May-09 | 05-May-09 | 1 | 18 | 18 | 18 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | | | | | Commencement of Tram Works | 3,302,497.49 | 11.0% | 25-Nov-09 | 25-Nov-09 | 1 | 25 | 25 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6 | | | | | Completion of 1st Trammel of bodysells | 3,302,497.49 | 11.0% | 02-Jun-09 | 02-Jun-09 | 1 | 19 | 19 | 19 | 19 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 7 | | | | | Completion of 1st Trammel of bogies | 3,302,497.49 | 11.0% | 10-Nov-09 | 10-Nov-09 | 1 | 25 | 25 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 | | | | | Completion of assembly of 1st Tram | 3,302,497.49 | 11.0% | 25-Nov-09 | 25-Nov-09 | 1 | 25 | 25 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9 | | | | | Completion of factory based type testing | 3,852,913.74 | 12.8% | 05-Jan-10 | 05-Jan-10 | 1 | 27 | 27 | 27 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | | | | | Delivery of Preliminary Tram Maintenance Manuals | 3,302,497.49 | 11.0% | 12-Jan-10 | 12-Jan-10 | 1 | 27 | 27 | 27 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10A | | | | | Depot Equipment - Delivery | 481,005.87 | 1.6% | 20-Jan-10 | 20-Jan-10 | 1 | 27 | 27 | 27 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00B Delivery & Commissioning of Trams | | | | | | 9,137,827.83 | | 09-Apr-2010 | 04-Feb-2011 | 302 | 30 | 41 | 30 | 41 | 30 | - | - | - | 1,725,250 | 440,333 | 2,311,748 | 550,416 | 367,250 | 440,333 | 660,499 | 660,499 | 660,499 | 330,250 | 8,147,079 | |
| 00B1 Delivery & Commissioning of Trams | | | | | | 9,137,827.83 | | 09-Apr-2010 | 04-Feb-2011 | 302 | 30 | 41 | 30 | 41 | 30 | - | - | - | 1,725,250 | 440,333 | 2,311,748 | 550,416 | 367,250 | 440,333 | 660,499 | 660,499 | 660,499 | 330,250 | 8,147,079 | |
| Delivery & Commissioning of Trams | | | | | | 9,137,827.83 | 100% | 09-Apr-10 | 04-Feb-11 | 302 | 30 | 41 | 30 | 41 | 30 | - | - | - | 1,725,250 | 440,333 | 2,311,748 | 550,416 | 367,250 | 440,333 | 660,499 | 660,499 | 660,499 | 330,250 | 8,147,079 | |
| 11 | | | | | Delivery of 1st Tram | 1,651,248.75 | 18.1% | 09-Apr-10 | 09-Apr-10 | 1 | 30 | 30 | 30 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11A | | | | | Depot Equipment - Acceptance Test | 74,000.90 | 0.8% | 20-Apr-10 | 20-Apr-10 | 1 | 30 | 30 | 30 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 | | | | | Commissioning of 1st Tram | 1,651,248.75 | 18.1% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 13 | | | | | Delivery of 2nd Tram | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | 31 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 14 | | | | | Commissioning of 2nd Tram | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15 | | | | | Delivery of 3rd Tram | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | 31 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 16 | | | | | Commissioning of 3rd Tram | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 17 | | | | | Delivery of 4th Tram | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | 31 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18 | | | | | Commissioning of 4th Tram | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 19 | | | | | Delivery of 5th Tram | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 31 | 31 | 31 | 31 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | | | | | Commissioning of 5th Tram | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21 | | | | | Delivery of 6th Tram | 110,083.25 | 1.2% | 10-May-10 | 10-May-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 22 | | | | | Commissioning of 6th Tram | 110,083.25 | 1.2% | 04-Jun-10 | 04-Jun-10 | 1 | 33 | 33 | 33 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23 | | | | | Delivery of 7th Tram | 110,083.25 | 1.2% | 15-Jun-10 | 15-Jun-10 | 1 | 32 | 32 | 32 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 24 | | | | | Commissioning of 7th Tram | 110,083.25 | 1.2% | 09-Jul-10 | 09-Jul-10 | 1 | 33 | 33 | 33 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25 | | | | | Delivery of 8th Tram | 110,083.25 | 1.2% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | 33 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25A | | | | | Depot Equipment - Certificate of Reliability | 37,000.45 | 0.4% | 20-Jul-10 | 20-Jul-10 | 1 | 34 | 34 | 34 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | | | | | Commissioning of 8th Tram | 110,083.25 | 1.2% | 04-Aug-10 | 04-Aug-10 | 1 | 34 | 34 | 34 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 27 | | | | | Delivery of 9th Tram | 110,083.25 | 1.2% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | 33 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28 | | | | | Commissioning of 9th Tram | 110,083.25 | 1.2% | 04-Aug-10 | 04-Aug-10 | 1 | 34 | 34 | 34 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 29 | | | | | Delivery of 10th Tram | 110,083.25 | 1.2% | 15-Jul-10 | 15-Jul-10 | 1 | 33 | 33 | 33 | 33 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30 | | | | | Commissioning of 10th Tram | 110,083.25 | 1.2% | 04-Aug-10 | 04-Aug-10 | 1 | 34 | 34 | 34 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | | | | | Delivery of 11th Tram | 110,083.25 | 1.2% | 16-Aug-10 | 16-Aug-10 | 1 | 35 | 35 | 35 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | | | | | Commissioning of 11th Tram | 110,083.25 | 1.2% | 03-Sep-10 | 03-Sep-10 | 1 | 36 | 36 | 36 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | | | | | Delivery of 12th Tram | 110,083.25 | 1.2% | 16-Aug-10 | 16-Aug-10 | 1 | 35 | 35 | 35 | 35 | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 34 | | | | | Commissioning of 12th Tram | 110,083.25 | 1.2% | 03-Sep-10 | 03-Sep-10 | 1 | 36 | 36 | 36 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35 | | | | | Delivery of 13th Tram | 110,083.25 | 1.2% | 15-Sep-10 | 15-Sep-10 | 1 | 36 | 36 | 36 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36 | | | | | Commissioning of 13th Tram | 110,083.25 | 1.2% | 05-Oct-10 | 05-Oct-10 | 1 | 36 | 36 | 36 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 37 | | | | | Delivery of 14th Tram | 110,083.25 | 1.2% | 15-Sep-10 | 15-Sep-10 | 1 | 36 | 36 | 36 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38 | | | | | Commissioning of 14th Tram | 110,083.25 | 1.2% | 05-Oct-10 | 05-Oct-10 | 1 | 36 | 36 | 36 | 36 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 39 | | | | | Delivery of 15th Tram | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Closed | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 2008 |
|----|----|----|----|----|-------------|---------------|----------------|------|------------------|-----------|------------|----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| | | | | | | | | | | | | | | | | 02-Feb-2008 | 01-Mar-2008 | 20-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | 2008 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Subtotal |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | GBP |

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| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Duration | Start Period | End Period | 2009 | | | | | | | | | | | | 2009 | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| | | | | | | | | | 15-Apr-08 | 15-Apr-08 | | | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Subtotal |
| | | | | | | | | | Start Date | End Date | | | | 31-Jan-2009 | 28-Feb-2009 | 28-Mar-2009 | 25-Apr-2009 | 23-May-2009 | 20-Jun-2009 | 18-Jul-2009 | 15-Aug-2009 | 12-Sep-2009 | 10-Oct-2009 | 07-Nov-2009 | 05-Dec-2009 | 02-Jan-2010 | GBP |

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| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2010 | | | | | | | | | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|-----|
| | | | | | | | | | | | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | |
| | | | | | | | | | | | 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | SUBTOTAL | |
| | | | | | | | | | | | | | | | | | | | | | | | | | GBP |

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|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Duration | Start Period | End Period | 2011 | | | | | | | | | | | | 2011 |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|----------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----|----|------|
| | | | | | | | | | Start Date | End Date | | | | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
| | | | | | | | | | | | 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | GBP | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Multi Service Group
BILFINGER BERGER

Year
Period
SIEMENS

| Activity Details | | | | | | | | | Programme Dates | | | | | | | | | | | | | 2008 | | | | | | | | | | | | | 2008 |
|--|----|----|----|----|-------------|---------------|----------------|------|-----------------|----------|-------------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|---|---------|--|--|--|--|--|------|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 02-Feb-2008 | 01-Mar-2008 | 29-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | Subtotal | | | | | | | | |
| | | | | | | | | | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | | | | | | | | | | | | | GBP | | | | | | |
| Project Total | | | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | | - | - | - | 267,344 | - | - | - | - | - | - | - | - | 267,344 | | | | | | |
| 00A Mobilisation & Milestone Completion | | | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | | - | - | - | 267,344 | - | - | - | - | - | - | - | - | 267,344 | | | | | | |
| 00AT Mobilisation & Milestone Completion | | | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | | - | - | - | 267,344 | - | - | - | - | - | - | - | - | 267,344 | | | | | | |
| Mobilisation & Milestone Completion | | | | | | | | | 1,782,292.00 | 100% | 14-Apr-08 | 16-Jul-11 | 1189 | 4 | 46 | | - | - | - | 267,344 | - | - | - | - | - | - | - | - | 267,344 | | | | | | |
| 00A Contract Award | | | | | | | | | 267,343.80 | 15.0% | 14-Apr-08 | 14-Apr-08 | 1 | 4 | 4 | | - | - | - | 267,344 | - | - | - | - | - | - | - | - | 267,344 | | | | | | |
| 00B Section A Complete | | | | | | | | | 366,406.40 | 20.0% | 25-Mar-10 | 25-Mar-10 | 1 | 29 | 29 | | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| 00C Section B Complete | | | | | | | | | 446,573.00 | 25.0% | 23-Apr-10 | 23-Apr-10 | 1 | 30 | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| 00D Section C Complete | | | | | | | | | 623,802.20 | 35.0% | 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 | | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| 00E Section D Complete | | | | | | | | | 88,114.60 | 5.0% | 16-Jul-11 | 16-Jul-11 | 1 | 46 | 46 | | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The MTRF Service Group

BILFINGER BERGER



Year:
Period:
Period End:

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2009 14 31-Jan-2009 | 15 28-Feb-2009 | 16 28-Mar-2009 | 17 25-Apr-2009 | 18 23-May-2009 | 19 20-Jun-2009 | 20 18-Jul-2009 | 21 15-Aug-2009 | 22 12-Sep-2009 | 23 10-Oct-2009 | 24 07-Nov-2009 | 25 05-Dec-2009 | 26 02-Jan-2010 | 2009 Subtotal GBP |
|--|----|----|----|----|-------------|---------------|----------------|-------|------------------------------|-------------|----------|----------|--------------|------------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|
| Project Total | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00A Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00A1 Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | 100% | 14-Apr-08 | 16-Jul-11 | 1189 | 4 | 46 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00A Contract Award | | | | | | | 267,343.80 | 15.0% | 14-Apr-08 | 14-Apr-08 | 1 | 4 | 4 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00B Section A Complete | | | | | | | 356,458.40 | 20.0% | 25-Mar-10 | 25-Mar-10 | 1 | 29 | 29 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00C Section B Complete | | | | | | | 445,573.00 | 25.0% | 23-Apr-10 | 23-Apr-10 | 1 | 30 | 30 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00D Section C Complete | | | | | | | 623,802.80 | 35.0% | 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 00E Section D Complete | | | | | | | 89,114.80 | 5.0% | 16-Jul-11 | 16-Jul-11 | 1 | 46 | 46 | | + | + | + | + | + | + | + | + | + | + | + | + | + | |

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Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Alstom Service Group

BILFINGER BERGER

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Year:
Period:
Period End:

| | | | | | | | Programme Dates | | | | 2011 | | | | | | | | | | | | 2011 | | | | | |
|---|----|----|----|----|-------------|---------------|-----------------|-------|-------------|-------------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|---------|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal | |
| | | | | | | | | | 15-Apr-08 | | | | | 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | GBP | |
| Project Total | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | 623,802 | - | - | - | - | - | - | 89,115 | - | - | - | - | - | - | 712,917 |
| Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | 623,802 | - | - | - | - | - | - | 89,115 | - | - | - | - | - | - | 712,917 |
| 00A Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | 623,802 | - | - | - | - | - | - | 89,115 | - | - | - | - | - | - | 712,917 |
| Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | | 14-Apr-2008 | 16-Jul-2011 | 1189 | 4 | 46 | 623,802 | - | - | - | - | - | - | 89,115 | - | - | - | - | - | - | 712,917 |
| Mobilisation & Milestone Completion | | | | | | | 1,782,292.00 | 100% | 14-Apr-08 | 16-Jul-11 | 1189 | 4 | 46 | 623,802 | - | - | - | - | - | - | 89,115 | - | - | - | - | - | - | 712,917 |
| 00A Contract Award | | | | | | | 267,343.80 | 15.0% | 14-Apr-08 | 14-Apr-08 | 1 | 4 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00B Section A Complete | | | | | | | 356,458.40 | 20.0% | 25-Mar-10 | 25-Mar-10 | 1 | 29 | 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00C Section B Complete | | | | | | | 445,573.00 | 25.0% | 23-Apr-10 | 23-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00D Section C Complete | | | | | | | 623,802.20 | 35.0% | 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 | 623,802 | - | - | - | - | - | - | - | - | - | - | - | - | - | 623,802 |
| 00E Section D Complete | | | | | | | 89,114.60 | 5.0% | 16-Jul-11 | 16-Jul-11 | 1 | 46 | 46 | - | - | - | - | - | - | - | 89,115 | - | - | - | - | - | - | 89,115 |

USB00000073_0106

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|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Closed | 15-Apr-08 | 15-Apr-08 | Duration | Start Period | End Period | 02-Feb-2008 | 01-Mar-2008 | 29-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | 2008 | Subtotal | GBP |
|----|----|----|----|----|-------------|---------------|----------------|------|------------------|-----------|-----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|----------|-----|
|----|----|----|----|----|-------------|---------------|----------------|------|------------------|-----------|-----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|----------|-----|

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|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | Start Date | End Date | Duration | Start Period | End Period | 2009 | 2009 |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|------------|----------|----------|--------------|------------|------|----------|
| | | | | | | | | | 15-Apr-08 | | | | | | | Subtotal |
| | | | | | | | | | | | | | | | | GBP |

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|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Duration | Start Period | End Period | 2010 | | | | | | | | | | | | 2010 | | | | | | | | | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|----------|--------------|------------|------|----|----|----|----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|--|--|-----|
| | | | | | | | | | 15-Apr-08 | 15-Apr-08 | | | | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | SUBTOTAL | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | Start Date | End Date | | | | | | | | | | | | | | | GBP |
| | | | | | | | | | | | | | | | | | | | 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | | | | |

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|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Duration | Start Period | End Period | 2011 | | | | | | | | | | | | 2011 | | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|-----|
| | | | | | | | | | Start Date | End Date | | | | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal | GBP |
| | | | | | | | | | 15-Apr-08 | | | | | 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | | |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Multi Services Group

BILFINGER BERGER

SIEMENS

Year
Period

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Start Period | End Period | 2008 | | | | | | | | | | | | | 2008 | | | | | | | |
|-------------------------------------|------|-------|--------|---------|-------------|---|----------------|-------|-----------------|-------------|--------------|------------|------|---|---|---|---|---|---|---|---|----|----|----|----|----------|---------|---|--|--|--|--|--|
| | | | | | | | | | 15-Apr-08 | 13-Jun-08 | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Subtotal | GBP | | | | | | |
| Project Total | | | | | | | 2,279,806.32 | | 06-Nov-2006 | 13-Jan-2011 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | 317,475 | 317,475 | | | | | | |
| 00A Tram Maintenance Mobilisation | | | | | | | 2,279,806.32 | | 06-Nov-2006 | 13-Jan-2011 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | 317,475 | 317,475 | | | | | | |
| 00A1 Tram Maintenance Mobilisation | | | | | | | 2,279,806.32 | | 06-Nov-2006 | 13-Jan-2011 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | 317,475 | 317,475 | | | | | | |
| 00A11 Tram Maintenance Mobilisation | | | | | | | 2,279,806.32 | 100% | 06-Nov-06 | 13-Jan-11 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | 317,475 | 317,475 | | | | | | |
| 00A | 00A1 | 00A11 | 00A111 | 00A1111 | 00A | Demonstration to test or completion of review of Train Supplier Train Design and Vehicle Depot design to | 317,474.98 | 14.0% | 06-Nov-06 | 06-Nov-06 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | 317,475 | 317,475 | | | | | | |
| | | | | | 00B | Finalisation of any changes agree by the to the Tram Maintenance Specification and maintenance Specif | 423,299.97 | 18.6% | 06-Mar-08 | 06-Mar-08 | 1 | 16 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| | | | | | 00C | Finalisation of maintenance team training and recruitment plan including competence assessment | 423,299.97 | 18.6% | 06-Nov-09 | 06-Nov-09 | 1 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| | | | | | 00D | Completion of mobilisation of maintenance team management and administrative staff to depot | 423,299.97 | 18.6% | 05-Feb-10 | 05-Feb-10 | 1 | 28 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| | | | | | 00E | Delivery to the depot of all Train maintainer procured spares, special tools,equipment, and all computer | 317,474.08 | 14.0% | 08-Apr-10 | 08-Apr-10 | 1 | 30 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| | | | | | 00F | Complete mobilisation of maintenance team technician to Depot | 211,648.99 | 9.3% | 06-Nov-10 | 06-Nov-10 | 1 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 00G | 00G1 | 00G11 | 00G111 | 00G1111 | 00G | Completion of maintenance team training in accordance with training and recruitment plan and all require | 105,824.99 | 4.7% | 13-Jan-11 | 13-Jan-11 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | |
| | | | | | 00H | Demonstration of non conformance to acclint audit to demonstrate readiness for the delivery of the tram f | 53,481.45 | 2.4% | 08-Jan-11 | 08-Jan-11 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The MTR Service Group

BILFINGER BERGER

SIEI

Year:
Period:
Period End:

| | | | | | | | Programme Dates | | Start Date | | End Date | | Duration | | Start Period | | End Period | | 2009 | | | | | | | | | | | | 2009 | | |
|--|----|----|----|----|-------------|---------------|-----------------|-------|-------------|--|-------------|--|-----------|--|--------------|--|------------|--|------|----|---------|----|----|----|----|----|----|----|----|----|------|----------|---------|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | 15-Apr-08 | | 15-Apr-08 | | 15-Apr-08 | | 15-Apr-08 | | 15-Apr-08 | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Subtotal | GBP |
| Project Total | | | | | | | 2,275,806.32 | | 06-Nov-2008 | | 13-Jan-2011 | | 799 | | 11 | | 40 | | - | - | 423,300 | - | - | - | - | - | - | - | - | - | - | 423,300 | 846,600 |
| 00A Tram Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2008 | | 13-Jan-2011 | | 799 | | 11 | | 40 | | - | - | 423,300 | - | - | - | - | - | - | - | - | - | - | 423,300 | 846,600 |
| 00A1 Tram Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2008 | | 13-Jan-2011 | | 799 | | 11 | | 40 | | - | - | 423,300 | - | - | - | - | - | - | - | - | - | - | 423,300 | 846,600 |
| 00A1 Tram Maintenance Mobilisation | | | | | | | 2,275,806.32 | 100% | 06-Nov-08 | | 13-Jan-11 | | 799 | | 11 | | 40 | | - | - | 423,300 | - | - | - | - | - | - | - | - | - | - | 423,300 | 846,600 |
| 00A1 Tram Maintenance Mobilisation | | | | | | | 317,474.98 | 14.0% | 06-Nov-08 | | 06-Nov-08 | | 1 | | 11 | | 11 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00A1 Tram Maintenance Mobilisation | | | | | | | 423,299.97 | 18.6% | 08-Mar-09 | | 08-Mar-09 | | 1 | | 16 | | 16 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00C Finalisation of maintenance team training and recruitment plan including competence assessment | | | | | | | 423,299.97 | 18.6% | 06-Nov-08 | | 06-Nov-08 | | 1 | | 24 | | 24 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00D Completion of mobilisation of maintenance team management and administrative staff to depot | | | | | | | 423,299.97 | 18.6% | 05-Feb-10 | | 05-Feb-10 | | 1 | | 28 | | 28 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00E Delivery to the depot of all Tram maintenance procured spares, special tool/equipment, and all computer | | | | | | | 317,474.98 | 14.0% | 08-Apr-10 | | 08-Apr-10 | | 1 | | 30 | | 30 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00F Complete mobilisation of maintenance team technician to Depot | | | | | | | 211,649.99 | 9.3% | 06-Nov-10 | | 06-Nov-10 | | 1 | | 37 | | 37 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00G Completion of maintenance team training in accordance with recruitment plan and all trainees | | | | | | | 106,824.99 | 4.7% | 13-Jan-11 | | 13-Jan-11 | | 1 | | 40 | | 40 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00H Demonstration of non conformance to solvent audit to demonstrate readiness for the delivery of the train | | | | | | | 53,481.45 | 2.4% | 08-Jan-11 | | 08-Jan-11 | | 1 | | 40 | | 40 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The MTRF Service Group
BILFINGER BERGER



Year:
Period:
Period End:

| | | | | | | | Programme Dates | | | | | 2010 | | | | | | | | | | | | | | | | | | | 2010 | |
|------------------------------------|----|----|----|----|-------------|--|-----------------|-------|-------------|-------------|----------|--------------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|---------|---------|--|------|--|
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Start Date | End Date | Duration | Start Period | End Period | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | Subtotal | GBP | | | | |
| Project Total | | | | | | | 2,275,806.32 | | 06-Nov-2009 | 13-Jan-2011 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 952,425 | 952,425 | | | |
| Tram Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2009 | 13-Jan-2011 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 952,425 | 952,425 | | | |
| 00A1 Tram Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2009 | 13-Jan-2011 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 952,425 | 952,425 | | | |
| Tram Maintenance Mobilisation | | | | | | | 2,275,806.32 | 100% | 06-Nov-09 | 13-Jan-11 | 799 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 952,425 | 952,425 | | | |
| DOA | | | | | | Demonstration to tie of completion of review of Tram Supplier Tram design and infraCo Depot design to e | 317,474.99 | 14.0% | 06-Nov-09 | 06-Nov-09 | 1 | 11 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOB | | | | | | Finalisation of any changes agree by the to the Tram Maintenance Specification and maintenance Specifi | 423,299.97 | 18.6% | 06-Nov-09 | 06-Nov-09 | 1 | 16 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOC | | | | | | Finalisation of maintenance team training and recruitment plan including competence assessment | 423,299.97 | 18.6% | 06-Nov-09 | 06-Nov-09 | 1 | 24 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOO | | | | | | Completion of mobilisation of maintenance team management and administrative staff to depot | 423,299.97 | 18.6% | 05-Feb-10 | 05-Feb-10 | 1 | 28 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOE | | | | | | Delivery to the depot of all Tram maintenance procured spares, special tools/equipment, and all computer | 317,474.99 | 14.0% | 08-Apr-10 | 08-Apr-10 | 1 | 30 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOF | | | | | | Complete mobilisation of maintenance team technician to Depot | 211,649.99 | 9.3% | 06-Nov-10 | 06-Nov-10 | 1 | 37 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOG | | | | | | Completion of maintenance team training in accordance with training and recruitment plan and all require | 105,824.99 | 4.7% | 13-Jan-11 | 13-Jan-11 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| DOH | | | | | | Demonstration of non conformance to adjacent audit to demonstrate readiness for the delivery of the tram | 53,481.45 | 2.4% | 08-Jan-11 | 08-Jan-11 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |

| | | | | | Programme Dates | | | 2011 | | | | | | | | | | | | 2011 | | | | | | | | |
|---|----|----|----|----|-----------------|---------------|---------------------|----------|--------------------|--------------------|------------|--------------|------------|--------------|----------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|----------------|
| | | | | | 15-Apr-08 | | | | | | | | | | | | | | | Subtotal | | | | | | | | |
| | | | | | Start Date | | | End Date | | | Duration | | | Start Period | | | End Period | | | GEP | | | | | | | | |
| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | Stage | Start Date | End Date | Duration | Start Period | End Period | 20-Jan-11 | 26-Feb-11 | 26-Mar-11 | 23-Apr-11 | 21-May-11 | 18-Jun-11 | 16-Jul-11 | 13-Aug-11 | 10-Sep-11 | 08-Oct-11 | 05-Nov-11 | 03-Dec-11 | 31-Dec-11 | | |
| Projects Total | | | | | | | 2,275,806.32 | | 06-Nov-2008 | 13-Jan-2011 | 739 | 11 | 40 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90A Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2008 | 13-Jan-2011 | 739 | 11 | 40 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2008 | 13-Jan-2011 | 739 | 11 | 40 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-2008 | 13-Jan-2011 | 739 | 11 | 40 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | 100% | 06-Nov-08 | 13-Jan-11 | 739 | 11 | 40 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11111111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111111111111111111111111111111111111111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA11 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA111 Train Maintenance Mobilisation | | | | | | | 2,275,806.32 | | 06-Nov-08 | 06-Nov-08 | 1 | 11 | 11 | | 159,306 | - | - | - | - | - | - | - | - | - | - | - | - | 159,306 |
| 90AA1111111111111111 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Duration | Start Period | End Period | Year Period | | | | | | | | | | | | | 2008 |
|-------------|----|-------------|----|-------------|-------------|---------------|----------------|-------------|-----------------|-------------|----------|--------------|------------|-------------|---|-------------|---|-------------|---|-------------|----|-------------|----|-------------|--|----------|------|
| | | | | | | | | | 15-Apr-08 | 15-Apr-08 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Subtotal | | | |
| Start Date | | End Date | | Start Date | | End Date | | Start Date | | End Date | | Start Date | | End Date | | Start Date | | End Date | | Start Date | | End Date | | Start Date | | End Date | |
| 02-Feb-2008 | | 01-Mar-2008 | | 20-Mar-2008 | | 26-Apr-2008 | | 24-May-2008 | | 21-Jun-2008 | | 19-Jul-2008 | | 16-Aug-2008 | | 13-Sep-2008 | | 11-Oct-2008 | | 08-Nov-2008 | | 06-Dec-2008 | | 03-Jan-2009 | | 2008 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | GBP | |

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| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2009 | 2009 |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|------------|----------|----------|--------------|------------|------|----------|
| | | | | | | | | | | | | | | | | | Subtotal |
| | | | | | | | | | | | | | | | | | GBP |

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|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2010 | | | | | | | | | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|-----|
| | | | | | | | | | | | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | |
| | | | | | | | | | | | 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | SUBTOTAL | |
| | | | | | | | | | | | | | | | | | | | | | | | | | GBP |

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|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



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|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | | Duration | Start Period | End Period | 2011 | | | | | | | | | | | | 2011 | | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|-----|
| | | | | | | | | | Start Date | End Date | | | | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | Subtotal | GBP |
| | | | | | | | | | 15-Apr-08 | | | | | 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 | 31-Dec-2011 | | |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Multi Service Group
BILFINGER BERGER

Year
Period
SIEMENS

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | Nage | Programme Dates | | Duration | Start Period | End Period | 2008 | | | | | | | | | | | | | 2008 Subtotal GBP | | |
|------------------|----|----|----|----|-------------|---------------|----------------|--------|-----------------|-------------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------------------|---|---|
| | | | | | | | | | Start Date | End Date | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | | |
| | | | | | | | | | 15-Apr-08 | | | | | 02-Feb-2008 | 01-Mar-2008 | 29-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | | | |
| Project Total | | | | | | | 1,013,090.00 | | 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 00A Spare Parts | | | | | | | 1,013,090.00 | | 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 00A1 Spare Parts | | | | | | | 1,013,090.00 | | 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Spare Parts | | | | | | | 1,013,090.00 | | 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Spare Parts | | | | | | | 1,013,090.00 | 100% | 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 00A Spare Parts | | | | | | | 1,013,090.00 | 100.0% | 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Multi Service Group

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Period
Period End

| L1 | | | | | L2 | | | | | L3 | | | | | L4 | | | | | L5 | | | | | Activity ID | Activity Name | Contract Value | %age | Programme Dates | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|--|--|--|--|----|--|--|--|--|----|--|--|--|--|----|--|--|--|--|----|--|--|--|--|-------------|---------------|----------------|------|-----------------|-----------|------------|----------|----------|--------------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Project: Edinburgh Tram Network
Subject: Milestone Payment Schedule
Currency: GBP

The Asset Service Group

BILFINGER BERGER

SIEI

Year:
Period:
Period End:

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name |
|----|----|----|----|----|-------------|---------------|
|----|----|----|----|----|-------------|---------------|

| Contract Value | %age |
|----------------|------|
|----------------|------|

| Programme Dates | | Duration | Start Period | End Period |
|-----------------|----------|----------|--------------|------------|
| Start Date | End Date | | | |

| 2011 | | | | | | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |
| 29-Jan-2011 | 26-Feb-2011 | 26-Mar-2011 | 23-Apr-2011 | 21-May-2011 | 18-Jun-2011 | 16-Jul-2011 | 13-Aug-2011 | 10-Sep-2011 | 08-Oct-2011 | 05-Nov-2011 | 03-Dec-2011 |

| 2011 |
|----------|
| Subtotal |
| GBP |

| | |
|------------------|--|
| Project Total | |
| 00A Spare Parts | |
| 00A1 Spare Parts | |
| Spare Parts | |
| 00A | |
| Spare Parts | |

| | |
|--------------|--------|
| 1,013,090.00 | |
| 1,013,090.00 | |
| 1,013,090.00 | |
| 1,013,090.00 | 100% |
| 1,013,090.00 | 100.0% |

| | | | | |
|-------------|-------------|---|----|----|
| 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 |
| 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 |
| 17-Jan-2011 | 17-Jan-2011 | 1 | 40 | 40 |
| 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 |
| 17-Jan-11 | 17-Jan-11 | 1 | 40 | 40 |

| | | | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|---|---|-----------|
| 1,013,090 | - | - | - | - | - | - | - | - | - | - | - | 1,013,090 |
| 1,013,090 | - | - | - | - | - | - | - | - | - | - | - | 1,013,090 |
| 1,013,090 | - | - | - | - | - | - | - | - | - | - | - | 1,013,090 |
| 1,013,090 | - | - | - | - | - | - | - | - | - | - | - | 1,013,090 |
| 1,013,090 | - | - | - | - | - | - | - | - | - | - | - | 1,013,090 |
| 1,013,090 | - | - | - | - | - | - | - | - | - | - | - | 1,013,090 |

| | |
|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Closed | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 2008 |
|----|----|----|----|----|-------------|---------------|----------------|------|------------------|-----------|------------|----------|----------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|
| | | | | | | | | | | | | | | | | 02-Feb-2008 | 01-Mar-2008 | 20-Mar-2008 | 26-Apr-2008 | 24-May-2008 | 21-Jun-2008 | 19-Jul-2008 | 16-Aug-2008 | 13-Sep-2008 | 11-Oct-2008 | 08-Nov-2008 | 06-Dec-2008 | 03-Jan-2009 | 2008 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Subtotal |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | GBP |

| | |
|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| |
|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2009 | 2009 |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|------------|----------|----------|--------------|------------|------|----------|
| | | | | | | | | | | | | | | | | | Subtotal |
| | | | | | | | | | | | | | | | | | GBP |

| | |
|----------|----------------------------|
| Project | Edinburgh Tram Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| |
|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | 15-Apr-08 | Start Date | End Date | Duration | Start Period | End Period | 2010 | | | | | | | | | |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|-----------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|-----|
| | | | | | | | | | | | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 2010 | |
| | | | | | | | | | | | 30-Jan-2010 | 27-Feb-2010 | 27-Mar-2010 | 24-Apr-2010 | 22-May-2010 | 19-Jun-2010 | 17-Jul-2010 | 14-Aug-2010 | 11-Sep-2010 | 09-Oct-2010 | 06-Nov-2010 | 04-Dec-2010 | 01-Jan-2011 | SUBTOTAL | |
| | | | | | | | | | | | | | | | | | | | | | | | | | GBP |

| | |
|----------|----------------------------|
| Project | Edinburgh Train Network |
| Subject | Milestone Payment Schedule |
| Currency | GBP |



| |
|------------|
| Year |
| Period |
| Period End |

| L1 | L2 | L3 | L4 | L5 | Activity ID | Activity Name | Contract Value | %age | Programme Dates | Start Date | End Date | Duration | Start Period | End Period | 2011 | 2011 |
|----|----|----|----|----|-------------|---------------|----------------|------|-----------------|------------|----------|----------|--------------|------------|------|----------|
| | | | | | | | | | 15-Apr-08 | | | | | | | SUBTOTAL |
| | | | | | | | | | | | | | | | | GBP |



**THIS IS SCHEDULE PART 6 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 6
MAINTENANCE PAYMENT REGIME

PART A PAYMENT FOR INFRASTRUCTURE MAINTENANCE SERVICES

PART 1 ALLOCATION OF PERFORMANCE POINTS

DEFINITIONS

In this part A of this Schedule Part 6 (*Maintenance Payment Regime*), except to the extent that the context otherwise requires, the following words and expressions shall have the meanings hereby ascribed to them:

"Actual Performance Level" means, in relation to each Service Element in each Reporting Period:

- (i) (for each Edqual Service Element) the percentage achievement of the Performance Test in respect of that Service Element derived from inspections carried out under paragraph 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), during that Reporting Period;
- (ii) (for the Punctuality Service Element) the level of performance in relation to that Service Element that is taken into account in calculating the Tram Punctuality Performance for that Service Element in that Reporting Period; and
- (iii) (for the Information Provision Service Element and the Fault Correction Service Element) the level of performance in relation to that Service Element that is taken into account in calculating the Performance Points to be allocated for that Service Element in relation to that Reporting Period;

"Available Infrastructure" means that the Edinburgh Tram Network:

- (i) is fully functional each Operating Day from half an hour before the First Tram is scheduled to leave the Depot until half an hour after the Last Tram is scheduled to return to the Depot, compliant in all material respects with the Employer's Requirements, save for Minor Infrastructure Defects;

"Correction Time Limit" means, for a category of Fault set out in the table in part 4 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), the number of hours or days stated in that table in relation to that category;

"Edqual Performance Benchmark" means the level above which positive performance points are awarded and below which negative performance points are allocated, as shown in the tables in Part 3;

"Edqual Service Element" means a specified aspect of the Infrastructure Maintenance Services inspected under paragraph 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), in respect of which a Performance Test is set out in part 2 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), falling within one of the following categories:

- A Not used
- B Tramstop repairs and maintenance;
- C CCTV systems;
- D Passenger information visual displays;
- E Poster cases, signage and printed Edinburgh Tram Network service information at Tramstops; and
- F Public address system and help points at Tramstops;

"Excusing Cause" means any one or more of the following events which interrupts the operation of the Trams or which adversely affects the Punctuality Service Element, the Edqual Service Element or the Fault Correction Service Element:

- (i) a road traffic accident;
- (ii) the actions of any of the Emergency Services, CEC or Utilities Companies,

provided that, in the case of each of (i) and (ii):

- (a) the Infraco has used all reasonable endeavours to mitigate the effect of such Excusing Cause; and
 - (b) the Infraco notifies **tie** as soon as it becomes aware of the potential and/or actual impact on its ability to perform the Infrastructure Maintenance Services;
- (iii) a failure on the part of **tie** in complying with its obligations under this Agreement where the Infraco can reasonably demonstrate to **tie**'s satisfaction that:
 - (a) such failure had a material impact on its ability to perform the Maintenance Services;

- (b) the Infraco has used all reasonable endeavours to mitigate the effects of such failure; and
- (c) the Infraco notified **tie** as soon as it became aware of the potential and/or actual impact on its ability to perform the Maintenance Services;
- (iv) any Permitted Variation which causes the Infraco to be unable to perform the Maintenance Services but only to the extent that **tie**:
 - (a) shall have given its prior written consent to the Maintenance Services being affected in such a manner;
 - (b) was informed by the Infraco of the extent of the impact on such Infrastructure Maintenance Services as part of the process of agreeing such Permitted Variation;
- (v) a Force Majeure Event;
- (vi) environmental conditions, that are outside the environmental parameters in the Employers Requirements contained in Schedule Part 2 of this Agreement which result in damage to the Edinburgh Tram Network;
- (vii) where special measures are required to be undertaken in order to comply with protected species in accordance with Clause 18.2 of Part B of Schedule Part 3 (*Code of Maintenance Practice*); and
- (viii) where there has been agreement to have a planned suspension of the Transport Services for major maintenance and/or renewal activities in accordance with Clause 17.12 of the Infraco Contract.

"Exemption Claim" means a retrospective claim against the allocation of negative Performance Points made by the Infraco in respect of the the Edqual Service Element under paragraph 6.2 and Fault Correction Service Element under paragraph 7.3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Fault" means in respect of any part of the Edinburgh Tram Network maintained by the Infraco as part of the Infrastructure Maintenance Services:

- (i) any defect, fault or disrepair that would cause a Performance Test to be failed or the Edinburgh Tram Network not to be Available Infrastructure;

- (ii) (in the case of a Monitoring Point) any defect, fault or disrepair that causes it to be Out of Service or to generate inaccurate data whether the cause is equipment installed on the Trams or elsewhere;
- (iii) (in the case of any electronic monitoring equipment) any defect, fault or disrepair that causes it to be Out of Service or generate inaccurate data; or
- (iv) any other defect, fault or disrepair that has the effect that the relevant part of the Edinburgh Tram Network cannot be used safely, that materially impairs its functionality or that it is both noticeable by members of the public and adversely affects their perception of the quality of the Edinburgh Tram Network as measured by tests contained in Part 2 section B, C, D, E & F;

"Fault Correction Performance Benchmark" means the time elapsed after which if a fault has not been corrected then negative performance points are allocated;

"Fault Correction Service Element" means the correction of Faults by the Infraco as referred to in paragraph 4 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"First Tram" means each of the timetabled Trams which are the first to operate in passenger service on each route in each direction on any day;

"Improvement Programme" means an improvement programme as referred to in paragraph 15 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Information Package" means:

- (i) each Annual Service Report required to be submitted annually by the Infraco under Clause 73.4;
- (ii) each Self-Monitoring Plan required to be submitted annually by the Infraco under Clause 56.5;
- (iii) each Best Value Improvement Plan supporting information required to be submitted by the Infraco under Clause 56.4 and Clause 73.9;
- (iv) each annual Maintenance Plan required to be submitted by the Infraco;
- (v) each renewal programme required to be submitted annually by the Infraco; and
- (vi) each package of information that **the** is entitled to request and does request by the Infraco to submit to it under any other provision of this Agreement;

"Information Provision Service Element" means the provision by the Infraco of Information Packages to **tie** under this Agreement;

"Infraco Last Late Tram" means an Infraco Late Tram that is also a Last Tram;

"Infraco Late Tram" means a Late Tram that is late because of:

- (i) any delay to that Tram, that as a result of a Fault, causes that Tram to be a Late Tram except insofar as the Fault relates to damage or vandalism by a third party which directly or indirectly causes the Tram to be a Late Tram or has already been classified as a Tram Maintainer Late Tram or an Operator Late Tram;
- (ii) the Edinburgh Tram Network not being offered as Available Infrastructure by the Infraco;
- (iii) any action or omission of the Infraco; or
- (iv) any damage or vandalism to the Tram or Edinburgh Tram Network, caused by any action or omission of the Infraco;

"Infrastructure Performance Rectification Plan" has the meaning given to it in paragraph 11.5 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Initial Spares List" means the list contained in Schedule Part 25 (*Spare Parts*);

"Last Tram" means each of the timetabled Trams which are the last to operate in passenger service on each route in each direction on any day;

"Low Performance Level" means, for a Service Element, an Actual Performance Level that is lower than the level required to ensure that positive Performance Points equal to 60% of the Maximum Positive Allocation for the Service Element are allocated;

"Maximum Negative Allocation" means, in relation to a Service Element:

- (i) (for each Edqual Service Element) the number of negative Performance Points stated as being the Maximum Negative Allocation for that Service Element in part 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);
- (ii) (for the Information Provision Service Element) 100 negative Performance Points; and
- (iii) (for the Fault Correction Service Element) 1,000 negative Performance Points;

"Maximum Performance Payment" means the base payment for each Reporting Period in respect of the Infrastructure Maintenance Services in the Maintenance Contract Pricing Price Analysis included in Schedule Part 7 of the Infraco Contract and Indexed for the relevant Service Year;

"Maximum Positive Allocation" means, in relation to a Service Element:

- (i) (for each Edqual Service Element) the number of positive Performance Points stated as being the Maximum Positive Allocation for that Service Element in part 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);
- (ii) (for the Information Provision Service Element) 100 positive Performance Points; and
- (iii) (for the Fault Correction Service Element) 1000 positive Performance Points;

"Minimum Overall Payment Performance" means 95%;

"Minimum Performance Payment" means 90% of the Maximum Performance Payment and Indexed for the relevant Service Year;

"Minimum Spare Parts Pool" means the minimum level of each Spare Part or Special Tool to be held in the Spare Parts Pool as specified in Schedule Part 25 (*Spare Parts*);

"Minor Infrastructure Defect" means a defect to the infrastructure of the Edinburgh Tram Network that will not affect the safety or quality of operation of the Edinburgh Tram Network, or its compliance with the Disability Discrimination Act 1995, that has been advised to the Infraco and which does not constitute a restriction in the manner in which it is to be operated;

"Monitoring Point" means the locations where the arrival or departure of Trams is recorded for the purpose of calculating Tram punctuality for the purpose of part A of this Schedule Part 6 (*Maintenance Payment Regime*), being:

- (i) **Phase 1A:** for the purposes of monitoring arrival and departure: Edinburgh Airport;
- (ii) **Phase 1A:** for the purposes of measuring departure only:
 - (a) Edinburgh Park Station;
 - (b) Haymarket;
 - (c) Foot of the Walk;
 - (d) Leith (Newhaven or Ocean Terminal - according to the service); and

- (e) Picardy Place; and
- (iii) **Phase 1B:** for the purposes of measuring departure only:
 - (a) Crewe Toll (northbound only); and
 - (b) Granton Square;

"Negative Allocation Rate" means, for an Edqual Service Element the rate of allocation of negative Performance Points stated in part 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), as being the Negative Allocation Rate for that Service Element;

"Operating Day" means a 24 hour period running from 3 a.m. on each day when Trams are timetabled to run;

"Operator Late Tram" means a Late Tram that is late because of:

- (i) any delay to that Tram, that as a result of any action or omission of the Operator, causes that Tram to be a Late Tram;
- (ii) the Tram not being offered as an Available Tram by the Operator as a result of not being cleaned; or
- (iii) any damage or vandalism to the Tram or Edinburgh Tram Network, caused by any action or omission of the Operator;

"Out of Service" means, in relation to any Monitoring Point or any other relevant electronic monitoring equipment or system, that meaningful data relating to the operation of Transport Services or the availability of the relevant equipment is for the time being not being recorded, irrespective of the reasons for this;

"Overall Payment Performance" has the meaning given to it in paragraph 11.2 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Performance Payment" means the payment calculated in accordance with paragraph 12.1 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) as Indexed for the relevant Service Year;

"Performance Point" means a performance point (which may be positive or negative) allocated in accordance with part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Performance Point Value" means, in relation to a Reporting Period in a Service Year, the amount stated for that Service Year in the following table as Indexed for that Service Year:

| Service Year | Performance Point Value |
|----------------------|--------------------------------|
| First Service Year | £ 1.00 |
| Second Service Year | £ 1.01 |
| Third Service Year | £ 1.02 |
| Fourth Service Year | £ 1.03 |
| Fifth Service Year | £ 1.04 |
| Sixth Service Year | £ 1.05 |
| Seventh Service Year | £ 1.06 |
| Eighth Service Year | £ 1.07 |
| Ninth Service Year | £ 1.08 |
| Tenth Service Year | £ 1.09 |

"Performance Rebate" equals, in relation to a Reporting Period:

- (i) the amount by which the Performance Payment for the Infrastructure Maintenance Services payable by **tie** in relation to that Reporting Period is lower than it would otherwise have been as a result of the occurrence of one or more Excusing Causes; less
- (ii) the Relief Threshold;

"Performance Test" means, in relation to an Edqual Service Element, the test set out for that Service Element in part 2 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Positive Allocation Rate" means, for an Edqual Service Element, the rate of allocation of positive Performance Points stated in part 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) as being the Positive Allocation Rate for that Service Element;

"PPR Commencement Date" means the date immediately following the first day of the first Reporting Period following the Service Commencement Date;

"Punctuality Payment" means the payment calculated in accordance with paragraph 11.1 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Punctuality Service Element" means the punctuality performance of the Tram service on the Edinburgh Tram Network measured at a series of Monitoring Points;

"Relief Threshold" means £1,000 as Indexed;

"Service Elements" means, as the context requires, the Punctuality Service Element, the Edqual Service Element, the Information Provision Service Element and/or the Fault Correction Service Element;

"Service Year" means a period between 1 April and 30 March in any year and, for the avoidance of doubt, the second Service Year shall commence on the 1 April immediately following the Service Commencement Date;

"Timetabled Monitored Trams" means the number of Trams providing Transport Services timetabled to pass a Monitoring Point in a Reporting Period as adjusted with any pre-agreed changes to the Transport Services;

"Tram Punctuality Performance" has the meaning given to it in paragraph 5.1 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

"Zero Points Level" means for an Edqual Service Element, the percentage stated in the table in part 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), in the column headed "Zero Points Level (Initial)".

Where defined terms are used in this Schedule Part 6 which are not defined in this Schedule Part 6 or in the Infraco Contract, they shall have the same meaning as is given in the Tram Maintenance Agreement (or Tram Supply Agreement where relevant).

1. GENERAL DESCRIPTION OF THE INFRASTRUCTURE MAINTENANCE PAYMENT REGIME

1.1 The five elements which shall be used to determine the amount of each Infrastructure Maintenance Services Payment in accordance with part A of this Schedule Part 6 (*Maintenance Payment Regime*) are as follows:

- (i) Minimum Performance Payment –90% of the Maximum Performance Payment;
- (ii) Punctuality Service Element –7.5% of the Maximum Performance Payment;
- (iii) Edqual Service Element – 2% of the Maximum Performance Payment; and

- (iv) Fault Correction Service Element and Information Provision Service Element – together 0.5% of the Maximum Performance Payment.

2. MONITORING OF PUNCTUALITY SERVICE ELEMENT

2.1 The Punctuality Service Element shall be electronically monitored and the Infraco shall:

- (a) (without prejudice to its general obligations to do so under this Agreement) maintain all relevant electronic monitoring equipment;
- (b) repair or replace such equipment forthwith where it is Out of Service or where necessary to correct any inaccuracy affecting the calculation of an Infrastructure Maintenance Services Payment; and
- (c) ensure that **tie** receives direct reports for the Punctuality Service Element in such form and format as **tie** reasonably requests from time to time.

To support the Infraco achieve this obligation **tie** shall procure that the Operator provides data on the punctuality of the Transport Services in a timely manner.

2.2 Without prejudice to any other obligation of the Infraco under this Agreement, **tie** shall have the right, upon giving reasonable notice to the Infraco, to inspect any electronic monitoring equipment relevant to the monitoring of the Punctuality Service Element installed on the Trams, track or elsewhere or any records kept, including for the purpose of verifying their accuracy.

2.3 If in relation to a Reporting Period, a Monitoring Point:

2.3.1 is Out of Service for 36 hours or less in any Reporting Period (at times when it should have been in service), then the relevant missing data for the period when the Monitoring Point was Out of Service shall be assumed (for the purposes only of allocating Performance Points) to be consistent, so far as possible, with the average of the data actually collected during that Reporting Period at the Monitoring Point; or

2.3.2 if a Monitoring Point is Out of Service for more than 36 hours in any Reporting Period (at times when it should have been in service), then either:

- 1. the relevant missing data for the period when the Monitoring Point was Out of Service shall be assumed (for the purposes only of allocating Performance Points) to be consistent, so far as possible, with the average of the data

actually collected during the previous three Reporting Periods at the Monitoring Point; or

2. if the Infraco provides alternative data to **tie** in respect of the times of Transport Services operating at that Monitoring Point and **tie** is reasonably satisfied that the data is a reasonably accurate proxy for the relevant missing data and a reasonable basis for determining the Infrastructure Maintenance Services Payment under part A of this Schedule Part 6 (*Maintenance Payment Regime*), then the alternative data shall be accepted by **tie** for the purposes of determining the Actual Performance Level for the Punctuality Service Element;

2.3.3 if a Monitoring Point is not Out of Service but inaccurate to such a degree that the calculation of an Infrastructure Maintenance Services Payment would be affected, then the Parties shall use reasonable endeavours to agree what would be fair and reasonable on the basis of all available alternative information in relation to performance of the relevant Transport Services as the appropriate number of Performance Points (if any) to be allocated for the affected Service Element and service route in that Reporting Period and, failing such agreement within 28 days of the end of that Reporting Period, the matter may at the instance of either Party be referred for determination in accordance with the Dispute Resolution Procedure.

2.4 If in relation to a Reporting Period, any electronic monitoring equipment relevant to the monitoring of the Punctuality Service Element installed on any Trams is Out of Service or inaccurate to such a degree that the calculation of an Infrastructure Maintenance Services Payment would be affected, the Parties shall use their respective reasonable endeavours to agree what would be fair and reasonable on the basis of all available alternative information in relation to performance of the relevant Transport Services as the appropriate number of Performance Points (if any) to be allocated for the affected Service Element and service route in that Reporting Period and, failing such agreement within 28 days of the end of that Reporting Period, the matter may at the instance of either Party be referred for determination in accordance with the Dispute Resolution Procedures.

3. Inspection of Edqual Service Elements

3.1 In relation to each Edqual Service Element, the Actual Performance Level for that Edqual Service Element shall be monitored as follows:

- (a) **tie** shall arrange for monitoring inspectors to inspect Tramstops, the Depot, car parks and/or any other part of the Edinburgh Tram Network (including areas adjacent to it), as the case may be, to assess whether the relevant Performance Test is passed in respect of the relevant Edqual Service Elements;
- (b) in each Reporting Period, **tie** shall inspect such number of Tramstops, the Depot, car parks and/or any other part of the Edinburgh Tram Network (including areas adjacent to it), as the case may be, as it reasonably considers appropriate provided that:
 - (i) **tie** shall inspect at least 80% of the Tramstops in each Reporting Period and shall use its reasonable endeavours to inspect all Tramstops in each Reporting Period;
 - (ii) **tie** shall use all reasonable endeavours to select Tramstops, the Depot, car parks and any other part of the Edinburgh Tram Network (including areas adjacent to it) for inspection at such times and in such a manner as shall ensure, so far as reasonably practicable, that the results of the monitoring provide a reasonable basis for the calculation of Infrastructure Maintenance Services Payments, including by:
 - (A) carrying out a reasonably greater proportion of inspections at more highly used Tramstops and during periods of higher demand for Transport Services; and
 - (B) incorporating a random element in their selection; and
 - (iii) no Tramstop shall be inspected at times other than in the period between 15 minutes prior to the First Tram departing from the Tramstop and 15 minutes after the Last Tram arriving or departing the relevant Tramstop;

and provided further that **tie** shall not be obliged to arrange or carry out any inspections in relation to any part of the Edinburgh Tram Network where Transport Services are not being operated;

- (c) the Infraco shall be entitled, on giving reasonable notice to **tie**, to accompany any of **tie**'s monitoring inspectors in carrying out inspections under this paragraph 3; and
- (d) **tie** will keep records detailing the number, timing and location of inspections, together with the results of each inspection so far as reasonably practicable in sufficient detail

to enable **tie** to verify consistency with the requirements of part A of this Schedule Part 6 (*Maintenance Payment Regime*).

3.2 **tie** shall:

- (a) use reasonable endeavours to notify the Infraco where monitoring inspectors' reports indicate that a Performance Test has not been passed as soon as reasonably practicable after the week in which the relevant inspection has been carried out, and in any event by no later than 3 Business Days after each Reporting Period End Date during which such inspection took place;
- (b) submit to the Infraco as soon as reasonably practicable after the end of each Reporting Period and in any event no later than 3 Business Days after each Reporting Period End Date a report containing a reasonable summary of the results of the inspections carried out in that Reporting Period and stating the Actual Performance Level for that Reporting Period for each Edqual Service Element; and
- (c) use reasonable endeavours to input inspection results to the Asset Management System on such basis as agreed between **tie** and the Infraco.

3.3 The Infraco shall be entitled, on giving reasonable notice to **tie**, to inspect and to review any or all of **tie**'s records concerning the time, place, methodology and results of inspections made under this paragraph 3 with a view to verifying that inspections have been carried out in accordance with the requirements of part A of this Schedule Part 6 (*Maintenance Payment Regime*), and to identify opportunities for improving the Infraco's performance of the Infrastructure Maintenance Services.

4. Monitoring of Fault Correction Service Element

4.1 The Infraco shall provide and maintain a fault reporting facility, a log of all Faults and a record of the action taken to correct such Faults including by:

- (a) (to the extent reasonably practicable) using the Asset Management System for this purpose;
- (b) providing a facility for the Infraco Parties, **tie**, the **tie** Parties, **tie**'s Representative, the Tram Maintainer, the Infraco and the Operator to report Faults by telephone or by e-mail and encouraging due reporting of all Faults;

- (c) recording the date and time at which each Fault is reported to the Infraco or otherwise comes to the Infraco's attention, such date and time to be no later than:
 - 1. the date and time at which **tie** notifies the Infraco under paragraph 3.2 that a Performance Test has not been passed where this has been caused by the relevant Fault; or
 - 2. the date and time at which information relating to the Fault is input into the Asset Management System, if in use for this purpose;
- (d) recording the action taken to correct each Fault and, where practicable, the identity of the person(s) taking that action; and
- (e) recording the date and time at which each logged Fault is corrected and, where the time between the time at which each Fault is reported pursuant to Paragraph 4.1 (c) above and the time at which each logged Fault is corrected exceeds the Correction Time Limit, the number of days (including part days) after the expiry of the Correction Time Limit before the Fault was corrected.

5. Calculation of Punctuality Service Element

5.1 Tram Punctuality Performance shall be calculated on the following basis:

$$TPP = 1 - \left(\frac{LT + (5 \times LLT)}{TMT} \right)$$

where:

TPP is the Tram Punctuality Performance;

LT is the total number of Infraco Late Trams in the Reporting Period;

LLT is the total number of Infraco Late Last Trams in the Reporting Period; and

TMT is the total number of Timetabled Monitored Trams in the Reporting Period.

Excusing Causes

5.2 In determining the number of Infraco Late Trams and Infraco Late Last Trams in any Reporting Period for the purposes of paragraph 5.1 above, the Infraco shall not include any Infraco Late Tram or Infraco Late Last Tram arising from an Excusing Cause that existed at

the time the Tram arrived at (or departed) the relevant Monitoring Point. A report shall be submitted in accordance with paragraph 14 of Part A of this Schedule Part 6.

6. Calculation of Performance Points for Edqual Service Elements

6.1 Subject to the remaining provisions of part A of this Schedule Part 6 (*Maintenance Payment Regime*), for each Edqual Service Element, Performance Points shall be allocated in relation to each Reporting Period as follows:

- (a) if the Actual Performance Level exceeds the relevant Zero Points Level for that Reporting Period then positive Performance Points shall be allocated as follows:

$$\text{Positive Performance Points} = (\text{APL} - \text{ZPL}) \times \text{PAR} \times 100$$

where:

APL is the applicable Actual Performance Level;

ZPL is the applicable Zero Points Level; and

PAR is the applicable Positive Allocation Rate;

- (b) if the Actual Performance Level is equal to the relevant Zero Points Level then no positive Performance Points shall be allocated; and

- (c) if the Actual Performance Level is less than the relevant Zero Points Level for that Reporting Period, then negative Performance Points shall be allocated as follows:

$$\text{Negative Performance Points} = (\text{ZPL} - \text{APL}) \times \text{NAR} \times 100$$

where:

ZPL is the applicable Zero Points Level;

APL is the applicable Actual Performance Level; and

NAR is the applicable Negative Allocation Rate.

6.2 The Infracore may make an Exemption Claim in respect of any Fault for the purposes of avoiding the allocation of negative Performance Points under the Edqual Service Element as follows:

- (a) the Infraco shall notify **tie** in writing of the Fault or Faults in respect of which it seeks exemption from the allocation of negative Performance Points under the Edqual Service Element:
 - (i) setting out the causes of the Fault and the reasons for the Infraco not being able, using reasonable endeavours and in accordance with Good Industry Practice, to correct the Fault within the relevant Correction Time Limit;
 - (ii) enclosing such supporting information, documents and explanations as shall enable **tie** to consider the Exemption Claim; and
 - (iii) containing a programme setting out the steps the Infraco reasonably considers will lead to the correction of the Fault as soon as reasonably practicable, the proposed timescales for those steps and their estimated cost;
- (b) the Infraco shall submit to **tie** such information and explanations as **tie** may reasonably request in respect of the Exemption Claim and any programme submitted under paragraph 6.2(a)(iii);
- (c) without prejudice to any other obligation under this Agreement, the Infraco shall comply with the programme submitted by it under paragraph 6.2(a)(iii); and
- (d) if an Exemption Claim demonstrates to **tie**'s reasonable satisfaction that the Infraco's failure to correct the Fault under the Edqual Service Element is due to:
 - (i) non-availability of parts in circumstances where the Infraco has taken all reasonable and prudent steps to prevent such non-availability in accordance with Good Industry Practice with reference to the Minimum Spare Parts List;
 - (ii) non-availability of parts in circumstances where the Infraco has taken all reasonable steps to prevent such non-availability and the level of parts as set out in the Minimum Spare Parts List is inadequate as a result of the requirement by **tie** to reduce the level of Spare Parts from the levels set out in the Initial Spare Parts List;
 - (iii) non-availability of the road-rail maintenance vehicle where there are two maintenance activities to be undertaken in parallel despite the Infraco having taken all prudent steps to prevent such non-availability in accordance with Good Industry Practice to resource planning; and/or

- (iv) circumstances beyond the reasonable control of the Infracore which could not reasonably have been foreseen by the Infracore;

but that the Infracore is using all reasonable endeavours to correct the Fault in accordance with the programme submitted by it under paragraph 6.2(a)(iii) and in accordance with Good Industry Practice as soon as reasonably practicable in the circumstances then, if and to the extent that the failure is due to the circumstances in (i) and (ii) above, and for so long as the Infracore is using all such reasonable endeavours and reporting progress to **tie** at intervals of no less than 7 days, no negative Performance Points shall be allocated in respect of the Fault under paragraph 6.1.

7. Calculation of Performance Points for Fault Correction Service Element

- 7.1 The Fault Correction Service Element consists of the correction of Faults by the Infracore under this Agreement which shall be monitored and Performance Points allocated in respect thereof in accordance with this paragraph 7.
- 7.2 For the Fault Correction Service Element, Performance Points shall (subject to the remaining provisions of part A of this Schedule Part 6 (*Maintenance Payment Regime*)) be allocated in relation to each Reporting Period as follows:

$$\text{Performance Points} = \text{MPA}_{(\text{FC})} - \text{NPP}_{(\text{FC})}$$

where:

MPA_(FC) is the Maximum Positive Allocation for the Fault Correction Service Element;
and

NPP_(FC) is the aggregate number of negative Performance Points (if any) allocated in relation to the Fault Correction Service Element as follows:

- (a) subject to paragraphs (b) and (c) below, by allocating, for each day or part day during that Reporting Period that any individual Fault remained uncorrected after the expiry of the relevant Correction Time Limit, the number of negative Performance Points set out as the daily rate in relation to the category of Faults applying to that Fault in the table in Part 4 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);

- (b) for each Reporting Period in the first Service Year the first 1,000 negative Performance Points that would otherwise be allocated under paragraph (a) above shall be disregarded and shall not be so allocated; and
- (c) for each Reporting Period in the second and subsequent Service Years the first 500 negative Performance Points that would otherwise be allocated under paragraph (a) above shall be disregarded and shall not be so allocated.

7.3 The Infraco may make an Exemption Claim in respect of any Fault for the purposes of avoiding the allocation of negative Performance Points under the Fault Correction Service Element as follows:

- (a) the Infraco shall notify **tie** in writing of the Fault or Faults in respect of which it seeks exemption from the allocation of negative Performance Points under the Fault Correction Service Element:
 - (i) setting out the causes of the Fault and the reasons for the Infraco not being able, using reasonable endeavours and in accordance with Good Industry Practice, to correct the Fault within the relevant Correction Time Limit;
 - (ii) enclosing such supporting information, documents and explanations as shall enable **tie** to consider the Exemption Claim; and
 - (iii) containing a programme setting out the steps the Infraco reasonably considers will lead to the correction of the Fault as soon as reasonably practicable, the proposed timescales for those steps and their estimated cost;
- (b) the Infraco shall submit to **tie** such information and explanations as **tie** may reasonably request in respect of the Exemption Claim and any programme submitted under paragraph 7.3(a)(iii);
- (c) without prejudice to any other obligation under this Agreement, the Infraco shall comply with the programme submitted by it under paragraph 7.3(a)(iii); and
- (d) if an Exemption Claim demonstrates to **tie**'s reasonable satisfaction that the Infraco's failure to correct the Fault within the Correction Time Limit is due to:

- (i) non-availability of parts in circumstances where the Infraco has taken all reasonable and prudent steps to prevent such non-availability in accordance with Good Industry Practice with reference to the Minimum Spare Parts List;
- (ii) non-availability of parts in circumstances where the Infraco has taken all reasonable steps to prevent such non-availability and the level of parts as set out in the Minimum Spare Parts List is inadequate as a result of the requirement by **tie** to reduce the level of Spare Parts from the levels set out in the Initial Spare Parts List;
- (iii) non-availability of the road-rail maintenance vehicle where there are two maintenance activities to be undertaken in parallel despite the Infraco having taken all prudent steps to prevent such non-availability in accordance with Good Industry Practice to resource planning;
- (iv) circumstances beyond the reasonable control of the Infraco which could not reasonably have been foreseen by the Infraco; and/or
- (v) an Excusing Cause,

but that the Infraco is using all reasonable endeavours to correct the Fault in accordance with the programme submitted by it under paragraph 7.3(a)(iii) and in accordance with Good Industry Practice as soon as reasonably practicable in the circumstances then, if and to the extent that the failure is due to the circumstances in (i) and (ii) above, and for so long as the Infraco is using all such reasonable endeavours and reporting progress to **tie** at intervals of no less than 7 days, no negative Performance Points shall be allocated in respect of the Fault under paragraph 7.2.

8. Allocation of Performance Points for Information Provision Service Element

8.1 For the Information Provision Service Element, Performance Points shall (subject to the remaining provisions of this Schedule Part 6 (*Maintenance Payment Regime*)) be allocated in relation to each Reporting Period as follows:

$$\text{Performance Points} = \text{MPA}_{(L)} - \text{NPP}_{(L)}$$

where:

MPA_(L) is the Maximum Positive Allocation for the Information Provision Service Element; and

NPP_(L) is the aggregate number of negative Performance Points (if any) allocated as follows in respect of each Information Package which should have been provided to **tie** during that Reporting Period in accordance with this Agreement but was not provided (without any material omissions) before the end of that Reporting Period:

| | Negative Performance Points to be allocated |
|---|--|
| Where the relevant Information Package was duly provided in the most recent previous Reporting Period in which it was due; | 50 |
| Where the relevant Information Package was not duly provided in the most recent previous Reporting Period in which it was due but was duly provided in the last but one Reporting Period in which it was due; | 250 |
| Where the relevant Information Package was not duly provided in the two or more most recent previous Reporting Periods in which it was due. | 500 |

9. Pro Rata Allocations And Maximum And Minimum Allocations

- 9.1 In relation to any Reporting Period that is more or less than 28 days in length, Performance Points shall, save to the extent that such Performance Points relate to individual failures in the performance of the Infrastructure Maintenance Services by the Infracore, be allocated under the remaining provisions of part A of this Schedule Part 6 (*Maintenance Payment Regime*) on a pro rata basis.

- 9.2 The number of positive Performance Points that may be allocated under paragraph 6 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) in relation to an Edqual Service Element for a Reporting Period shall not exceed the Maximum Positive Allocation for that Edqual Service Element for that Reporting Period except where the number of positive Performance Points allocated in relation to that Service Element in the immediately preceding Reporting Period fell short of the relevant Maximum Positive Allocation, in which case any excess positive Performance Points shall be allocated in relation to that Service Element, up to a maximum number equal to such shortfall.
- 9.3 The number of negative Performance Points that may be allocated under paragraphs 6, 7 and 8 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) in relation to a Service Element for a Reporting Period shall be such that, where there is a resulting net allocation of negative Performance Points in relation to the Service Element, this shall not exceed the number of negative Performance Points equal to the Maximum Negative Allocation for that Service Element for that Reporting Period.

10. Low Performance Ratchets

10.1 Where:

- (a) a Low Performance Level occurs in respect of an Edqual Service Element, the Information Provision Service Element or the Fault Correction Service Element; and
- (b) there have been three or more previous Low Performance Levels for that Service Element within the five Reporting Periods immediately preceding that Reporting Period;

then additional negative Performance Points equal in number to a specified percentage of the Maximum Negative Allocation for that Service Element shall be allocated in relation to that Reporting Period as follows:

| Number of Service Element Low Performance Levels in previous five Reporting Periods | Percentage of Service Element Maximum Negative Allocation to be allocated as additional negative Performance Points |
|--|--|
| 3 | 25 |
| 4 | 50 |

| | |
|---|----|
| 5 | 75 |
|---|----|

11. Conversion of Tram Punctuality Performance into the Punctuality Payment

11.1 Punctuality Payment

The Punctuality Payment due from **tie** to the Infraco for each Reporting Period shall be calculated as follows:

$$PP = (7.5\% \times MaxPP) \times OPP$$

where:

PP is the Punctuality Payment;

MaxPP is the Maximum Performance Payment for the Reporting Period;

OPP is the Overall Payment Performance as calculated in accordance with paragraph 11.2 of part A of this Schedule Part 6 (*Maintenance Payment Regime*).

11.2 The Overall Payment Performance shall be calculated on the following basis:

$$OPP = \frac{TPP - MinOPP}{100\% - MinOPP}$$

save where OPP is a negative figure, in which case OPP shall be 0

and where:

TPP is the Tram Punctuality Performance calculated in accordance with paragraph 5 of part A of this Schedule Part 6 (*Maintenance Payment Regime*); and

MinOPP is the Minimum Overall Payment Performance.

11.3 The Infraco shall evaluate the Tram Punctuality Performance in accordance with part A of this Schedule Part 6 (*Maintenance Payment Regime*).

11.4 The Infraco's Representative shall meet with representatives of the Operator, the Tram Maintainer, **tie** and the Infrastructure Maintainer every Operating Day that is also a Business Day at 09:00 (or such other time as all parties shall reasonably agree) to determine the responsibility for any Late Trams, the Edinburgh Tram Network not being Available

Infrastructure, or poor performance of Trams or the Edinburgh Tram Network. Where the parties cannot, acting reasonably, determine responsibility for any Late Tram, the Edinburgh Tram Network not being Available Infrastructure, or poor performance then **tie** shall, in its absolute discretion, determine responsibility, subject only to referral of such resolution to the Dispute Resolution Procedure.

- 11.5 If the Tram Punctuality Performance is less than 95% then the Infraco shall, within 3 Business Days, or such other period as is agreed between the Parties, of the end of the Reporting Period prepare a rectification plan ("**Performance Rectification Plan**") (to be agreed with **tie**, acting reasonably) setting out a comprehensive analysis of the reasons why the Tram Punctuality Performance is less than 95% and setting out a detailed plan to improve performance to achieve a Tram Punctuality Performance of at least 98%.

12. Conversion of Performance Points into Infrastructure Maintenance Services Payments

- 12.1 Subject to paragraph 12.2 of part A of this Schedule Part 6 (*Maintenance Payment Regime*), the Performance Payment for each Reporting Period shall be calculated as follows:

$$(\mathbf{APP} - \mathbf{LPP}) \times \mathbf{PPV}$$

where:

APP is the aggregate net number of Performance Points (which may be positive or negative) allocated under part A of this Schedule Part 6 (*Maintenance Payment Regime*) other than under paragraph 10 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) for all Service Elements in relation to that Reporting Period;

LPP is the aggregate number of negative Performance Points allocated under paragraph 10 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) in respect of any Low Performance Levels occurring in relation to that Reporting Period; and

PPV is the Performance Point Value for that Reporting Period,

Provided that such Performance Payment in each Reporting Period shall not exceed 2.5% of the Maximum Performance Payment.

- 12.2 The Performance Payment otherwise payable in accordance with the formula set out in paragraph 12.1 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) shall be subject to the following adjustments during the first Service Year:

- (a) for payment calculation purposes only, the Infraco shall be deemed to have been allocated the Maximum Positive Allocation for each Service Element in respect of Reporting Periods prior to the PPR Commencement Date; and
- (b) in determining the value of LPP any Low Performance Level occurring in respect of a Reporting Period prior to the PPR Commencement Date shall be disregarded.

12.3 Where the Performance Payment calculated in accordance with paragraph 12 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) is a negative number, no payment shall be required to be made by the Infraco to **tie** but the negative number shall be carried forward and set off against the next Infrastructure Maintenance Services Payment(s) and, in the event that there is such a negative number on the Termination Date that would be carried forward had this Agreement not terminated, the Infraco shall pay to **tie** an amount equal to that number by no later than one month after the Termination Date by way of reimbursement of Infrastructure Maintenance Services Payments previously paid to the Infraco.

13. Determination and Payment of Infrastructure Maintenance Services Payments

13.1 **tie** shall determine the Infrastructure Maintenance Services Payment due for each Reporting Period calculated in accordance with part A of this Schedule Part 6 (*Maintenance Payment Regime*) as follows:

- (a) within 3 Business Days after each Reporting Period End Date, the Infraco shall submit an application for payment which shall set out the Minimum Performance Payment, the Punctuality Payment and the Performance Payment claimed for the relevant Reporting Period together with a statement showing how the payments have been calculated including the net number of Performance Points (which may be negative or positive) allocated in relation to each Service Element:
 - (i) (for Edqual Service Elements) based entirely on the relevant information provided by **tie** to the Infraco under paragraph 3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*);
 - (ii) (for the Information Provision Service Element) based on the provision or non-provision of Information Packages to **tie** which were due to be provided to **tie** during that Reporting Period; and
 - (iii) (for the Fault Correction Service Element) based on the relevant records made and kept by the Infraco in accordance with paragraph 4.1 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) but including any

adjustments under paragraph 7.3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*),

together with such supporting information as is reasonably necessary to enable **tie** to understand the basis on which the application for payment and supporting statement has been prepared;

- (b) the Infraco shall provide, as soon as reasonably practicable after any request by **tie**, such further information and explanations as **tie** may reasonably request;
- (c) if either Party wishes to dispute the Performance Points allocated or the amount of the Infrastructure Maintenance Services Payment for any Reporting Period, it shall refer the matter to the Dispute Resolution Procedure for determination.

13.2 **tie** shall pay to the Infraco each Infrastructure Maintenance Services Payment determined in accordance with paragraph 13.1 of this Schedule Part 6 (*Maintenance Payment Regime*) in accordance with Clause 68 (*Payment in respect of Maintenance Services*).

13.3 NOT USED

13.4 **Review of Performance Benchmarks**

13.4.1 On or prior to the expiry of 13 full Reporting Periods after the date of issue of the Certificate of Service Commencement and thereafter on or prior to each subsequent Performance Review Date, **tie** shall review and determine the Edqual Performance Benchmark and the Fault Correction Performance Benchmark ("Performance Benchmarks") to apply for each Reporting Period from each such date to the next Performance Review Date.

13.4.2 In determining what Performance Benchmarks are to apply up to the next Performance Review Date under paragraph 13.4.1 above, **tie** will have regard to the following:

- 13.4.2.1 the level of performance achieved by the Infraco in the preceding periods in relation to the then current level of Performance Benchmarks and the extent to which that level of performance is or is likely to be sustainable or to be improved upon by an efficient maintenance contractor using all reasonable endeavours to optimise the availability of the System;

13.4.2.2 the improvement in performance which the Infraco might reasonably be expected to achieve up to the next Performance Review Date; and

13.4.2.3 the effect (or likely effect) of any investments or improvements made, or due to be made which can reasonably be expected to affect the performance of the Infraco under this Agreement.

13.4.3 If the Infraco disagrees that any or all of the Performance Benchmarks determined by **tie** under paragraphs 13.4.1 and 13.4.2 above are reasonable for **tie** to determine then either of the parties may refer that issue for determination in accordance with the Dispute Resolution Procedure but until such revisions are agreed or otherwise determined in accordance with such Dispute Resolution Procedure, the Performance Benchmarks as assessed by **tie** under paragraphs 13.4.1 and 13.4.2 above shall apply.

14. Excusing Causes and Performance Rebates

14.1 If and to the extent that one or more Excusing Causes has an adverse impact on the performance of the Infrastructure Maintenance Services or on the monitoring of such performance under part A of this Schedule Part 6 (*Maintenance Payment Regime*) such that the Infrastructure Maintenance Services Payment payable by **tie** under part A of this Schedule Part 6 (*Maintenance Payment Regime*) in relation to a Reporting Period is lower than it would otherwise have been by an amount equal to or greater than the Relief Threshold then, in order to claim a Performance Rebate from **tie** in consequence thereof, the Infraco shall:

- (a) within 14 days after the end of the relevant Reporting Period submit to **tie** written notice:
 - (i) describing the effect that each such Excusing Cause has had on the performance of the Infrastructure Maintenance Services or on the monitoring of such performance during that Reporting Period including full details of the nature of the Excusing Cause, the date of occurrence and its duration (or likely duration in the case of a Excusing Cause that is affecting Infrastructure Maintenance Services at the date of the notice);
 - (ii) describing the effect of each such Excusing Cause on the allocation of Infraco Late Trams, Infraco Last Late Trams and Performance Points;
 - (iii) stating the Infrastructure Maintenance Services Payment that would have been due from **tie** in respect of that Reporting Period had the Excusing Cause(s) not occurred; and

- (iv) stating the proposed Performance Rebate due from **tie** assuming that the Actual Performance Level for a Service Element during any period affected by an Excusing Cause would have been no higher than the Actual Performance Level applying to that Service Element during those parts of the Reporting Period not affected by an Excusing Cause (or where the proposed Performance Rebate applies to a full Reporting Period, the previous Reporting Period not affected by an Excusing Cause);
- (b) demonstrate to the reasonable satisfaction of **tie** that:
 - (i) the Infraco could not have avoided the occurrence of the Excusing Cause(s) or the consequences thereof by steps which it might reasonably be expected to have taken, without incurring material additional expenditure;
 - (ii) the Excusing Cause(s) caused the claimed effect on the allocation of Performance Points; and
 - (iii) the reduction in the Infrastructure Maintenance Services Payment caused by the Excusing Cause(s) could not reasonably be expected to have been avoided or reduced by the Infraco taking all those steps which a reasonably experienced, efficient and competent maintenance contractor engaged in the same type of undertaking (comparable in size, scope and complexity to its activities in relation to this Agreement) would properly be expected to take if seeking in good faith and in accordance with Good Industry Practice to mitigate or recover the effect of the Excusing Cause(s), in particular by implementing any relevant contingency plans that the Infraco is required to put in place under this Agreement.

14.2 In the event that the Infraco has submitted a notice under paragraph 14.1(a) and complied with its obligations under paragraph 14.1(b) then:

- (a) the Infraco and **tie** shall endeavour to agree as soon as practicable the amount of the Performance Rebate (if any);
- (b) the Infraco shall provide, as soon as reasonably practicable after any request by **tie**, such further information and explanations as **tie** may reasonably request;
- (c) to the extent that **tie** agrees to pay the proposed Performance Rebate, **tie** shall pay to the Infraco the Performance Rebate or such part as it agrees to be payable, within 14 days of the later of the receipt by **tie** of the notice to **tie** under paragraph 14.1(a) and

the receipt of all information and explanations requested under paragraph 14.1(b) that are reasonably required by **tie** to verify its liability to make such payment;

- (d) if **tie** wishes to dispute all or part of the proposed Performance Rebate, it shall, within 28 days of receipt of the notice under paragraph 14.1(a) of part A of this Schedule Part 6 (*Maintenance Payment Regime*) (or if later within 28 days after receipt of any further information reasonably requested under paragraph 14.2 (b) of part A of this Schedule Part 6 (*Maintenance Payment Regime*)), submit written notice to the Infraco setting out the reasons why it disagrees with the notice submitted under paragraph 14.1 (a) of part A of this Schedule Part 6 (*Maintenance Payment Regime*) or considers that the Infraco has not complied with its obligations under paragraph 14.1(b) of part A of this Schedule Part 6 (*Maintenance Payment Regime*);
- (e) to the extent that the Infraco and **tie** are unable to agree the amount of the Performance Rebate (if any) within 28 days of receipt of the notice referred to in paragraph 14.2 (d) of part A of this Schedule Part 6 (*Maintenance Payment Regime*), then the determination of the applicable Performance Rebate may at the instance of either Party be referred for determination in accordance with the Dispute Resolution Procedure; and
- (f) **tie** shall pay any unpaid amount of the Performance Rebate subsequently agreed or determined to be payable within 14 days of the quantum of the Performance Rebate being agreed or within 14 days of receipt by **tie** of the determination thereof, together with interest in accordance with the rate set out in Clause 62.4 from the due date for payment of the Infrastructure Maintenance Services Payment for the Reporting Period in relation to which the Performance Rebate is payable up to the date of payment.

14.3 **tie** shall be entitled to deduct from any Performance Rebates payable by it under this paragraph 14 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) any variable cost savings realised by the Infraco as a result of non-performance of the Infrastructure Maintenance Services, particularly in the case of Excusing Causes having an extended duration.

15. Improvement Programmes

15.1 Without prejudice to all other obligations under this Agreement in respect of the Infrastructure Maintenance Services, the Infraco shall use all reasonable endeavours to ensure that as from the PPR Commencement Date, the Actual Performance Level for each Service Element is at

least equal to the level required to achieve the Maximum Positive Allocation for that Service Element.

- 15.2 Where a Low Performance Level occurs in respect of an Edqual Service Element or the Fault Correction Service Element and there has been a previous Low Performance Level for that Service Element within the five Reporting Periods immediately preceding that Reporting Period then without prejudice to **tie**'s other rights and remedies under this Agreement:

15.2.1 the Infraco shall as soon as reasonably practicable, and in any event within 30 days of the relevant Actual Performance Level that constitutes a Low Performance Level being agreed or determined, submit to **tie** either:

- (a) a proposed Improvement Programme setting out:
- (i) the steps it reasonably considers are likely to improve the Actual Performance Level for that Service Element for subsequent Reporting Periods such that the Maximum Positive Allocation is allocated for that Service Element;
 - (ii) why those steps are considered likely so to improve the Actual Performance Level;
 - (iii) the proposed timescales for the steps to be taken; and
 - (iv) the estimated costs of the steps to be taken;
- or
- (b) (if the Infraco reasonably considers that there are no steps that are likely to so improve the Actual Performance Level for that Service Element or where relevant steps previously agreed between the Parties with a view to improving the Actual Performance Level for that Service Element are in the course of being implemented and are yet to come fully into effect) an application for an exemption from the requirement to submit an Improvement Programme, setting out in full the justification for requesting the exemption;

15.2.2 the Infraco shall submit to **tie** such information and explanations as **tie** may reasonably request in respect of a proposed Improvement Programme or application for exemption;

15.2.3 **tie** may make modifications to a proposed Improvement Programme by written notice submitted to the Infraco within 30 days of receipt the proposed Improvement

Programme provided that such modifications are reasonable and practicable and in particular do not require the Infraco to incur additional expenditure that is disproportionate to the improvement in the Actual Performance Level sought to be achieved;

- 15.2.4 in the event of any dispute between **tie** and the Infraco as to whether or not any exemption applied for under paragraph 15.2.1(a)(ii) of part A of this Schedule Part 6 (*Maintenance Payment Regime*) should be granted, or as to whether or not any modifications proposed by **tie** under paragraph 15.2.3 of part A of this Schedule Part 6 (*Maintenance Payment Regime*) are reasonable and practicable or require the Infraco to incur additional expenditure that is disproportionate, then the dispute may at the instance of either Party be referred for determination in accordance with the Dispute Resolution Procedure; and
- (e) without prejudice to any other obligation under this Agreement, the Infraco shall comply with any Improvement Programme, as modified where applicable under paragraphs 15.2.3 and/or 15.2.4.

Part 2 Edinburgh Tram Network Service Element Performance Tests for the Infrastructure Maintenance Services

A: NOT USED

B: EDINBURGH TRAM NETWORK TRAMSTOP REPAIRS AND MAINTENANCE

B1 Service Element: Repair And Maintenance of Tramstop Canopies

This Performance Test will be failed in relation to a Tramstop where, in respect of any canopy at the Tramstop:

- (a) the canopy leaks;
- (b) the canopy roof or walls are damaged (including peeling paint) over an area larger than A3 size or any section of the canopy roof or wall is missing;
- (c) the canopy should be present but is missing (unless an exemption has been agreed with **tie**, acting reasonably);
- (d) the canopy has been etched with wording or diagrams that have an obscene or racist meaning; or
- (e) the canopy is defective in such a way as to prevent its normal usage and/or that makes it dangerous for passengers to use.

B2 Service Element: Repair And Maintenance of Shelters and Seating

This Performance Test will be failed in relation to a Tramstop where, in respect of any shelter or seat unit (defined as being a set of two or more adjoining seats, or a bench) at the Tramstop:

- (a) it should be present but is missing;
- (b) it is damaged in such a way as could damage or injure persons or their clothing;
- (c) any seat unit is unsecured or unstable;
- (d) the asset is defective in such a way as to interfere with usage and/or that makes it dangerous for passengers to use;
- (e) the asset has been etched with wording or diagrams that have an obscene or racist meaning;

- (f) any glazing panel forming part of or intended to form part of the relevant shelter is missing;
- (g) litter bins within the relevant shelter are: missing (when they should be present), damaged, not securely fixed or broken in such a way that they are unfit for use;
- (h) any glazing panel forming part of the relevant shelter has a hole in it larger than 10cm in diameter or any crack longer than 10cm; or
- (i) any light within the relevant shelter is not working (and for this purpose a light is deemed not to be working if it is broken, missing, flickering or unlit during the hours of darkness).

B 3.1 Service Element: Repair And Maintenance Of Lifts

This Performance Test will be failed in relation to a Tramstop or the Depot where, in respect of any lift at the Tramstop or the Depot:

- (a) lighting systems for the relevant lift fail to operate fully within or around the asset (individual units). A lighting system will be deemed to fail if:
 - (i) any light in, or adjacent to a lift is not fully operational;
 - (ii) a diffuser is missing or broken; or
 - (iii) a light is missing when it should be present;
- (b) the floor area of the relevant lift is damaged e.g. dangerously uneven or potholed (trip hazard deeper than 3cms) to an extent likely to be a risk to a mobility impaired person;
- (c) hand rails are not secure or are missing. There is a requirement that where a place for a hand rail exists within the structure then a rail should be in place;
- (d) the floor area of the relevant lift is affected by adverse weather conditions in such a way as to be dangerous when used by passengers;
- (e) any glazing panel forming part of the relevant lift is missing;
- (f) any glazing panel forming part of the relevant lift has a hole in it;

- (g) any glazing panel forming part of the relevant lift has through any means become opaque except where designed to be opaque;
- (h) the roof or walls of the lift are damaged e.g. paint peeling, on an individual area larger than A3 size or sections of the relevant roof or wall are missing; or
- (i) the relevant lift has been etched with wording or diagrams that have an obscene or racist meaning.

B 3.2 Service Element: Availability of Lifts

This Performance Test will be failed in relation to a Tramstop or the Depot where, in respect of any lift at the Tramstop or the Depot:

- (a) the relevant lift is unavailable or fails to operate (unless maintenance is underway or servicing is taking place); or
- (b) the relevant lift is defective in such a way as to interfere with usage and/or that makes it dangerous for passengers to use.

B4 Service Element: Repair and Maintenance of Embankments, Ramps and Surrounding Areas

This Performance Test will be failed in relation to a Tramstop where, in respect of any embankments or ramp at the Tramstop:

- (a) the relevant embankment or ramp is unavailable or closed during normal operating hours i.e between 15 minutes before the First Tram and 15 minutes after the Last Tram;
- (b) the relevant embankment or ramp is defective in such a way as to interfere with usage and/or that makes it dangerous for passengers to use;
- (c) lighting systems for the relevant embankment or ramp fail to operate fully within or around it. A lighting system will be deemed to fail for this purpose if:
 - (i) any two adjacent lights are not fully operational;
 - (ii) a diffuser is missing or broken; or
 - (iii) a light is missing when it should be present;

- (d) the floor area of the relevant embankment or ramp is damaged e.g. dangerously uneven or potholed (trip hazard deeper than 3cms) to an extent likely to be a risk to a mobility impaired person;
- (e) hand or guard rails for the relevant embankment or ramp are not secure or are missing when they should be present;
- (f) the relevant embankment or ramp has any railings/fencing that is damaged in such a way that could cause injury to passengers, damage to clothing or allows unauthorised access;
- (g) the floor area of the relevant embankment or ramp is affected by adverse weather conditions in such a way as to be dangerous when used by passengers. (Including during icy and/or snowy conditions by not being appropriately treated);
- (h) litter bins on the relevant embankment or ramp are: missing, damaged, not securely fixed or broken in such a way as to be unfit for use;
- (i) the relevant embankment or ramp has been etched with wording or diagrams that have an obscene or racist meaning; or
- (j) the vegetation in surrounding areas is overgrown or non-compliant with the Third Party Agreements or the Environmental Statements.

B5 Service Element: Repair and Maintenance of Stairs, Footbridges and Subways

This Performance Test will be failed in relation to a Tramstop where, in respect of any flight of stairs, footbridge, subway or foyer at the Tramstop:

- (a) the area is unavailable or closed during normal operating hours i.e. between 15 minutes before the first Passenger Service and 15 minutes after the last Passenger Service;
- (b) the asset is defective in such a way as to interfere with usage and/or that makes it dangerous for passengers to use;
- (c) lighting systems fail to operate fully within or around the asset, (Individual Units). For this purpose a lighting system will be deemed to fail if:
 - (i) any two adjacent lights are not fully operational;
 - (ii) a diffuser is missing or broken; or

- (iii) a light is missing when it should be present;
- (d) the floor area is damaged e.g. dangerously uneven or potholed (trip hazard deeper than 3cms) to an extent likely to be a risk to a mobility impaired person, or in the case of stairs, loose stair treads;
- (e) hand or guard rails are not secure or are missing when they should be present;
- (f) the floor area is affected by adverse weather conditions in such a way as to be dangerous when used by passengers. (Including during icy and/or snowy conditions by not being appropriately treated);
- (g) any glazing panel forming part of the stairs, footbridge or subway is missing when it should be present;
- (h) any glazing panel forming part of the stairs, footbridge or subway has a hole in it larger than 10cm in diameter or any crack longer than 10cm;
- (i) any glazing panel forming part of the stairs, footbridge, subway or foyer has through any means become opaque except where designed to be opaque;
- (j) the roof or walls of the relevant stairs, footbridge or subway are damaged over an individual area larger than A3 size (including peeling paint), or any section of the roof or wall is missing;
- (k) the roof of the relevant stairs, footbridge, subway or foyer leaks;
- (l) the relevant stairs, footbridge or subway have been etched with wording or diagrams that have an obscene or racist meaning; or
- (m) the fencing of any flight of stairs or footbridge is missing or is defective in such a way as to interfere with usage and/or that makes it dangerous for passengers.

B6 Service Element: Repair and Maintenance of Platforms

This Performance Test will be failed in relation to a Tramstop where, in respect of any Platform (which for this purpose includes any area at floor level within canopies and shelters together with all and any items of equipment on or within the area of the platform which are not specifically referred to in any other Edinburgh Tram Network Service Element within category B) at the Tramstop:

- (a) the area is unavailable or closed during normal operating hours i.e. between 15 minutes before the first Passenger Service and 15 minutes after the last Passenger Service;
- (b) the floor area is damaged e.g. dangerously uneven or potholed (trip hazard deeper than 3cms) to an extent likely to be a risk to a mobility impaired person;
- (c) the floor area is affected by adverse weather conditions in such a way as to be dangerous when used by passengers. (Including during icy and/or snowy conditions by not being appropriately treated);
- (d) lighting systems for the platform fail to operate fully. A lighting system will be deemed to fail if:
 - (i) any two adjacent lights are not fully operational;
 - (ii) a diffuser is missing or broken; or
 - (iii) a light is missing when it should be present;
- (e) any litter bin or newspaper dispenser on the platform is: missing (when it should be present), not securely fixed, damaged or broken in such a way that it is unfit for use;
- (f) hand or guard rails on the platform are not secure or are missing when they should be present; or
- (g) platform railings/fencing is damaged in such a way that could cause injury to passengers, damage to clothing or allow unauthorised access to platform.

B7 Service Element: Repair and Maintenance of Car Parks

This Performance Test will be failed in relation to a Tramstop or the Depot where, in respect of any car park at the Tramstop or the Depot:

- (a) less than 95% of parking bays at any Tramstop or the Depot are capable of being available for use by passengers to park cars or motorbikes;
- (b) lighting systems for the car park fail to operate fully within or around the car park (individual units). A lighting system will be deemed to fail if:
 - (i) any two adjacent lights are not fully operational;

- (ii) a diffuser is missing or broken; or
- (iii) a light is missing when it should be present;
- (c) the car park surface is damaged e.g. pot holes larger than an area of A3 size or deeper than 3cms are present;
- (d) foliage in the car park is dense and overhangs car parking bays and walkways, in such a way that would prevent or hinder a passenger from using the car park;
- (e) foliage in the car park obscures the lighting systems or signs; or
- (f) signing in the car park is damaged or missing when it should be present.

B8 Service Element: Repair and Maintenance of Tramstop Cycle Parking

This Performance Test will be failed in relation to a Tramstop where, in respect of any cycle parking facilities at the Tramstop the facilities are damaged in any way so as to prevent:

- (a) the cycle parking area is unavailable for use due to obstruction; or
- (b) the facilities are missing when they should be present.

C: CLOSED CIRCUIT TELEVISION SYSTEMS

C1 Service Element: Closed Circuit Television Systems

This Performance Test will be failed in relation to a Tramstop or the Depot if, on inspection (whether at the Tramstop, the Depot or at the CCTV control room):

- (a) the Infracore does not provide video files for specified cameras, recorded at specified dates and times as requested by **the** to view the results of the test performed by the monitoring inspector;
- (b) a camera at the relevant Tramstop or the Depot which should tilt, pan or zoom fails to do so (including (for the avoidance of doubt) upon activation of a passenger emergency call point) (and, for the avoidance of doubt, a camera will have failed to zoom if (*inter alia*) the real time or recorded picture is sufficiently indistinct to prevent identification of an unknown individual in accordance with police scientific development branch methodology for evidential purposes);
- (c) a camera at the relevant Tramstop or Depot fails to operate;

- (d) a camera at the relevant Tramstop or Depot is missing when it should be present; or
- (e) the real time or recorded picture taken by a camera at the relevant Tramstop or Depot is sufficiently indistinct to prevent recognition of an unknown individual in accordance with police scientific development branch methodology,

provided always that in relation to any Reporting Period when the monitoring inspectors are not (save in circumstances when it would be unreasonable to permit access) permitted access to the CCTV control room to view real time operation, the Performance Test for this Service Element will be deemed to have failed all inspections and the Actual Performance Level shall be zero.

D: PASSENGER INFORMATION VISUAL DISPLAYS AT TRAMSTOPS

D1 Service Element : Passenger Information Visual Displays

This Performance Test will be failed in relation to a Tramstop where, in respect of any Passenger Information Visual Display Unit at the Tramstop:

- (a) the unit is not working;
- (b) the unit is missing when it should be present; or
- (c) the unit is damaged and/or the information is illegible from a distance of 3 metres along the platform of the Tramstop by a person with perfect, or perfectly corrected eyesight.

E: POSTER CASES, SIGNAGE AND PRINTED EDINBURGH TRAM NETWORK SERVICE INFORMATION

E1 Service Element: Poster Cases

This Performance Test will be failed in relation to a Tramstop where, in respect of any poster case at the Tramstop:

- (a) the frame of the poster case is damaged in any way that prevents its use for display of posters;
- (b) information within the poster case is not clear and legible through the cover of the poster case due to damage;

- (c) the poster case frame has visible rust or discoloration covering an area greater than 10cms square; or
- (d) the poster case is missing when it should be present.

E2 Service Element: Edinburgh Tram Network Tramstop Signing

This Performance Test will be failed in relation to a Tramstop where, in respect of any signs at the Tramstop:

- (a) the sign is missing where it should be present;
- (b) the sign is damaged in any way that prevents the information from being clearly legible, (including through failures in internal lighting systems);
- (c) the sign is obscured by foliage or other non-authorised materials e.g. including builder's materials, scaffolding or other obscuring object;
- (d) the information on the sign is incorrect; or
- (e) the sign has been etched with wording or diagrams that have an obscene or racist meaning.

F: PUBLIC ADDRESS SYSTEM AND HELP POINTS AT EDINBURGH TRAM NETWORK TRAMSTOPS

F1 Service Element: Public Address System at Tramstops

This Performance Test will be failed in relation to a Tramstop where, in respect of any public address system at the Tramstop:

- (a) announcements are not audible to a person with normal or perfectly corrected hearing under ambient noise conditions that could reasonably be expected to occur at the relevant Tramstop; or
- (b) announcements are not clear and understandable and this appears to be as a result of the public address system being faulty.

F2 Service Element: Passenger Emergency and Information Call Points at Tramstops

This Performance Test will be failed in relation to a Tramstop where, in respect of any passenger emergency call point at the Tramstop:

- (a) the Operator's response following activation of the passenger emergency call point is not audible to a person with normal or perfectly corrected hearing or is not clear and understandable and this appears to be as a result of the emergency call point being faulty;
- (b) the passenger emergency call point is not functioning or is missing when it should be present; or
- (c) (if functionality is provided) after the Operator has answered the call, the red light is not illuminated to indicate that it is ready for a member of public to speak.

PART 3 (EDINBURGH TRAM NETWORK SERVICE ELEMENT TABLES)**A: NOT USED****B: TRAMSTOP REPAIRS AND MAINTENANCE**

| SERVICE ELEMENT | | Zero Points Level (Initial) | Positive Allocation Rate | Maximum Positive Allocation | Negative Allocation Rate | Maximum Negative Allocation |
|-----------------|--|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|
| B1 | Repair and maintenance of Tramstop canopies | 86% | 10 | 60 | 10 | 60 |
| B2 | Repair and maintenance of shelters and seating | 89% | 10 | 60 | 6 | 60 |
| B3.1 | Repair and maintenance of lift(s) | 92.5% | 25 | 150 | 10 | 150 |
| B3.2 | Availability of lift(s) | 70% | 15 | 250 | 15 | 250 |
| B4 | Repair and maintenance of embankments, ramps and surrounding areas | 86.5% | 10 | 60 | 10 | 60 |
| B5 | Repair and maintenance of stairs, footbridges and subways | 81% | 30 | 180 | 30 | 180 |
| B6 | Repair and maintenance of platforms | 80% | 40 | 420 | 40 | 420 |
| B7 | Repair and maintenance of car parks | 75% | 5 | 80 | 5 | 80 |
| B8 | Repair and maintenance of Tramstop cycle parking | 85% | 5 | 80 | 5 | 80 |
| Totals | | | | 1,340 | | 1,340 |

C: CLOSED CIRCUIT TELEVISION SYSTEMS

| SERVICE ELEMENT | Zero Points Level (Initial) | Positive Allocation Rate | Maximum Positive Allocation | Negative Allocation Rate | Maximum Negative Allocation |
|--|-----------------------------------|-----------------------------|-----------------------------------|-----------------------------|-----------------------------------|
| C Closed Circuit Television Systems | 87.5% | 100 | 1700 | 100 | 1700 |
| Totals | 1700 | | | | 1700 |

D: PASSENGER INFORMATION VISUAL DISPLAYS AT TRAMSTOPS

| SERVICE ELEMENT | Zero Points Level (Initial) | Positive Allocation Rate | Maximum Positive Allocation | Negative Allocation Rate | Maximum Negative Allocation |
|--|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|
| D1 Passenger Information Visual Displays | 82.5% | 20 | 200 | 20 | 200 |
| Totals Service Group D | 200 | | | 200 | |

E. POSTER CASES, SIGNAGE AND PRINTED EDINBURGH TRAM NETWORK SERVICE INFORMATION

| SERVICE ELEMENT | Zero Points Level (Initial) | Positive Allocation Rate | Maximum Positive Allocation | Negative Allocation Rate | Maximum Negative Allocation |
|--|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|
| E1 Poster cases, signage and printed ETN Information | 80% | 4 | 60 | 6 | 60 |
| E2 Tramstop signing | 89.5% | 10 | 80 | 8 | 80 |
| Totals | 140 | | | 140 | |

**F. PUBLIC ADDRESS SYSTEM AND HELP POINTS AT EDINBURGH TRAM NETWORK
TRAMSTOPS**

| SERVICE ELEMENT | | Zero Points Level (Initial) | Positive Allocation Rate | Maximum Positive Allocation | Negative Allocation Rate | Maximum Negative Allocation |
|-----------------|--|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|
| F1 | Public address system at Tramstops | 90% | 10 | 120 | 10 | 120 |
| F2 | Passenger emergency call points at Tramstops | 90% | 25 | 250 | 25 | 250 |
| Totals | | | | 370 | | 370 |

PART 4 (FAULT CORRECTION SERVICE ELEMENT)

| Fault category | Correction Time Limit Between 06:01-22:00 | Correction Time Limit Between 22:01-06:00 | Description | Negative Performance Points Per Day or Part Day |
|--|---|---|---|--|
| 1 | 1 hour to attend and make safe and functional. 2 hours to breakdown intervention | 2 hours to attend and make safe and functional. Rectified by 07:30 (if notified before 5:30am) | Critical issue such as health & safety risk, or failure halting the operation of the tram network in whole or part thereof, failure of major system | |
| 2 | 2 hours | 3 hours | Failure impacting the punctuality of the tram network, or having potential to impact | |
| 3 | 8 hours | 9 hours | Failure or incident not having immediate impact on network operation, but impacting the quality of the Transport Services | |
| 4 | 1 week | 1 week | Failure or incident not impacting network operation, nor quality of the Transport Services | |
| Tramstop lighting Fault | 2 days | 2 days | | 500 |
| Tramstop telephone Fault | 3 days | 3 days | | 250 |
| Fault causing the lift at Murrayfield Tramstop or depot to be out of operation | 6 hours | 6 hours | | 500 |
| Tramstop electronic passenger information display Fault | 2 days | 2 days | | 500 |
| Tramstop PA system Fault | 24 hours | 24 hours | | 500 |
| Tramstop CCTV Fault | 2 days | 2 days | | 250 |
| Defect, fault or other disrepair that restricts access to all or part of a Tramstop or otherwise interferes with its use | 1 day | 1 day | | 250 |
| Defect, fault or disrepair causing a | 24 hours | 24 hours | | 250 |

| Fault category | Correction Time Limit Between 06:01-22:00 | Correction Time Limit Between 22:01-06:00 | Description | Negative Performance Points Per Day or Part Day |
|--|--|--|--------------------|--|
| trip hazard at a Tramstop (including unintended changes of floor levels or protrusions from the floor of more than 25mm) | | | | |
| Defect degrading system access to below DDA requirements | 6 days | 6 days | | 250 |
| Broken glass at a Tramstop or the depot | 2 hours | 2 hours to attend, make safe and functional. Rectified by 07:30, if notified between 22:01 and 05:30 | | 250 |
| Overflowing / damaged gutter at a Tramstop or the depot | 24 hours | 24 hours | | 250 |
| Structural defect, fault or other disrepair at a Tramstop or the depot | 28 days | 28 days | | 250 |
| Any other defect, fault or other disrepair at a Tramstop or the depot (including in relation to shelters, seats, canopies, signage, cycle parking, litter bins and poster cases) but excluding blocked drains, overgrown vegetation and fencing faults | 5 days | 5 days | | 250 |
| Blocked drain other than on a street running section of the Edinburgh Tram Network System | 24 hours | 24 hours | | 250 |
| Blocked drain on a street running section of the Edinburgh Tram Network System | 2 hours | By 07:30 if notified between 22:01 and 05:30 | | 250 |
| Overgrown vegetation | 3 days | 3 days | | 250 |
| Defect, fault or disrepair fencing | 6 hours | 6 hours | | 500 |

| Fault category | Correction Time Limit Between 06:01-22:00 | Correction Time Limit Between 22:01-06:00 | Description | Negative Performance Points Per Day or Part Day |
|--|--|--|--------------------|--|
| such that access to the track or buildings and equipment is not prevented | | | | |
| Defect, fault or disrepair in respect of a Monitoring Point or any other electronic monitoring equipment | 24 hours | 24 hours | | 1000 |
| Structural defect, fault or disrepair other than at a Tramstop or the depot | 28 days | 28 days | | 250 |
| Any other defect, fault or disrepair other than at a Tramstop or the depot | 2 days | 2 days | | 250 |

PART B PAYMENT FOR TRAM MAINTENANCE SERVICES

DEFINITIONS

In this part B of this Schedule Part 6 (*Maintenance Payment Regime*), except to the extent that the context otherwise requires, the following words and expressions shall have the meanings hereby ascribed to them:

"Available Tram" means that a Tram (or Trams):

- (i) fully complies with the Tram Maintenance Specification, save for Minor Defects (as defined in the Tram Maintenance Agreement); and
- (ii) is free from Material Defects (as defined in the Tram Maintenance Agreement);

"Defective Tram" means a Tram operating in passenger service with a Minor Defect (as defined in the Tram Maintenance Agreement) which arrives at or departs from a Monitoring Point;

"Excusing Cause" means any one or more of the following events which interrupts the operation of the Trams:

- (i) a road traffic accident;
- (ii) the actions of any of the Emergency Services, CEC or Utilities Companies

provided that, in the case of each of (i) and (ii):

- (a) the Infraco has used all reasonable endeavours to mitigate the effect of such Excusing Cause; and
 - (b) the Infraco notifies **tie** as soon as it becomes aware of the potential and/or actual impact on its ability to perform the Tram Maintenance Services;
- (iii) a failure on the part of **tie** in complying with its obligations under this Agreement where the Infraco can demonstrate to **tie**'s satisfaction that:
- (a) such failure had a material impact on its ability to perform the Tram Maintenance Services;
 - (b) the Infraco has used all reasonable endeavours to mitigate the effects of such failure; and

- (c) the Infraco notified **tie** as soon as it became aware of the potential and/or actual impact on its ability to perform the Tram Maintenance Services;
- (iv) any Permitted Variation which causes the Infraco to be unable to perform the Tram Maintenance Services but only to the extent that **tie**:
 - (a) shall have given its prior written consent to the Tram Maintenance Services being affected in such a manner; and
 - (b) was informed by the Infraco of the extent of the impact on such Tram Maintenance Services as part of the process of agreeing such Permitted Variation;
 - (v) a Force Majeure Event; and
- (vi) environmental conditions, which result in damage to the Edinburgh Tram Network, that are outside the environmental parameters in the Employer's Requirements.

"Maximum Performance Payment" means the base periodic payment for the Tram Maintenance Services set out in part 3 of Schedule 3 (*Payment*) of the Tram Maintenance Agreement;

"Minimum Overall Payment Performance" means 95% Tram Punctuality Performance;

"Minimum Performance Payment" means 70% of the Maximum Performance Payment;

"Overall Payment Performance" has the meaning given to it in paragraph 2 of part B of this Schedule Part 6 (*Maintenance Payment Regime*);

"Services Payment" means the payment to be made for carrying out the Tram Maintenance Services (except for the Mobilisation Services) as calculated in accordance with part B of this Schedule Part 6 (*Maintenance Payment Regime*);

"Timetabled Hot Spares" means the number of Hot Spares (as defined in the Tram Maintenance Agreement) timetabled to be made Available Tram(s) by the Infraco for use by the Operator in a Reporting Period;

"Tram Maintainer Late Tram" means a Late Tram that is late because of:

- (i) any defect on the Tram that does not relate to damage or vandalism by a third party directly or indirectly causing the Tram to be a Late Tram;
- (ii) any action or omission of the Tram Maintainer; and/or

- (iii) a Tram not being offered as an Available Tram to the Operator by the Tram Maintainer.

"**Tram Performance Rectification Plan**" has the meaning given to it in paragraph 6 of part B of this Schedule Part 6 (*Maintenance Payment Regime*);

"**Tram Punctuality Performance**" has the meaning given to it in paragraph 8 of part B of this Schedule Part 6 (*Maintenance Payment Regime*);

1. Tram Maintenance Services Payment

The Services Payment due from **tie** to the Infracore for each Reporting Period shall be established as follows:

$$SP = ((MaxPP - MinPP) \times OPP) + MinPP$$

In any event SP shall not be less than the Minimum Periodic Payment

where:

SP is the Services Payment;

MaxPP is the Maximum Performance Payment for the Reporting Period as calculated in accordance with paragraph 3 of part B of this Schedule Part 6 (*Maintenance Payment Regime*);

MinPP is the Minimum Performance Payment for the Reporting Period;

OPP is the Overall Payment Performance as calculated in accordance with paragraph 2 of part B of this Schedule Part 6 (*Maintenance Payment Regime*).

2. Overall Payment Performance

The Overall Payment Performance shall be calculated on the following basis:

$$OPP = \frac{TPP - MinOPP}{100\% - MinOPP}$$

save where OPP is a negative figure, in which case OPP shall be 0 (zero)

and where:

TPP is the Tram Punctuality Performance calculated in accordance with paragraph 8; and

MinOPP is the Minimum Overall Payment Performance.

3. Maximum Performance Payment

The Maximum Performance Payment shall be adjusted in accordance with this paragraph 3:

- 3.1 Maximum Performance Payment is based upon the planned total Tram kilometrage per year as set out in Part C of this Schedule Part 6 (*Maintenance Payment Regime*) for the first three years and, thereafter, as advised by the Client ("**Planned Kilometrage**");
- 3.2 the Infraco will measure the total kilometrage travelled by the Tram fleet in each Reporting Period ("**Actual Kilometrage**").
- 3.3 not used
- 3.4 not used

Tram Punctuality

- 4. The Infraco shall evaluate the Tram Punctuality Performance in accordance with part B of this Schedule Part 6 (*Maintenance Payment Regime*).
- 5. The Infraco's Representative shall meet with representatives of the Tram Maintainer, the Infrastructure Maintainer, the Operator and **tie** every Operating Day at 09:00 (or such other time as all parties shall reasonably agree) to determine the responsibility for any Late Trams or other non Availability or poor performance of Trams. Where the parties cannot, acting reasonably, determine responsibility for any Late Tram or other non Availability or poor performance then **tie** shall, in its absolute discretion, determine responsibility, subject only to referral of such resolution to the Dispute Resolution Procedure.
- 6. If the Tram Punctuality Performance is less than 95% then the Infraco shall, within 10 Business Days prepare a rectification plan ("**Tram Performance Rectification Plan**") (to be agreed with **tie**, acting reasonably) setting out a comprehensive analysis of the reasons why the Tram Punctuality Performance is less than 95% and setting out a detailed plan to improve performance to achieve a Tram Punctuality Performance of at least 98%.
- 7. The Infraco shall report the results of the evaluation for each Reporting Period to **tie** on or before the 10th Business Day of the Reporting Period following the Reporting Period in which the evaluation was performed.

Tram Punctuality Performance

8. Tram Punctuality Performance shall be calculated on the following basis:

$$TPP = 1 - \left(\frac{LT + UHS + \left(\frac{DT}{4} \right) + (5 \times LLT)}{TMT + TMS} \right)$$

where:

TPP is the Tram Punctuality Performance;

LT is the total number of Tram Maintainer Late Trams in the Reporting Period;

UHS is the total number of Timetabled Hot Spares which were not offered as Available Tram(s) in accordance with Clause 9.2.1.1 of the Tram Maintenance Agreement in the Reporting Period;

DT is the total number of Defective Trams in the Reporting Period;

LLT is the total number of Tram Maintainer Late Last Trams in the Reporting Period;

TMT is the total number of Timetabled Monitored Trams in the Reporting Period; and

TMS is the total number of Timetabled Hot Spares in the Reporting Period.

9. Excusing Causes

In determining the number of Tram Maintainer Late Trams and Tram Maintainer Late Last Trams in any Reporting Period for the purposes of paragraph 8 above, the Infracore shall not include any Tram Maintainer Late Tram or Tram Maintainer Late Last Tram arising from an Excusing Cause that existed at the time the Tram arrived at (or departed) the relevant Monitoring Point. A report shall be submitted in accordance with paragraph 12.

10. Services Payment Pending Tram Reliability

10.1 Until the earlier of:

10.1.1 the date when Reliability of every Tram has been certified (within the meaning given in the Tram Supply Agreement); and

10.1.2 the expiry of 13 Full Reporting Periods from the commencement of passenger services,

the Services Payment due from **tie** to the Infraco shall be established as follows:

$$SP = \text{MaxPP} \times 0.9$$

where SP, MaxPP and MinPP have the meaning given to those expressions in paragraph 1 of Part B of this Schedule Part 6 (*Maintenance Payment Regime*).

10.2 That element of the Maximum Performance Payment for each Reporting Period which is not payable pursuant to paragraph 10.1 ("**Service Payment Retention**") shall be applied as follows:

10.2.1 The Service Payment Retention shall be paid to the Infraco in accordance with the provisions of Clause 68 (*Payment in Respect of Maintenance Services*), which shall be construed mutatis mutandis, as if references therein to the date of the Interim Certificate was a reference to the date when the final Tram is declared Reliable provided that all Trams shall have been delivered Reliable not later than the expiry of 13 full Reporting Periods from the commencement of passenger services; or

10.2.2 If all Trams have not been declared reliable by the expiry of 13 full Reporting Periods from the commencement of passenger services, the Service Payment Retention shall be retained by **tie** and the Infraco shall have no further entitlement to it.

10.3 Upon the earlier of:

10.3.1 the payment of the Service Payment Retention to the Infraco pursuant to paragraph 3.2.1; or

10.3.2 the expiry of 13 full Reporting Periods from the commencement of passenger services,

the Services Payment provisions set out in paragraph 1.1 of part B of this Schedule Part 6 (*Maintenance Payment Regime*) shall apply with full force and effect, and the provisions of this paragraph 10 shall cease to have effect (save in respect of the payment obligation or retention right set out in paragraph 10.2 of part B of this Schedule Part 6 (*Maintenance Payment Regime*)).

11. Review of Performance Benchmarks

- 11.1 On or prior to the expiry of 13 full Reporting Periods after the commencement of passenger services and thereafter on or prior to each subsequent Performance Review Date, the Client shall review and determine the Minimum Overall Payment Performance benchmark and the Tram Punctuality Performance benchmark ("**Performance Benchmarks**") to apply for each Reporting Period from each such date to the next Performance Review Date.
- 11.2 In determining what Performance Benchmarks are to apply up to the next Performance Review Date under paragraph 11.1 of part B of Schedule Part 6 (*Maintenance Payment Regime*), the Client will have regard to the following:
- 11.2.1 the level of performance achieved by the Tram Maintainer in the preceding periods in relation to the then current level of Performance Benchmarks and the extent to which that level of performance is or is likely to be sustainable or to be improved upon by an efficient maintenance of the Trams using all reasonable endeavours to optimise the availability of those Trams;
- 11.2.2 the improvement in performance which the Tram Maintainer might reasonably be expected to achieve up to the next Performance Review Date; and
- 11.2.3 the effect (or likely effect) of any investments or improvements made, or due to be made which can reasonably be expected to affect the performance of the Tram Maintainer under this Agreement.
- 11.3 If the Tram Maintainer disagrees that any or all of the Performance Benchmarks determined by the Client under paragraphs 11.1 and 11.2 of part B of Schedule Part 6 (*Maintenance Payment Regime*) are reasonable for the Client to determine then either of the parties may refer that issue for determination in accordance with the Dispute Resolution Procedure but until such revisions are agreed or otherwise determined in accordance with such Dispute Resolution Procedure, the Performance Benchmarks as assessed by the Client under paragraphs 11.1 and 11.2 of part B of Schedule Part 6 (*Maintenance Payment Regime*) shall apply.

12. Excusing Causes and Performance Rebates

- 12.1 To the extent that:

12.1.1 a single Defect on a Tram in passenger service has lead to Tram Maintainer Late Trams continuing to be allocated in excess of one hour after the removal of the defective Tram back to the Depot where the Tram Maintainer has made a Hot Spare available to the Operator; or

12.1.2 one or more Excusing Causes have resulted in Tram Maintainer Late Trams being allocated which are due to an adverse impact on the performance of the Services by the Tram Maintainer under this Agreement of an Excusing Cause or on the monitoring of such performance under part B of this Schedule Part 6 (*Maintenance Payment Regime*)

results in the Services Payment payable by **tie** under part B of this Schedule Part 6 (*Maintenance Payment Regime*) in relation to a Reporting Period being less than it would otherwise have been by an amount equal to or greater than the Relief Threshold then, in order to claim a Performance Rebate from **tie** in consequence thereof, then the Infraco shall:

- (a) within 10 Business Days after the end of the relevant Reporting Period submit to **tie** written notice:
 - (i) describing the effect that each such single defect or single defect or Excusing Cause has had on the performance of the Tram Maintenance Services or on the monitoring of such performance during that Reporting Period including full details of the nature of the single defect or Excusing Cause, the date of occurrence and its duration (or likely duration in the case of a single defect or Excusing Cause that is affecting Tram Maintenance Services at the date of the notice);
 - (ii) describing the effect of each such single defect or Excusing Cause or external factor on the allocation of Tram Maintainer Late Trams, Tram Maintainer Last Late Trams and Performance Points;
 - (iii) stating the Tram Maintenance Services Payment that would have been due from **tie** in respect of that Reporting Period had the Excusing Cause(s) or external factor not occurred; and
 - (iv) stating the proposed Performance Rebate due from **tie** assuming that the Actual Performance Level for Tram Punctuality Performance during any period affected by an Excusing Cause or external factor

would have been no higher than the Actual Performance Level applying to those parts of the Reporting Period not affected by an Excusing Cause or external factor (or where the proposed Performance Rebate applies to a full Reporting Period, the previous Reporting Period not affected by an Excusing Cause or external factor);

- (b) demonstrate to the reasonable satisfaction of **tie** that:
 - (i) the Tram Maintainer could not have avoided the occurrence of the Excusing Cause(s) or the external factor or the consequences thereof by steps which it might reasonably be expected to have taken, without incurring material additional expenditure;
 - (ii) the Excusing Cause(s) or external factor caused the claimed effect on the allocation of Performance Points; and
 - (iii) the reduction in the Services Payment caused by the Excusing Cause(s) or external factor could not reasonably be expected to have been avoided or reduced by the Infraco taking all those steps which a reasonably experienced, efficient and competent maintenance contractor engaged in the same type of undertaking (comparable in size, scope and complexity to its activities in relation to this Agreement) would properly be expected to take if seeking in good faith and in accordance with Good Industry Practice to mitigate or recover the effect of the Excusing Cause(s), in particular by implementing any relevant contingency plans that the Infraco is required to put in place under this Agreement.

12.2 In the event that the Infraco has submitted a notice under paragraph 12.1(a) and complied with its obligations under paragraph 12.1(b) then:

- (a) the Infraco and **tie** shall endeavour to agree as soon as practicable the amount of the Performance Rebate (if any);
- (b) the Infraco shall provide, as soon as reasonably practicable after any request by **tie**, such further information and explanations as **tie** may reasonably request;

- (c) to the extent that **tie** agrees to pay the proposed Performance Rebate, **tie** shall pay to the Infracore the Performance Rebate or such part as it agrees to be payable, within 14 days of the later of the receipt by **tie** of the notice to **tie** under paragraph 12.1(a) and the receipt of all information and explanations requested under paragraph 12.1(b) that are reasonably required by the Client to verify its liability to make such payment;
- (d) if **tie** wishes to dispute all or part of the proposed Performance Rebate, it shall, within 28 days of receipt of the notice under paragraph 12.1(a) of part 1 of this Schedule Part 6 (*Maintenance Payment Regime*) (or if later within 28 days after receipt of any further information reasonably requested under paragraph 12.2 (b) of part B of this Schedule Part 6 (*Maintenance Payment Regime*)), submit written notice to the Infracore setting out the reasons why it disagrees with the notice submitted under paragraph 12.1 (a) of part B of this Schedule Part 6 (*Maintenance Payment Regime*) or considers that the Tram Maintainer has not complied with its obligations under paragraph 12.1(b) of part B of this Schedule Part 6 (*Maintenance Payment Regime*);
- (e) to the extent that the Infracore and **tie** are unable to agree the amount of the Performance Rebate (if any) within 28 days of receipt of the notice referred to in paragraph 12.2 (d) of part B of this Schedule Part 6 (*Maintenance Payment Regime*), then the determination of the applicable Performance Rebate may at the instance of either Party be referred for determination in accordance with the Dispute Resolution Procedure; and
- (f) **tie** shall pay any unpaid amount of the Performance Rebate subsequently agreed or determined to be payable within 14 days of the quantum of the Performance Rebate being agreed or within 14 days of receipt by **tie** of the determination thereof, together with interest in accordance with the rate set out in Clause 69.1 of this Agreement from the due date for payment of the Services Payment for the Reporting Period in relation to which the Performance Rebate is payable up to the date of payment.

12.3 **tie** shall be entitled to deduct from any Performance Rebates payable by it under this paragraph 12 of part B of this Schedule Part 6 (*Maintenance Payment Regime*) any variable cost savings realised by the Infracore as a result of non-

performance of the Services, particularly in the case of Excusing Causes having an extended duration.

PART C: MAXIMUM PERFORMANCE PAYMENT FOR TRAM MAINTENANCE SERVICES

PAYMENT MILESTONES SCHEDULE 1 TO 27 TRAMS

| PAYMENT MILESTONES MAINTENANCE SCHEDULE- 1 TO 27 Trams | | CAF | | | | | Payment Period | | | | |
|--|--|---|------------------------|---|------------------------------------|-----------------------------------|-----------------|-------------------------|--|--|--|
| No. | Milestone Description | Comments | Previous Forecast Date | Revised forecast date based on signature on 28th March 2008 | Previous forecast reporting period | revised forecast reporting period | Period End Date | Application for payment | Clause 38.6 Issue of Interim Certificate | Clause 38.6 VAT Certificate to client | Clause 38 payment of Interim Certificate |
| | Maintenance payment will start on commencement of shadow running and will apply to all 27 Trams. | | | | | | | within 15 Business Days | 10 Business Days from application date | 10 Business Days from issue of interim certificate | 20 days from issued of interim certificate |
| 1 | Commencement of Shadow Running | Employers Requirements Clause 23.10 Shadow Running. The evaluation of the shadow running is the | 30/09/2010 | 30/12/2010 | 07/2010-2011 | 10/2010-2011 | 08/01/2011 | 28/01/2011 | 11/02/2011 | 25/02/2011 | 03/03/2011 |

| | | | | | | | | | | | | |
|---|--------------------------------------|--|------------|------------|------------------|------------------|------------|------------|------------|------------|------------|--|
| | | pre operations test. Tram Inspector will confirm passing of test so payment can be made | | | | | | | | | | |
| 2 | Maintenance payment number 01 year 1 | Payment number 1 is due at the start of shadow running | 30/09/2010 | 30/12/2010 | 07/2010- 2011 | 10/2010- 2011 | 08/01/2011 | 28/01/2011 | 11/02/2011 | 25/02/2011 | 03/03/2011 | |
| 3 | Maintenance payment number 02 year 1 | Payment number 2 is due at end of first period after maintenance payment 1 was applied for | | 30/01/2011 | | 11/2010- 2011 | 05/02/2011 | 25/02/2011 | 11/03/2011 | 25/03/2011 | 31/03/2011 | |
| 4 | Maintenance payment number 03 year 1 | Payment number 3 is due at end of first period after maintenance payment 2 was applied for | | 28/02/2011 | | 12/2010- 2011 | 05/03/2011 | 25/03/2011 | 08/04/2011 | 22/04/2011 | 28/04/2011 | |
| 5 | Maintenance payment number 04 year 1 | Payment number 4 is due at end of first period after maintenance payment 3 was applied for | | 30/03/2011 | | 13/2010- 2011 | 31/03/2011 | 20/04/2011 | 04/05/2011 | 18/05/2011 | 24/05/2011 | |

| | | | | | | | | | | | |
|----|--------------------------------------|--|--|------------|--|--------------|------------|------------|------------|------------|------------|
| 6 | Maintenance payment number 05 year 1 | Payment number 5 is due at end of first period after maintenance payment 4 was applied for | | 30/04/2011 | | 01/2011-2012 | 30/04/2011 | 20/05/2011 | 03/06/2011 | 17/06/2011 | 23/06/2011 |
| 7 | Maintenance payment number 06 year 1 | Payment number 6 is due at end of first period after maintenance payment 5 was applied for | | 30/05/2011 | | 03/2011-2012 | 25/06/2011 | 15/07/2011 | 29/07/2011 | 12/08/2011 | 18/08/2011 |
| 8 | Maintenance payment number 07 year 1 | Payment number 7 is due at end of first period after maintenance payment 6 was applied for | | 30/06/2011 | | 04/2011-2012 | 17/10/2009 | 06/11/2009 | 20/11/2009 | 04/12/2009 | 10/12/2009 |
| 9 | Maintenance payment number 08 year 1 | Payment number 8 is due at end of first period after maintenance payment 7 was applied for | | 30/07/2011 | | 05/2011-2012 | 20/08/2011 | 09/09/2011 | 23/09/2011 | 07/10/2011 | 13/10/2011 |
| 10 | Maintenance payment number 09 year 1 | Payment number 9 is due at end of first period after maintenance payment 8 was applied for | | 30/08/2011 | | 06/2011-2012 | 17/09/2011 | 07/10/2011 | 21/10/2011 | 04/11/2011 | 10/11/2011 |

| | | | | | | | | | | | |
|----|--------------------------------------|--|--|------------|--|--------------|------------|------------|------------|------------|------------|
| 11 | Maintenance payment number 10 year 1 | Payment number 10 is due at end of first period after maintenance payment 9 was applied for | | 30/09/2011 | | 07/2011-2012 | 15/10/2011 | 04/11/2011 | 18/11/2011 | 02/12/2011 | 08/12/2011 |
| 12 | Maintenance payment number 11 year 1 | Payment number 11 is due at end of first period after maintenance payment 10 was applied for | | 30/10/2011 | | 8/2011-2012 | 12/11/2011 | 02/12/2011 | 16/12/2011 | 30/12/2011 | 05/01/2012 |
| 13 | Maintenance payment number 12 year 1 | Payment number 12 is due at end of first period after maintenance payment 11 was applied for | | 30/11/2011 | | 09/2011-2012 | 10/12/2011 | 30/12/2011 | 13/01/2012 | 27/01/2012 | 02/02/2012 |
| 14 | Maintenance payment number 13 year 1 | Payment number 13 is due at end of first period after maintenance payment 12 was applied for | | 30/12/2011 | | 10/2011-2012 | 07/01/2012 | 27/01/2012 | 10/02/2012 | 24/02/2012 | 01/03/2012 |
| 15 | Maintenance payment number 01 year 2 | Payment number 1 year 2 is due at the end of the first period after maintenance payment 13 was applied for | | 30/01/2012 | | 11/2011-2012 | 04/02/2012 | 24/02/2012 | 09/03/2012 | 23/03/2012 | 29/03/2012 |

| | | | | | | | | | | | |
|----|--------------------------------------|---|--|------------|--|------------------|------------|------------|------------|------------|------------|
| 16 | Maintenance payment number 02 year 2 | Payment number 2 year 2 is due at end of first period after maintenance payment 1 was applied for | | 28/02/2012 | | 12/2011- 2012 | 03/03/2012 | 23/03/2012 | 06/04/2012 | 20/04/2012 | 26/04/2012 |
| 17 | Maintenance payment number 03 year 2 | Payment number 3 year 2 is due at end of first period after maintenance payment 2 was applied for | | 30/03/2012 | | 13/2011- 2012 | 31/03/2012 | 20/04/2012 | 04/05/2012 | 18/05/2012 | 24/05/2012 |
| 18 | Maintenance payment number 04 year 2 | Payment number 4 year 2 is due at end of first period after maintenance payment 3 was applied for | | 30/04/2012 | | 02/2012- 2013 | 26/05/2012 | 15/06/2012 | 29/06/2012 | 13/07/2012 | 19/07/2012 |
| 19 | Maintenance payment number 05 year 2 | Payment number 5 year 2 is due at end of first period after maintenance payment 4 was applied for | | 30/05/2012 | | 03/2012- 2013 | 23/06/2012 | 13/07/2012 | 27/07/2012 | 10/08/2012 | 16/08/2012 |
| 20 | Maintenance payment number 06 year 2 | Payment number 6 year 2 is due at end of first period after maintenance payment 5 was applied for | | 30/06/2012 | | 04/2012- 2013 | 21/07/2012 | 10/08/2012 | 24/08/2012 | 07/09/2012 | 13/09/2012 |

| | | | | | | | | | | | |
|----|--------------------------------------|---|--|------------|--|------------------|------------|------------|------------|------------|------------|
| 21 | Maintenance payment number 07 year 2 | Payment number 7 year 2 is due at end of first period after maintenance payment 6 was applied for | | 30/07/2012 | | 05/2012- 2013 | 18/08/2012 | 07/09/2012 | 21/09/2012 | 05/10/2012 | 11/10/2012 |
| 22 | Maintenance payment number 08 year 2 | Payment number 8 year 2 is due at end of first period after maintenance payment 7 was applied for | | 30/08/2012 | | 06/2012- 2013 | 15/09/2012 | 05/10/2012 | 19/10/2012 | 02/11/2012 | 08/11/2012 |
| 23 | Maintenance payment number 09 year 2 | Payment number 9 year 2 is due at end of first period after maintenance payment 8 was applied for | | 30/09/2012 | | 07/2012- 2013 | 13/10/2012 | 02/11/2012 | 16/11/2012 | 30/11/2012 | 06/12/2012 |
| 24 | Maintenance payment number 10 year 2 | Payment number 10 year 2 is due at end of first period after maintenance payment 9 was applied for | | 30/10/2012 | | 08/2012- 2013 | 10/11/2012 | 30/11/2012 | 14/12/2012 | 28/12/2012 | 03/01/2013 |
| 25 | Maintenance payment number 11 year 2 | Payment number 11 year 2 is due at end of first period after maintenance payment 10 was applied for | | 30/11/2012 | | 09/2012- 2013 | 08/12/2012 | 28/12/2012 | 11/01/2013 | 25/01/2013 | 31/01/2013 |
| 26 | Maintenance payment number 12 year 2 | Payment number 12 year 2 is due at end of first period after | | 30/12/2012 | | 10/2012- 2013 | 05/01/2013 | 25/01/2013 | 08/02/2013 | 22/02/2013 | 28/02/2013 |

| | | | | | | | | | | | | | | |
|----|--------------------------------------|---|--|------------|--|------------------|------------|------------|------------|------------|------------|--|--|--|
| | | maintenance payment 11 was applied for | | | | | | | | | | | | |
| 27 | Maintenance payment number 13 year 2 | Payment number 13 year 2 is due at end of first period after maintenance payment 12 was applied for | | 30/01/2013 | | 11/2012- 2013 | 02/02/2013 | 22/02/2013 | 08/03/2013 | 22/03/2013 | 28/03/2013 | | | |
| 28 | Maintenance payment number 01 year 3 | Payment number 1 year 3 is due at the end of the first period after maintenance payment 13 was applied for | | 28/02/2013 | | 12/2012- 2013 | 02/03/2013 | 22/03/2013 | 05/04/2013 | 19/04/2013 | 25/04/2013 | | | |
| 29 | Maintenance payment number 02 year 3 | Payment number 2 year 3 is due at end of first period after maintenance payment 1 was applied for | | 30/03/2013 | | 13/2012- 2013 | 31/03/2013 | 20/04/2013 | 04/05/2013 | 18/05/2013 | 24/05/2013 | | | |
| 30 | Maintenance payment number 03 year 3 | Payment number 3 year 3 is due at end of first period after maintenance payment 2 was applied for | | 30/04/2013 | | 02/2013- 2014 | 25/05/2013 | 14/06/2013 | 28/06/2013 | 12/07/2013 | 18/07/2013 | | | |
| 31 | Maintenance payment number 04 year 3 | Payment number 4 year 3 is due at end of first period after maintenance payment | | 30/05/2013 | | 03/2013- 2014 | 22/06/2013 | 12/07/2013 | 26/07/2013 | 09/08/2013 | 15/08/2013 | | | |

| | | | | | | | | | | | | | | |
|----|--------------------------------------|---|--|------------|--|------------------|------------|------------|------------|------------|------------|--|--|--|
| | | 3 was applied for | | | | | | | | | | | | |
| 32 | Maintenance payment number 05 year 3 | Payment number 5 year 3 is due at end of first period after maintenance payment 4 was applied for | | 30/06/2013 | | 04/2013- 2014 | 20/07/2013 | 09/08/2013 | 23/08/2013 | 06/09/2013 | 12/09/2013 | | | |
| 33 | Maintenance payment number 06 year 3 | Payment number 6 year 3 is due at end of first period after maintenance payment 5 was applied for | | 30/07/2013 | | 05/2013- 2014 | 17/08/2013 | 06/09/2013 | 20/09/2013 | 04/10/2013 | 10/10/2013 | | | |
| 34 | Maintenance payment number 07 year 3 | Payment number 7 year 3 is due at end of first period after maintenance payment 6 was applied for | | 30/08/2013 | | 06/2013- 2014 | 14/09/2013 | 04/10/2013 | 18/10/2013 | 01/11/2013 | 07/11/2013 | | | |
| 35 | Maintenance payment number 08 year 3 | Payment number 8 year 3 is due at end of first period after maintenance payment 7 was applied for | | 30/09/2013 | | 07/2013- 2014 | 12/10/2013 | 01/11/2013 | 15/11/2013 | 29/11/2013 | 05/12/2013 | | | |
| 36 | Maintenance payment number 09 year 3 | Payment number 9 year 3 is due at end of first period after maintenance payment 8 was applied for | | 30/10/2013 | | 08/2013- 2014 | 09/11/2013 | 29/11/2013 | 13/12/2013 | 27/12/2013 | 02/01/2014 | | | |

| | | | | | | | | | | | |
|----|--------------------------------------|---|--|------------|--|--------------|------------|------------|------------|------------|------------|
| 37 | Maintenance payment number 10 year 3 | Payment number 10 year 3 is due at end of first period after maintenance payment 9 was applied for | | 30/11/2013 | | 09/2013-2014 | 07/12/2013 | 27/12/2013 | 10/01/2014 | 24/01/2014 | 30/01/2014 |
| 38 | Maintenance payment number 11 year 3 | Payment number 11 year 3 is due at end of first period after maintenance payment 10 was applied for | | 30/12/2013 | | 10/2013-2014 | 04/01/2014 | 24/01/2014 | 07/02/2014 | 21/02/2014 | 27/02/2014 |
| 39 | Maintenance payment number 12 year 3 | Payment number 12 year 3 is due at end of first period after maintenance payment 11 was applied for | | 30/01/2014 | | 11/2013-2014 | 01/02/2014 | 21/02/2014 | 07/03/2014 | 21/03/2014 | 27/03/2014 |
| 40 | Maintenance payment number 13 year 3 | Payment number 13 year 3 is due at end of first period after maintenance payment 12 was applied for | | 28/02/2014 | | 12/2013-2014 | 01/03/2014 | 21/03/2014 | 04/04/2014 | 18/04/2014 | 24/04/2014 |

TRAM KM FORECAST

| Year | 2008 | 2009 | 2010 | Year 1 2011 | Year 2 2012 | Year 3 2013 |
|--------------|------|------|------|-------------|-------------|-------------|
| Mileage (km) | Nil | Nil | Nil | 57037 | 70000 | 85000 |
| Trams | | | | 27 | 27 | 27 |
| Total | | | | 1540000 | 1890000 | 2295000 |

EDINBURGH TENDER

| | | | | |
|-------------|------|---------------|---------|----|
| Tender Data | 1,08 | €/ km & Trams | 100.000 | km |
|-------------|------|---------------|---------|----|

| KM Proposed | | Average | |
|-------------|------------------|---------|------------|
| 1st year: | Trams (27 units) | 57.037 | km/Tram/yr |
| 2nd year: | Trams (27 units) | 70.000 | km/Tram/yr |
| 3rd year: | Trams (27 units) | 85.000 | km/Tram/yr |

| | Year 2007 | year 2008 | Year 2009 | Year 2010 | year 2011 | Year 2012 | Year 2013 |
|---------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | CPI forecast estimate | CPI forecast estimate | CPI forecast estimate | CPI forecast estimate | CPI forecast estimate | CPI forecast estimate |
| Km/Tram/Yr | Price €/ km | 3% | 3% | 3% | 3% | 3% | 3% |
| 55001 - 60000 | 1,3756 | 1,4168 | 1,4593 | 1,5031 | 1,5482 | 1,5947 | 1,6425 |
| 60001 - 65000 | 1,3187 | 1,3583 | 1,3990 | 1,4410 | 1,4842 | 1,5288 | 1,5746 |
| 65001 - 70000 | 1,2700 | 1,3081 | 1,3473 | 1,3878 | 1,4294 | 1,4723 | 1,5164 |

| | | | | | | | |
|---------------------------|---------------|--------|--------|--------|--------|--------|--------|
| 70001 - 75000 | 1,2278 | 1,2646 | 1,3026 | 1,3416 | 1,3819 | 1,4233 | 1,4660 |
| 75001 - 80000 | 1,1908 | 1,2266 | 1,2634 | 1,3013 | 1,3403 | 1,3805 | 1,4219 |
| 80001 - 85000 | 1,1582 | 1,1930 | 1,2288 | 1,2656 | 1,3036 | 1,3427 | 1,3830 |
| 85001 - 90000 | 1,1293 | 1,1631 | 1,1980 | 1,2340 | 1,2710 | 1,3091 | 1,3484 |
| 90001 - 95000 | 1,1033 | 1,1364 | 1,1705 | 1,2056 | 1,2418 | 1,2791 | 1,3174 |
| 95001 - 100000 | 1,08 | 1,1124 | 1,1458 | 1,1801 | 1,2155 | 1,2520 | 1,2896 |

NOTE 1: If each tram or any tram does not exceed 55.000 km per year or is above 100.000 km per year, the parties shall meet and reach an agreement with respect to payment for that tram or trams.

NOTE 2: Unless the parties agree otherwise, the parties shall agree at the beginning of the year the payment forecast and the payments for periods 1 to 12 shall be made based on that forecast with a balancing payment to adjust for the actual at the end of period 13.

NOTE 3: For years 1 to 3 then the proportion of the €/km figure that is based upon costs incurred in £ sterling is 40%. Therefore 40% is not subject to currency fluctuation and shall be converted into £/km using the rate of 0.69 € per £1 sterling. The other 60% shall be converted into £/km based on the prevailing rate on the date of payment application unless the Parties agree to hedge the maintenance payments.

NOTE 4: For years 4 to 30 then the proportion of the €/km figure that is based upon costs incurred in £ sterling is 60%. Therefore 60% is not subject to currency fluctuation and shall be converted into £/km using the rate of 0.69 € per £1 sterling. The other 40% shall be converted into £/km based at the prevailing rate on the date of payment application unless the Parties agree to hedge the maintenance payments.



**THIS IS SCHEDULE PART 7 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 7

MAINTENANCE CONTRACT PRICE ANALYSIS

CONTENTS

- 1.0 Introduction
- 2.0 Adjusting Prices for Changes
- 3.0 The Application of Rates
- 4.0 Maintenance Price Build Ups
- 5.0 Schedule of Rates for Infracore Repairs
- 6.0 Schedule of Rates for Tram Maintainer Repairs
- 7.0 Disallowed Costs
- 8.0 Tram Maintainer Maintenance Prices

APPENDIX A - Maintenance Price Build up

APPENDIX B - Schedule of Rates for Additional services

APPENDIX C - Schedule of Agreed repairs for Tram Maintainer

APPENDIX D - Schedule of Agreed Repairs for Infracore

APPENDIX E - Manpower ETN

APPENDIX F - Process for Agreement of Permitted Variations

1. INTRODUCTION

- 1.1 The Tram Maintenance Agreement price is on a 'fixed and firm' price per km basis and indexed.

Payment for the Tram Maintenance Agreement will be made in accordance with the Tram Maintenance Agreement clauses:

- Clause 42 – Payments
- Schedule 3 – Part 1 Performance Payment
- Schedule 3 - Part 2 Mobilisation Milestones
- Schedule 3 - Part 3 Maximum Performance Payment

- 1.2 The Infraco Contract maintenance pricing (excluding mobilisation fee and payment for initial spare parts) is subject to Indexation, paid each Reporting Period in accordance with this Agreement and not subject to variation unless changed pursuant to one of the following clauses in this Agreement:

- Clause 52 – Maintenance
- Clause 57 – Performance Review
- Clause 65 – Compensation Events
- Clause 66 – Payment of the Contract Price
- Clause 68 – Payment in respect of Maintenance Services
- Clause 71 – Labour Tax and Landfill Tax Fluctuations
- Clause 79 – Management of Variations
- Clause 80 – **tie** Changes
- Clause 81 – Infraco Changes
- Clause 82 – Small Works Changes
- Clause 84 – Qualifying Changes in Law

- 1.3 The Infraco Contract Schedule contains Employer' Requirements for Maintenance Services and the Infraco Proposal for Infrastructure Maintenance Services
- Schedule Part 2 (Employer's Requirements) – Section 40 Maintenance
 - Schedule Part 30 (Infraco Proposals) - Section 3 Maintenance –Part 1 Maintenance Proposal from BBS
- 1.4 Payment for the Maintenance Services will be made in accordance with the Infraco Contract clauses:
- Clause 52 – Maintenance
 - Clause 68 – Payment in respect of Maintenance Services
- 1.5 The Infraco Contract Schedule contains the Maintenance Payment Regime for determining the performance related payment for both Infrastructure Maintenance Services and Tram Maintenance Services:
- Schedule Part 6 – Maintenance Payment Regime
- 1.6 The Infraco or Tram Maintainer is not entitled to any other amounts, save as set out in this Schedule Part 7 or as otherwise set out in the Infraco or Tram Maintenance Agreement.
- 1.7 No provision within the Infraco Contract, the Tram Supply Agreement or Tram Maintenance Agreement shall entitle the Infraco, Tram Supplier or Tram Maintainer to more than one payment for any Part or other entitlement under the Infraco Contract, Tram Supply Agreement or Tram Maintenance Agreement.
- 1.8 References to clause numbers in the Agreement or paragraph numbers in the Schedule are to Clauses and paragraphs in the Infraco Contract unless expressly stated as referring to the Tram Supply Agreement or the Tram Maintenance Agreement.
- 1.9 Where defined terms are used in this Schedule Part 7 which are not defined in this Schedule Part 7 or in the Infraco Contract, they shall have the same meaning as is given in the Tram Maintenance Agreement (or Tram Supply Agreement where relevant).
- 1.10 All rates, lump sums and the like contained in this Schedule Part 7 are exclusive of Value Added Tax and are in Pounds Sterling.

- 1.11 The Services Payment due to the Tram Maintainer will be subject to Schedule 3 Part 1 of the Tram Maintenance Agreement (Performance Payment) Clause 1.1.
- 1.12 The Overall Payment Performance due to the Tram Maintainer will be subject to Schedule 3 Part 1 of the Tram Maintenance Agreement (Performance Payment) Clause 1.2.
- 1.13 The Maximum Performance Payment to the Tram Maintainer will be subject to Schedule 3 Part 1 of the Tram Maintenance Agreement (Performance Payment) Clause 1.3.
- 1.14 The Maximum Performance Payment set out in Part 3 of Schedule 3 of the Tram Maintenance Agreement is subject to a Minimum Overall Payment Performance of 95% as set out in Part 3 of Schedule 3 of the Tram Maintenance Agreement.

2. ADJUSTING MAINTENANCE PRICES FOR CHANGES

- 2.1 Adjusting maintenance prices for Permitted Variations shall be undertaken in accordance with this Agreement and where they relate to Tram Maintenance Services, then reference shall be made to the change procedure in the Tram Maintenance Agreement as listed for reference in paragraph 1.1 and 1.2.

3. THE APPLICATION OF RATES

- 3.1 The rates for Additional Services are as detailed in Appendix B.
- 3.2 The rates for Agreed Repairs for Tram Maintainer are as detailed in Appendix C.

4. MAINTENANCE PRICE BUILD UPS

- 4.1 The Infraco Maintenance Costs Evaluation for Phase 1a are as contained in Appendix A.

5. SCHEDULE OF RATES INFRACO REPAIRS

- 5.1 The schedule of rates for Infraco Repairs is detailed in the Infraco Proposal and in Appendix D.

6. SCHEDULE OF RATES TRAM MAINTAINER REPAIRS

- 6.1 The schedule of rates for Tram Maintainer Repairs is included in Appendix C.

7. DISALLOWED COSTS

- 7.1 The following items shall be explicitly excluded from any Payment Application in connection with the provision of the Maintenance Services:

Generally, for items inclusive below, costs shall mean the Infraco's own costs but will not include costs levied by **tie** for any default by the Infraco or are taken as a set off in respect of Maintenance Services.

7.1.1 Costs not payable under the Infraco Contract.

7.1.2 Costs arising from the Infraco's Design errors.

7.1.3 Costs arising related to claims for Deductibles on insurance policies for which the Infraco is responsible in terms of Clause 76.16.

7.1.4 Costs as incurred only because the Infraco did not follow an acceptance or procurement procedure stated in the Agreement to the extent that this has increased actual costs from what they otherwise would have been (i.e. the extra over cost is disallowed).

7.1.5 Costs as incurred only because the Infraco did not proceed regularly and diligently with the Services.

7.1.6 Costs arising where the work was delayed, disrupted, or cancelled due to the default of the Infraco (including where the Infraco's default was the cause of an emergency).

7.1.7 Costs arising where the Infraco did not make a bona fide attempt to use arranged access (which includes having the appropriate physical presence on site required to utilise the access) except where the Infraco was instructed by **tie**'s Representative not to use the access.

7.1.8 Costs arising from the additional cost of a Permitted Variation (calculated in accordance with Appendix F of this Schedule Part 7) resulting where the Infraco failed to give an early warning and/or notification of in accordance with the requirements of the Infraco Contract or failed to submit for the information required by the Infraco Agreement.

7.1.9 Costs arising from correcting defects caused by the Infraco not complying with a requirement for how he is to provide the Services stated in the Infraco Contract.

8. TRAM MAINTAINER MAINTENANCE PRICES

8.1 The Tram Maintainer Maintenance prices are included in Schedule 3, Part 2 (Mobilisation Milestones - Payment Milestones Schedule Capital) and Schedule 3, Part 3 (Maximum Performance Payment) of the Tram Maintenance Agreement.

APPENDIX A

MAINTENANCE PRICE BUILD UP

1. ETN Infraco maintenance costs evaluation

1.1 Basis

The basis of the maintenance costs is section 40 of the Employer's Requirements and the Infraco Proposal.

ETN Infraco maintenance costs evaluation

Bidder name:

BBS - Phase 1a

Date submitted:

08.04.2008

(considering bogie, OLE fixed tensioning, extended mobilisation period, carpark maintenance, excluding cleaning it is assumed that Tramco Maintainer will join the consortium; in case of novation Infraco would add a markup to Tramco Maintenance Price)

Sections:

Maintenance

Complete the staff headcount and annual pay details along with annual amounts for planned preventative, reactive and lifecycle materials / contracts

Staff

Complete the staff headcount and annual pay details along for staff members not already included in the maintenance section

Overheads

Complete annual totals for general overheads

Total

Totals the figures entered on the above three tabs

Enter data in the cells shaded green

To be completed in conjunction with the document "ETN Infraco maintenance costs evaluation schedule detail"

Track and formation

| | | | | | | | | | | | | | | | | | | | | | | |
|--|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|---|---|---|---|---------|-----------|-----------|--|
| Staff headcount (FTE) | 0.00 | 0.00 | 2.20 | 5.20 | 5.20 | 5.70 | 5.70 | 5.70 | 5.70 | 5.70 | 6.20 | 6.20 | 6.20 | | | | | | 0.73 | 5.53 | 3.32 | |
| FTE pay, overtime and other payments | | | 85,608 | 79,259 | 79,259 | 77,657 | 77,657 | 77,657 | 77,657 | 77,657 | 76,313 | 76,313 | 76,313 | | | | | | 85,608 | 78,159 | 77,810 | |
| Subtotal staff | 0 | 0 | 188,337 | 412,146 | 412,146 | 442,644 | 442,644 | 442,644 | 442,644 | 442,644 | 473,142 | 473,142 | 473,142 | 0 | 0 | 0 | 0 | 0 | 188,337 | 2,594,868 | 4,645,275 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | 16,126 | 16,126 | 90,461 | 90,461 | 90,461 | 90,461 | 90,461 | 133,565 | 133,565 | 133,565 | | | | | | 0 | 394,096 | 885,253 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Tools | 41,874 | 41,874 | 41,874 | 7,153 | 7,153 | 7,153 | 7,153 | 7,153 | 49,027 | 7,153 | 7,153 | 7,153 | 7,153 | | | | | | 125,621 | 84,794 | 239,029 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Total | 41,874 | 41,874 | 230,211 | 435,425 | 435,425 | 617,921 | 640,258 | 640,258 | 582,132 | 540,258 | 613,861 | 613,861 | 613,861 | 0 | 0 | 0 | 0 | 0 | 313,958 | 3,151,421 | 5,769,557 | |

Tram stop structures

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------|---------|--|
| Staff headcount (FTE) | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 | 0.00 | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | | | | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Tools | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Tram stop shelters

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------|---------|--|
| Staff headcount (FTE) | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 | 0.00 | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | | | | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Tools | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Gogar depot

| | | | | | | | | | | | | | | | | | | | | | | |
|--|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|---|---|---|---------|-----------|-----------|---------|--|
| Staff headcount (FTE) | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 0.00 | 1.00 | 0.56 | |
| FTE pay, overtime and other payments | | | | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | | | | | | #DIV/0! | 61 149 | 61 149 | |
| Subtotal staff | 0 | 0 | 0 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 61 149 | 0 | 0 | 0 | 0 | 0 | 0 | 366 894 | 611 490 | |
| Planned preventative materials / contracts | | | | 35 596 | 35 596 | 46 260 | 40 928 | 111 040 | 83 982 | 62 342 | 48 303 | 174 113 | 131 059 | | | | | 0 | 0 | 353 402 | 767 219 | |
| Reactive materials / contracts | | | 6 500 | 6 500 | 13 000 | 13 000 | 29 815 | 29 815 | 67 388 | 63 531 | 63 531 | 63 531 | 70 189 | | | | | 13 000 | 216 550 | 490 332 | | |
| Lifecycle materials / contracts | | | | 26 000 | 26 000 | 26 000 | 26 000 | 26 000 | 26 000 | 26 000 | 26 000 | 26 000 | 26 000 | | | | | 0 | 156 000 | 260 000 | | |
| Tools | 73 290 | 73 290 | 73 290 | 53 343 | 60 438 | 53 343 | 60 438 | 53 343 | 104 769 | 53 343 | 60 438 | 53 343 | 60 438 | | | | | 219 869 | 385 673 | 833 103 | | |
| Carpark maintenance | | | | 17 508 | 17 508 | 17 508 | 17 508 | 17 508 | 17 508 | 17 508 | 17 508 | 17 508 | 17 508 | | | | | 0 | 105 050 | 175 053 | | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Total | 73 290 | 79 790 | 79 790 | 206 596 | 213 691 | 234 075 | 235 839 | 336 428 | 356 939 | 283 874 | 274 929 | 395 644 | 366 343 | 0 | 0 | 0 | 0 | 232 869 | 1 583 560 | 3 137 228 | | |

Roads

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------|---------|--|
| Staff headcount (FTE) | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 | 0.00 | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | | | | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Tools | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Buildings

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------|---------|--|
| Staff headcount (FTE) | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 | 0.00 | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | | | | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Tools | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Structures

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------|---------|--|
| Staff headcount (FTE) | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 | 0.00 | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | | | | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | |

| Operating years | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Subtotal / av | Subtotal / av | Grand | Assumptions / comments |
|---|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|---------------|--------|------------------------|
| Year number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
| Year start | Jan 08 | Jan 09 | Jan 10 | Jan 11 | Jan 12 | Jan 13 | Jan 14 | Jan 15 | Jan 16 | Jan 17 | Jan 18 | Jan 19 | Jan 20 | Jan 21 | Jan 22 | Jan 23 | Jan 24 | Jan 25 | |
| Year end | Dec 08 | Dec 09 | Dec 10 | Dec 11 | Dec 12 | Dec 13 | Dec 14 | Dec 15 | Dec 16 | Dec 17 | Dec 18 | Dec 19 | Dec 20 | Dec 21 | Dec 22 | Dec 23 | Dec 24 | Dec 25 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | | |
| Tools | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Supervisory control and comms systems (SCC) | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | 0.00 | 0.00 | 1.35 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | | | | |
| FTE pay, overtime and other payments | | | 81.884 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | 77.619 | | | | |
| Subtotal staff | 0 | 0 | 110.544 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 217.334 | 0 | 0 | 0 | 0 |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | | |
| Reactive materials / contracts | | | | 0 | 0 | 40.586 | 40.586 | 81.172 | 81.172 | 81.172 | 104.557 | 104.557 | 104.557 | | | | | | |
| Lifecycle materials / contracts | | | | | | | | | 69.783 | | | | | | | | | | |
| Tools | | | | | | | | | 25.863 | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 25.863 | 25.863 | 136.406 | 217.334 | 217.334 | 257.920 | 257.920 | 298.506 | 394.151 | 298.506 | 321.890 | 321.890 | 321.890 | 0 | 0 | 0 | 0 | 0 | |
| Overhead line contact system and HV supplies | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | 0.00 | 0.00 | 0.95 | 2.50 | 2.50 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | | | | |
| FTE pay, overtime and other payments | | | 80.011 | 76.649 | 76.649 | 76.073 | 76.073 | 76.073 | 76.073 | 76.073 | 76.073 | 76.073 | 76.073 | 76.073 | 76.073 | | | | |
| Subtotal staff | 0 | 0 | 76.011 | 191.622 | 191.622 | 228.219 | 228.219 | 228.219 | 228.219 | 228.219 | 228.219 | 228.219 | 228.219 | 228.219 | 228.219 | 0 | 0 | 0 | 0 |
| Planned preventative materials / contracts | | | | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | 45.510 | | | | |
| Reactive materials / contracts | | | | 0 | 0 | 38.319 | 38.319 | 76.638 | 76.638 | 76.638 | 98.147 | 98.147 | 98.147 | | | | | | |
| Lifecycle materials / contracts | | | | | | | | | 56.593 | | | | | | | | | | |
| Tools | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 56.593 | 56.593 | 132.604 | 237.132 | 237.132 | 312.049 | 312.049 | 350.368 | 406.961 | 350.368 | 371.877 | 371.877 | 371.877 | 371.877 | 371.877 | 0 | 0 | 0 | 0 |
| General | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | 0.00 | 0.00 | 0.75 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| FTE pay, overtime and other payments | | | 175.698 | 175.698 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Subtotal staff | 0 | 0 | 131.774 | 117.132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | | |
| Tools | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 0 | 0 | 131.774 | 117.132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Defects Liability | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | | | 0.93 | 0.92 | 0.92 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | | | | |
| FTE pay, overtime and other payments | | | 48.486 | 48.486 | 48.486 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | | | | |
| Subtotal staff | 0 | 0 | 44.756 | 44.756 | 44.756 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 14.919 | 0 | 0 | 0 | 0 |
| Planned preventative materials / contracts | | | 3.048 | 3.048 | 3.048 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | | | | |
| Reactive materials / contracts | | | | | | 3.810 | 1.778 | 1.778 | 1.778 | 1.778 | 1.778 | 1.778 | 1.778 | 1.778 | 1.778 | | | | |
| Lifecycle materials / contracts | | | | | | 3.048 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | 1.016 | | | | |
| Tools | | | | | | 26.203 | 8.734 | 8.734 | 8.734 | 8.734 | 8.734 | 8.734 | 8.734 | 8.734 | 8.734 | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 0 | 0 | 77.055 | 77.055 | 77.055 | 27.463 | 27.463 | 27.463 | 27.463 | 27.463 | 27.463 | 27.463 | 27.463 | 27.463 | 27.463 | 0 | 0 | 0 | 0 |
| System Civils Infrastructure Maintenance | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | | | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | | | | |
| FTE pay, overtime and other payments | | | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | 46.994 | | | | |
| Subtotal staff | 0 | 0 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 157.430 | 0 | 0 | 0 | 0 |
| Planned preventative materials / contracts | | | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | | | | |
| Reactive materials / contracts | | | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | | | | |
| Lifecycle materials / contracts | | | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | 26.514 | | | | |
| Tools | | | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | 67.611 | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 0 | 0 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 304.584 | 0 | 0 | 0 | 0 |
| Landscaping Maintenance | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | | | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | | | | |
| FTE pay, overtime and other payments | | | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | 46.708 | | | | |
| Subtotal staff | 0 | 0 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 23.354 | 0 | 0 | 0 | 0 |
| Planned preventative materials / contracts | | | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | | | | |
| Reactive materials / contracts | | | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | | | | |
| Lifecycle materials / contracts | | | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | 1.105 | | | | |
| Tools | | | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | 5.966 | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | 0 | 0 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 32.634 | 0 | 0 | 0 | 0 |
| Spare | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | | | | | | | | | | | | | | | | | | | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | | | | |
| Subtotal staff | | | | | | | | | | | | | | | | | | | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | | | | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | | | | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | | | | |
| Tools | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Spare | | | | | | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | | | | | | |

| Operating years | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Subtotal / av | Subtotal / av | Grand | Assumptions / comments |
|--|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|---------|---------------|---------------|------------|------------------------|
| Year number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | total / av | |
| Year start | Jan 08 | Jan 09 | Jan 10 | Jan 11 | Jan 12 | Jan 13 | Jan 14 | Jan 15 | Jan 16 | Jan 17 | Jan 18 | Jan 19 | Jan 20 | Jan 21 | Jan 22 | | | | |
| Year end | Dec 08 | Dec 09 | Dec 10 | Dec 11 | Dec 12 | Dec 13 | Dec 14 | Dec 15 | Dec 16 | Dec 17 | Dec 18 | Dec 19 | Dec 20 | Dec 21 | Dec 22 | | | | |
| FTE pay, overtime and other payments | | | | | | | | | | | | | | | | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Reactive materials / contracts | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Lifecycle materials / contracts | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Tools | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total / average | | | | | | | | | | | | | | | | | | | |
| Staff headcount (FTE) | 0.00 | 0.00 | 5.25 | 16.94 | 18.27 | 17.27 | 16.66 | 16.66 | 16.66 | 16.66 | 17.16 | 17.16 | 17.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| FTE pay, overtime and other payments (av) | #DIV/0! | #DIV/0! | 96.508 | 72.311 | 68.075 | 68.018 | 68.740 | 68.740 | 68.740 | 68.740 | 68.514 | 68.514 | 68.514 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | |
| Subtotal staff | 0 | 0 | 506.665 | 1.224.922 | 1.107.750 | 1.174.888 | 1.145.048 | 1.145.048 | 1.145.048 | 1.145.048 | 1.175.546 | 1.175.546 | 1.175.546 | 0 | 0 | 0 | 0 | 0 | |
| Planned preventative materials / contracts | 0 | 0 | 0 | 111.773 | 111.773 | 122.437 | 115.074 | 185.186 | 158.127 | 136.488 | 120.448 | 245.256 | 265.205 | 0 | 0 | 0 | 0 | 0 | |
| Reactive materials / contracts | 0 | 6.500 | 6.500 | 56.745 | 56.745 | 230.610 | 226.578 | 345.055 | 341.199 | 341.199 | 425.197 | 425.197 | 435.854 | 0 | 0 | 0 | 0 | 0 | |
| Lifecycle materials / contracts | 0 | 0 | 0 | 56.667 | 56.667 | 56.667 | 54.635 | 54.635 | 124.818 | 54.635 | 54.635 | 54.635 | 54.635 | 0 | 0 | 0 | 0 | 0 | |
| Tools | 197.619 | 197.619 | 197.619 | 160.277 | 167.372 | 160.277 | 149.903 | 142.808 | 318.564 | 142.808 | 149.903 | 142.808 | 149.903 | 0 | 0 | 0 | 0 | 0 | |
| Spare | 0 | 0 | 0 | 17.508 | 17.508 | 17.508 | 17.508 | 17.508 | 17.508 | 17.508 | 17.508 | 17.508 | 17.508 | 0 | 0 | 0 | 0 | 0 | |
| Spare | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 197.619 | 204.119 | 710.784 | 1.827.892 | 1.517.855 | 1.762.384 | 1.710.745 | 1.890.240 | 2.104.864 | 1.837.686 | 1.947.237 | 2.087.953 | 2.038.651 | 0 | 0 | 0 | 0 | 0 | |
| | | | | | | | | | | | | | | | | 1.75 | 16.74 | 9.85 | |
| | | | | | | | | | | | | | | | | 96.608 | 69.110 | 69.729 | |
| | | | | | | | | | | | | | | | | 506.665 | 6.942.742 | 12.121.093 | |
| | | | | | | | | | | | | | | | | 0 | 804.370 | 1.514.766 | |
| | | | | | | | | | | | | | | | | 13.000 | 1.256.933 | 2.907.361 | |
| | | | | | | | | | | | | | | | | 0 | 403.688 | 622.226 | |
| | | | | | | | | | | | | | | | | 592.857 | 1.099.200 | 2.777.478 | |
| | | | | | | | | | | | | | | | | 0 | 105.050 | 175.083 | |
| | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| | | | | | | | | | | | | | | | | 1.112.522 | 10.613.962 | 19.618.031 | |

| Operating years | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Subtotal | Subtotal | Grand | Assumptions / comments |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------|-------------|--------|------------------------|
| Year number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Mobilisation | 6 years ops | Total | |
| Year start | Jan 08 | Jan 09 | Jan 10 | Jan 11 | Jan 12 | Jan 13 | Jan 14 | Jan 15 | Jan 16 | Jan 17 | Jan 18 | Jan 19 | Jan 20 | Jan 21 | Jan 22 | Jan 23 | Jan 24 | Jan 25 | |
| Year end | Dez 08 | Dez 09 | Dez 10 | Dez 11 | Dez 12 | Dez 13 | Dez 14 | Dez 15 | Dez 16 | Dez 17 | Dez 18 | Dez 19 | Dez 20 | Dez 21 | Dez 22 | Dez 23 | Dez 24 | Dez 25 | |

General overheads

| | | | | | | | | | | | | | | | | | | | | | | |
|---|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---|---|---|---|---------|-----------|-----------|--|
| Personnel | 50.829 | 105.554 | 405.582 | 642.872 | 602.211 | 602.211 | 602.211 | 602.211 | 602.211 | 602.211 | 602.211 | 602.211 | 602.211 | | | | | | 561.965 | 3.653.926 | 6.624.734 | |
| Motor vehicles | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Motor vehicles fuel | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Motor vehicles car tax | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Travel and entertaining | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Print / post / stationery / subscriptions | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Hire / lease / repair office equipment | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| H. S. E costs | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Recruitment | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| IT maintenance and support | 35.935 | 35.935 | 35.935 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | 17.777 | | | | | 107.804 | 106.663 | 285.578 | |
| Insurance | | | | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | 8.000 | | | | | 0 | 48.000 | 80.000 | |
| Insurance deductibles | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Telecoms | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| General office expenses | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Legal and professional | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Financial charges | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Project work | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Waste disposal | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Uniforms | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Training | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Cleaning | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Security | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| First aid | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Office computers | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| General office management costs | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Noise & vibration surveys | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Stray current monitoring | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Spare | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | |
| Total | 56.763 | 141.489 | 441.517 | 668.649 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 0 | 0 | 0 | 0 | 0 | 669.770 | 3.808.589 | 6.990.310 | |

| Operating years | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Subtotal | Subtotal | Grand |
|-----------------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|--------|--------|--------|--------|--------------|-------------|------------|
| Year number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | Mobilisation | 6 years ops | Total |
| Year start | Jan 08 | Jan 09 | Jan 10 | Jan 11 | Jan 12 | Jan 13 | Jan 14 | Jan 15 | Jan 16 | Jan 17 | Jan 18 | Jan 19 | Jan 20 | Jan 21 | Jan 22 | Jan 23 | Jan 24 | Jan 25 | | | |
| Year end | Dez 08 | Dez 09 | Dez 10 | Dez 11 | Dez 12 | Dez 13 | Dez 14 | Dez 15 | Dez 16 | Dez 17 | Dez 18 | Dez 19 | Dez 20 | Dez 21 | Dez 22 | Dez 23 | Dez 24 | Dez 25 | | | |
| Maintenance | 197.619 | 204.119 | 710.784 | 1.627.892 | 1.517.855 | 1.762.384 | 1.710.746 | 1.890.240 | 2.104.864 | 1.837.686 | 1.947.237 | 2.067.953 | 2.038.651 | 0 | 0 | 0 | 0 | 0 | 1.112.522 | 10.613.982 | 19.618.031 |
| Staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Overheads | 86.763 | 141.489 | 441.517 | 668.649 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 627.988 | 0 | 0 | 0 | 0 | 0 | 669.770 | 3.808.589 | 6.990.310 |
| Total | 284.382 | 345.608 | 1.152.301 | 2.296.541 | 2.145.843 | 2.390.372 | 2.338.734 | 2.518.228 | 2.732.852 | 2.465.674 | 2.575.225 | 2.695.940 | 2.666.639 | 0 | 0 | 0 | 0 | 0 | 1.782.292 | 14.422.570 | 26.608.341 |

Maintenance: underlying headcount as per Attachment 2

Overheads: underlying headcount as per Attachment 1

| | |
|--|------------|
| Overhead line contact system 100 % auto-tensioning (Phase 1A) | 2.775.997 |
| Price for Phase 1A & Phase 1B considering fix tensioning | 27.934.566 |
| Possible reduction through utilization of further potential – TramCo integration | 1.209.015 |

APPENDIX B

SCHEDULES OF RATES FOR ADDITIONAL SERVICES

| Additional Service | Reference No. | Basis of Additional Labour Cost | Basis of Additional Material Cost | Liquidated Damages in the event of failure to provide |
|---|----------------------|--|--|--|
| Extended operational hours with 15 minute response time from Monday to Saturday inclusive | 1 | £160 per hour of extended operational hours cover beyond 22:00 | No change as existing Agreement | 10% of Additional Labour Cost |
| Additional staff cover over night to prepare for service start-up from Monday to Saturday inclusive | 2 | £160 per hour of extended operational hours cover prior to 06:00 | No change as existing Agreement | 10% of Additional Labour Cost |
| Extended operational hours with 15 minute response time, on Sundays and public holidays only | 3 | £185 per hour of extended operational hours cover beyond 22:00 | No change as existing Agreement | 10% of Additional Labour Cost |
| Additional staff cover over night to prepare for service start-up, on Sundays and public holidays | 4 | £185 per hour of extended operational hours cover prior to 06:00 | No change as existing Agreement | 10% of Additional Labour Cost |

The hourly rates in the table above are based on the following assumptions:

- 1) a team of three staff will be provided
- 2) the additional working time will be limited to the hours given below:
 - maximum 2 hours extra per day
 - maximum 10 hours extra per week
 - maximum 20 hours extra per month
 - maximum 200 hours per year

Additional material costs will be charged if the additional system availability leads to a deviation from the enhanced level timetable as detailed in section 2 of the Employer's Requirements.

APPENDIX C

SCHEDULE OF AGREED REPAIRS FOR TRAM MAINTAINER

Tram Agreed Repairs-V5.xls

| STERLING GBP £ (Fixed exchange rate) | | | | |
|--|--|---------|-----------|--------|
| REF. | REPAIR/DEFECT | MAN-HRS | MATERIALS | TOTAL |
| | | | Pounds | |
| 1 | Replace bodyside window (glazing) - 1x unit (Opening Window, two glaces) | £104 | £378 | £482 |
| 1A | Replace bodyside window (glazing) - 1x unit (Fixed Window) | £104 | £202 | £306 |
| 2 | Replace bodyside window (glazing) - subsequent unit (OW) | £78 | £378 | £456 |
| 2A | Replace bodyside window (glazing) - subsequent unit (FW) | £78 | £202 | £280 |
| 3 | Replace bodyside window unit complete (incl. Frame, Opening Window) | £156 | £676 | £832 |
| 4 | Replace windscreen (glazing) | £260 | £3,797 | £4,057 |
| 5 | Replace cab side window (glazing) | £78 | £467 | £545 |
| 6 | Replace door leaf window (glazing) | £52 | £435 | £487 |
| 7 | Replace interior glass draught screen | £78 | £140 | £218 |
| 8 | Replace front GFP panel | £52 | £4,351 | £4,403 |
| 9 | Exchange pantograph complete | £208 | £0 | £208 |
| 10 | Replace pantograph carbon | £52 | £567 | £619 |
| 11 | Replace wheel - 1x | £416 | £1,880 | £2,296 |
| 12 | Replace 2nd or subsequent wheel | £156 | £1,880 | £2,036 |
| 13 | Replace tyre 1x | £312 | £932 | £1,244 |
| 14 | Replace tyre 2nd or subsequent | £52 | £932 | £984 |
| 15 | Exchange traction motor/gearbox unit | £156 | £0 | £156 |
| 16 | Replace friction brake disk | £104 | £1,868 | £1,972 |
| 17 | Exchange driver seat | £52 | £1,479 | £1,531 |
| 18 | Replace cab microphone | £52 | £310 | £362 |
| 19 | Exchange power bogie | £234 | £0 | £234 |
| 20 | Exchange trailer bogie | £208 | £0 | £208 |
| 21 | Exchange cab door | £156 | £181 | £337 |
| 22 | Exchange passenger door leaf | £52 | £3,049 | £3,101 |
| 23 | Exchange under-guard | £78 | £0 | £78 |
| 24 | Tyre turn 1x bogie | £156 | £0 | £156 |
| 25 | Tyre turn 2nd or subsequent bogies | £104 | £0 | £104 |
| 26 | Exchange Albert (emergency) coupler | £52 | £8,171 | £8,223 |
| 27 | Replace saloon seat cushion (base) | £26 | £125 | £151 |
| 28 | Replace saloon seat cushion (back) | £26 | £125 | £151 |
| 29 | Exchange cab radio module | £52 | £0 | £52 |
| 30 | Exchange TPDS transponder | £26 | £0 | £26 |
| 31 | Replace door-open pushbutton | £52 | £467 | £519 |
| 32 | Replace passenger Call-for-Help unit | £52 | £932 | £984 |
| 33 | Carry out OTMR download | £26 | £0 | £26 |
| 34 | Carry out static brake test | £26 | £0 | £26 |
| 35 | Carry out dynamic brake test | --- | --- | --- |
| 36 | Carry out post-third party repairs pre-service inspection | £52 | £0 | £52 |
| NOTE: The prices above are based on year 2007 and will be Indexed annually. It is also assumed each item is bought on one to one basis. A price revision could be made on the contract effective commencement date to take into account if it is possible to buy in batches and, also, to find local suppliers in order to reduce some of the costs. | | | | |

APPENDIX D

SCHEDULE OF AGREED REPAIRS FOR INFRACO



Bilfinger Berger - Siemens Consortium
Edinburgh Train Network
20th February Submission



Extract from Section 11.4

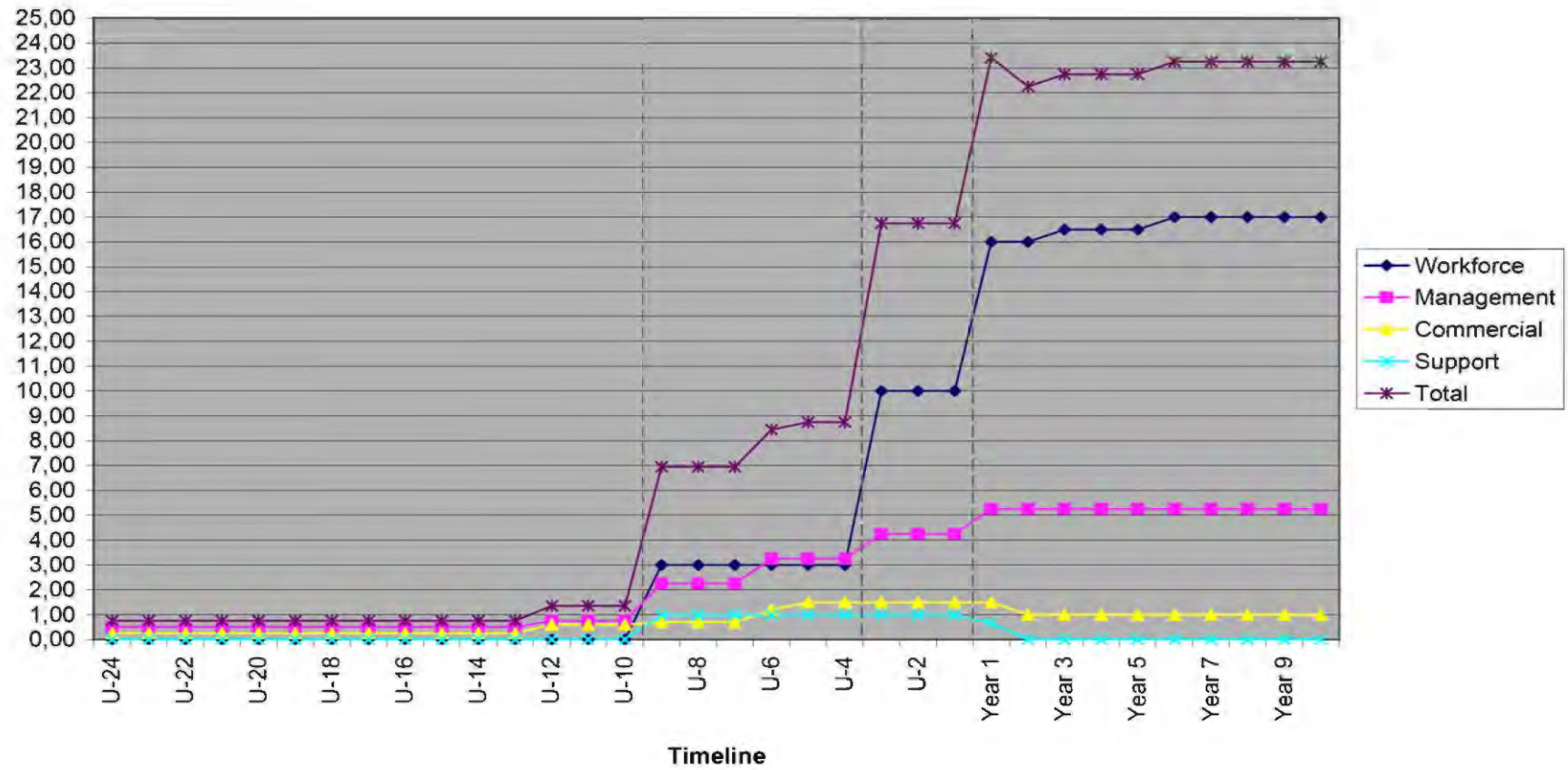
Appendix 4 : Vandalism Repair Items

| | Unit | Prices |
|--|------|-------------|
| 1. Replace pane in tram-stop shelter | no | 975,00 £ |
| 2. Replace litter bin | no | 818,00 £ |
| 3. Replace platform lighting column | no | 2.250,00 £ |
| 4. Replace pedestrian guardrail | no | 217,00 £ |
| 5. Replace street lighting column | no | 2.625,00 £ |
| 6. Replace Metal Benching | no | 2.163,00 £ |
| 7. Replace Security Fencing | no | 113,00 £ |
| 8. Replace Complete tram-stop Shelter (8 meters) | no | 22.635,00 £ |
| 9. Replace CCTV Camera | no | 2.611,00 £ |
| 10. Replace PIS Indicator Panel | no | 4.264,00 £ |
| 11. Replace Loudspeaker | no | 417,00 £ |
| 12. Replace Electrical Cabinet | no | 22.074,00 £ |
| 13. Replace Signal | no | 2.609,00 £ |
| 14. Replace Point Indicator | no | 2.314,00 £ |
| 15. Replace Points Heating | no | 10.293,00 £ |
| 16. Replace Point Machine | no | 19.260,00 £ |
| 17. Replace Passenger Help Points | no | 1.971,00 £ |
| 18. Replace Advertising Panel | | |

The above list is not exhaustive and is provided for indicative reasons where highlighted in yellow.

APPENDIX E

ManPower ETN



APPENDIX F
PROCESS FOR AGREEMENT OF PERMITTED VARIATIONS

1.0 Generally

- 1.1 The Parties shall determine the value of any **tie** Changes in accordance with Clause 80.6 of the Infracore Contract.
- 1.2 Where Clause 80.6.3 or 80.6.4 applies to the extent that Clause 80.6.3 or 80.6.4 apply then the valuation shall be on the basis of Actual Cost or estimated Actual Cost.
- 1.3 In respect of a valuation of any work under 1.2 above **tie**'s Representative shall apply head office overheads and profit percentages to the appropriate elements of Actual Cost or Estimated Costs as follows:
- | | | |
|-----|-------------------------|-----|
| (a) | Civil Engineering works | 10% |
| (b) | Systems and Track works | 17% |
- 1.4 The amount of the overheads and profit percentage calculated as part of the valuation of Permitted Variations shall be added in the case where the valuation results in an addition and shall be deducted where the valuation results in an omission.
- 1.5 The following principles shall be applied:
- (a) Where the Maintenance Services performed are of similar character and executed under similar conditions to that reflected by the unit rates in this Schedule then such Maintenance Services shall be valued at the unit rates contained therein as applicable.
 - (b) Where Maintenance Services are not of a similar character, are not executed under similar conditions or involve asset quantities significantly different from those reflected by this Schedule then such Maintenance Services shall be valued using such Rates contained therein as the basis for valuation so far as this may be reasonable.
 - (c) Where the principles of (a) and (b) are considered inappropriate by the Parties the Maintenance Services shall be valued on the basis of Actual Cost where possible or estimated cost, failing which a fair valuation shall be made.

1.6 Where 1.2 above is the basis of the valuation of **tie** Changes then the following items shall not be included as Actual Costs under the Infraco Contract.

- (a) Costs not justified by the Infraco's accounts and records.
- (b) Costs not payable under the Infraco Contract.
- (c) Costs arising from the Infraco's Design errors.
- (d) Costs arising in respect of loss or damage except as provided for under the Agreement.
- (e) Costs which should have not been paid to a sub-contractor in accordance with the relevant sub-contract.
- (f) Costs arising from people who are part of the Head Office Overhead.



**THIS IS SCHEDULE PART 8 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 8

BONDS, PARENT COMPANY GUARANTEES AND COLLATERAL WARRANTIES

PART A

PERFORMANCE BOND

To be issued by ANZ Investment Bank, Australian and New Zealand Banking Group Limited

tie LIMITED

City Point

Haymarket Terrace

Edinburgh

Midlothian

EH12 5HD

Attention: Stewart McGarrity, Finance Director

Performance Guarantee No: *[Insert No]* in relation to the Edinburgh Tram Network

An unincorporated joint venture comprising Bilfinger Berger UK Limited ("**BB Subsidiary**") and Siemens plc ("**Siemens Subsidiary**") (together the "**Infraco**" and individually each an "**Infraco Member**") intend to enter into a contract (with joint and several liability) with **tie** Limited, a company incorporated with registration number SC230949, with registered office at City Chambers, High Street, Edinburgh, Midlothian EH1 1YJ, ("**tie**") for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network (the "**Infraco Contract**"). Pursuant to the terms of the Infraco Contract, Infraco agreed to procure for the benefit of **tie** a performance guarantee in the amount £23,000,000.00 (TWENTY THREE MILLION Pounds Sterling) as security for Infraco's performance under the Infraco Contract.

AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED (ABN 11 005 357 522) a company incorporated in the Commonwealth of Australia whose registered office is at Level 14, 100 Queen Street, Melbourne, Victoria 3000, Australia acting through its London branch at 40 Bank Street, Canary Wharf, London E14 5EJ (the "**Surety**") hereby issues the following performance guarantee (the "**Guarantee**") on behalf of Infraco for the benefit of **tie**.

The Surety hereby guarantees for the benefit of **tie** the payment of an amount up to the maximum total amount of £23,000,00.00 (TWENTY THREE MILLION Pounds Sterling) (the "**Maximum Liability Amount**"), provided always that the Maximum Liability Amount shall be automatically reduced to the value shown in the following table upon presentation by Infraco of a copy of the below mentioned documents to the Surety and certified by **tie** (which the Surety may accept as conclusive evidence that such reduction is due) as Infraco fulfils its obligations under the Infraco Contract:

| Event & Documentation | Maximum Liability Amount |
|--|--------------------------|
| Issuance of the Certificate of Service Commencement substantially in the form of Appendix B1 | £11,500,000 |
| Issuance of the Network Certificate substantially in the form of Appendix B2 | £9,200,000 |
| Issuance of the Reliability Certificate substantially in the form of Appendix B3 | Nil |

In accordance with the terms of this Guarantee, the Surety shall promptly (and in any event no later than five business days) following receipt of a demand or demands in writing from **tie** (the "**Demand Notice**") substantially in the form set out in Appendix A pay or discharge the amount demanded by **tie**, in available funds by electronic transfer to the account nominated in the Demand Notice, without inquiry and without any deductions whatsoever or any right of set-off, abatement or counterclaim.

A Demand Notice issued by **tie** to the Surety under this Guarantee shall be accompanied by a written statement which identifies the Infraco's failure or default and shall attach a certified copy of **tie's** written notice to the Infraco, pursuant to the Infraco Contract, notifying it of the relevant failure or default (the "**Default Notice**"). Such Demand Notice shall not be presented to the Infraco earlier than the date which is 14 days following the date of the Default Notice.

Any Demand Notice shall be in writing signed by two authorised representatives of **tie** whose signatures shall be proof of authority of **tie**. Where this Guarantee has been assigned according to the terms of this Guarantee, the Demand Notice shall be signed by two authorised signatories of the new beneficiary, and shall be valid providing the assignment has been notified to the Surety in accordance with the below-mentioned procedure and shall be accompanied by written evidence confirming that the Infraco Contract has been assigned to such beneficiary in accordance with the terms of the Infraco Contract.

This Guarantee shall enter into force on the date hereof and shall immediately terminate on the occurrence of the earliest of any of the following events (a "**Termination Event**"):

1. demands totalling in aggregate the Maximum Liability Amount are paid under this Guarantee; or
2. this original Guarantee document is returned to the Surety accompanied by a covering note signed by **tie** confirming that it has been returned for cancellation; or
3. the 31/08/2013; or
4. upon presentation by Infraco to the Surety of a copy of the Reliability Certificate certified by **tie** which the Surety is entitled to accept as conclusive evidence of achievement of a Termination Event.

All obligations and liabilities of the Surety under this Guarantee shall immediately cease after the occurrence of a Termination Event. Any claim by **tie** shall be barred and unenforceable unless the written Demand Notice is received by the Surety prior to the occurrence of a Termination Event. Following the occurrence of a Termination Event **tie** shall immediately return to the Surety the original of this Guarantee, which shall be null and void whether returned to the Surety or not.

tie shall be entitled to assign this Guarantee only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of (except of (iv) below), the Surety provided that such assignation shall be as permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or Scottish Ministers (and the legal successors or assignees of each of these parties); (ii) Transport Edinburgh Limited; (iii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; and (iv) any party prior to such assignation approved in writing by the Infraco. A notice of assignment of this Guarantee (in case of (iv) accompanied by a copy of the approval letter of Infraco) shall be provided by **tie** to the Surety promptly following such assignment which shall be conclusive evidence that such assignment has taken place.

The Surety's liability under this Guarantee shall not be affected or reduced by the insolvency of Infraco (or either Infraco Member) or the liquidation, receivership or other like temporary or permanent status of one or more of them.

- (i) any time or waiver granted to **tie** or to Infraco;
- (ii) the taking, variation, compromise, renewal or release of or the refusal or neglect to perfect or to enforce any rights, remedies or securities against **tie** or Infraco;
- (iii) any legal limitation, disability or incapacity relating to **tie** or Infraco;
- (iv) any variation of or amendment to the Infraco Contract (or related documentation) or the works or services to be performed thereunder or any other document or security so that references to the Infraco Contract in this Guarantee shall include each such variation and amendment;
- (v) any unenforceability, invalidity or frustration of any rights or obligations of **tie** or Infraco under the Infraco Contract or any other document or security; and
- (vi) any other fact, circumstance regarding Infraco (or the Infraco Members), provision of statute or rule of law which might, were the Surety's liability to be secondary rather than primary, entitle the Surety to be released or discharged in whole or in part from the Surety's undertaking.

This Guarantee may only be amended, modified or supplemented by an instrument in writing signed for and on behalf of the Surety.

Dated this [] day of [] 2008

USB00000046 0005

APPENDIX A
DEMAND NOTICE

SURETY

[Address]

Attention: Guarantees Administration

[insert date of Demand Notice]

Dear Sirs,

Performance Guarantee No: [insert number] dated [insert date]

Edinburgh Tram Network

This is our formal demand for payment pursuant to the above instrument issued by you in our favour for the amount of £[◆]. Please pay this sum forthwith by electronic transfer to [◆ *bank account details*].

We hereby certify that Infraco/Infraco Member has failed to [◆ *describe default*] [and has failed to rectify that default as at the date of this Demand Notice].

We attach a certified copy of the relevant Default Notice, dated no later than the date which falls 14 days prior to the date of this Demand Notice.

Signed for and behalf of **tie** Limited

Executive Chairman

Director

APPENDIX B1

CERTIFICATE OF SERVICE COMMENCEMENT

This document certifies pursuant to clause 45.3 of the Infracore Contract that Section D of the Infracore Works was substantially completed, tested and commissioned on [date] in accordance with the provisions of the Infracore Contract.

Signed:
the representative

NAME:

APPENDIX B2

NETWORK CERTIFICATE

This document is applicable to the Network Performance Test as envisaged by section 23.16 of the Employer's Requirements and certifies in accordance with Clause 47.3 of this Agreement that the Edinburgh Tram Network has passed the test criteria in section 23.16 of the Employer's Requirements to the satisfaction of **tie's** Representative by meeting or exceeding:

- (i) the Punctuality Service Element target in section 2.16 of the Employer's Requirements over twenty-eight days measured in accordance with this Agreement;
- (ii) the sub-station and UPS demonstration test in accordance with section 23.16.4 of the Employer's Requirements; and
- (iii) the tram changeover test in accordance with section 23.16.5 of the Employer's Requirements.

The necessary test results are listed in Annex 1 to this Certificate including any agreed exclusions that have been applied.

tie's Representative

Signature

Name (in Block Capitals)

Original Certificate to be issued to: **tie**

Copies to be issued to: Infraco, the Tram Supplier, the Tram Maintainer and **tie's** Representative

APPENDIX B3

RELIABILITY CERTIFICATE

This document is applicable to the Network Reliability Test as envisaged by section 23.17 of the Employer's Requirements for and certifies in accordance with Clause 47.4 of this Agreement that this System has passed the test criteria to the satisfaction of **tie's** Representative by meeting or exceeding the Target Value for that System in Table 45 of the Employer's Requirements over the required number of Periods. The necessary test results are listed in Annex 1 to this Certificate including any agreed exclusions that have been applied.

tie's Representative

Signature

Name (in Block Capitals)

Original Certificate to be issued to: **tie**

Copies to be issued to: Infraco, the Tram Supplier and the Tram Maintainer and **tie's** Representative

PART B

RETENTION BOND

To be issued by: Deutsche Bank AG (London branch),
Global Trade Finance, Attention Christina Gnad

RETENTION BOND in relation to the Edinburgh Tram Network

THIS RETENTION BOND is issued on

2008

WHEREAS

- A. **tie LIMITED**, a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh EH1 1YJ ("**tie**") (which expression shall include its successors, permitted assignees and transferees) intend to enter into an agreement for the appointment of a contractor (hereinafter referred to as the "**Infraco Contract**") with Bilfinger Berger UK Limited and Siemens plc (on a joint and several basis) (the "**Infraco**" and individually "**Infraco Members**") to design, construct, test, commission and maintain a light rapid transit system in Edinburgh known as the Edinburgh Tram Network.
- B. The Infraco Contract obliges the Infraco to deliver to **tie** an irrevocable retention bond issued by a surety acceptable to **tie** and callable subject only to written notification by **tie** in terms of this Retention Bond.
- C. **DEUTSCHE BANK AG**, a company incorporated in Germany and acting through its London Branch under branch number BR000005 and whose registered office is at Winchester House, 1 Great Winchester Street, London EC2N 2DB ("**Surety**"), is willing to issue this Retention Bond.

THE SURETY HEREBY DECLARES

In consideration of **tie** accepting the Surety's obligations set out in this Retention Bond in discharge of the Infraco's undertaking to provide a retention bond pursuant to the Infraco Contract and subject to the provisions of this Retention Bond, the Surety hereby irrevocably agrees and undertakes to pay to **tie** an initial sum not exceeding a total aggregate value of £2,000,000 (Two Million Pounds Sterling) ("**Bonded Amount**") and the Surety accordingly covenants with **tie** and agrees as follows:

1. The Surety hereby covenants with **tie** that promptly, and in any event no later than five business days, following receipt by the Surety of a notice in writing from **tie** substantially in the form set out in Appendix 1 ("**Demand Notice**") that the Infraco has failed to perform or observe any of its duties and/or obligations arising under or in connection with the Infraco

Contract and/or has committed a breach of any provision and/or has failed to fulfil any warranty or indemnity set out in the Infraco Contract and/or has failed to satisfy any of its liabilities under or in connection with the Infraco Contract, the Surety shall, without inquiry, pay to **tie** in full and without any deductions whatsoever or any right of set-off, abatement or counterclaim, the sum due from the Infraco under the Infraco Contract as stated by **tie** in the Demand Notice in available funds by electronic transfer to the account nominated in the Demand Notice, not exceeding in aggregate the Bonded Amount.

2. Any Demand Notice shall be in writing signed by two authorised representatives of **tie** whose signatures shall be proof of authority of **tie**. A Demand Notice issued by **tie** under this Retention Bond shall provide the Surety with a written statement which identifies the Infraco's failure or default, and shall attach a certified copy of **tie's** communication to the Infraco, pursuant to the Infraco Contract, notifying it of the relevant failure or default (the "**Default Notice**"). Such Demand Notice shall not be presented to the Surety earlier than the date which is 14 days following the date of the Default Notice. Where this Retention Bond has been assigned, in accordance with Clause 1, the Demand Notice shall be signed by two authorised signatories of the new beneficiary, and shall be accompanied by written evidence confirming that the Infraco Contract has been assigned to such beneficiary in accordance with the terms of the Infraco Contract.
3. Subject to Clauses 1 and 2 above, upon receipt by the Surety of a Demand Notice from **tie** the Surety shall not be entitled or obliged to make any enquiry or proof or contestation or impose any further conditions on **tie** (or the Infraco) and **tie** shall not need to take any legal action against or to obtain the consent of the Infraco. **tie** may make as many separate demands hereunder as **tie** thinks fit, provided that the amount demanded, when taken with all previous demands under this Retention Bond and satisfied by the Surety, does not exceed the Bonded Amount. **tie** shall not be obliged to exercise any other right or remedy **tie** may have (against the Infraco, any Infraco Member or any person guaranteeing the obligations of any Infraco Member(s)) before making a demand under this Retention Bond.
4. A Demand Notice received from **tie** in accordance with Clauses 1 and 2 above shall be conclusive evidence of the Surety's liability to pay to **tie** and of the amount of the sum or sums which the Surety is liable to pay. Subject to demand being made in accordance with the terms of this Retention Bond, the Surety's obligation to make payment under this Retention Bond shall be a primary, independent and absolute obligation and the Surety shall not be entitled to delay or withhold payment for any reason. The Surety's obligation hereunder shall not be affected by any act, omission, matter or thing which, but for this provision, might operate to

release or otherwise exonerate the Surety from the obligations hereunder in whole or in part, including without limitation and whether or not known to the Surety or to **tie**:

- 4.1 any time or waiver granted to **tie** or to the Infraco;
 - 4.2 the taking, variation, compromise, renewal or release of or the refusal or neglect to perfect or to enforce any rights, remedies or securities against **tie** or the Infraco;
 - 4.3 any legal limitation, disability or incapacity relating to **tie** or the Infraco;
 - 4.4 any variation of or amendment to the Infraco Contract (or related documentation) or the works or services to be performed thereunder or any other document or security so that references to the Infraco Contract in this Retention Bond shall include each such variation and amendment;
 - 4.5 any unenforceability, invalidity or frustration of any rights or obligations of **tie** or the Infraco under the Infraco Contract or any other document or security; and
 - 4.6 any other fact, circumstance regarding Infraco (or the Infraco Members), provision of statute or rule of law which might, were the Surety's liability to be secondary rather than primary, entitle the Surety to be released or discharged in whole or in part from the Surety's undertaking.
5. The Surety's liability under this Retention Bond shall not be affected or reduced by the insolvency of the Infraco (or either Infraco Member) or their liquidation, receivership or other like temporary or permanent status.
6. **tie** shall be at liberty to compromise, release, waive or neglect any security as it sees fit, without impairment of its rights under this Retention Bond.
7. This Retention Bond shall cease to have effect on the date ("**Bond Expiry**") being the date which is the earlier of:
- 7.1 31/08/2013; and
 - 7.2 the date of issue of the Reliability Certificate, as evidenced by presentation by Infraco of a copy of the Reliability Certificate certified by **tie** to the Surety,

save in connection with any Demand Notice received by the Surety in writing prior to Bond Expiry. Immediately following Bond Expiry, **tie** shall return this Retention Bond to the Surety for cancellation which should be null and void whether returned to the Surety or not.

8. **tie** shall be entitled to assign this Retention Bond only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of (except of (iv) below in which case consent shall not be unreasonably withheld or delayed), the Surety, provided that the assignment shall be permitted pursuant to the Infraco Contract, that is to say an assignment to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved prior to such assignment in writing by the Infraco. A notice of assignment of this Retention Bond (in case of (iv) accompanied by a copy of the approval letter of the Infraco) shall be provided by **tie** to the Surety promptly following such assignment which shall be conclusive evidence that such assignment has taken place.
9. Any Demand Notice to be served by **tie** pursuant to this Retention Bond shall be sent by **tie** to the Surety, to the Surety's address at Deutsche Bank AG, Trade and Risk Services group, Winchester House, 1 Great Winchester House, London, EC2N 2DB (and if sent by special or recorded delivery shall be taken as having been received by the Surety on the date of receipt by the Surety as evidenced by the relevant certificate of delivery) or shall be delivered personally to the Surety at the address set out in this Clause 9 (and shall be deemed to have been received at the time of delivery). The Surety appoints its London branch at this address as agent to accept service of process.
10. This Retention Bond shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Retention Bond. The Surety confirms it will not raise any defence of inconvenient forum in proceedings brought in the Scottish Courts.
11. Save as permitted under Clause 8, a person who is not a party to this Retention Bond shall have no right to enforce any of the terms of this Retention Bond.
12. In this Retention Bond:
- 12.1 **"person"** includes any firm and any entity having legal capacity;
- 12.2 the definitions given in the recitals apply to the rest of this Retention Bond; and

12.3 **"Reliability Certificate"** means a certificate substantially in the form shown in Appendix 2, issued by **tie** to confirm that the Edinburgh Tram Network, as designed, constructed, tested, commissioned and maintained by the Infraco, has satisfied reliability testing and performance criteria for a period of one year after opening for public service.

IN WITNESS WHEREOF

EXECUTED for and on behalf of
DEUTSCHE BANK AG at

on 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name

Address

APPENDIX 1
DEMAND NOTICE

Deutsche Bank AG
[address]
Attention: [Christina Gnad, Global Trade Finance (Trade Soles)]

Dear Sirs,

Retention Bond [◆ date] [Ref: ◆] in relation to the Edinburgh Tram Network

This is our formal demand for payment pursuant to Clause 1 of the above instrument issued by you in our favour for the amount of £[◆]. Please pay this sum forthwith by electronic transfer to [◆ *bank account details*].

We hereby certify that the Infracore has failed to [◆ *describe default*] *and has failed to rectify that default as at the date of this Demand Notice*. In accordance with Clause 2 of the Retention Bond, we attach a certified copy of the relevant Default Notice, dated no later than the date which falls 14 days prior to the date of this Demand Notice

Yours faithfully

Executive Chairman

Director
For and on behalf of tie Limited

APPENDIX 2

RELIABILITY CERTIFICATE

This document is applicable to the Network Reliability Test as envisaged by section 23.17 of the Employer's Requirements for and certifies in accordance with Clause 47.4 of this Agreement that this System has passed the test criteria to the satisfaction of **tie's** Representative by meeting or exceeding the Target Value for that System in Table 45 of the Employer's Requirements over the required number of Periods. The necessary test results are listed in Annex 1 to this Certificate including any agreed exclusions that have been applied.

tie's Representative

Signature

Name (in Block Capitals)

Original Certificate to be issued to: **tie**

Copies to be issued to: Infraco, the Tram Supplier and the Tram Maintainer and **tie's** Representative

PART C
DEFECTS RECTIFICATION BOND

DEFECTS RECTIFICATION BOND in relation to **THE EDINBURGH TRAM NETWORK**

THIS DEFECTS RECTIFICATION BOND is issued on

2008

WHEREAS

- A. **tie LIMITED**, a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh EH1 1YJ ("**tie**") (which expression shall include its successors, permitted assignees and transferees) entered into an agreement for the appointment of a contractor (hereinafter referred to as the "**Infraco Contract**") dated [◆] 2008 with Bilfinger Berger UK Limited and Siemens plc (on a joint and several basis) (the "**Infraco**" and individually "**Infraco Members**") to design, construct, test, commission and maintain a light rapid transit system in Edinburgh known as the Edinburgh Tram Network.
- B. The Infraco Contract obliges the Infraco to deliver to **tie** an irrevocable defects rectification bond in the circumstances set out in Clause 96.4, issued by a surety acceptable to **tie** and callable subject only to written notification by **tie** in terms of this Defects Rectification Bond.
- C. [◆], a company incorporated in England/Wales/Scotland under company number [◆] whose registered office is at [◆] ("**Surety**"), is willing to issue this Defects Rectification Bond.

THE SURETY HEREBY DECLARES

In consideration of **tie** accepting the Surety's obligations set out in this Defects Rectification Bond in discharge of the Infraco's undertaking to provide a defects rectification bond pursuant to the Infraco Contract and subject to the provisions of this Defects Rectification Bond, the Surety hereby irrevocably agrees and undertakes to pay to **tie** an initial sum not exceeding a total aggregate value of [£1,000,000 (One Million Pounds Sterling) or whatever amount is determined should be the amount of this Defects Rectification Bond pursuant to Clause 96.4.3 of the Infraco Contract] ("**Bonded Amount**") and the Surety accordingly covenants with **tie** and agrees as follows:

1. The Surety hereby covenants with **tie** that promptly, and in any event no later than five business days, following receipt by the Surety of a notice in writing from **tie** substantially in the form set out in Appendix 1 ("**Demand Notice**") that the Infraco has failed to perform or observe any of its obligations arising under Clause 96.5 of the Infraco Contract and/or has failed to satisfy any of its liabilities under or in connection with the Required Condition, the

Surety shall, without inquiry, pay to **tie** in full and without any deductions whatsoever or any right of set-off, abatement or counterclaim, the sum due from the Infraco under the Infraco Contract as stated by **tie** in the Demand Notice in available funds by electronic transfer to the account nominated in the Demand Notice, not exceeding in aggregate the Bonded Amount.

2. Any Demand Notice shall be in writing signed by two authorised representatives of **tie** whose signatures shall be proof of authority of **tie**. A Demand Notice issued by **tie** under this Defects Rectification Bond shall provide the Surety with a written statement which identifies the Infraco's failure or default, and shall attach a certified copy of **tie's** communication to the Infraco, pursuant to the Infraco Contract, notifying it of the relevant failure or default (the "**Default Notice**"). Such Demand Notice shall not be presented to the Surety earlier than the date which is 14 days following the date of the Default Notice. Where this Defects Rectification Bond has been assigned, in accordance with Clause 1, the Demand Notice shall be signed by two authorised signatories of the new beneficiary, and shall be accompanied by written evidence confirming that the Infraco Contract has been assigned to such beneficiary in accordance with the terms of the Infraco Contract.
3. Subject to Clauses 1 and 2 above, upon receipt by the Surety of a Demand Notice from **tie** the Surety shall not be entitled or obliged to make any enquiry or proof or contestation or impose any further conditions on **tie** (or the Infraco) and **tie** shall not need to take any legal action against or to obtain the consent of the Infraco. **tie** may make as many separate demands hereunder as **tie** thinks fit, provided that the amount demanded, when taken with all previous demands under this Defects Rectification Bond and satisfied by the Surety, does not exceed the Bonded Amount. **tie** shall not be obliged to exercise any other right or remedy **tie** may have (against the Infraco, any Infraco Member or any person guaranteeing the obligations of any Infraco Member(s)) before making a demand under this Defects Rectification Bond.
4. A Demand Notice received from **tie** in accordance with Clauses 1 and 2 above shall be conclusive evidence of the Surety's liability to pay to **tie** and of the amount of the sum or sums which the Surety is liable to pay. Subject to demand being made in accordance with the terms of this Defects Rectification Bond, the Surety's obligation to make payment under this Defects Rectification Bond shall be a primary, independent and absolute obligation and the Surety shall not be entitled to delay or withhold payment for any reason. The Surety's obligation hereunder shall not be affected by any act, omission, matter or thing which, but for this provision, might operate to release or otherwise exonerate the Surety from the obligations hereunder in whole or in part, including without limitation and whether or not known to the Surety or to **tie**:

- 4.1 any time or waiver granted to **tie** or to the Infraco;
 - 4.2 the taking, variation, compromise, renewal or release of or the refusal or neglect to perfect or to enforce any rights, remedies or securities against **tie** or the Infraco;
 - 4.3 any legal limitation, disability or incapacity relating to **tie** or the Infraco;
 - 4.4 any variation of or amendment to the Infraco Contract (or related documentation) or the works or services to be performed thereunder or any other document or security so that references to the Infraco Contract in this Defects Rectification Bond shall include each such variation and amendment;
 - 4.5 any unenforceability, invalidity or frustration of any rights or obligations of **tie** or the Infraco under the Infraco Contract or any other document or security; and
 - 4.6 any other fact, circumstance regarding Infraco (or the Infraco Members), provision of statute or rule of law which might, were the Surety's liability to be secondary rather than primary, entitle the Surety to be released or discharged in whole or in part from the Surety's undertaking.
5. The Surety's liability under this Defects Rectification Bond shall not be affected or reduced by the insolvency of the Infraco (or either Infraco Member) or their liquidation, receivership or other like temporary or permanent status.
6. **tie** shall be at liberty to compromise, release, waive or neglect any security as it sees fit, without impairment of its rights under this Defects Rectification Bond.
7. This Defects Rectification Bond shall cease to have effect on the date ("**Bond Expiry**") being the date which is the earlier of:
- 7.1 **[◆]** [this date will be five years from the date on which the Infraco is obliged pursuant to Clause 96.4.3 of the Infraco Contract to provide the Defects Rectification Bond]; and
 - 7.2 the date of release of the Defects Rectification Bond under Clause 96.6 of the Infraco Contract, as evidenced by a notice from **tie** to the Infraco confirming completion of the rectification works,
- save in connection with any Demand Notice received by the Surety in writing prior to Bond Expiry. Immediately following Bond Expiry, **tie** shall return this Defects Rectification Bond

to the Surety for cancellation which should be null and void whether returned to the Surety or not.

8. **tie** shall be entitled to assign this Defects Rectification Bond only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of (except in (iv) below in which case consent shall not be unreasonably withheld or delayed), the Surety, provided that the assignation shall be permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved prior to such assignation in writing by the Infraco. A notice of assignment of this Defects Rectification Bond (in case of (iv) accompanied by a copy of the approval letter of Infraco) shall be provided by **tie** to the Surety promptly following such assignment which shall be conclusive evidence that such assignment has taken place.
9. Any Demand Notice to be served by **tie** pursuant to this Defects Rectification Bond shall be sent by **tie** to the Surety, to the Surety's address at *[Insert Address]* (and if sent by special or recorded delivery shall be taken as having been received by the Surety on the date of receipt by the Surety as evidenced by the relevant certificate of delivery) or shall be delivered personally to the Surety at the address set out in this Clause 9 (and shall be deemed to have been received at the time of delivery). The Surety hereby appoints [its London branch at this address] as agent to accept service of process.
10. This Defects Rectification Bond shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Defects Rectification Bond. The Surety confirms it will not raise a defence of inconvenient forum in proceedings brought in the Scottish Courts.
11. Save as permitted under Clause 8, a person who is not a party to this Defects Rectification Bond shall have no right to enforce any of the terms of this Defects Rectification Bond.
12. In this Defects Rectification Bond:
 - 12.1 "person" includes any firm and any entity having legal capacity;
 - 12.2 the definitions given in the recitals apply to the rest of this Defects Rectification Bond; and

12.3 **"Required Condition"** shall have the meaning given to it in Clause 96.4.1 of the Infracore Contract.

IN WITNESS WHEREOF

EXECUTED for and on behalf of **[THE SURETY]** at

on _____ 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name

Address

APPENDIX 1
DEMAND NOTICE

SURETY
[Address]
Attention: [Responsible Officer]

Dear Sirs

Defects Rectification Bond [◆ date] [Ref: ◆] in relation to the Edinburgh Tram Network

This is our formal demand for payment pursuant to Clause 1 of the above instrument issued by you in our favour for the amount of £[◆]. Please pay this sum forthwith by electronic transfer to [◆ *bank account details*].

We hereby certify that the Infraco has failed to [◆ *describe default*] *and has failed to rectify that default as at the date of this Demand Notice*. In accordance with Clause 2 of the Defects Rectification Bond, we attach a certified copy of the relevant Default Notice, dated no later than the date which falls 7 days prior to the date of this Demand Notice

Yours faithfully

Executive Chairman

Director
For and on behalf of tie Limited

PART D



(1) SIEMENS AKTIENGESELLSCHAFT

- and -

(2) tie LIMITED

PARENT COMPANY GUARANTEE

relating to the obligations under the Infraco
Contract dated [◆] 2008 in respect of the
Edinburgh Tram Network

THIS GUARANTEE is made this ♦ day of ♦ [date]

BETWEEN:

- (1) **SIEMENS AKTIENGESELLSCHAFT**, a company established in Berlin and Munich, Germany with registration number HRB 12300 Berlin Charlottenburg and HRB 6684 Munich, (the "**Guarantor**"); and
- (2) **tie LIMITED**, a company incorporated with registration number SC230949, with registered office at City Chambers, Edinburgh, Midlothian EH1 1YJ, ("**tie**").

WHEREAS:

- (A) An unincorporated joint venture comprising Bilfinger Berger UK Limited ("**Bilfinger Subsidiary**") and Siemens plc ("**Siemens Subsidiary**") (together "**Infraco**" and individually each an "**Infraco Member**") are entering into a contract (with joint and several liability) with **tie** for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network (the "**Infraco Contract**").
- (B) It is a condition of the Infraco Contract that the Siemens Subsidiary procures the execution and delivery to **tie** of this parent company guarantee (the "**Guarantee**") and the Bilfinger Subsidiary procures the execution and delivery to **tie** of a similar parent company guarantee (the "**Bilfinger Berger AG Guarantee**").
- (C) The Guarantor has agreed to guarantee the obligations of the Siemens Subsidiary pursuant to the Infraco Contract.

THE PARTIES AGREE as follows:

1. INTERPRETATION, REPRESENTATIONS, WARRANTIES AND ACKNOWLEDGEMENTS BY THE GUARANTOR

- 1.1 In this Guarantee and the recitals hereto, unless the context otherwise requires or unless otherwise defined or provided for in this Guarantee, words and expressions when used herein shall have the same meaning as is attributed to them under the Infraco Contract.
- 1.2 The Guarantor hereby represents and warrants and undertakes to **tie** that:
 - 1.2.1 it is a public limited company duly registered, incorporated and validly existing under the laws of the Federal Republic of Germany;

- 1.2.2 it has the power to enter into this Guarantee and to exercise its rights and perform its obligations under this Guarantee;
- 1.2.3 all required corporate (including supervisory board approval) and other action to authorise its execution of this Guarantee and the performance of its obligations under this Guarantee has been duly taken;
- 1.2.4 the obligations expressed to be assumed by it in this Guarantee are legal and valid obligations binding on it and enforceable in accordance with the terms hereof;
- 1.2.5 the entry into and performance by it of this Guarantee does not and will not conflict with:
 - 1.2.5.1 any law or regulation applicable to it;
 - 1.2.5.2 its "**Satzung**" and applicable "**Geschaeftsordnungen**" of the "**Vorstand**" and the "**Aufsichtsrat**" (if any); or
 - 1.2.5.3 any agreement or instrument binding upon it or any of its assets;
- 1.2.6 the Guarantor has legal capacity to enter into this Guarantee governed by Scots law.
- 1.3 The Guarantor acknowledges that **tie** has accepted this Guarantee in full reliance on the representations and warranties set out in this Clause 1 (Representations, Warranties and Acknowledgements by the Guarantor) and on the basis that this Guarantee is effective to guarantee the performance and payment obligations owed on a joint and several basis by the Siemens Subsidiary as an Infraco Member pursuant to the Infraco Contract.

2. UNDERTAKING

- 2.1 In consideration of **tie** entering into the Infraco Contract with the Infraco, the Guarantor, subject to Clause 3 of this Guarantee, irrevocably guarantees to **tie** the due and punctual observance and performance of the Siemens Subsidiary, its successors and permitted assignees, either itself or by such other entity nominated by the Guarantor (subject to that entity being acceptable to **tie**), of each and all of the obligations, warranties, duties and undertakings of the Siemens Subsidiary under, or pursuant to, the Infraco Contract (the "**Guaranteed Obligations**") when and as such obligations, warranties, duties and undertakings shall become due and performable by the Siemens Subsidiary according to the terms of the Infraco Contract.

- 2.2 Subject to Clause 3 of this Guarantee, the Guarantor shall pay any amount demanded by **tie** under a written notice substantially in the form of Schedule 1 hereto, such payment to be made by the Guarantor in pounds sterling (£) with five (5) business days of the date of receipt of the demand to the bank account nominated in the demand notice.

3. LIMITATIONS OF LIABILITY

- 3.1 The Guarantor may raise hereunder all objections and defences the Siemens Subsidiary and/or the Infraco has under the Infraco Contract and may assume all such defence, counterclaim, limitation and/or exclusion of liability as the Siemens Subsidiary and/or the Infraco may have against **tie** pursuant to the Infraco Contract. In no circumstances shall the Guarantor ever be liable (i) to a greater extent than the liability of the Siemens Subsidiary under the Infraco Contract or (ii) for any loss of business, opportunity, revenue, profit or anticipated profit or for any indirect or consequential loss or damages unless the Infraco is liable therefor.

- 3.2 Subject to Clause 3.4, the liability of the Guarantor in relation to payment obligations of the Siemens' Subsidiary arising from or in connection with the Infraco Contract pursuant to this Guarantee shall not exceed (when taken together with any other amount recovered by **tie** under the Infraco Contract and/or under this Guarantee) an amount equal to the aggregate of:

3.2.1 the lower of:

a)

- (A) £19,800,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or
- (B) £15,750,000 for the period from four to six years from the issue of the Reliability Certificate; or
- (C) £13,500,000 for the period from six to eight years from the issue of the Reliability Certificate; or
- (D) £9,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or
- (E) £4,500,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to **tie** by the Guarantor on behalf of the Infraco and/or the Siemens Subsidiary under or pursuant to this Guarantee shall

count- against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

b) forty five (45%) of the applicable limits of liability set out in clause 77.8 of the Infraco Contract ,

3.2.2 any amounts which the Guarantor is obliged to pay in accordance with the terms of clause 3.4.

For the avoidance of doubt under no circumstances shall the Guarantor's financial liability pursuant to this Guarantee exceed the lower of:

a)

(A) £44,000,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or

(B) £35,000,000 for the period from four to six years from the issue of the Reliability Certificate; or

(C) £30,000,000 for the period from six to eight years from the issue of the Reliability Certificate; or

(D) £20,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or

(E) £10,000,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to **tie** by the Guarantor on behalf of the Infraco, the Siemens Subsidiary and/or the Bilfinger Subsidiary under or pursuant to this Guarantee shall count against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

b) the applicable limits of liability set out in clause 77.8 of the Infraco Contract.

3.3 The Guarantor's liability in respect of the Guaranteed Obligations shall be conditional on **tie** first having made demand in writing in respect of the same on the Siemens Subsidiary and

shall be conditional, in case of any demand for payment, on **tie** making a demand on Bilfinger Berger AG for fifty five percent (55%) of the total amount claimed from the Infraco (the "**Bilfinger Share**"). Accordingly, the Guarantor's liability in respect to the Guaranteed Obligations shall be initially limited to forty five (45%) of the value of each claim from **tie** but without prejudice to the obligation of the Guarantor, in the circumstances set out at Clause 3.4 to pay the Bilfinger Share.

- 3.4 In the event that full payment from Bilfinger Berger AG is not received by **tie** with respect to the Bilfinger Share within 30 days of the day of the receipt of the demand, **tie** shall notify the Guarantor in writing and the Guarantor shall pay **tie** the unpaid portion of the Bilfinger Share within 30 days of receipt by the Guarantor of such notice.

4. EXPIRY

- 4.1 Without prejudice to Clause 4.4 the obligations of the Guarantor set out herein shall constitute and be continuing obligations and accordingly shall remain in full force and effect from the date hereof:

- (a) until the date of issue of the Reliability Certificate or the earlier termination of the Infraco Contract, save that the Guarantor's obligations shall continue with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with the Infraco Works (excluding Infrastructure Maintenance Services) which has been pursued by **tie** or the Indemnified Parties and which is already the subject of formal dispute resolution proceedings which have been commenced no later than six months after either of these dates, as the case may be; and
- (b) until the date which is twelve years from issue of the Reliability Certificate with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with (i) latent defects in the Infraco Works (and any third party claim for direct loss or damage made after issue of the Reliability Certificate and arising from or in connection with latent defects) (ii) uncorrected Patent Defects (iii) liquidated damages outstanding from the settlement of the final account pursuant to Clause 66.6 of the Infraco Contract save that the Guarantor's obligations shall continue with regard to any such claims brought or liabilities pursued by **tie** or the Indemnified Parties which are already the subject of formal dispute resolution proceedings prior to such date or commenced within three months thereafter; and

- (c) until the Expiry Date (or the Extended Expiry Date) or earlier termination of the Infraco Contract with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with Infrastructure Maintenance Services, save that the Guarantor's obligations shall continue with regard to any claim brought or liability pursued by **tie** or the Indemnified Parties which is the subject of formal dispute resolution proceedings commenced no later than six months after either of these dates, as the case may be; or
- (d) until 31st May 2027,

whichever in each case is the earlier.

- 4.2 In any of the events set forth in Clause 4.1 (a) to (d) of this Guarantee the expiry of the Guarantor's obligations under this Guarantee shall be without prejudice to any liability of the Guarantor accrued prior to or arising from expiry of the Infraco Contract, provided that any claim by **tie** in respect of such liability shall be barred and be unenforceable, unless written notice of the same specifying in reasonable detail the nature and amount of the claim has been received by the Guarantor within three (3) months after the date of termination of the Guarantee as set out in Clause 4.1, and any proceedings in respect of such claim are commenced within the time period specified in each of Clauses 4.1(a) to 4.1(c).
- 4.3 **tie** undertakes to return this Guarantee to the Guarantor immediately after its expiry in accordance with Clause 4.1 and Clause 4.2 respectively, save where written notice has been given under clause 4.2 by **tie**. However, for the avoidance of doubt, this Guarantee expires independently of its return.
- 4.4 In the event the Siemens Subsidiary ceases to be a subsidiary of the Guarantor, the Guarantor may offer a replacement guarantee for this Guarantee, substantially in the form hereof. If such replacement guarantee is from a guarantor acceptable to **tie**, acting reasonably having due regard to the remaining performance risk of the Siemens Subsidiary and the credit risk of the replacement guarantor, **tie** shall accept such replacement guarantee as security for the Guaranteed Obligations, and this Guarantee shall thereupon automatically terminate. **tie** undertakes to return the Guarantee to the Guarantor immediately following such termination. For avoidance of doubt the Guarantee shall continue in full force and effect notwithstanding the disposal by the Guarantor of any or all of its shares in the Siemens Subsidiary.

5. PRESERVATION OF RIGHTS

Subject to Clause 3, the obligations of the Guarantor under this Guarantee shall not be discharged by any of the following:

- 5.1 Any non-written arrangement between the Infraco and/or the Siemens Subsidiary and **tie** which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee;
- 5.2 Any amendment to, or any variation, waiver or release of any obligation of the Infraco and/or the Siemens Subsidiary under or pursuant to the Infraco Contract which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee, provided that **tie** has promptly notified the Guarantor of any such amendment, variation, waiver or release;
- 5.3 Any time or indulgence being granted or agreed to be granted to the Infraco and/or the Siemens Subsidiary in respect of its obligations under or pursuant to the Infraco Contract;
- 5.4 The taking, variation or release of, or enforcement or neglect to perfect or enforce any right, guarantee, remedy or security from or against the Infraco and/or the Siemens Subsidiary;
- 5.5 Any legal limitation, disability, incapacity or other circumstances solely relating to the Infraco and/or the Siemens Subsidiary;
- 5.6 The insolvency, winding-up, dissolution, administration or re-organisation of or any change in status, function, control or ownership of the Infraco and/or the Siemens Subsidiary or any other person;
- 5.7 Any obligation of the Infraco and/or the Siemens Subsidiary under the Infraco Contract being or becoming illegal, void, invalid, unenforceable or ineffective in any respect;
- 5.8 Any amendment to the Infraco Contract, or any variation, waiver or release of any obligation of the Infraco and/or the Siemens Subsidiary under the Infraco Contract;
- 5.9 The assignment or novation of the Infraco Contract in accordance with its terms (provided the Siemens Subsidiary is party to the Infraco Contract as assigned or novated);
- 5.10 The suspension or termination of the Infraco Contract or of the employment of the Infraco and/or the Siemens Subsidiary under the Infraco Contract; and/or
- 5.11 Any other matter or thing (whether or not known to the Infraco) which would or might operate to exonerate or discharge the Guarantor from its obligations under this Guarantee.

6. ASSIGNATION

6.1 The Guarantor is not entitled to assign this Guarantee.

6.2 **tie** shall be entitled to assign this Guarantee only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of, the Guarantor, provided that the assignation shall be permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved in writing by the Infraco.

7. SETTLEMENT CONDITIONAL

Any settlement or discharge between the Guarantor and **tie** shall be conditional upon no security given or payment made to **tie** by the Guarantor or any other person on behalf of the Guarantor at any time being avoided or reduced by virtue of any provisions or enactments relating to bankruptcy, insolvency, liquidation or similar laws of general application for the time being in force (whether in Scotland, the Federal Republic of Germany or the European Union) and, if any such security or payment is so avoided or reduced, **tie** shall be entitled to recover the value or amount of such security or payment from the Guarantor subsequently as if such settlement or discharge had not occurred.

8. EXERCISE OF RIGHTS

8.1 Subject to Clause 3.3 **tie** shall not be obliged before exercising any of the rights, powers or remedies conferred upon it in respect of the Guarantor by this Guarantee or by law:

8.1.1 to take any legal proceedings or obtain judgment in any court against the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary; or

8.1.2 to make or file any claim or proof in a winding-up or dissolution of the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary.

8.2 Any judgment, award, agreement or determination of any amount due from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract shall be binding upon the Guarantor.

9. INTEREST

Any amount which is not paid under this Guarantee when due in accordance with a demand served under Clause 3 shall carry interest at the rate of interest applicable to overdue amounts under the Infraco Contract from the due date, which is 2% p.a. above the prevailing published base rate of The Royal Bank of Scotland plc. For avoidance of doubt interest shall not be paid by the Guarantor under this Guarantee for any period during which interest is continuing to accrue under the Infraco Contract.

10. TAXES

All payments in respect of the obligations of the Guarantor under this Guarantee shall be made free and clear of, and without withholding or deduction for, any taxes, duties, assessments or governmental charges of whatsoever nature imposed, levied, collected or assessed by the United Kingdom or the Federal Republic of Germany, or any Land, political or administrative subdivision or any authority thereof having power to tax, save where such withholding or deduction is required by law. In that event, the Guarantor shall pay such additional amounts as will result in the receipt by **tie** of such amount as would have been received by **tie** if no such withholding or deduction had been required.

11. NO SECURITY

The Guarantor shall not hold any security from the Siemens Subsidiary in respect of this Guarantee and any such security which is held in breach of this provision shall be held by the Guarantor in trust for and shall be promptly transferred to **tie**.

12. DEFERRAL OF RIGHTS

12.1 The Guarantor agrees that, so long as any amounts are owed by the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) to **tie** under or pursuant to the Infraco Contract, or any amounts are owed, or have been paid, to **tie** by the Guarantor under this Guarantee, the Guarantor shall not exercise any rights which it may at any time have by reason of performance by it of its obligations under this Guarantee:

12.1.1 to effect or seek to effect any recovery from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in respect of any payment made or liability arising pursuant to this Guarantee, whether by receipt of money or set-off or enforcement of security or otherwise;

- 12.1.2 to claim any contribution from any other guarantor of the obligations of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract;
- 12.1.3 to take (in whole or in part and whether by way of subrogation or otherwise) any rights of **tie**;
- 12.1.4 to claim in the insolvency, administration, winding-up, bankruptcy or liquidation of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in competition with **tie**; and/or
- 12.1.5 subject to Clause 3.3, to require **tie** to make a claim against the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary).

Provided that in the case of Clauses 12.1.1 and 12.1.2 if the Guarantor has made any payment to **tie** pursuant to this Guarantee Agreement, the Guarantor shall be entitled to seek recovery or contribution of such payment (after giving notice to **tie**) on the conditions that such action shall not in any way adversely affect the Infraco's ability (or the Siemens Subsidiary's) to perform and discharge its obligations pursuant to the Infraco Contract for its duration.

- 12.2 The Guarantor shall hold in trust for **tie** any payment or other benefit received by the Guarantor contrary to the provision of this Clause 12. Such sums shall be used to settle any amounts owing to **tie** and any surplus shall be released to the Guarantor.

13. NOTICES

- 13.1 Any notice to or demand on the Guarantor to be served under this Guarantee shall be in writing and may be delivered in person or sent by recorded delivery post to the Guarantor at its address appearing in this Guarantee or at such other address as it may have notified to **tie** in accordance with this Clause 13.
- 13.2 Any such notice or demand shall be deemed to have been served on the Guarantor:
- (i) if delivered in person, at the time of delivery; or
 - (ii) if posted, upon the date recorded for receipt.
 - (iii) The Guarantor hereby appoints Biggart Baillie LLP, of Dalmore house, 310 St. Vincent Street, Glasgow, G2 5QR, as their agent for service of legal process in Scotland.

14. WAIVER

- 14.1 No delay or omission of **tie** in exercising any right, power or privilege under this Guarantee shall impair or be construed as a waiver of such right power or privilege nor shall any single or partial exercise of any such right, power or privilege preclude any further exercise of such right, power or privilege or the exercise of any other right, power or privilege.
- 14.2 A waiver given or consent granted by **tie** under this Guarantee shall be effective only if given in writing and then only in the instance and for the purpose for which it is given.

15. PARTIAL INVALIDITY

The invalidity, illegality or unenforceability in whole or in part of any of the provisions of this Guarantee shall not affect the validity, legality and enforceability of the remaining part or provisions of this Guarantee.

16. DISPUTE RESOLUTION AND GOVERNING LAW

This Guarantee shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Guarantee.

17. EXCLUSION OF THIRD PARTY RIGHTS

Subject to any assignation pursuant to clause 6 a person not party to this Guarantee shall have no rights to enforce or rely upon any term of this Guarantee and no *jus quaesitum tertio* is hereby created in favour of any party.

18. PAYMENTS

- 18.1 All payments to be made by the Guarantor in respect of this Guarantee must be made:
- 18.1.1 in immediately available electronically transferable funds (with no handling charge, commission or exchange rate conversion fee deducted) to the credit of such bank account as **tie** may designate; and

18.1.2 in pounds sterling or such other currency as **tie** nominates.

IN WITNESS WHEREOF these presents on this and the preceding [◆] pages together with Schedule 1 which is annexed and signed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED**

at

on 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

EXECUTED for and on behalf of **SIEMENS
AKTIENGESELLSCHAFT**

at

on 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name

This is the Schedule referred to in the foregoing Guarantee Agreement

SCHEDULE 1

DEMAND LETTER

[Date]

[Guarantor's name]

[Guarantor's address]

Attention: Authorised and responsible representative

EDINBURGH TRAM NETWORK

Dear Sirs,

We refer to the Guarantee Agreement dated [◆] 2008 between us and to the contract (the "**Infraco Contract**") dated [◆] 2008 between us and your subsidiary Siemens plc.

1. This letter is our formal demand for the payment of £[◆] pursuant to Clause 2.2. of the Guarantee Agreement, which amount is due and payable by your subsidiary Siemens plc and has not been paid. Please make payment to: **tie** Limited, [bank account number and details] as provided under Clause 18 of the Guarantee Agreement.

AND/OR

2. This letter is our formal demand that you perform and discharge [*describe relevant obligations*] the obligations, warranties, duties and undertakings of your subsidiary Siemens plc as required pursuant to Clause 2.1 of the Guarantee Agreement which your subsidiary, in breach of the Infraco Contract, has failed to perform and discharge. Please confirm by return the mobilisation arrangements you are making and the timetable for their deployment in Edinburgh and generally.

We confirm that we have made formal demand in writing on Bilfinger Berger UK Limited and that we have also made formal demand on Bilfinger Berger AG in relation to this matter.

Yours faithfully,

tie LIMITED

Authorised Signatory

.....
Director/Authorised Signatory
tie LIMITED

.....
Director/Authorised Signatory
SIEMENS AKTIENGESELLSCHAFT

**Addendum to form of Parent Company Guarantee between SIEMENS
AKTIENGESELLSCHAFT and TIE LIMITED**

The Parties agree that the following clause 1.4 shall be inserted into the final Parent Company Guarantee to be executed:

- 1.4 The Guarantor hereby acknowledges that Siemens Subsidiary (i) has entered into an agreement with the Bilfinger Subsidiary and Construcciones Y Auxiliar de Ferrocarriles S.A. ("**CAF**") whereby CAF has joined the Infraco and (ii) will enter into an agreement (the "**Minute of Variation**") with Bilfinger Berger UK Limited, **tie** and CAF whereby CAF will become party to the Infraco Contract with joint and several responsibility towards **tie**. The Guarantor and **tie** agree, without reservation, that neither the entry of CAF into the Infraco (and any future variation to the terms of such entry) nor any act or omission by CAF nor the Minute of Variation shall have any effect upon the obligations and liabilities of the Guarantor and the rights and entitlements of **tie** Limited pursuant to this Guarantee.



(1) BILFINGER BERGER AG

- and -

(2) tie LIMITED

PARENT COMPANY GUARANTEE

relating to the obligations under the Infraco
Contract dated [◆] 2008 in respect of the
Edinburgh Tram Network

THIS GUARANTEE is made this ♦ day of ♦ [date]

BETWEEN:

- (1) **BILFINGER BERGER AG**, a company established in Mannheim, Germany with registration number Amtsgericht Mannheim HRB 4444, Carl-Reiß-Platz 1-5, 68165 Mannheim (the "**Guarantor**"); and
- (2) **tie LIMITED**, a company incorporated with registration number SC230949, with registered office at City Chambers, Edinburgh, Midlothian EH1 1YJ, ("**tie**").

WHEREAS:

- (A) An unincorporated joint venture comprising Bilfinger Berger UK Limited ("**Bilfinger Subsidiary**") and Siemens plc ("**Siemens Subsidiary**") (together "**Infraco**" and individually each an "**Infraco Member**") are entering into a contract (with joint and several liability) with **tie** for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network (the "**Infraco Contract**").
- (B) It is a condition of the Infraco Contract that the Bilfinger Subsidiary procures the execution and delivery to **tie** of this parent company guarantee (the "**Guarantee**") and the Siemens Subsidiary procures the execution and delivery to **tie** of a similar parent company guarantee (the "**Siemens Guarantee**").
- (C) The Guarantor has agreed to guarantee the obligations of the Bilfinger Subsidiary pursuant to the Infraco Contract.

THE PARTIES AGREE as follows:

1. INTERPRETATION, REPRESENTATIONS, WARRANTIES AND ACKNOWLEDGEMENTS BY THE GUARANTOR

- 1.1 In this Guarantee and the recitals hereto, unless the context otherwise requires or unless otherwise defined or provided for in this Guarantee, words and expressions when used herein shall have the same meaning as is attributed to them under the Infraco Contract.
- 1.2 The Guarantor hereby represents and warrants and undertakes to **tie** that:
 - 1.2.1 it is a public limited company duly registered, incorporated and validly existing under the laws of the Federal Republic of Germany;

- 1.2.2 it has the power to enter into this Guarantee and to exercise its rights and perform its obligations under this Guarantee;
- 1.2.3 all required corporate (including supervisory board approval) and other action to authorise its execution of this Guarantee and the performance of its obligations under this Guarantee has been duly taken;
- 1.2.4 the obligations expressed to be assumed by it in this Guarantee are legal and valid obligations binding on it and enforceable in accordance with the terms hereof;
- 1.2.5 the entry into and performance by it of this Guarantee does not and will not conflict with:
 - 1.2.5.1 any law or regulation applicable to it;
 - 1.2.5.2 its "**Satzung**" and applicable "**Geschäftsordnungen**" of the "**Vorstand**" and the "**Aufsichtsrat**" (if any); or
 - 1.2.5.3 any agreement or instrument binding upon it or any of its assets;
- 1.2.6 the Guarantor has legal capacity to enter into this Guarantee governed by Scots law.
- 1.3 The Guarantor acknowledges that **tie** has accepted this Guarantee in full reliance on the representations and warranties set out in this Clause 1 (Representations, Warranties and Acknowledgements by the Guarantor) and on the basis that this Guarantee is effective to guarantee the performance and payment obligations owed on a joint and several basis by the Siemens Subsidiary as an Infraco Member pursuant to the Infraco Contract.

2. UNDERTAKING

- 2.1 In consideration of **tie** entering into the Infraco Contract with the Infraco, the Guarantor, subject to Clause 3 of this Guarantee, irrevocably guarantees to **tie** the due and punctual observance and performance of the Bilfinger Subsidiary, its successors and permitted assignees, either itself or by such other entity nominated by the Guarantor (subject to that entity being acceptable to **tie**), of each and all of the obligations, warranties, duties and undertakings of the Bilfinger Subsidiary under, or pursuant to, the Infraco Contract (the "**Guaranteed Obligations**") when and as such obligations, warranties, duties and undertakings shall become due and performable by the Bilfinger Subsidiary according to the terms of the Infraco Contract.

- 2.2 Subject to Clause 3 of this Guarantee, the Guarantor shall pay any amount demanded by **tie** under a written notice substantially in the form of Schedule 1 hereto, such payment to be made by the Guarantor in pounds sterling (£) with five (5) business days of the date of receipt of the demand to the bank account nominated in the demand notice.

3. LIMITATIONS OF LIABILITY

- 3.1 The Guarantor may raise hereunder all objections and defences the Bilfinger Subsidiary and/or the Infraco has under the Infraco Contract and may assume all such defence, counterclaim, limitation and/or exclusion of liability as the Bilfinger Subsidiary and/or the Infraco may have against **tie** pursuant to the Infraco Contract. In no circumstances shall the Guarantor ever be liable (i) to a greater extent than the liability of the Bilfinger Subsidiary under the Infraco Contract or (ii) for any loss of business, opportunity, revenue, profit or anticipated profit or for any indirect or consequential loss or damages unless the Infraco is liable therefor.

- 3.2 Subject to Clause 3.4, the liability of the Guarantor in relation to payment obligations of the Bilfinger Subsidiary arising from or in connection with the Infraco Contract pursuant to this Guarantee shall not exceed (when taken together with any other amount recovered by **tie** under the Infraco Contract and/or under this Guarantee) an amount equal to the aggregate of:

3.2.1 the lower of:

a)

- (A) £24,200,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or
- (B) £19,250,000 for the period from four to six years from the issue of the Reliability Certificate; or
- (C) £16,500,000 for the period from six to eight years from the issue of the Reliability Certificate; or
- (D) £11,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or
- (E) £5,500,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to **tie** by the Guarantor on behalf of the Infraco and/or the Siemens Subsidiary under or pursuant to this Guarantee shall

count against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

- (b) fifty five percent (55%) of the applicable limits of liability set out in clause 77.8 of the Infraco Contract,

3.2.2 any amounts which the Guarantor is obliged to pay in accordance with the terms of Clause 3.4.

For the avoidance of doubt under no circumstances shall the Guarantor's financial liability pursuant to this Guarantee exceed the lower of:

a)

- (A) £44,000,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or
- (B) £35,000,000 for the period from four to six years from the issue of the Reliability Certificate; or
- (C) £30,000,000 for the period from six to eight years from the issue of the Reliability Certificate; or
- (D) £20,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or
- (E) £10,000,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to **tie** by the Guarantor on behalf of the Infraco, the Bilfinger Subsidiary and/or the Siemens Subsidiary under or pursuant to this Guarantee shall count against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

- b) the applicable limits of liability set out in clause 77.8 of the Infraco Contract.

3.3 The Guarantor's liability in respect of the Guaranteed Obligations shall be conditional on **tie** first having made demand in writing in respect of the same on the Bilfinger Subsidiary and

shall be conditional, in case of any demand for payment, on **tie** making a demand on Siemens Aktiengesellschaft for forty five percent (45%) of the total amount claimed from the Infraco (the "**Siemens Share**"). Accordingly, the Guarantor's liability in respect to the Guaranteed Obligations shall be initially limited to fifty five percent (55%) of the value of each claim from **tie** but without prejudice to the obligation of the Guarantor, in the circumstances set out at Clause 3.4 to pay the Siemens Share.

- 3.4 In the event that full payment from Siemens Aktiengesellschaft is not received by **tie** with respect to the Siemens Share within 30 days of the day of the receipt of the demand, **tie** shall notify the Guarantor in writing and the Guarantor shall pay **tie** the unpaid portion of the Siemens Share within 30 days of receipt by the Guarantor of such notice.

4. EXPIRY

- 4.1 Without prejudice to Clause 4.4 the obligations of the Guarantor set out herein shall constitute and be continuing obligations and accordingly shall remain in full force and effect from the date hereof:

- (a) until the date of issue of the Reliability Certificate or the earlier termination of the Infraco Contract, save that the Guarantor's obligations shall continue with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with the Infraco Works (excluding Infrastructure Maintenance Services) which has been pursued by **tie** or the Indemnified Parties and which is already the subject of formal dispute resolution proceedings which have been commenced no later than six months after either of these dates, as the case may be; and
- (b) until the date which is twelve years from issue of the Reliability Certificate with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with (i) latent defects in the Infraco Works (and any third party claim for direct loss or damage made after issue of the Reliability Certificate and arising from or in connection with latent defects) (ii) uncorrected Patent Defects (iii) liquidated damages outstanding from the settlement of the final account pursuant to Clause 66.6 of the Infraco Contract save that the Guarantor's obligations shall continue with regard to any such claims brought or liabilities pursued by **tie** or the Indemnified Parties which are already the subject of formal dispute resolution proceedings prior to such date or commenced within three months thereafter; and

(c) until the Expiry Date (or the Extended Expiry Date) or earlier termination of the Infraco Contract with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with Infrastructure Maintenance Services, save that the Guarantor's obligations shall continue with regard to any claim brought or liability pursued by **tie** or the Indemnified Parties which is the subject of formal dispute resolution proceedings commenced no later than six months after either of these dates, as the case may be; or

(d) until 31st May 2027,

whichever in each case is the earlier.

4.2 In any of the events set forth in Clause 4.1 (a) to (d) of this Guarantee the expiry of the Guarantor's obligations under this Guarantee shall be without prejudice to any liability of the Guarantor accrued prior to or arising from expiry of the Infraco Contract, provided that any claim by **tie** in respect of such liability shall be barred and be unenforceable, unless written notice of the same specifying in reasonable detail the nature and amount of the claim has been received by the Guarantor within three (3) months after the date of termination of the Guarantee as set out in Clause 4.1, and any proceedings in respect of such claim are commenced within the time period specified in each of Clauses 4.1(a) to 4.1(c).

4.3 **tie** undertakes to return this Guarantee to the Guarantor immediately after its expiry in accordance with Clause 4.1 and Clause 4.2 respectively, save where written notice has been given under clause 4.2 by **tie**. However, for the avoidance of doubt, this Guarantee expires independently of its return.

4.4 In the event the Bilfinger Subsidiary ceases to be a subsidiary of the Guarantor, the Guarantor may offer a replacement guarantee for this Guarantee, substantially in the form hereof. If such replacement guarantee is from a guarantor acceptable to **tie**, acting reasonably having due regard to the remaining performance risk of the Bilfinger Subsidiary and the credit risk of the replacement guarantor, **tie** shall accept such replacement guarantee as security for the Guaranteed Obligations, and this Guarantee shall thereupon automatically terminate. **tie** undertakes to return the Guarantee to the Guarantor immediately following such termination. For avoidance of doubt the Guarantee shall continue in full force and effect notwithstanding the disposal by the Contractor of any or all of its shares in the Bilfinger Subsidiary.

5. PRESERVATION OF RIGHTS

Subject to Clause 3, the obligations of the Guarantor under this Guarantee shall not be discharged by any of the following:

- 5.1 Any non-written arrangement between the Infraco and/or the Bilfinger Subsidiary and **tie** which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee;
- 5.2 Any amendment to, or any variation, waiver or release of any obligation of the Infraco and/or the Bilfinger Subsidiary under or pursuant to the Infraco Contract which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee, provided that **tie** has promptly notified the Guarantor of any such amendment, variation, waiver or release;
- 5.3 Any time or indulgence being granted or agreed to be granted to the Infraco and/or the Bilfinger Subsidiary in respect of its obligations under or pursuant to the Infraco Contract;
- 5.4 The taking, variation or release of, or enforcement or neglect to perfect or enforce any right, guarantee, remedy or security from or against the Infraco and/or the Bilfinger Subsidiary;
- 5.5 Any legal limitation, disability, incapacity or other circumstances solely relating to the Infraco and/or the Bilfinger Subsidiary;
- 5.6 The insolvency, winding-up, dissolution, administration or re-organisation of or any change in status, function, control or ownership of the Infraco and/or the Bilfinger Subsidiary or any other person;
- 5.7 Any obligation of the Infraco and/or the Bilfinger Subsidiary under the Infraco Contract being or becoming illegal, void, invalid, unenforceable or ineffective in any respect;
- 5.8 Any amendment to the Infraco Contract, or any variation, waiver or release of any obligation of the Infraco and/or the Bilfinger Subsidiary under the Infraco Contract;
- 5.9 The assignment or novation of the Infraco Contract in accordance with its terms (provided the Bilfinger Subsidiary is party to the Infraco Contract as assigned or novated);
- 5.10 The suspension or termination of the Infraco Contract or of the employment of the Infraco and/or the Bilfinger Subsidiary under the Infraco Contract; and/or
- 5.11 Any other matter or thing (whether or not known to the Infraco) which would or might operate to exonerate or discharge the Guarantor from its obligations under this Guarantee.

6. ASSIGNATION

- 6.1 The Guarantor is not entitled to assign this Guarantee.

- 6.2 **tie** shall be entitled to assign this Guarantee only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of, the Guarantor, provided that the assignment shall be permitted pursuant to the Infraco Contract, that is to say an assignment to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved in writing by the Infraco.

7. SETTLEMENT CONDITIONAL

Any settlement or discharge between the Guarantor and **tie** shall be conditional upon no security given or payment made to **tie** by the Guarantor or any other person on behalf of the Guarantor at any time being avoided or reduced by virtue of any provisions or enactments relating to bankruptcy, insolvency, liquidation or similar laws of general application for the time being in force (whether in Scotland, the Federal Republic of Germany or the European Union) and, if any such security or payment is so avoided or reduced, **tie** shall be entitled to recover the value or amount of such security or payment from the Guarantor subsequently as if such settlement or discharge had not occurred.

8. EXERCISE OF RIGHTS

- 8.1 Subject to Clause 3.3 **tie** shall not be obliged before exercising any of the rights, powers or remedies conferred upon it in respect of the Guarantor by this Guarantee or by law:

8.1.1 to take any legal proceedings or obtain judgment in any court against the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary; or

8.1.2 to make or file any claim or proof in a winding-up or dissolution of the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary.

- 8.2 Any judgment, award, agreement or determination of any amount due from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract shall be binding upon the Guarantor.

9. INTEREST

Any amount which is not paid under this Guarantee when due in accordance with a demand served under Clause 3 shall carry interest at the rate of interest applicable to overdue amounts under the Infraco Contract from the due date, which is 2% p.a. above the prevailing published base rate of The Royal Bank of Scotland plc. For avoidance of doubt interest shall not be paid

by the Guarantor under this Guarantee for any period during which interest is continuing to accrue under the Infraco Contract.

10. TAXES

All payments in respect of the obligations of the Guarantor under this Guarantee shall be made free and clear of, and without withholding or deduction for, any taxes, duties, assessments or governmental charges of whatsoever nature imposed, levied, collected or assessed by the United Kingdom or the Federal Republic of Germany, or any Land, political or administrative subdivision or any authority thereof having power to tax, save where such withholding or deduction is required by law. In that event, the Guarantor shall pay such additional amounts as will result in the receipt by **tie** of such amount as would have been received by **tie** if no such withholding or deduction had been required.

11. NO SECURITY

The Guarantor shall not hold any security from the Bilfinger Subsidiary in respect of this Guarantee and any such security which is held in breach of this provision shall be held by the Guarantor in trust for and shall be promptly transferred to **tie**.

12. DEFERRAL OF RIGHTS

12.1 The Guarantor agrees that, so long as any amounts are owed by the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) to **tie** under or pursuant to the Infraco Contract, or any amounts are owed, or have been paid, to **tie** by the Guarantor under this Guarantee, the Guarantor shall not exercise any rights which it may at any time have by reason of performance by it of its obligations under this Guarantee:

12.1.1 to effect or seek to effect any recovery from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in respect of any payment made or liability arising pursuant to this Guarantee, whether by receipt of money or set-off or enforcement of security or otherwise;

12.1.2 to claim any contribution from any other guarantor of the obligations of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract;

12.1.3 to take (in whole or in part and whether by way of subrogation or otherwise) any rights of **tie**;

12.1.4 to claim in the insolvency, administration, winding-up, bankruptcy or liquidation of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in competition with **tie**; and/or

12.1.5 subject to Clause 3.3, to require **tie** to make a claim against the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary).

Provided that in the case of Clauses 12.1.1 and 12.1.2 if the Guarantor has made any payment to **tie** pursuant to this Guarantee Agreement, the Guarantor shall be entitled to seek recovery or contribution of such payment (after giving notice to **tie**) on the conditions that such action shall not in any way adversely affect the Infraco's ability (or the Bilfinger Subsidiary's) to perform and discharge its obligations pursuant to the Infraco Contract for its duration.

12.2 The Guarantor shall hold in trust for **tie** any payment or other benefit received by the Guarantor contrary to the provision of this Clause 12. Such sums shall be used to settle any amounts owing to **tie** and any surplus shall be released to the Guarantor.

13. NOTICES

13.1 Any notice to or demand on the Guarantor to be served under this Guarantee shall be in writing and may be delivered in person or sent by recorded delivery post to the Guarantor at its address appearing in this Guarantee or at such other address as it may have notified to **tie** in accordance with this Clause 13.

13.2 Any such notice or demand shall be deemed to have been served on the Guarantor:

- (i) if delivered in person, at the time of delivery; or
- (ii) if posted, upon the date recorded for receipt.
- (iii) The Guarantor hereby appoints Pinsent Masons LLP MNP, of 18-22 Melville Street, Edinburgh, EH3 7NS, as their agent for service of legal process in Scotland.

14. WAIVER

14.1 No delay or omission of **tie** in exercising any right, power or privilege under this Guarantee shall impair or be construed as a waiver of such right power or privilege nor shall any single or partial exercise of any such right, power or privilege preclude any further exercise of such right, power or privilege or the exercise of any other right, power or privilege.

- 14.2 A waiver given or consent granted by **tie** under this Guarantee shall be effective only if given in writing and then only in the instance and for the purpose for which it is given.

15. PARTIAL INVALIDITY

The invalidity, illegality or unenforceability in whole or in part of any of the provisions of this Guarantee shall not affect the validity, legality and enforceability of the remaining part or provisions of this Guarantee.

16. DISPUTE RESOLUTION AND GOVERNING LAW

This Guarantee shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Guarantee.

17. EXCLUSION OF THIRD PARTY RIGHTS

Subject to any assignation pursuant to clause 6 a person not party to this Guarantee shall have no rights to enforce or rely upon any term of this Guarantee and no *jus quaesitum tertio* is hereby created in favour of any party.

18. PAYMENTS

- 18.1 All payments to be made by the Guarantor in respect of this Guarantee must be made:

18.1.1 in immediately available electronically transferable funds (with no handling charge, commission or exchange rate conversion fee deducted) to the credit of such bank account as **tie** may designate; and

18.1.2 in pounds sterling or such other currency as **tie** nominates.

IN WITNESS WHEREOF these presents on this and the preceding [◆] pages together with Schedule 1 which is annexed and signed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED**

at

on 2008 by:

| | |
|----------------------|----------------|
| Authorised Signatory | _____ |
| Full Name | _____ |
| Witness Signature | _____ |
| Full Name | _____ |
| Address | _____ _____ |

EXECUTED for and on behalf of **BILFINGER BERGER AG**

at

on 2008 by:

| | |
|-----------|-------|
| Director | _____ |
| Full Name | _____ |
| Director | _____ |
| Full Name | _____ |

This is the Schedule referred to in the foregoing Guarantee Agreement

SCHEDULE 1

DEMAND LETTER

[Date]

[Guarantor's name]
[Guarantor's address]
Attention: Authorised and responsible representative

EDINBURGH TRAM NETWORK

Dear Sirs,

We refer to the Guarantee Agreement dated [◆] 2008 between us and to the contract (the "**Infraco Contract**") dated [◆] 2008 between us and your subsidiary Bilfinger Berger UK Limited.

1. This letter is our formal demand for the payment of £[◆] pursuant to Clause 2.2. of the Guarantee Agreement, which amount is due and payable by your subsidiary Bilfinger Berger UK Limited and has not been paid. Please make payment to: **tie** Limited, [bank account number and details] as provided under Clause 18 of the Guarantee Agreement.

AND/OR

2. This letter is our formal demand that you perform and discharge [*describe relevant obligations*] the obligations, warranties, duties and undertakings of your subsidiary Bilfinger Berger UK Limited as required pursuant to Clause 2.1 of the Guarantee Agreement which your subsidiary, in breach of the Infraco Contract, has failed to perform and discharge. Please confirm by return the mobilisation arrangements you are making and the timetable for their deployment in Edinburgh and generally.

We confirm that we have made formal demand in writing on Siemens plc and that we have also made formal demand on Siemens Aktiengesellschaft in relation to this matter.

Yours faithfully,

tie LIMITED

Authorised Signatory

.....
Director/Authorised Signatory
tie LIMITED

.....
Director/Authorised Signatory
BILFINGER BERGER AG

**Addendum to form of Parent Company Guarantee between BILFINGER BERGER
AKTIENGESELLSCHAFT and TIE LIMITED**

The Parties agree that the following clause 1.4 shall be inserted into the final Parent Company Guarantee to be executed:

- 1.4 The Guarantor hereby acknowledges that Bilfinger Subsidiary (i) has entered into an agreement with the Siemens Subsidiary and Construcciones Y Auxiliar de Ferrocarriles S.A. ("CAF") whereby CAF has joined the Infraco and (ii) will enter into an agreement (the "**Minute of Variation**") with Siemens plc, **tie** and CAF whereby CAF will become party to the Infraco Contract with joint and several responsibility towards **tie**. The Guarantor and **tie** agree, without reservation, that neither the entry of CAF into the Infraco (and any future variation to the terms of such entry) nor any act or omission by CAF nor the Minute of Variation shall have any effect upon the obligations and liabilities of the Guarantor and the rights and entitlements of **tie** Limited pursuant to this Guarantee.

PART E



**(1) BILFINGER BERGER UK LIMITED AND
SIEMENS PLC
(TOGETHER THE "INFRACO")**

- and -

(2) [*THIRD PARTY BENEFICIARY*]

**COLLATERAL WARRANTY IN
FAVOUR OF [*THIRD PARTY
BENEFICIARY*] FROM INFRACO**

relating to

**THE PROVISION OF THE INFRACO
WORKS FOR THE EDINBURGH TRAM
NETWORK**

AGREEMENT

BETWEEN

- (1) **BILFINGER BERGER UK LIMITED**, a company incorporated in England and Wales under number 02418086 and having its registered office at 150 Aldersgate Street, London, EC1A 4EJ, which expression shall include its successors, permitted assignees and transferees and **SIEMENS PLC**, a company incorporated in England and Wales under number 00727817 and having its registered office at Faraday House, Sir William Siemens House, Frimley, Camberley, Surrey, GU16 8QD, which expression shall include its successors, permitted assignees and transferees, together (the "**Infraco**" and separately an "**Infraco Member**"); and
- (2) [**THIRD PARTY BENEFICIARY**] (company number [◆]) whose registered office is at [◆] ("**Beneficiary**") which expression shall include its successors and permitted assignees;

BACKGROUND

- A By an agreement in writing dated [◆] (the "**Infraco Contract**"), **tie** Limited, a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh, EH1 1YJ, ("**tie**") appointed the Infraco to provide the Infraco Works (as hereinafter defined) in connection with the Edinburgh Tram Network.
- B It is a term of the Infraco Contract that the Infraco Members shall enter into this Agreement with the Beneficiary.

IT IS AGREED as follows:

1. DEFINITIONS AND INTERPRETATION

In this Agreement:

- 1.1 the following words and expressions have the following meanings, unless the context requires otherwise:

"**Agreement**" means this document (as amended from time to time pursuant to clause 11);

"**Deliverables**" means all documents, information, reports, diagrams, records, method statements, risk assessments, manuals, schedules, databases, photographs, formulae, plans, designs, specifications, drawings (including as-built drawings), details, calculations, analysis, operation and maintenance manuals, software, data, data

configuration designs, tools and details, software protocols, source and object codes, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by the Infraco (and/or any Infraco Party or any other third party) in relation to the Infraco Works, required to deliver the Infraco Works;

"Edinburgh Tram Network" means the tramway which is to be designed, constructed and maintained in Edinburgh pursuant to the Infraco Contract with respect to Phase 1a (forming part of Line One and Line Two as described in the Tram Legislation) and, if the Phase 1b option set out in Clause 85 of the Infraco Contract is exercised, Phase 1b, together with all associated works and facilities required pursuant to the Infraco Contract including all civil engineering and track works, Trams, infrastructure, plant, machinery and equipment installed or used for such tramway;

"Good Industry Practice" means using standards, practices, methods and procedures conforming to Law and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably be expected from a large, reputable, professionally qualified, competent and skilled organisation experienced in carrying out activities of a similar nature, scope and complexity to those comprised in the Infraco Works, and seeking in good faith to comply with its contractual obligations and all duties owed by it;

"Infraco IPR" means:

- (a) all Intellectual Property Rights in the Deliverables (including Intellectual Property Rights in relation to the Infraco Software) which were already existing and owned by, or licensed to, the Infraco and/or the Infraco Parties prior to the Effective Date;
- (b) any modifications or developments of any of the Intellectual Property Rights referred to in paragraph (a) above which are generic in nature and not specific to the carry out of the Infraco Works; and
- (c) all Intellectual Property Rights in tram signalling systems, communications systems, SCADA systems and system integration programmes, methodologies or software.

"Infraco Works" means the works and services to be undertaken by the Infraco under the Infraco Contract to design, construct, test, commission and maintain Phase 1a and, if instructed, Phase 1b and the Phase 1b Works;

"Intellectual Property Rights" means any rights in or to any patent, design right, utility model, trade mark, brand name, service mark, trade name, business name, logo, invention (whether registered or unregistered), domain name, semi-conductor right, topography right, software designs and/or other materials, source code, copyright, moral right, know-how, or rights in databases and any other rights in respect of any industrial or intellectual property, whether capable of being registered or not, including all rights to apply for any of the foregoing rights or for an extension, revival or renewal of any of the foregoing rights and any similar or analogous rights to any of the above, whether arising or granted under the law of Scotland or of any other jurisdiction;

"Law" means:

- (a) any Act or instruments of the Scottish Parliament or the United Kingdom Parliament or subordinate legislation within the meaning of section 21(1) of the Interpretation Act 1978, any exercise of the Royal Prerogative, and any enforceable community right within the meaning of section 2 of the European Communities Act 1972, and any bye-laws of any local or other statutory authority;
- (b) any applicable guidance, policy, direction or determination issued by any regulatory body with which the Infraco and/or the Infraco Parties are bound to comply; and
- (c) any applicable judgment of a relevant court of law which is a binding precedent,

in each case in force in Scotland;

"Liability Cap" means the liabilities and respective durations for such liabilities pursuant for such liabilities pursuant to the Infraco Contract and set out in Annex A to this Agreement;

"Party" means each and any of the parties to this Agreement and Parties shall be construed accordingly;

"Phase 1a" means Edinburgh Airport to Newhaven (inclusive), together with the Depot at Gogar and the spur at Roseburn Junction;

"Phase 1b" means Roseburn to Granton Square (inclusive);

"Project IPR" means any Intellectual Property Rights arising out of, used in or created to implement the Infraco Works and to produce Deliverables (including the Specially Written Software, any asset management system and/or Works programming system) and for the extension of the Edinburgh Tram Network in accordance with the Infraco Contract but excluding any Infraco IPR contained in the Deliverables;

"Trams" means all or any of the tram vehicles for the Edinburgh Tram Network to be provided under the Tram Supply Agreement and maintained under the Tram Maintenance Agreement; and

"Tram Legislation" means the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006, and such other legislation relative to the Edinburgh Tram Network as may be enacted from time to time; and

1.2 unless the context requires otherwise:

1.2.1 words importing:

1.2.1.1 the singular include the plural and vice versa; and

1.2.1.2 one gender include all other genders.

1.2.2 a reference to:

1.2.2.1 persons includes firms, companies, corporations, partnerships, trusts, authorities and other incorporated and/or unincorporated bodies; and

1.2.2.2 a clause is a reference to a clause in this Agreement.

1.3 The list of contents and clause headings in this Agreement are included for convenience only and do not affect its interpretation.

1.4 Where a party comprises two or more persons:

1.4.1 any obligations on the part of that party contained or implied in this agreement are deemed to be joint and several obligations on the part of those persons; and

1.4.2 references to that party shall include references to each and any of those persons.

1.5 Any capitalised terms not defined above shall have the meaning accorded to them pursuant to the Infraco Contract.

2. STANDARD OF CARE

2.1 The Infraco warrants and undertakes to the Beneficiary that it has carried out and shall carry out the Infraco Works and its other duties and obligations under the Infraco Contract including in relation to Phase 1b, if so instructed, subject to and in accordance with the terms thereof.

2.2 In addition to and without derogation from clause 2.1, the Infraco warrants to the Beneficiary that:

2.2.1 in the performance of the Infraco Works and its other obligations under the Infraco Contract it shall exercise a reasonable level of professional skill, care and diligence to be expected of a properly qualified and competent contractor experienced in carrying out works and services similar to the Infraco Works in connection with projects of a similar type, nature and complexity;

2.2.2 any design produced by Infraco will ensure compliance with the Employer's Requirements and Infraco Proposals; and

2.2.3 any design produced by the Infraco will fully comply with Law.

2.3 The Infraco shall owe a duty of care to the Beneficiary in carrying out its duties and obligations under the Infraco Contract.

3. MATERIALS

3.1 The Infraco warrants to the Beneficiary that it has not and shall not specify for use or use in relation to the Infraco Works any materials which at the time of use or specification (as the case may be):

- 3.1.1 are known to be deleterious in the particular circumstances in which they are specified to be used (either to health and safety or to the durability of the Infraco Works); or
- 3.1.2 contravene any relevant standard or code of practice issued from time to time by the BSI Group or under a European directive relating to standards; or
- 3.1.3 do not accord with the guidelines contained in the edition of the publication "Good Practice in Selection of Construction Materials" (Ove Arup & Partners) current at the date of specification of use; or
- 3.1.4 contravene Good Industry Practice.

4. **COPYRIGHT LICENCE**

- 4.1 The Beneficiary and the Infraco acknowledge that under the terms of the Infraco Contract, the Infraco has assigned to **tie**, with full title guarantee the Project IPR which is created by the Infraco and used by it to carry out its obligations under the Infraco Contract.
- 4.2 The Beneficiary and the Infraco acknowledge that under the terms of the Infraco Contract the Infraco has granted to **tie** a non-exclusive perpetual irrevocable royalty free licence to use such Infraco IPR which is contained in the Deliverables as may be necessary for **tie** to use in relation to the Infraco Works and the Maintenance Services and any extension of the Edinburgh Tram Network and undertakes to procure for **tie** a licence on the same terms as above in respect of any Project IPR created by the Infraco Parties.
- 4.3 The Beneficiary and the Infraco acknowledge that under the terms of the Infraco Contract the Infraco grants to **tie**, with the prior written consent of the Infraco such consent not to be unreasonably withheld, the right to grant non-exclusive non-assignable sub-licences to third parties for such periods of time as **tie** may reasonably require and otherwise on the same terms as the licence granted to **tie** as described in clause 4.2 above, to use the Infraco IPR referred to in clause 4.2 (other than in relation to Third Party Software and commercially available software which is subject to the provisions of clause 102.9 of the Infraco Contract) in so far as is necessary or desirable for such third party to use such Infraco IPR in relation to the Infraco Works for the Edinburgh Tram Network, the Maintenance Services and any extension of the Edinburgh Tram Network. The Infraco hereby consents to the grant of such non-

exclusive non-assignable sub-licence by **tie** to the Beneficiary if **tie** so requires for the period of time as **tie** may reasonable require.

4.4 The Infraco shall, if so requested at any time, execute such documents and perform such acts as may be required fully and effectively to assure to the Beneficiary the rights referred to in this clause 4.

4.5 The Infraco shall provide to the Beneficiary (at the Beneficiary's cost) a copy of any of the Deliverables as soon as reasonably practicable after receipt by the Infraco of a written request from the Beneficiary to do so.

5. **REQUIRED INSURANCES**

5.1 The Infraco undertakes that:

5.1.1 cover under the Required Insurances (and the Additional Insurances, if any) is extended to include the Infraco's liabilities under this Agreement, to the extent that the Infraco is obliged to maintain such insurances under the Infraco Contract;

5.1.2 this Agreement has been disclosed to the Infraco's current insurers or brokers (as the case may be) and shall be disclosed to any future insurers or brokers providing the insurance required by this Agreement; and

5.1.3 the Infraco shall abide by the terms and conditions of the Required Insurances and the OCIP Insurances and shall use all reasonable endeavours not to do or omit to do anything that might prejudice the respective cover or rights to make a claim.

5.2 As and when reasonably required by the Beneficiary, the Infraco shall produce for inspection documentary evidence that such insurance is being properly maintained.

5.3 If the insurer makes or attempts to make any material alteration or purports to withdraw the Infraco's cover under the Required Insurances or the Additional Insurances (if any), or if the Infraco is unable to obtain insurance, the Infraco shall promptly give notice of this to the Beneficiary.

6. **ASSIGNATION**

6.1 Except as provided in clause 6.2 neither Infraco Member shall assign, novate or otherwise transfer the whole or any part of this Agreement without the prior written

agreement of the Beneficiary, such agreement not to be unreasonably withheld or delayed in the case that such assignment is to a subsidiary or associated company.

6.2 Subject to notice being served on **tie** and the Beneficiary, the Infraco shall be entitled to assign, novate or otherwise transfer the whole of this Agreement to any person who the Infraco assigns, novates or otherwise transfers (in whole) its duties and obligations under the Infraco Contract without the prior written agreement of the Beneficiary.

6.3 Subject to notice being served on the Infraco and on **tie**, the Beneficiary shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:

6.3.1 without the consent of the Infraco to any person provided that no more than two such assignments will be permitted. Any assignments by the Beneficiary to a subsidiary or associated company of the Beneficiary or a member of the same group of companies will not count as an assignment;

6.3.2 with the prior written consent of the Infraco (such consent not to be unreasonably withheld or delayed).

6.4 The Infraco undertakes to the Beneficiary not to contend in any court proceedings under this Agreement that any person to whom the Beneficiary assigns or has assigned its rights under this Agreement or any of them in accordance with the foregoing provisions of this clause 6 (*Assignment*) is to be precluded from recovering any loss resulting from any breach of this Agreement (whenever happening) by reason that such person is an assignee and not the original contracting party under this Agreement or by reason that the Beneficiary is named under this Agreement or any intermediate assignee of the Beneficiary escaped loss resulting from such breach by reason of the disposal of its interest in the same.

7. LIABILITY OF INFRACO

7.1 No provision of this Agreement is intended to exclude any obligation or liability which would otherwise be implied whether by the law of contract, delict or otherwise.

7.2 The responsibility of the Infraco under this Agreement is not to be reduced or in any way released or limited by any enquiry or inspection by or on behalf of any person notwithstanding that such enquiry or inspection may give rise to a claim by the Beneficiary against a third party.

- 7.3 The rights and benefits conferred upon the Beneficiary by this Agreement are in addition to any other rights and remedies that the Beneficiary may have against the Infraco including (without prejudice to the generality of the foregoing) any remedies in delict.
- 7.4 Subject to the other provisions of this Agreement, the liability of the Infraco to the Beneficiary is to be determined in all respects in accordance with the terms of the Infraco Contract and, in the event of any claim by the Beneficiary under this Agreement, the Infraco shall be entitled to rely upon any defence, right, limitation or exclusion under the Infraco Contract as though the Beneficiary were named as **tie** under it, except that:
- 7.4.1 the Beneficiary shall not be affected by any subsequent variation of the Infraco Contract which would adversely affect the obligations owed by the Infraco or the waiver, compromise or withdrawal of any claim made by **tie**; and
- 7.4.2 the Infraco shall not be entitled to exercise any right of set-off, retention or withholding against the Beneficiary to which the Infraco may be entitled against **tie**.
- 7.5 The Infraco shall not be liable to the Beneficiary for any delay in completing the Infraco Works.
- 7.6 Without prejudice to clause 7.4:
- 7.6.1 the Beneficiary acknowledges and agrees that the Infraco shall have no liability to the Beneficiary under this Agreement to the extent that such liability would result in the total aggregate liability of the Infraco in connection with the Edinburgh Tram Network exceeding the relevant Liability Cap; and
- 7.6.2 the Infraco shall have no liability to the Beneficiary under this Agreement following expiry of the period of 12 years from the earlier to occur of the date of issue of the Reliability Certificate and the date of termination of the Infraco Contract.

8. NOTICES

8.1 Any notice required to be given under this Agreement is to be hand delivered or sent by prepaid registered or recorded delivery post to the party concerned at its address set out in this Agreement or to such other addresses as may be notified by such party for the purposes of this clause.

8.2 Any notice given pursuant to this clause, if sent by special or recorded delivery, is deemed to have been received on proof of delivery.

9. RIGHTS OF THIRD PARTIES

9.1 A person who is not a party to this Agreement shall have no right to enforce any term of this Agreement.

10. INVALID TERMS

10.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable:

10.1.1 that term shall to that extent be deemed not to form part of this Agreement;
and

10.1.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

11. VARIATIONS AND WAIVERS TO BE IN WRITING

11.1 No variation, alteration or waiver of any of the provisions of this Agreement shall be effective unless it is in writing and signed by or on behalf of the Party against which the enforcement of such variation, alteration or waiver is sought.

12. WAIVER

12.1 Save where expressly stated, no failure or delay by either Party to exercise any right or remedy in connection with this Agreement shall operate as a waiver of it or of any other right or remedy nor shall any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.

12.2 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by law.

13. JURISDICTION AND LAW

13.1 This Agreement is governed by and is to be construed according to Scots law and the Scottish courts shall have jurisdiction in relation to all matters arising under it.

IN WITNESS WHEREOF these presents on this and the preceding [◆] pages, together with the Annex are executed as follows:

EXECUTED for and on behalf of **BILFINGER
BERGER UK LIMITED** at

on _____ 2008 by:

Director _____

Full Name _____

Director _____

Full Name _____

EXECUTED for and on behalf of **SIEMENS
PLC** at

on _____ 2008 by:

Authorised Signatory _____

Full Name _____

Authorised Signatory _____

Full Name _____

EXECUTED for and on behalf of [*third party beneficiary*] at

on 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

ACKNOWLEDGED for and on behalf of **TIE LIMITED** at

on 2008 by:

Director/Authorised Signatory

Full Name

Witness Signature

Full Name

Address

ANNEX A

"Liability Cap" means:

- (i) Subject always to subparagraphs (ii) to (iv) below, in relation to:
 - (a) any claim brought or liability incurred by **tie** or the Indemnified Parties prior to the issue of the Reliability Certificate or within 6 months of the issue of the Reliability Certificate arising from or in connection with Infraco Works (other than Infrastructure Maintenance Services after the Service Commencement Date) carried out prior to the issue of the Reliability Certificate;
 - (b) latent defects and uncorrected Patent Defects;
 - (c) any third party claim made against **tie** or the Indemnified Parties for direct loss or damage made after the issue of the Reliability Certificate and arising from or in connection with latent defects;
 - (d) liabilities owed by the Infraco connected with liquidated damages outstanding from settlement of final account after Service Commencement;

twenty percent (20%) of the Construction Works Price (including, the value of any **tie** Changes arising from Clause 80 (*tie* Changes), Notified Departures, extensions to the Edinburgh Tram Network instructed through Clause 81 (*Infraco* Changes), Clause 85 (*Phase 1b*) or Clause 86 (*Network Expansions*) (the "**Construction Cap**"), subject to (A) in the case of any liability arising solely from the breach of contract or negligent acts or omissions of the SDS Provider, the SDS Liability Cap; and (B) in the case of any liability arising under (c) above, nine million pounds (£9,000,000);
- (ii) subject to sub-paragraphs (iii) and (iv), in respect of claims brought against or liabilities incurred by **tie** or the Indemnified Parties to which paragraph (i) above does not apply, an amount of three million, five hundred thousand pounds (£3,500,000) (in relation to Phase 1a), or the Maintenance Cap, whichever is lower;
- (iii) In relation to liability arising solely from any act or omission of the Tram Supplier, an amount when aggregated with all previous claims equal to twenty percent (20%) of the Aggregate Tram Price and (excluding the proceeds of all insurance, bonds and cash securities) as defined in the Tram Supply Agreement, such liability to be treated as outside the Construction Cap;

- (iv) In relation to liability arising from any act or omission of the Tram Maintainer, an aggregate amount of eighteen and one half percent (18.5%) of the aggregate Maximum Performance Payment over the Term of and as defined in the Tram Maintenance Agreement and annually twenty two and one half percent (22.5%) of the aggregate Maximum Performance Payment as defined in the Tram Maintenance Agreement of the Tram Maintenance Services, (in the case of the aggregate cap only excluding the proceeds of any insurance, bonds and cash securities) such liability to be treated as outside the Maintenance Cap;

.....
Director/Authorised Signatory
BILFINGER BERGER UK LIMITED

.....
Director/Authorised Signatory
SIEMENS PLC

.....
Director/Authorised Signatory
[THIRD PARTY BENEFICIARY]

.....
Director/Authorised Signatory
tie LIMITED

PART F



(1) [SUB-CONTRACTOR]

- and -

(2) [tie LIMITED] or [*OTHER THIRD PARTY BENEFICIARY*]

- and -

(3) BILFINGER BERGER UK LIMITED

- and -

(4) SIEMENS PLC

**COLLATERAL WARRANTY IN
FAVOUR OF [[tie LIMITED] or [*OTHER
THIRD PARTY BENEFICIARY*] FROM
[SUB-CONTRACTOR]**

**relating to
THE INFRACO CONTRACT**

AGREEMENT

BETWEEN

- (1) [SUB-CONTRACTOR] [(company number [◆]) whose registered office is at [◆]] OR [carrying on business together in partnership under the name of [◆] at [◆]] ("**Sub-Contractor**")];
 - (2) [tie LIMITED (Company Number SC230949) whose registered office is at City Chambers, High Street, Edinburgh, Midlothian, EH1 1YJ] OR [Other third party beneficiary (company number ◆)] whose registered office is at [◆] OR [carrying on business together in partnership under the name of [◆] at [◆]] ("**Beneficiary**") which expression shall include its successors and permitted assignees;
 - (3) **BILFINGER BERGER UK LIMITED**, a company incorporated in England and Wales under number 02418086 and having its registered office at 150 Aldersgate Street, London, EC1A 4EJ, which expression shall include its successors, permitted assignees and transferees; and
 - (4) **SIEMENS PLC**, a company incorporated in England and Wales under number 00727817 and having its registered office at Faraday House, Sir William Siemens House, Frimley, Camberley, Surrey, GU16 8QD, which expression shall include its successors, permitted assignees and transferees,
- (Bilfinger Berger UK Limited and Siemens plc together the "**Infraco**" and separately an "**Infraco Member**").

BACKGROUND

- A By an agreement in writing dated [◆] (the "**Infraco Contract**"), [tie Limited, a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh, EH1 1YJ, ("**tie**") [the Beneficiary] appointed the Infraco to provide certain works and services to design, construct, test, commission and maintain the Edinburgh Tram Network.
- B It is a term of the Infraco Contract that the Infraco shall procure that the Sub-Contractor enter into this Agreement with the Beneficiary.
- C The Sub-Contractor has been appointed by the Infraco as [◆] in terms of the Sub-Contract (as hereinafter defined).
- D It is a term of the Sub-Contract or has otherwise been agreed that the Sub-Contractor enters into this Agreement with the Beneficiary in relation to the Sub-Contract Works.

IT IS AGREED as follows:

1. DEFINITIONS AND INTERPRETATION

In this Agreement:

- 1.1 the following words and expressions have the following meanings, unless the context requires otherwise:

"Agreement" means this document (as amended from time to time pursuant to clause 13);

"Edinburgh Tram Network" means the tramway which is to be designed, constructed and maintained in Edinburgh pursuant to the Infraco Contract in Phase 1a (forming part of Line One and Line Two as described in the Tram Legislation) [and, if the Phase 1b option set out in Clause 85 of the Infraco Contract is exercised, Phase 1b,] together with all associated works and facilities required pursuant to the Infraco Contract including all civil engineering and track works, Trams, infrastructure, plant, machinery and equipment installed or used for such tramway;

"Good Industry Practice" means using standards, practices, methods and procedures conforming to Law and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably be expected from a large, reputable, professionally qualified, competent and skilled organisation experienced in carrying out activities of a similar nature, scope and complexity to those comprised in the Sub-Contract Works, and seeking in good faith to comply with its contractual obligations and all duties owed by it;

"Insurance Period" means the period of 12 years from the date of issue of the last certificate of substantial completion in respect of the Sub-Contract Works, as established pursuant to and for the purposes of the Sub-Contract (or, if sooner, 12 years after termination of the employment of the Sub-Contractor under the Sub-Contract);

"Intellectual Property Rights" means any rights in or to any patent, design right, utility model, trade mark, brand name, service mark, trade name, business name, logo, invention (whether registered or unregistered), domain name, semi-conductor right, topography right, software designs and/or other materials, source code, copyright, moral right, know-how, or rights in databases and any other rights in respect of any industrial or intellectual property, whether capable of being registered or not, including all rights to apply for any of the foregoing rights or for an extension, revival

or renewal of any of the foregoing rights and any similar or analogous rights to any of the above, whether arising or granted under the law of Scotland or of any other jurisdiction;

"Law" means:

- (a) any Act or instruments of the Scottish Parliament or the United Kingdom Parliament or subordinate legislation within the meaning of section 21(1) of the Interpretation Act 1978, any exercise of the Royal Prerogative, and any enforceable community right within the meaning of section 2 of the European Communities Act 1972 and any bye-laws of any local or other statutory authority;
- (b) any applicable guidance, policy, direction or determination issued by any regulatory body with which the Infraco and/or the Sub-Contractor is bound to comply; and
- (c) any applicable judgment of a relevant court of law which is a binding precedent,

in each case in force in Scotland;

"Party" means each and any of the parties to this Agreement and Parties shall be construed accordingly;

"Sub-Contract" means the sub-contract dated [◆] made between the Infraco and the Sub-Contractor;

"Sub-Contract Works" means the works and services to be undertaken by the Sub-Contractor under the Sub-Contract;

"Sub-Contractor Deliverables" means all documents, information, reports, diagrams, records, method statements, risk assessments, manuals, schedules, databases, photographs, formulae, plans, designs, specifications, drawings (including as-built drawings), details, calculations, analysis, operation and maintenance manuals, software, data, data configuration designs, tools and details, software protocols, source and object codes, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by the Sub-Contractor (or any other third party) in relation to the Sub-Contract Works, required to deliver the Sub-Contract Works;

"**TEL**" means Transport Edinburgh Limited a company incorporated under the Companies Act with registered number SC269639 and having its registered office at 55 Annandale Street, Edinburgh, Midlothian, EH7 4AZ which shall include its successors in title and permitted assignees;

"**Trams**" means the tram vehicles to be provided for operation on the Edinburgh Tram Network;

"**Tram Legislation**" means the Edinburgh Tram (Line One) Act 2006, the Edinburgh Tram (Line Two) Act 2006 and such other legislation relative to the Edinburgh Tram Network as may be enacted from time to time; and

1.2 unless the context requires otherwise:

1.2.1 words importing:

1.2.1.1 the singular include the plural and vice versa; and

1.2.1.2 one gender include all other genders.

1.2.2 a reference to:

1.2.2.1 persons includes firms, companies, corporations, partnerships, trusts, authorities and other incorporated and/or unincorporated bodies; and

1.2.2.2 a clause is a reference to a clause in this Agreement.

1.3 The list of contents and clause headings in this Agreement are included for convenience only and do not affect its interpretation.

1.4 Where a party comprises two or more persons:

1.4.1 any obligations on the part of that party contained or implied in this agreement are deemed to be joint and several obligations on the part of those persons; and

1.4.2 references to that party shall include references to each and any of those persons.

2. STANDARD OF CARE

- 2.1 The Sub-Contractor warrants and undertakes to the Beneficiary that it has carried out and shall carry out the Sub-Contract Works and its other duties and obligations under the Sub-Contract subject to and in accordance with the terms thereof.
- 2.2 In addition to and without derogation from clause 2.1, the Sub-Contractor warrants to the Beneficiary that:
- 2.2.1 in the performance of the Sub-Contract Works and its other obligations under the Sub-Contract it shall exercise a reasonable level of professional skill, care and diligence to be expected of a properly qualified and competent contractor experienced in carrying out works and services similar to the Sub-Contract Works in connection with projects of a similar type, nature and complexity;
 - 2.2.2 in respect of the design of the Sub-Contract Works under the Sub-Contract, the Sub-Contractor has exercised and shall continue to exercise all reasonable skill, care and diligence to be expected of a properly qualified and competent architect or other appropriate professional designer experienced in projects of similar scope, type, size, nature and complexity as the Edinburgh Tram Network; and
 - 2.2.3 any design produced by the Sub-Contractor will fully comply with Law.
- 2.3 The Sub-Contractor shall owe a duty of care to the Beneficiary in carrying out its duties and obligations under the Sub-Contract.

3. MATERIALS

- 3.1 The Sub-Contractor warrants to the Beneficiary that it has not and shall not specify for use or use in relation to the Sub-Contract Works any materials which at the time of use or specification (as the case may be):
- 3.1.1 are known to be deleterious in the particular circumstances in which they are specified to be used (either to health and safety or to the durability of the Sub-Contract Works; or
 - 3.1.2 contravene any relevant standard or code of practice issued from time to time by the BSI Group or under a European directive relating to standards; or
 - 3.1.3 do not accord with the guidelines contained in the edition of the publication "Good Practice in Selection of Construction Materials" (Ove Arup & Partners) current at the date of specification or use; or

3.1.4 contravene Good Industry Practice.

4. COPYRIGHT LICENCE

- 4.1 The Sub-Contractor hereby grants to the Beneficiary an irrevocable, perpetual, royalty-free and non-exclusive licence to use such Intellectual Property Rights in the Sub-Contractor Deliverables as may be necessary for the Beneficiary to use in relation to the [[Edinburgh Tram Network] **OR** *[Where beneficiary is not **tie** an appropriate use should be included]* [and any extension of the Edinburgh Tram Network]]. This licence shall carry the right to grant non-exclusive, non-assignable sub-licences, for such periods of time as the Beneficiary may reasonably require and otherwise on the same terms as the license granted to the Beneficiary pursuant to this Clause 4.1 to use such Intellectual Property Rights in the Sub-Contractor Deliverables in so far as is necessary or desirable for such third party to use such Intellectual Property Rights in relation to the Sub-Contractor Deliverables for the [[Edinburgh Tram Network] **OR** *[Where beneficiary is not **tie** an appropriate use should be included]* [and any extension of the Edinburgh Tram Network]].
- 4.2 In so far as ownership of the copyright and any other Intellectual Property Rights in any Sub-Contractor Deliverable prepared or provided by the Sub-Contractor in connection with the Edinburgh Tram Network is vested in any person other than the Sub-Contractor, the Sub-Contractor shall procure for the Beneficiary the benefit of such a licence as is referred to in clause 4.1 for the purposes referred to therein.
- 4.3 The Sub-Contractor shall, if so requested at any time, execute such documents and perform such acts as may be required fully and effectively to assure to the Beneficiary the rights referred to in this clause 4.
- 4.4 The Sub-Contractor shall provide to the Beneficiary (at the Beneficiary's cost) a copy of any of the Sub-Contractor Deliverables as soon as reasonably practicable after receipt by the Sub-Contractor of a written request from the Beneficiary to do so.
- 4.5 The Sub-Contractor undertakes to the Beneficiary that the use by the Beneficiary of any of the Sub-Contractor Deliverables for any purpose provided for in this clause 4 shall not infringe the rights of any third party in relation to the Sub-Contractor Deliverables.
- 4.6 The Sub-Contractor shall not be liable for any claim resulting from (i) any use by the Beneficiary (or its licensees) of any of the Sub-Contractor Deliverables for any

purpose other than the use provided for [under the Sub-Contract][under this Agreement] or (ii) any improper or negligent use by the Beneficiary.

5. REQUIRED INSURANCES

5.1 The Sub-Contractor undertakes that:

5.1.1 it has maintained and shall maintain during the performance of its obligations under the Sub-Contract and the Insurance Period each of the insurances as required in terms of the Sub-Contract;

5.1.2 cover under the professional indemnity insurance is extended to include the Sub-Contractor's liabilities under this Agreement;

5.1.3 this Agreement has been disclosed to the Sub-Contractor's current professional indemnity insurers or brokers (as the case may be) and shall be disclosed to any future professional indemnity insurers or brokers providing the insurance required by this Agreement; and

5.1.4 the Sub-Contractor shall abide by the terms and conditions of insurance and shall use all reasonable endeavours not to do or omit to do anything that might prejudice the cover or its right to make a claim.

5.2 As and when reasonably required by the Beneficiary, the Sub-Contractor shall produce for inspection documentary evidence that such insurance is being properly maintained.

5.3 If the insurer makes or attempts to make any material alteration or purports to withdraw the Sub-Contractor's professional indemnity cover, or if the Sub-Contractor is unable to obtain professional indemnity insurance, the Sub-Contractor shall promptly give notice of this to the Beneficiary.

6. STEP-IN [IN THE CASE OF TIE AND TEL]

6.1 The Sub-Contractor shall not exercise nor seek to exercise any right of determination of its employment under the Sub-Contract or to rescind the Sub-Contract or to discontinue the performance of any of the Sub-Contractor's obligations in relation to the Sub-Contract by reason of breach on the part of the Infracore (or otherwise) without giving to the Beneficiary not less than twenty one days' written notice of its intention to do so and specifying in such notice the grounds for the proposed determination.

The Sub-Contractor will for the period of any such notice diligently and properly continue to perform the Sub-Contractor's obligations under the Sub-Contract.

- 6.2 Any period stipulated in the Sub-Contract for the exercise by the Sub-Contractor of a right of determination will nevertheless be extended as may be necessary to take account of the period of notice required under clause 6.4.
- 6.3 Compliance by the Sub-Contractor with the provisions of clause 6.1 will not be treated as a waiver of any breach on the part of the Infraco giving rise to the right of determination nor otherwise prevent the Sub-Contractor from exercising its rights after the expiration of the notice unless the right of determination has ceased under the provisions of clause 6.4.
- 6.4 The right of the Sub-Contractor to determine its employment under the Sub-Contract or to rescind the Sub-Contract or to discontinue the performance of any of its obligations in relation to the Sub-Contract shall cease if within the period of twenty one days referred to in clause 6.1 the Beneficiary gives written notice to the Sub-Contractor:
 - 6.4.1 requiring the Sub-Contractor to continue with the performance of all its obligations under the Sub-Contract;
 - 6.4.2 acknowledging that the Beneficiary is assuming all the obligations of the Infraco under the Sub-Contract; and
 - 6.4.3 undertaking to the Sub-Contractor to discharge all amounts payable to the Sub-Contractor under the terms of the Sub-Contract.
- 6.5 Upon compliance by the Beneficiary with the requirements of clause 6.4 the Sub-Contract will continue in full force and effect as if the right of determination on the part of the Sub-Contractor had not arisen and in all respects as if the Sub-Contract had been made between the Beneficiary and the Sub-Contractor to the exclusion of the Infraco.
- 6.6 Notwithstanding that as between the Infraco and the Sub-Contractor the Sub-Contractor's right of determination of its engagement under the Sub-Contract may not have arisen, or may have arisen and the Sub-Contractor has not exercised nor sought to exercise its right of determination, the provisions of clause 6.5 shall nevertheless apply if the Beneficiary gives written notice to the Sub-Contractor and the Infraco that

it will step-in to the Sub-Contract and comply with the requirements on its part under clauses 6.4.1, 6.4.2 and 6.4.3.

6.7 The Sub-Contractor does not need to be concerned or required to enquire whether, and will be bound to assume that, as between the Infraco and the Beneficiary, the circumstances have occurred permitting the Beneficiary to give notice under clause 6.6.

6.8 By acting in accordance with the provisions of this clause 6, the Sub-Contractor will not incur any liability to the Infraco.

6.9 Unless and until the Beneficiary has given notice under this clause 6:

6.9.1 the Beneficiary has no liability whatsoever to the Sub-Contractor in respect of amounts payable to the Sub-Contractor under the Sub-Contract; and

6.9.2 the Beneficiary has no authority to issue any direction or instruction to the Sub-Contractor in relation to the performance of the Sub-Contractor's duties under the Sub-Contract.

6.10 Without prejudice to the provisions of clauses 6.1 to 6.9 inclusive, if prior to the service of any notice under clause 6.4 the employment of the Sub-Contractor under the Sub-Contract is determined for any reason whatsoever the Sub-Contractor shall, if requested in writing so to do by the Beneficiary no later than 12 weeks after the date of such determination, forthwith enter into a new agreement with the Beneficiary in relation to the carrying out of the Sub-Contract Works on the same terms as the Sub-Contract, but with such revisions as the Beneficiary and the Sub-Contractor may reasonably require to reflect altered circumstances and the fact that it is the Beneficiary and not the Infraco employing the Sub-Contractor.

7. ASSIGNATION

7.1 The Sub-Contractor shall not assign, novate or otherwise transfer the whole or any part of the Agreement without the prior written agreement of the Beneficiary.

7.2 Subject to notice being served on the Sub-Contractor [and on **tie**], the Beneficiary shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:

*[[Include where the Beneficiary is **tie**]]*

7.2.1 [to the Scottish Ministers, the City of Edinburgh Council or their statutory successors (enjoying full executive authority in their own right under public administrative law) in accordance with the Tram Legislation; or

7.2.2

7.2.2.1 to TEL;

7.2.2.2 or to any other person;

in accordance with the Tram Legislation, and whose obligations under this Agreement are in both cases irrevocably guaranteed (in a form reasonably acceptable to the Sub-Contractor acting reasonably) by CEC or the Scottish Ministers;

7.2.3 with the prior written consent of the Sub-Contractor (such consent not to be unreasonably withheld or delayed) to any person not covered by clauses 7.2.1 or 7.2.2.]

OR

[[Include where the Beneficiary is an other third party]

7.2.1 without the consent of the Sub-Contractor to any person provided that no more than two such assignments will be permitted. Any assignments by the Beneficiary to a subsidiary or associated company of the Beneficiary or a member of the same group of companies will not count as an assignment;

7.2.2 with the prior written consent of the Sub-Contractor (such consent not to be unreasonably withheld or delayed).]

7.3 The Sub-Contractor undertakes to the Beneficiary not to contend in any court proceedings under this Agreement that any person to whom the Beneficiary assigns or has assigned its rights under this Agreement or any of them in accordance with the foregoing provisions of this clause is to be precluded from recovering any loss resulting from any breach of this Agreement (whenever happening) by reason that such person is an assignee and not the original contracting party under this Agreement or by reason that the Beneficiary is named under this Agreement or any intermediate assignee of the Beneficiary escaped loss resulting from such breach by reason of the disposal of its interest in the same.

8. LIABILITY OF THE SUB-CONTRACTOR

- 8.1 No provision of this Agreement is intended to exclude any obligation or liability which would otherwise be implied whether by the law of contract, delict or otherwise.
- 8.2 The responsibility of the Sub-Contractor under this Agreement is not to be reduced or in any way released or limited by any enquiry or inspection by or on behalf of any person notwithstanding that such enquiry or inspection may give rise to a claim by the Beneficiary against a third party.
- 8.3 The rights and benefits conferred upon the Beneficiary by this Agreement are in addition to any other rights and remedies that the Beneficiary may have against the Sub-Contractor including (without prejudice to the generality of the foregoing) any remedies in delict.
- 8.4 Subject to the other provisions of this Agreement, the liability of the Sub-Contractor to the Beneficiary is to be determined in all respects in accordance with the terms of the Sub-Contract and, in the event of any claim by the Beneficiary under this Agreement, the Sub-Contractor shall be entitled to rely upon any defence, right, limitation or exclusion under the Sub-Contract as though the Beneficiary were named as the Infraco under it, except that:
- 8.4.1 the Beneficiary shall not be affected by any subsequent variation of the Sub-Contract which would adversely affect the obligations owed by the Sub-Contractor or the waiver, compromise or withdrawal of any claim made by the Infraco; and
- 8.4.2 the Sub-Contractor shall not be entitled to exercise any right of set-off, retention or withholding against the Beneficiary to which the Sub-Contractor may be entitled against the Infraco.
- 8.5 The Sub-Contractor shall not be liable to the Beneficiary for any delay in completing the Sub-Contract Works.
- 8.6 Without prejudice to clause 8.4:
- 8.6.1 the Beneficiary acknowledges and agrees that the Sub-Contractor shall have no liability to the Beneficiary under this Agreement to the extent that such liability would result in the total aggregate liability of the Sub-Contractor in connection with the Edinburgh Tram Network exceeding any liability cap provided for pursuant to the Sub-Contract; and

8.6.2 the Sub-Contractor shall have no liability to the Beneficiary under this Agreement following expiry of the period of 12 years from the date of issue of the Reliability Certificate.

8.7 The Sub-Contractor shall owe no greater duties or obligations in time or in nature hereunder to the Beneficiary than it owes to the Infraco under the Sub-Contract.

9. CONSENT OF INFRACO

9.1 The Infraco consents to the terms of this Agreement.

10. NOTICES

10.1 Any notice required to be given under this Agreement is to be hand delivered or sent by prepaid registered or recorded delivery post to the party concerned at its address set out in this Agreement or to such other addresses as may be notified by such party for the purposes of this clause.

10.2 Any notice given pursuant to this clause, if sent by special or recorded delivery, is deemed to have been received on proof of delivery.

11. RIGHTS OF THIRD PARTIES

11.1 A person who is not a party to this Agreement shall have no right to enforce any term of this Agreement.

12. INVALID TERMS

12.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable:

12.1.1 that term shall to that extent be deemed not to form part of this Agreement;
and

12.1.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

13. VARIATIONS AND WAIVERS TO BE IN WRITING

13.1 No variation, alteration or waiver of any of the provisions of this Agreement shall be effective unless it is in writing and signed by or on behalf of the Party against which the enforcement of such variation, alteration or waiver is sought.

14. WAIVER

- 14.1 Save where expressly stated, no failure or delay by either Party to exercise any right or remedy in connection with this Agreement shall operate as a waiver of it or of any other right or remedy nor shall any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.
- 14.2 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by law.

15. JURISDICTION AND LAW

- 15.1 This Agreement is governed by and is to be construed according to Scots law and the Scottish courts shall have jurisdiction in relation to all matters arising under it.

*[[Include where the Beneficiary is **tie**]]*

- 15.2 The Parties agree that any dispute in relation to this Agreement shall be conducted in accordance with clause [◆] (*Dispute Resolution Procedure*) of the Sub-Contract and the provisions of the said clause [◆] (*Dispute Resolution Procedure*) and Schedule [◆] (*Dispute Resolution Procedure*) and Schedule [◆] (*Panels for Dispute Resolution Procedure*) of the Sub-Contract are deemed to be incorporated mutatis mutandis in respect of this Agreement provided that any reference to "Parties" in the Sub-Contract shall be deemed to refer to the Beneficiary and the Sub-Contractor and the reference in the Sub-Contract to ["clause ◆ (*Notices*)"] shall mean clause 10 of this Agreement.

IN WITNESS WHEREOF these presents on this and the preceding [◆] pages are executed as follows:

EXECUTED for and on behalf of [SUB-
CONTRACTOR] at

on 2008 by:

Director/Authorised Signatory

Full Name

Witness Signature

Full Name

Address

EXECUTED for and on behalf of **TIE
LIMITED OR** [*other third party beneficiary*]

at

on 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

EXECUTED for and on behalf of **BILFINGER
BERGER UK LIMITED**

at

on 2008 by:

Director

Full Name

Director

Full Name

EXECUTED for and on behalf of **SIEMENS**
PLC at

on 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name



40 Bank Street, Canary Wharf, London E14 5EJ
Telephone [REDACTED] facsimile [REDACTED]
www.anz.com

Australia and New Zealand Banking Group Limited
ABN 11 005 357 522

tie LIMITED
City Point
Haymarket Terrace
Edinburgh
Midlothian
EH12 5HD
Attention: Stewart McGarrity, Finance Director

Performance Guarantee No: GTEE 08/0116 in relation to the Edinburgh Tram Network

An unincorporated joint venture comprising Bilfinger Berger UK Limited ("**BB Subsidiary**"), Siemens plc ("**Siemens Subsidiary**") and Construcciones y Auxiliary de Ferrocarriles S.A. ("**CAF**") (together the "**Infraco**" and individually each an "**Infraco Member**") intend to enter into a contract (with joint and several liability) with **tie Limited**, a company incorporated with registration number SC230949, with registered office at City Chambers, High Street, Edinburgh, Midlothian EH1 1YJ, ("**tie**") for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network (the "**Infraco Contract**"). Pursuant to the terms of the Infraco Contract, Infraco agreed to procure for the benefit of **tie** a performance guarantee in the amount £23,000,000.00 (TWENTY THREE MILLION Pounds Sterling) as security for Infraco's performance under the Infraco Contract.

AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED (ABN 11 005 357 522) a company incorporated in the Commonwealth of Australia whose registered office is at Level 14, 100 Queen Street, Melbourne, Victoria 3000, Australia acting through its London branch at 40 Bank Street, Canary Wharf, London E14 5EJ (the "**Surety**") hereby issues the following performance guarantee (the "**Guarantee**") on behalf of Infraco for the benefit of **tie**.

The Surety hereby guarantees for the benefit of **tie** the payment of an amount up to the maximum total amount of £23,000,00.00 (TWENTY THREE MILLION Pounds Sterling) (the "**Maximum Liability Amount**"), provided always that the Maximum Liability Amount shall be automatically reduced to the value shown in the following table upon presentation by Infraco of a copy of the below mentioned documents to the Surety and certified by **tie** (which the Surety may accept as conclusive evidence that such reduction is due) as Infraco fulfils its obligations under the Infraco Contract:

| Event & Documentation | Maximum Liability Amount |
|--|--------------------------|
| Issuance of the Certificate of Service Commencement substantially in the form of Appendix B1 | £11,500,000 |
| Issuance of the Network Certificate substantially in the form of Appendix B2 | £9,200,000 |
| Issuance of the Reliability Certificate substantially in the form of Appendix B3 | Nil |

In accordance with the terms of this Guarantee, the Surety shall promptly (and in any event no later than five business days) following receipt of a demand or demands in writing from **tie** (the "**Demand Notice**") substantially in the form set out in Appendix A pay or discharge the amount demanded by **tie**, in available funds by electronic transfer to the account nominated in the Demand Notice, without inquiry and without any deductions whatsoever or any right of set-off, abatement or counterclaim.

Continued on page 2

Registered with limited liability in the State of Victoria, Australia
Incorporated in the Commonwealth of Australia
Registered at the Australian Securities and Investments Commission
Australian Financial Services Licence No. 234527
Head Office: 100 Queen Street, Melbourne
Registered in England No. EC9351, Branch No. 580
Authorised and regulated by the Financial Services Authority

A Demand Notice issued by **tie** to the Surety under this Guarantee shall be accompanied by a written statement which identifies Infraco's failure or default and shall attach a certified copy of **tie's** written notice to Infraco, pursuant to the Infraco Contract, notifying it of the relevant failure or default (the "**Default Notice**"). Such Demand Notice shall not be presented to Infraco earlier than the date which is 14 days following the date of the Default Notice.

Any Demand Notice shall be in writing signed by two authorised representatives of **tie** whose signatures shall be proof of authority of **tie**. Where this Guarantee has been assigned according to the terms of this Guarantee, the Demand Notice shall be signed by two authorised signatories of the new beneficiary, and shall be valid providing the assignment has been notified to the Surety in accordance with the below-mentioned procedure and shall be accompanied by written evidence confirming that the Infraco Contract has been assigned to such beneficiary in accordance with the terms of the Infraco Contract.

This Guarantee shall enter into force on the date hereof and shall immediately terminate on the occurrence of the earliest of any of the following events (a "**Termination Event**");

1. demands totalling in aggregate the Maximum Liability Amount are paid under this Guarantee; or
2. this original Guarantee document is returned to the Surety accompanied by a covering note signed by **tie** confirming that it has been returned for cancellation; or
3. the 31/08/2013; or
4. upon presentation by Infraco to the Surety of a copy of the Reliability Certificate certified by **tie** which the Surety is entitled to accept as conclusive evidence of achievement of a Termination Event.

All obligations and liabilities of the Surety under this Guarantee shall immediately cease after the occurrence of a Termination Event. Any claim by **tie** shall be barred and unenforceable unless the written Demand Notice is received by the Surety prior to the occurrence of a Termination Event. Following the occurrence of a Termination Event **tie** shall immediately return to the Surety the original of this Guarantee, which shall be null and void whether returned to the Surety or not.

tie shall be entitled to assign this Guarantee only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of (except of (iv) below), the Surety provided that such assignation shall be as permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or Scottish Ministers (and the legal successors or assignees of each of these parties); (ii) Transport Edinburgh Limited; (iii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; and (iv) any party prior to such assignation approved in writing by Infraco. A notice of assignment of this Guarantee (in case of (iv) accompanied by a copy of the approval letter of Infraco) shall be provided by **tie** to the Surety promptly following such assignment which shall be conclusive evidence that such assignment has taken place.

The Surety's liability under this Guarantee shall not be affected or reduced by the insolvency of Infraco (or any Infraco Member) or the liquidation, receivership or other like temporary or permanent status of one or more of them.

A Demand Notice received from **tie** in accordance with the terms of this Guarantee shall be conclusive evidence of the Surety's liability to pay to **tie** and of the amount of the sum or sums which the Surety is liable to pay. Subject to a Demand Notice being made in accordance with the terms of this Guarantee, the Surety's obligation to make payment under this Guarantee shall be a primary, independent and absolute obligation and the Surety shall not be entitled to delay or withhold payment for any reason. The Surety's obligation hereunder shall not be affected by any

Continued on page 3

act, omission, matter or thing which, but for this provision, might operate to release or otherwise exonerate the Surety from the obligations hereunder in whole or in part, including without limitation and whether or not known to the Surety or to **tie**:


- i. any time or waiver granted to **tie** or to Infraco;
- ii. the taking, variation, compromise, renewal or release of or the refusal or neglect to perfect or to enforce any rights, remedies or securities against **tie** or Infraco,
- iii. any legal limitation, disability or incapacity relating to **tie** or Infraco;
- iv. any variation of or amendment to the Infraco Contract (or related documentation) or the works or services to be performed thereunder or any other document or security so that references to the Infraco Contract in this Guarantee shall include each such variation and amendment;
- v. any unenforceability, invalidity or frustration of any rights or obligations of **tie** or Infraco under the Infraco Contract or any other document or security; and
- vi. any other fact, circumstance regarding Infraco (or the Infraco Members), provision of statute or rule of law which might, were the Surety's liability to be secondary rather than primary, entitle the Surety to be released or discharged in whole or in part from the Surety's undertaking.


All notices and Demand Notices related to this Guarantee shall be sent by registered mail and be addressed to Australia and New Zealand Banking Group Limited, 40 Bank Street, Canary Wharf, London, E14 5EJ.

This Guarantee may only be amended, modified or supplemented by an instrument in writing signed for and on behalf of the Surety.

This Guarantee shall be construed and interpreted according to the Laws of Scotland and shall be subject to the exclusive jurisdiction of the Scottish Courts. The Surety confirms that it will not raise any defence of inconvenient forum in proceedings brought in the Scottish Courts.

Dated this 16th day of May 2008


Jennifer Evans
Authorised Signatory


Tim L'Estrange
Authorised Signatory

Continued on page 4

APPENDIX A
DEMAND NOTICE

SURETY
[Address]
Attention: Guarantees Administration
[insert date of Demand Notice]

Dear Sirs,

Performance Guarantee No: [insert number] dated [insert date]

Edinburgh Tram Network

This is our formal demand for payment pursuant to the above instrument issued by you in our favour for the amount of £[♦]. Please pay this sum forthwith by electronic transfer to [♦ *bank account details*].

We hereby certify that Infraco/Infraco Member has failed to [♦ *describe default*] [and has failed to rectify that default as at the date of this Demand Notice].

We attach a certified copy of the relevant Default Notice, dated no later than the date which falls 14 days prior to the date of this Demand Notice.

Signed for and behalf of **tie** Limited

Executive Chairman

Director

Continued on page 5

APPENDIX B1

CERTIFICATE OF SERVICE COMMENCEMENT

This document certifies pursuant to clause 45.3 of the Infracore Contract that Section D of the Infracore Works was substantially completed, tested and commissioned on [date] in accordance with the provisions of the Infracore Contract.

Signed:
the representative

NAME:

Continued on page 6

APPENDIX B2
NETWORK CERTIFICATE

This document is applicable to the Network Performance Test as envisaged by section 23.16 of the Employer's Requirements and certifies in accordance with Clause 47.3 of this Agreement that the Edinburgh Tram Network has passed the test criteria in section 23.16 of the Employer's Requirements to the satisfaction of **tie's** Representative by meeting or exceeding:

- (i) the Punctuality Service Element target in section 2.16 of the Employer's Requirements over twenty-eight days measured in accordance with this Agreement;
- (ii) the sub-station and UPS demonstration test in accordance with section 23.16.4 of the Employer's Requirements; and
- (iii) the tram changeover test in accordance with section 23.16.5 of the Employer's Requirements.

The necessary test results are listed in Annex 1 to this Certificate including any agreed exclusions that have been applied.

tie's Representative

Signature

Name (in Block Capitals)

Original Certificate to be issued to: **tie**

Copies to be issued to: Infraco, the Tram Supplier, the Tram Maintainer and **tie's** Representative

Continued on page7

APPENDIX B3
RELIABILITY CERTIFICATE

This document is applicable to the Network Reliability Test as envisaged by section 23.17 of the Employer's Requirements for and certifies in accordance with Clause 47.4 of this Agreement that this System has passed the test criteria to the satisfaction of **tie's** Representative by meeting or exceeding the Target Value for that System in Table 45 of the Employer's Requirements over the required number of Periods. The necessary test results are listed in Annex 1 to this Certificate including any agreed exclusions that have been applied.

tie's Representative

Signature

Name (in Block Capitals)

Original Certificate to be issued to: **tie**

Copies to be issued to: Infraco, the Tram Supplier and the Tram Maintainer and **tie's** Representative

Deutsche Bank AG London
Winchester House
1 Great Winchester Street
London EC2N 2DB
Tel: +44 20 7545 8000

RETENTION BOND in relation to the Edinburgh Tram Network

THIS RETENTION BOND is issued on 19th May 2008

WHEREAS

- A. **tie LIMITED**, a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh EH1 1YJ ("**tie**") (which expression shall include its successors, permitted assignees and transferees) intend to enter into an agreement for the appointment of a contractor (hereinafter referred to as the "**Infraco Contract**") with Bilfinger Berger UK Limited, Siemens plc and Construcciones y Auxiliary de Ferrocarriles S.A. (CAF) (on a joint and several basis) (the "**Infraco**" and individually "**Infraco Members**") to design, construct, test, commission and maintain a light rapid transit system in Edinburgh known as the Edinburgh Tram Network.
- B. The Infraco Contract obliges the Infraco to deliver to **tie** an irrevocable retention bond issued by a surety acceptable to **tie** and callable subject only to written notification by **tie** in terms of this Retention Bond.
- C. **DEUTSCHE BANK AG**, a company incorporated in Germany and acting through its London Branch under branch number BR000005 and whose registered office is at Winchester House, 1 Great Winchester Street, London EC2N 2DB ("**Surety**"), is willing to issue this Retention Bond.



THE SURETY HEREBY DECLARES

In consideration of **tie** accepting the Surety's obligations set out in this Retention Bond in discharge of the Infraco's undertaking to provide a retention bond pursuant to the Infraco Contract and subject to the provisions of this Retention Bond, the Surety hereby irrevocably agrees and undertakes to pay to **tie** an sum not exceeding a total aggregate value of £2,000,000 (Two Million Pounds Sterling) ("**Bonded Amount**") and the Surety accordingly covenants with **tie** and agrees as follows:

1. The Surety hereby covenants with **tie** that promptly, and in any event no later than five business days, following receipt by the Surety of a notice in writing from **tie** substantially in the form set out in Appendix 1 ("**Demand Notice**") that the Infraco has failed to perform or observe any of its duties and/or obligations arising under or in connection with the Infraco Contract and/or has committed a breach of any provision and/or has failed to fulfil any warranty or indemnity set out in the Infraco Contract and/or has failed to satisfy any of its liabilities under or in connection with the Infraco Contract, the Surety shall, without inquiry, pay to **tie** in full and without any deductions whatsoever or any right of set-off, abatement or counterclaim, the sum due from the Infraco under the Infraco Contract as stated by **tie** in the Demand Notice in available funds by electronic transfer to the account nominated in the Demand Notice, not exceeding in aggregate the Bonded Amount.
2. Any Demand Notice shall be in writing signed by two authorised representatives of **tie** whose signatures shall be proof of authority of **tie**. A Demand Notice issued by **tie** under this Retention Bond shall provide the Surety with a written statement which identifies the Infraco's failure or default, and shall attach a certified copy of **tie's** communication to the Infraco, pursuant to the Infraco Contract, notifying it of the relevant failure or default (the "**Default Notice**"). Such Demand Notice shall not be presented to the Surety earlier than the date which is 14 days following the date of the Default Notice. Where this Retention Bond has been assigned, in accordance with Clause 1, the Demand Notice shall be signed by two authorised signatories of the new beneficiary, and shall be accompanied by written evidence confirming that the Infraco Contract has been assigned to such beneficiary in accordance with the terms of the Infraco Contract.



3. Subject to Clauses 1 and 2 above, upon receipt by the Surety of a Demand Notice from **tie** the Surety shall not be entitled or obliged to make any enquiry or proof or contestation or impose any further conditions on **tie** (or the Infraco) and **tie** shall not need to take any legal action against or to obtain the consent of the Infraco. **tie** may make as many separate demands hereunder as **tie** thinks fit, provided that the amount demanded, when taken with all previous demands under this Retention Bond and satisfied by the Surety, does not exceed the Bonded Amount. **tie** shall not be obliged to exercise any other right or remedy **tie** may have (against the Infraco, any Infraco Member or any person guaranteeing the obligations of any Infraco Member(s)) before making a demand under this Retention Bond.
4. A Demand Notice received from **tie** in accordance with Clauses 1 and 2 above shall be conclusive evidence of the Surety's liability to pay to **tie** and of the amount of the sum or sums which the Surety is liable to pay. Subject to demand being made in accordance with the terms of this Retention Bond, the Surety's obligation to make payment under this Retention Bond shall be a primary, independent and absolute obligation and the Surety shall not be entitled to delay or withhold payment for any reason. The Surety's obligation hereunder shall not be affected by any act, omission, matter or thing which, but for this provision, might operate to release or otherwise exonerate the Surety from the obligations hereunder in whole or in part, including without limitation and whether or not known to the Surety or to **tie**:
- 4.1 any time or waiver granted to **tie** or to the Infraco;
 - 4.2 the taking, variation, compromise, renewal or release of or the refusal or neglect to perfect or to enforce any rights, remedies or securities against **tie** or the Infraco;
 - 4.3 any legal limitation, disability or incapacity relating to **tie** or the Infraco;
 - 4.4 any variation of or amendment to the Infraco Contract (or related documentation) or the works or services to be performed thereunder or any other document or security so that references to the Infraco Contract in this Retention Bond shall include each such variation and amendment;
 - 4.5 any unenforceability, invalidity or frustration of any rights or obligations of **tie** or the Infraco under the Infraco Contract or any other document or security;
- and



- 4.6 any other fact, circumstance regarding Infraco (or the Infraco Members), provision of statute or rule of law which might, were the Surety's liability to be secondary rather than primary, entitle the Surety to be released or discharged in whole or in part from the Surety's undertaking.
5. The Surety's liability under this Retention Bond shall not be affected or reduced by the insolvency of the Infraco (or either Infraco Member) or their liquidation, receivership or other like temporary or permanent status.
6. tie shall be at liberty to compromise, release, waive or neglect any security as it sees fit, without impairment of its rights under this Retention Bond.
7. This Retention Bond shall cease to have effect on the date ("**Bond Expiry**") being the date which is the earlier of:
- 7.1 31/08/2013; and
- 7.2 the date of issue of the Reliability Certificate, as evidenced by presentation by Infraco of a copy of the Reliability Certificate certified by tie to the Surety,
- save in connection with any Demand Notice received by the Surety in writing prior to Bond Expiry. Immediately following Bond Expiry, tie shall return this Retention Bond to the Surety for cancellation which should be null and void whether returned to the Surety or not.
8. tie shall be entitled to assign this Retention Bond only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of (except of (iv) below in which case consent shall not be unreasonably withheld or delayed), the Surety, provided that the assignation shall be permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved prior to such assignation in writing by the Infraco. A notice of assignment of this Retention Bond (in case of (iv) accompanied by a copy of the approval letter of the Infraco) shall be provided by tie to the Surety promptly following such assignment which shall be conclusive evidence that such assignment has taken place.



9. Any Demand Notice to be served by tie pursuant to this Retention Bond shall be sent by tie to the Surety, to the Surety's address at ***Deutsche Bank AG, Trade and Risk Services group, Winchester House, 1 Great Winchester House, London EC2N 2DB*** (and if sent by special or recorded delivery shall be taken as having been received by the Surety on the date of receipt by the Surety as evidenced by the relevant certificate of delivery) or shall be delivered personally to the Surety at the address set out in this Clause 9 (and shall be deemed to have been received at the time of delivery). The Surety hereby appoints its London branch at this address as agent to accept service of process.
10. This Retention Bond shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Retention Bond. The Surety confirms it will not raise any defence of inconvenient forum in proceedings brought in the Scottish Courts.
11. Save as permitted under Clause 8, a person who is not a party to this Retention Bond shall have no right to enforce any of the terms of this Retention Bond.
12. In this Retention Bond:
 - 12.1 "person" includes any firm and any entity having legal capacity;
 - 12.2 the definitions given in the recitals apply to the rest of this Retention Bond;
and



- 12.3 "Reliability Certificate" means a certificate substantially in the form shown in Appendix 2, issued by tie to confirm that the Edinburgh Tram Network, as designed, constructed, tested, commissioned and maintained by the Infraco, has satisfied reliability testing and performance criteria for a period of one year after opening for public service.

IN WITNESS WHEREOF

OUR GUARANTEE No.840BGG0800225

EXECUTED for and on behalf of
DEUTSCHE BANK AG, LONDON
BRANCH

On 19th May 2008
by

Authorised Signatory

Full Name


JIM MCSWEENEY

Authorised Signatory

Full Name


ANDREW WARNER



APPENDIX 1
DEMAND NOTICE

Deutsche Bank AG, LONDON BRANCH
Winchester House, 1 Great Winchester Street, London EC2N 2DB

Attention: Trade Services Department

Dear Sirs,

Retention Bond [◆ date] [Ref: ◆] in relation to the Edinburgh Tram Network

This is our formal demand for payment pursuant to Clause 1 of the above instrument issued by you in our favour for the amount of £[◆]. Please pay this sum forthwith by electronic transfer to [◆ *bank account details*].

We hereby certify that the Infracore has failed to [◆ *describe default*] and has failed to rectify that default as at the date of this Demand Notice. In accordance with Clause 2 of the Retention Bond, we attach a certified copy of the relevant Default Notice, dated no later than the date which falls 14 days prior to the date of this Demand Notice

Yours faithfully

Executive Chairman

Director
For and on behalf of tie Limited



APPENDIX 2

RELIABILITY CERTIFICATE

This document is applicable to the Network Reliability Test as envisaged by section 23.17 of the Employer's Requirements for and certifies in accordance with Clause 47.4 of this Agreement that this System has passed the test criteria to the satisfaction of tie's Representative by meeting or exceeding the Target Value for that System in Table 45 of the Employer's Requirements over the required number of Periods. The necessary test results are listed in Annex 1 to this Certificate including any agreed exclusions that have been applied.

tie's Representative

Signature

Name (in Block Capitals)

Original Certificate to be issued to: tie

Copies to be issued to: Infracore, the Tram Supplier and the Tram Maintainer and tie's Representative



(1) BILFINGER BERGER AG

- and -

(2) tie LIMITED

PARENT COMPANY GUARANTEE
relating to the obligations under the Infraco
Contract dated 14. May 2008 in respect of
the Edinburgh Tram Network

THIS GUARANTEE is made this 14 day of May 2008.

BETWEEN:

- (1) **BILFINGER BERGER AG**, a company established in Mannheim, Germany with registration number Amtsgericht Mannheim HRB 4444, Carl-Reiß-Platz 1-5, 68165 Mannheim (the "**Guarantor**"); and
- (2) **tie LIMITED**, a company incorporated with registration number SC230949, with registered office at City Chambers, Edinburgh, Midlothian EH1 1YJ, ("**tie**").

WHEREAS:

- (A) An unincorporated joint venture comprising Bilfinger Berger UK Limited ("**Bilfinger Subsidiary**") and Siemens plc ("**Siemens Subsidiary**") (together "**Infraco**" and individually each an "**Infraco Member**") are entering into a contract (with joint and several liability) with **tie** for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network (the "**Infraco Contract**").
- (B) It is a condition of the Infraco Contract that the Bilfinger Subsidiary procures the execution and delivery to **tie** of this parent company guarantee (the "**Guarantee**") and the Siemens Subsidiary procures the execution and delivery to **tie** of a similar parent company guarantee (the "**Siemens Guarantee**").
- (C) The Guarantor has agreed to guarantee the obligations of the Bilfinger Subsidiary pursuant to the Infraco Contract.

THE PARTIES AGREE as follows:

1. INTERPRETATION, REPRESENTATIONS, WARRANTIES AND ACKNOWLEDGEMENTS BY THE GUARANTOR

- 1.1 In this Guarantee and the recitals hereto, unless the context otherwise requires or unless otherwise defined or provided for in this Guarantee, words and expressions when used herein shall have the same meaning as is attributed to them under the Infraco Contract.
- 1.2 The Guarantor hereby represents and warrants and undertakes to **tie** that:
 - 1.2.1 it is a public limited company duly registered, incorporated and validly existing under the laws of the Federal Republic of Germany:

- 1.2.2 it has the power to enter into this Guarantee and to exercise its rights and perform its obligations under this Guarantee;
- 1.2.3 all required corporate (including supervisory board approval) and other action to authorise its execution of this Guarantee and the performance of its obligations under this Guarantee has been duly taken;
- 1.2.4 the obligations expressed to be assumed by it in this Guarantee are legal and valid obligations binding on it and enforceable in accordance with the terms hereof;
- 1.2.5 the entry into and performance by it of this Guarantee does not and will not conflict with:
- 1.2.5.1 any law or regulation applicable to it;
- 1.2.5.2 its "**Satzung**" and applicable "**Geschaeftsordnungen**" of the "**Vorstand**" and the "**Aufsichtsrat**" (if any); or
- 1.2.5.3 any agreement or instrument binding upon it or any of its assets;
- 1.2.6 the Guarantor has legal capacity to enter into this Guarantee governed by Scots law.
- 1.3 The Guarantor acknowledges that **tie** has accepted this Guarantee in full reliance on the representations and warranties set out in this Clause 1 (Representations, Warranties and Acknowledgements by the Guarantor) and on the basis that this Guarantee is effective to guarantee the performance and payment obligations owed on a joint and several basis by the Siemens Subsidiary as an Infraco Member pursuant to the Infraco Contract.
- 1.4 The Guarantor hereby acknowledges that Bilfinger Subsidiary (i) has entered into an agreement with the Siemens Subsidiary and Construcciones Y Auxiliar de Ferrocarriles S.A. ("**CAF**") whereby CAF has joined the Infraco and (ii) will enter into an agreement (the "**Minute of Variation**") with Siemens plc, **tie** and CAF whereby CAF will become party to the Infraco Contract with joint and several responsibility towards **tie**. The Guarantor and **tie** agree, without reservation, that neither the entry of CAF into the Infraco (and any future variation to the terms of such entry) nor any act or omission by CAF nor the Minute of Variation shall have any effect upon the obligations and liabilities of the Guarantor and the rights and entitlements of **tie** Limited pursuant to this Guarantee.

2. UNDERTAKING

- 2.1 In consideration of **tie** entering into the Infraco Contract with the Infraco, the Guarantor, subject to Clause 3 of this Guarantee, irrevocably guarantees to **tie** the due and punctual observance and performance of the Bilfinger Subsidiary, its successors and permitted assignees, either itself or by such other entity nominated by the Guarantor (subject to that entity being acceptable to **tie**), of each and all of the obligations, warranties, duties and undertakings of the Bilfinger Subsidiary under, or pursuant to, the Infraco Contract (the "**Guaranteed Obligations**") when and as such obligations, warranties, duties and undertakings shall become due and performable by the Bilfinger Subsidiary according to the terms of the Infraco Contract.
- 2.2 Subject to Clause 3 of this Guarantee, the Guarantor shall pay any amount demanded by **tie** under a written notice substantially in the form of Schedule 1 hereto, such payment to be made by the Guarantor in pounds sterling (£) with five (5) business days of the date of receipt of the demand to the bank account nominated in the demand notice.

3. LIMITATIONS OF LIABILITY

- 3.1 The Guarantor may raise hereunder all objections and defences the Bilfinger Subsidiary and/or the Infraco has under the Infraco Contract and may assume all such defence, counterclaim, limitation and/or exclusion of liability as the Bilfinger Subsidiary and/or the Infraco may have against **tie** pursuant to the Infraco Contract. In no circumstances shall the Guarantor ever be liable (i) to a greater extent than the liability of the Bilfinger Subsidiary under the Infraco Contract or (ii) for any loss of business, opportunity, revenue, profit or anticipated profit or for any indirect or consequential loss or damages unless the Infraco is liable therefor.
- 3.2 Subject to Clause 3.4, the liability of the Guarantor in relation to payment obligations of the Bilfinger Subsidiary arising from or in connection with the Infraco Contract pursuant to this Guarantee shall not exceed (when taken together with any other amount recovered by **tie** under the Infraco Contract and/or under this Guarantee) an amount equal to the aggregate of:
- 3.2.1 the lower of:
- a)
- (A) £24,200,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or

- (B) £19,250,000 for the period from four to six years from the issue of the Reliability Certificate; or
- (C) £16,500,000 for the period from six to eight years from the issue of the Reliability Certificate; or
- (D) £11,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or
- (E) £5,500,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to ~~tie~~ by the Guarantor on behalf of the Infracore and/or the Siemens Subsidiary under or pursuant to this Guarantee shall count against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

- b) fifty five percent (55%) of the applicable limits of liability set out in clause 77.8 of the Infracore Contract.

3.2.2 any amounts which the Guarantor is obliged to pay in accordance with the terms of Clause 3.4.

For the avoidance of doubt under no circumstances shall the Guarantor's financial liability pursuant to this Guarantee exceed the lower of:

- a)
 - (A) £44,000,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or
 - (B) £35,000,000 for the period from four to six years from the issue of the Reliability Certificate; or
 - (C) £30,000,000 for the period from six to eight years from the issue of the Reliability Certificate; or
 - (D) £20,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or

(E) £10,000,000 for the period from ten to twelve years from the issue of the Reliability Certificate:

For the avoidance of doubt, any payments made to **tie** by the Guarantor on behalf of the Infraco, the Bilfinger Subsidiary and/or the Siemens Subsidiary under or pursuant to this Guarantee shall count against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

b) the applicable limits of liability set out in clause 77.8 of the Infraco Contract.

3.3 The Guarantor's liability in respect of the Guaranteed Obligations shall be conditional on **tie** first having made demand in writing in respect of the same on the Bilfinger Subsidiary and shall be conditional, in case of any demand for payment, on **tie** making a demand on Siemens Aktiengesellschaft for forty five percent (45%) of the total amount claimed from the Infraco (the "**Siemens Share**"). Accordingly, the Guarantor's liability in respect to the Guaranteed Obligations shall be initially limited to fifty five percent (55%) of the value of each claim from **tie** but without prejudice to the obligation of the Guarantor, in the circumstances set out at Clause 3.4 to pay the Siemens Share.

3.4 In the event that full payment from Siemens Aktiengesellschaft is not received by **tie** with respect to the Siemens Share within 30 days of the day of the receipt of the demand, **tie** shall notify the Guarantor in writing and the Guarantor shall pay **tie** the unpaid portion of the Siemens Share within 30 days of receipt by the Guarantor of such notice.

4. EXPIRY

4.1 Without prejudice to Clause 4.4 the obligations of the Guarantor set out herein shall constitute and be continuing obligations and accordingly shall remain in full force and effect from the date hereof:

(a) until the date of issue of the Reliability Certificate or the earlier termination of the Infraco Contract, save that the Guarantor's obligations shall continue with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with the Infraco Works (excluding Infrastructure Maintenance Services) which has been pursued by **tie** or the Indemnified Parties and which is already the subject of formal dispute resolution proceedings which have been commenced no later than six months after either of these dates, as the case may be;

and

- (b) until the date which is twelve years from issue of the Reliability Certificate with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with (i) latent defects in the Infraco Works (and any third party claim for direct loss or damage made after issue of the Reliability Certificate and arising from or in connection with latent defects) (ii) uncorrected Patent Defects (iii) liquidated damages outstanding from the settlement of the final account pursuant to Clause 66.6 of the Infraco Contract save that the Guarantor's obligations shall continue with regard to any such claims brought or liabilities pursued by **tie** or the Indemnified Parties which are already the subject of formal dispute resolution proceedings prior to such date or commenced within three months thereafter; and
- (c) until the Expiry Date (or the Extended Expiry Date) or earlier termination of the Infraco Contract with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with Infrastructure Maintenance Services, save that the Guarantor's obligations shall continue with regard to any claim brought or liability pursued by **tie** or the Indemnified Parties which is the subject of formal dispute resolution proceedings commenced no later than six months after either of these dates, as the case may be; or
- (d) until 31st May 2027,

whichever in each case is the earlier.

- 4.2 In any of the events set forth in Clause 4.1 (a) to (d) of this Guarantee the expiry of the Guarantor's obligations under this Guarantee shall be without prejudice to any liability of the Guarantor accrued prior to or arising from expiry of the Infraco Contract, provided that any claim by **tie** in respect of such liability shall be barred and be unenforceable, unless written notice of the same specifying in reasonable detail the nature and amount of the claim has been received by the Guarantor within three (3) months after the date of termination of the Guarantee as set out in Clause 4.1, and any proceedings in respect of such claim are commenced within the time period specified in each of Clauses 4.1(a) to 4.1(c).
- 4.3 **tie** undertakes to return this Guarantee to the Guarantor immediately after its expiry in accordance with Clause 4.1 and Clause 4.2 respectively, save where written notice has been given under clause 4.2 by **tie**. However, for the avoidance of doubt, this Guarantee expires independently of its return.

- 4.4 In the event the Bilfinger Subsidiary ceases to be a subsidiary of the Guarantor, the Guarantor may offer a replacement guarantee for this Guarantee, substantially in the form hereof. If such replacement guarantee is from a guarantor acceptable to **tie**, acting reasonably having due regard to the remaining performance risk of the Bilfinger Subsidiary and the credit risk of the replacement guarantor, **tie** shall accept such replacement guarantee as security for the Guaranteed Obligations, and this Guarantee shall thereupon automatically terminate. **tie** undertakes to return the Guarantee to the Guarantor immediately following such termination. For avoidance of doubt the Guarantee shall continue in full force and effect notwithstanding the disposal by the Contractor of any or all of its shares in the Bilfinger Subsidiary.

5. PRESERVATION OF RIGHTS

Subject to Clause 3, the obligations of the Guarantor under this Guarantee shall not be discharged by any of the following:

- 5.1 Any non-written arrangement between the Infraco and/or the Bilfinger Subsidiary and **tie** which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee;
- 5.2 Any amendment to, or any variation, waiver or release of any obligation of the Infraco and/or the Bilfinger Subsidiary under or pursuant to the Infraco Contract which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee, provided that **tie** has promptly notified the Guarantor of any such amendment, variation, waiver or release;
- 5.3 Any time or indulgence being granted or agreed to be granted to the Infraco and/or the Bilfinger Subsidiary in respect of its obligations under or pursuant to the Infraco Contract;
- 5.4 The taking, variation or release of, or enforcement or neglect to perfect or enforce any right, guarantee, remedy or security from or against the Infraco and/or the Bilfinger Subsidiary;
- 5.5 Any legal limitation, disability, incapacity or other circumstances solely relating to the Infraco and/or the Bilfinger Subsidiary;
- 5.6 The insolvency, winding-up, dissolution, administration or re-organisation of or any change in status, function, control or ownership of the Infraco and/or the Bilfinger Subsidiary or any other person;
- 5.7 Any obligation of the Infraco and/or the Bilfinger Subsidiary under the Infraco Contract being or becoming illegal, void, invalid, unenforceable or ineffective in any respect;

- 5.8 Any amendment to the Infraco Contract, or any variation, waiver or release of any obligation of the Infraco and/or the Bilfinger Subsidiary under the Infraco Contract;
- 5.9 The assignation or novation of the Infraco Contract in accordance with its terms (provided the Bilfinger Subsidiary is party to the Infraco Contract as assigned or novated);
- 5.10 The suspension or termination of the Infraco Contract or of the employment of the Infraco and/or the Bilfinger Subsidiary under the Infraco Contract: and/or
- 5.11 Any other matter or thing (whether or not known to the Infraco) which would or might operate to exonerate or discharge the Guarantor from its obligations under this Guarantee.

6. ASSIGNATION

- 6.1 The Guarantor is not entitled to assign this Guarantee.
- 6.2 **tie** shall be entitled to assign this Guarantee only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of, the Guarantor, provided that the assignation shall be permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved in writing by the Infraco.

7. SETTLEMENT CONDITIONAL

Any settlement or discharge between the Guarantor and **tie** shall be conditional upon no security given or payment made to **tie** by the Guarantor or any other person on behalf of the Guarantor at any time being avoided or reduced by virtue of any provisions or enactments relating to bankruptcy, insolvency, liquidation or similar laws of general application for the time being in force (whether in Scotland, the Federal Republic of Germany or the European Union) and, if any such security or payment is so avoided or reduced, **tie** shall be entitled to recover the value or amount of such security or payment from the Guarantor subsequently as if such settlement or discharge had not occurred.

8. EXERCISE OF RIGHTS

- 8.1 Subject to Clause 3.3 **tie** shall not be obliged before exercising any of the rights, powers or remedies conferred upon it in respect of the Guarantor by this Guarantee or by law:

- 8.1.1 to take any legal proceedings or obtain judgment in any court against the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary; or
- 8.1.2 to make or file any claim or proof in a winding-up or dissolution of the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary.
- 8.2 Any judgment, award, agreement or determination of any amount due from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract shall be binding upon the Guarantor.

9. INTEREST

Any amount which is not paid under this Guarantee when due in accordance with a demand served under Clause 3 shall carry interest at the rate of interest applicable to overdue amounts under the Infraco Contract from the due date, which is 2% p.a. above the prevailing published base rate of The Royal Bank of Scotland plc. For avoidance of doubt interest shall not be paid by the Guarantor under this Guarantee for any period during which interest is continuing to accrue under the Infraco Contract.

10. TAXES

All payments in respect of the obligations of the Guarantor under this Guarantee shall be made free and clear of, and without withholding or deduction for, any taxes, duties, assessments or governmental charges of whatsoever nature imposed, levied, collected or assessed by the United Kingdom or the Federal Republic of Germany, or any Land, political or administrative subdivision or any authority thereof having power to tax, save where such withholding or deduction is required by law. In that event, the Guarantor shall pay such additional amounts as will result in the receipt by **tie** of such amount as would have been received by **tie** if no such withholding or deduction had been required.

11. NO SECURITY

The Guarantor shall not hold any security from the Bilfinger Subsidiary in respect of this Guarantee and any such security which is held in breach of this provision shall be held by the Guarantor in trust for and shall be promptly transferred to **tie**.

12. DEFERRAL OF RIGHTS

- 12.1 The Guarantor agrees that, so long as any amounts are owed by the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) to **tie** under or pursuant to the Infraco Contract,

or any amounts are owed, or have been paid, to **tie** by the Guarantor under this Guarantee, the Guarantor shall not exercise any rights which it may at any time have by reason of performance by it of its obligations under this Guarantee:

12.1.1 to effect or seek to effect any recovery from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in respect of any payment made or liability arising pursuant to this Guarantee, whether by receipt of money or set-off or enforcement of security or otherwise;

12.1.2 to claim any contribution from any other guarantor of the obligations of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract;

12.1.3 to take (in whole or in part and whether by way of subrogation or otherwise) any rights of **tie**;

12.1.4 to claim in the insolvency, administration, winding-up, bankruptcy or liquidation of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in competition with **tie**; and/or

12.1.5 subject to Clause 3.3, to require **tie** to make a claim against the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary).

Provided that in the case of Clauses 12.1.1 and 12.1.2 if the Guarantor has made any payment to **tie** pursuant to this Guarantee Agreement, the Guarantor shall be entitled to seek recovery or contribution of such payment (after giving notice to **tie**) on the conditions that such action shall not in any way adversely affect the Infraco's ability (or the Bilfinger Subsidiary's) to perform and discharge its obligations pursuant to the Infraco Contract for its duration.

12.2 The Guarantor shall hold in trust for **tie** any payment or other benefit received by the Guarantor contrary to the provision of this Clause 12. Such sums shall be used to settle any amounts owing to **tie** and any surplus shall be released to the Guarantor.

13. NOTICES

13.1 Any notice to or demand on the Guarantor to be served under this Guarantee shall be in writing and may be delivered in person or sent by recorded delivery post to the Guarantor at its address appearing in this Guarantee or at such other address as it may have notified to **tie** in accordance with this Clause 13.

13.2 Any such notice or demand shall be deemed to have been served on the Guarantor:

- (i) if delivered in person, at the time of delivery; or
- (ii) if posted, upon the date recorded for receipt.
- (iii) The Guarantor hereby appoints Pinsent Masons LLP MNP, of 18-22 Melville Street, Edinburgh, EH3 7NS, as their agent for service of legal process in Scotland.

14. WAIVER

- 14.1 No delay or omission of ~~tie~~ in exercising any right, power or privilege under this Guarantee shall impair or be construed as a waiver of such right power or privilege nor shall any single or partial exercise of any such right, power or privilege preclude any further exercise of such right, power or privilege or the exercise of any other right, power or privilege.
- 14.2 A waiver given or consent granted by ~~tie~~ under this Guarantee shall be effective only if given in writing and then only in the instance and for the purpose for which it is given.

15. PARTIAL INVALIDITY

The invalidity, illegality or unenforceability in whole or in part of any of the provisions of this Guarantee shall not affect the validity, legality and enforceability of the remaining part or provisions of this Guarantee.

16. DISPUTE RESOLUTION AND GOVERNING LAW

This Guarantee shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Guarantee.

17. EXCLUSION OF THIRD PARTY RIGHTS

Subject to any assignation pursuant to clause 6 a person not party to this Guarantee shall have no rights to enforce or rely upon any term of this Guarantee and no *jus quaesitum tertio* is hereby created in favour of any party.

18. PAYMENTS

- 18.1 All payments to be made by the Guarantor in respect of this Guarantee must be made:
 - 18.1.1 in immediately available electronically transferable funds (with no handling charge, commission or exchange rate conversion fee deducted) to the credit of such bank

account as **tie** may designate; and in pounds sterling or such other currency as **tie** nominates.

IN WITNESS WHEREOF these presents on this and the preceding 11 pages together with Schedule 1 which is annexed and signed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED**

at Edinburgh
on 21st May 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

[Redacted Signature]

WILLIE GRIFFITHS

[Redacted Signature]

ANDREW SUMMERLAND RITCHIE

COLLINS HOUSE FULFORD SPUR

EDINBURGH EH1 2AA

EXECUTED for and on behalf of **BILFINGER BERGER AG**

at Mannheim

on 14 May 2008 by:

Director

Full Name

Director

Full Name

BILFINGER BERGER

Bilfinger Berger AG
Zentrale
Carl-Neub. Platz 1-5
68165 Mannheim

[Redacted Signature]

[Redacted Signature]

Wolfgang Hennemann

This is the Schedule referred to in the foregoing Guarantee Agreement

**SCHEDULE 1
DEMAND LETTER**

[Date]

[Guarantor's name]
[Guarantor's address]
Attention: Authorised and responsible representative

EDINBURGH TRAM NETWORK

Dear Sirs,

We refer to the Guarantee Agreement dated [◆] 2008 between us and to the contract (the "Infraco Contract") dated [◆] 2008 between us and your subsidiary Bilfinger Berger UK Limited.

1. This letter is our formal demand for the payment of £[◆] pursuant to Clause 2.2. of the Guarantee Agreement, which amount is due and payable by your subsidiary Bilfinger Berger UK Limited and has not been paid. Please make payment to: tie Limited, [bank account number and details] as provided under Clause 18 of the Guarantee Agreement.

AND/OR

2. This letter is our formal demand that you perform and discharge [*describe relevant obligations*] the obligations, warranties, duties and undertakings of your subsidiary Bilfinger Berger UK Limited as required pursuant to Clause 2.1 of the Guarantee Agreement which your subsidiary, in breach of the Infraco Contract, has failed to perform and discharge. Please confirm by return the mobilisation arrangements you are making and the timetable for their deployment in Edinburgh and generally.

We confirm that we have made formal demand in writing on Siemens plc and that we have also made formal demand on Siemens Aktiengesellschaft in relation to this matter.

Yours faithfully,

tie LIMITED

Authorised Signatory

Director/Authorised Signatory
tie LIMITED

Director/Authorised Signatory
BILFINGER BERGER AG

(1) SIEMENS AKTIENGESELLSCHAFT

- and -

(2) tie LIMITED

PARENT COMPANY GUARANTEE

No. 213025

relating to the obligations under the
Infraco Contract dated May 14, 2008 in
respect of the Edinburgh Tram Network

THIS GUARANTEE is made this 14th day of May 2008

BETWEEN:

- (1) **SIEMENS AKTIENGESELLSCHAFT**, a company established in Berlin and Munich, Germany with registration number HRB 12300 Berlin Charlottenburg and HRB 6684 Munich, (the "**Guarantor**"); and
- (2) **tie LIMITED**, a company incorporated with registration number SC230949, with registered office at City Chambers, Edinburgh, Midlothian EH1 1YJ, United Kingdom ("**tie**").

WHEREAS:

- (A) An unincorporated joint venture comprising Bilfinger Berger UK Limited ("**Bilfinger Subsidiary**") and Siemens plc ("**Siemens Subsidiary**") (together "**Infraco**" and individually each an "**Infraco Member**") are entering into a contract (with joint and several liability) with **tie** for the design, construction, testing, commissioning and maintenance of the Edinburgh Tram Network (the "**Infraco Contract**").
- (B) It is a condition of the Infraco Contract that the Siemens Subsidiary procures the execution and delivery to **tie** of this parent company guarantee (the "**Guarantee**") and the Bilfinger Subsidiary procures the execution and delivery to **tie** of a similar parent company guarantee (the "**Bilfinger Berger AG Guarantee**").
- (C) The Guarantor has agreed to guarantee the obligations of the Siemens Subsidiary pursuant to the Infraco Contract.

THE PARTIES AGREE as follows:

1. INTERPRETATION, REPRESENTATIONS, WARRANTIES AND ACKNOWLEDGEMENTS BY THE GUARANTOR

- 1.1 In this Guarantee and the recitals hereto, unless the context otherwise requires or unless otherwise defined or provided for in this Guarantee, words and expressions when used herein shall have the same meaning as is attributed to them under the Infraco Contract.

1.2 The Guarantor hereby represents and warrants and undertakes to **tie** that:

1.2.1 it is a public limited company duly registered, incorporated and validly existing under the laws of the Federal Republic of Germany;

1.2.2 it has the power to enter into this Guarantee and to exercise its rights and perform its obligations under this Guarantee;

1.2.3 all required corporate (including supervisory board approval) and other action to authorise its execution of this Guarantee and the performance of its obligations under this Guarantee has been duly taken;

1.2.4 the obligations expressed to be assumed by it in this Guarantee are legal and valid obligations binding on it and enforceable in accordance with the terms hereof;

1.2.5 the entry into and performance by it of this Guarantee does not and will not conflict with:

1.2.5.1 any law or regulation applicable to it;

1.2.5.2 its "**Satzung**" and applicable "**Geschaeftsordnungen**" of the "**Vorstand**" and the "**Aufsichtsrat**" (if any); or

1.2.5.3 any agreement or instrument binding upon it or any of its assets;

1.2.6 the Guarantor has legal capacity to enter into this Guarantee governed by Scots law.

1.3 The Guarantor acknowledges that **tie** has accepted this Guarantee in full reliance on the representations and warranties set out in this Clause 1 (Representations, Warranties and Acknowledgements by the Guarantor) and on the basis that this Guarantee is effective to guarantee the performance and payment obligations owed on a joint and several basis by the Siemens Subsidiary as an Infracore Member pursuant to the Infracore Contract.

- 1.4 The Guarantor hereby acknowledges that Siemens Subsidiary (i) has entered into an agreement with the Bilfinger Subsidiary and Construcciones Y Auxiliar de Ferrocarriles S.A. ("**CAF**") whereby CAF has joined the Infraco and (ii) will enter into an agreement (the "**Minute of Variation**") with Bilfinger Berger UK Limited, **tie** and CAF whereby CAF will become party to the Infraco Contract with joint and several responsibility towards **tie**. The Guarantor and **tie** agree, without reservation, that neither the entry of CAF into the Infraco (and any future variation to the terms of such entry) nor any act or omission by CAF nor the Minute of Variation shall have any effect upon the obligations and liabilities of the Guarantor and the rights and entitlements of **tie** Limited pursuant to this Guarantee.

2. UNDERTAKING

- 2.1 In consideration of **tie** entering into the Infraco Contract with the Infraco, the Guarantor, subject to Clause 3 of this Guarantee, irrevocably guarantees to **tie** the due and punctual observance and performance of the Siemens Subsidiary, its successors and permitted assignees, either itself or by such other entity nominated by the Guarantor (subject to that entity being acceptable to **tie**), of each and all of the obligations, warranties, duties and undertakings of the Siemens Subsidiary under, or pursuant to, the Infraco Contract (the "**Guaranteed Obligations**") when and as such obligations, warranties, duties and undertakings shall become due and performable by the Siemens Subsidiary according to the terms of the Infraco Contract.
- 2.2 Subject to Clause 3 of this Guarantee, the Guarantor shall pay any amount demanded by **tie** under a written notice substantially in the form of Schedule 1 hereto, such payment to be made by the Guarantor in pounds sterling (£) with five (5) business days of the date of receipt of the demand to the bank account nominated in the demand notice.

3. LIMITATIONS OF LIABILITY

3.1 The Guarantor may raise hereunder all objections and defences the Siemens Subsidiary and/or the Infracore has under the Infracore Contract and may assume all such defence, counterclaim, limitation and/or exclusion of liability as the Siemens Subsidiary and/or the Infracore may have against **tie** pursuant to the Infracore Contract. In no circumstances shall the Guarantor ever be liable (i) to a greater extent than the liability of the Siemens Subsidiary under the Infracore Contract or (ii) for any loss of business, opportunity, revenue, profit or anticipated profit or for any indirect or consequential loss or damages unless the Infracore is liable therefor.

3.2 Subject to Clause 3.4, the liability of the Guarantor in relation to payment obligations of the Siemens' Subsidiary arising from or in connection with the Infracore Contract pursuant to this Guarantee shall not exceed (when taken together with any other amount recovered by **tie** under the Infracore Contract and/or under this Guarantee) an amount equal to the aggregate of

3.2.1 the lower of:

a)

- (A) £19,800,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or
- (B) £15,750,000 for the period from four to six years from the issue of the Reliability Certificate; or
- (C) £13,500,000 for the period from six to eight years from the issue of the Reliability Certificate; or
- (D) £9,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or
- (E) £4,500,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to ~~tie~~ by the Guarantor on behalf of the Infraco and/or the Siemens Subsidiary under or pursuant to this Guarantee shall count- against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

- b) forty five (45%) of the applicable limits of liability set out in clause 77.8 of the Infraco Contract ,

3.2.2 any amounts which the Guarantor is obliged to pay in accordance with the terms of clause 3.4.

For the avoidance of doubt under no circumstances shall the Guarantor's financial liability pursuant to this Guarantee exceed the lower of:

a)

- (A) £44,000,000 for the period from the Effective Date until the date four years from the issue of the Reliability Certificate; or
- (B) £35,000,000 for the period from four to six years from the issue of the Reliability Certificate; or
- (C) £30,000,000 for the period from six to eight years from the issue of the Reliability Certificate; or
- (D) £20,000,000 for the period from eight to ten years from the issue of the Reliability Certificate; or
- (E) £10,000,000 for the period from ten to twelve years from the issue of the Reliability Certificate;

For the avoidance of doubt, any payments made to **tie** by the Guarantor on behalf of the Infraco, the Siemens Subsidiary and/or the Bilfinger Subsidiary under or pursuant to this Guarantee shall count against the relevant amount as per (A) to (E) without regard to the point of time of payment.

and

b) the applicable limits of liability set out in clause 77.8 of the Infraco Contract.

3.3 The Guarantor's liability in respect of the Guaranteed Obligations shall be conditional on **tie** first having made demand in writing in respect of the same on the Siemens Subsidiary and shall be conditional, in case of any demand for payment, on **tie** making a demand on Bilfinger Berger AG for fifty five percent (55%) of the total amount claimed from the Infraco (the "**Bilfinger Share**"). Accordingly, the Guarantor's liability in respect to the Guaranteed Obligations shall be initially limited to forty five (45%) of the value of each claim from **tie** but without prejudice to the obligation of the Guarantor, in the circumstances set out at Clause 3.4 to pay the Bilfinger Share.

3.4 In the event that full payment from Bilfinger Berger AG is not received by **tie** with respect to the Bilfinger Share within 30 days of the day of the receipt of the demand, **tie** shall notify the Guarantor in writing and the Guarantor shall pay **tie** the unpaid portion of the Bilfinger Share within 30 days of receipt by the Guarantor of such notice.

4. EXPIRY

4.1 Without prejudice to Clause 4.4 the obligations of the Guarantor set out herein shall constitute and be continuing obligations and accordingly shall remain in full force and effect from the date hereof:

- (a) until the date of issue of the Reliability Certificate or the earlier termination of the Infraco Contract, save that the Guarantor's obligations shall continue with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with the Infraco Works (excluding Infrastructure Maintenance Services) which has been pursued by **tie** or the Indemnified Parties and which is already the subject of formal dispute resolution proceedings which have been commenced no later than six months after either of these dates, as the case may be; and
- (b) until the date which is twelve years from issue of the Reliability Certificate with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with (i) latent defects in the Infraco Works (and any third party claim for direct loss or damage made after issue of the Reliability Certificate and arising from or in connection with latent defects) (ii) uncorrected Patent Defects (iii) liquidated damages outstanding from the settlement of the final account pursuant to Clause 66.6 of the Infraco Contract save that the Guarantor's obligations shall continue with regard to any such claims brought or liabilities pursued by **tie** or the Indemnified Parties which are already the subject of formal dispute resolution proceedings prior to such date or commenced within three months thereafter; and

(c) until the Expiry Date (or the Extended Expiry Date) or earlier termination of the Infraco Contract with regard to any claim brought or liability incurred by **tie** or the Indemnified Parties arising from or in connection with Infrastructure Maintenance Services, save that the Guarantor's obligations shall continue with regard to any claim brought or liability pursued by **tie** or the Indemnified Parties which is the subject of formal dispute resolution proceedings commenced no later than six months after either of these dates, as the case may be; or

(d) until 31st May 2027,

whichever in each case is the earlier.

4.2 In any of the events set forth in Clause 4.1 (a) to (d) of this Guarantee the expiry of the Guarantor's obligations under this Guarantee shall be without prejudice to any liability of the Guarantor accrued prior to or arising from expiry of the Infraco Contract, provided that any claim by **tie** in respect of such liability shall be barred and be unenforceable, unless written notice of the same specifying in reasonable detail the nature and amount of the claim has been received by the Guarantor within three (3) months after the date of termination of the Guarantee as set out in Clause 4.1, and any proceedings in respect of such claim are commenced within the time period specified in each of Clauses 4.1(a) to 4.1(c).

4.3 **tie** undertakes to return this Guarantee to the Guarantor immediately after its expiry in accordance with Clause 4.1 and Clause 4.2 respectively, save where written notice has been given under clause 4.2 by **tie**. However, for the avoidance of doubt, this Guarantee expires independently of its return.

- 4.4 In the event the Siemens Subsidiary ceases to be a subsidiary of the Guarantor, the Guarantor may offer a replacement guarantee for this Guarantee, substantially in the form hereof. If such replacement guarantee is from a guarantor acceptable to **tie**, acting reasonably having due regard to the remaining performance risk of the Siemens Subsidiary and the credit risk of the replacement guarantor, **tie** shall accept such replacement guarantee as security for the Guaranteed Obligations, and this Guarantee shall thereupon automatically terminate. **tie** undertakes to return the Guarantee to the Guarantor immediately following such termination. For avoidance of doubt the Guarantee shall continue in full force and effect notwithstanding the disposal by the Guarantor of any or all of its shares in the Siemens Subsidiary.

5. PRESERVATION OF RIGHTS

Subject to Clause 3, the obligations of the Guarantor under this Guarantee shall not be discharged by any of the following:

- 5.1 Any non-written arrangement between the Infraco and/or the Siemens Subsidiary and **tie** which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee;
- 5.2 Any amendment to, or any variation, waiver or release of any obligation of the Infraco and/or the Siemens Subsidiary under or pursuant to the Infraco Contract which does not directly or indirectly increase or extend the liability of the Guarantor under this Guarantee, provided that **tie** has promptly notified the Guarantor of any such amendment, variation, waiver or release;
- 5.3 Any time or indulgence being granted or agreed to be granted to the Infraco and/or the Siemens Subsidiary in respect of its obligations under or pursuant to the Infraco Contract;
- 5.4 The taking, variation or release of, or enforcement or neglect to perfect or enforce any right, guarantee, remedy or security from or against the Infraco and/or the Siemens Subsidiary;

- 5.5 Any legal limitation, disability, incapacity or other circumstances solely relating to the Infraco and/or the Siemens Subsidiary;
- 5.6 The insolvency, winding-up, dissolution, administration or re-organisation of or any change in status, function, control or ownership of the Infraco and/or the Siemens Subsidiary or any other person;
- 5.7 Any obligation of the Infraco and/or the Siemens Subsidiary under the Infraco Contract being or becoming illegal, void, invalid, unenforceable or ineffective in any respect;
- 5.8 Any amendment to the Infraco Contract, or any variation, waiver or release of any obligation of the Infraco and/or the Siemens Subsidiary under the Infraco Contract;
- 5.9 The assignation or novation of the Infraco Contract in accordance with its terms (provided the Siemens Subsidiary is party to the Infraco Contract as assigned or novated);
- 5.10 The suspension or termination of the Infraco Contract or of the employment of the Infraco and/or the Siemens Subsidiary under the Infraco Contract; and/or
- 5.11 Any other matter or thing (whether or not known to the Infraco) which would or might operate to exonerate or discharge the Guarantor from its obligations under this Guarantee.

6. ASSIGNATION

- 6.1 The Guarantor is not entitled to assign this Guarantee.

- 6.2 **tie** shall be entitled to assign this Guarantee only to the person to which the Infraco Contract has been assigned with prior notification to, but without the consent of, the Guarantor, provided that the assignation shall be permitted pursuant to the Infraco Contract, that is to say an assignation to any of (i) City of Edinburgh Council or the Scottish Ministers (and the legal successors or assignees of either of these parties); (ii) any party guaranteed by the City of Edinburgh Council or Scottish Ministers; (iii) Transport Edinburgh Limited; and (iv) any party approved in writing by the Infraco.

7. SETTLEMENT CONDITIONAL

Any settlement or discharge between the Guarantor and **tie** shall be conditional upon no security given or payment made to **tie** by the Guarantor or any other person on behalf of the Guarantor at any time being avoided or reduced by virtue of any provisions or enactments relating to bankruptcy, insolvency, liquidation or similar laws of general application for the time being in force (whether in Scotland, the Federal Republic of Germany or the European Union) and, if any such security or payment is so avoided or reduced, **tie** shall be entitled to recover the value or amount of such security or payment from the Guarantor subsequently as if such settlement or discharge had not occurred.

8. EXERCISE OF RIGHTS

- 8.1 Subject to Clause 3.3 **tie** shall not be obliged before exercising any of the rights, powers or remedies conferred upon it in respect of the Guarantor by this Guarantee or by law:

8.1.1 to take any legal proceedings or obtain judgment in any court against the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary; or

8.1.2 to make or file any claim or proof in a winding-up or dissolution of the Infraco or either of Bilfinger Subsidiary or Siemens Subsidiary.

- 8.2 Any judgment, award, agreement or determination of any amount due from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract shall be binding upon the Guarantor.

9. INTEREST

Any amount which is not paid under this Guarantee when due in accordance with a demand served under Clause 3 shall carry interest at the rate of interest applicable to overdue amounts under the Infraco Contract from the due date, which is 2% p.a. above the prevailing published base rate of The Royal Bank of Scotland plc. For avoidance of doubt interest shall not be paid by the Guarantor under this Guarantee for any period during which interest is continuing to accrue under the Infraco Contract.

10. TAXES

All payments in respect of the obligations of the Guarantor under this Guarantee shall be made free and clear of, and without withholding or deduction for, any taxes, duties, assessments or governmental charges of whatsoever nature imposed, levied, collected or assessed by the United Kingdom or the Federal Republic of Germany, or any Land, political or administrative subdivision or any authority thereof having power to tax, save where such withholding or deduction is required by law. In that event, the Guarantor shall pay such additional amounts as will result in the receipt by **tie** of such amount as would have been received by **tie** if no such withholding or deduction had been required.

11. NO SECURITY

The Guarantor shall not hold any security from the Siemens Subsidiary in respect of this Guarantee and any such security which is held in breach of this provision shall be held by the Guarantor in trust for and shall be promptly transferred to **tie**.

12. DEFERRAL OF RIGHTS

12.1 The Guarantor agrees that, so long as any amounts are owed by the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) to **tie** under or pursuant to the Infraco Contract, or any amounts are owed, or have been paid, to **tie** by the Guarantor under this Guarantee, the Guarantor shall not exercise any rights which it may at any time have by reason of performance by it of its obligations under this Guarantee:

12.1.1 to effect or seek to effect any recovery from the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in respect of any payment made or liability arising pursuant to this Guarantee, whether by receipt of money or set-off or enforcement of security or otherwise;

12.1.2 to claim any contribution from any other guarantor of the obligations of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) under the Infraco Contract;

12.1.3 to take (in whole or in part and whether by way of subrogation or otherwise) any rights of **tie**;

12.1.4 to claim in the insolvency, administration, winding-up, bankruptcy or liquidation of the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary) in competition with **tie**; and/or

12.1.5 subject to Clause 3.3, to require **tie** to make a claim against the Infraco (or either of Bilfinger Subsidiary or Siemens Subsidiary).

Provided that in the case of Clauses 12.1.1 and 12.1.2 if the Guarantor has made any payment to **tie** pursuant to this Guarantee Agreement, the Guarantor shall be entitled to seek recovery or contribution of such payment (after giving notice to **tie**) on the conditions that such action shall not in any way adversely affect the Infraco's ability (or the Siemens Subsidiary's) to perform and discharge its obligations pursuant to the Infraco Contract for its duration.

- 12.2 The Guarantor shall hold in trust for **tie** any payment or other benefit received by the Guarantor contrary to the provision of this Clause 12. Such sums shall be used to settle any amounts owing to **tie** and any surplus shall be released to the Guarantor.

13. NOTICES

- 13.1 Any notice to or demand on the Guarantor to be served under this Guarantee shall be in writing and may be delivered in person or sent by recorded delivery post to the Guarantor at its address appearing in this Guarantee or at such other address as it may have notified to **tie** in accordance with this Clause 13.

- 13.2 Any such notice or demand shall be deemed to have been served on the Guarantor:

- (i) if delivered in person, at the time of delivery; or
- (ii) if posted, upon the date recorded for receipt.
- (iii) The Guarantor hereby appoints Biggart Baillie LLP, of Dalmore house, 310 St. Vincent Street, Glasgow, G2 5QR, as their agent for service of legal process in Scotland.

14. WAIVER

- 14.1 No delay or omission of **tie** in exercising any right, power or privilege under this Guarantee shall impair or be construed as a waiver of such right power or privilege nor shall any single or partial exercise of any such right, power or privilege preclude any further exercise of such right, power or privilege or the exercise of any other right, power or privilege.

- 14.2 A waiver given or consent granted by **tie** under this Guarantee shall be effective only if given in writing and then only in the instance and for the purpose for which it is given.

15. PARTIAL INVALIDITY

The invalidity, illegality or unenforceability in whole or in part of any of the provisions of this Guarantee shall not affect the validity, legality and enforceability of the remaining part or provisions of this Guarantee.

16. DISPUTE RESOLUTION AND GOVERNING LAW

This Guarantee shall be governed by and construed in accordance with the Laws of Scotland and the Parties hereby agree to submit to the exclusive jurisdiction of the Court of Session over any claim arising out of this Guarantee.

17. EXCLUSION OF THIRD PARTY RIGHTS

Subject to any assignation pursuant to clause 6 a person not party to this Guarantee shall have no rights to enforce or rely upon any term of this Guarantee and no *jus quaesitum tertio* is hereby created in favour of any party.

18. PAYMENTS

18.1 All payments to be made by the Guarantor in respect of this Guarantee must be made:

18.1.1 in immediately available electronically transferable funds (with no handling charge, commission or exchange rate conversion fee deducted) to the credit of such bank account as **tie** may designate; and

SIEMENS

18.1.2 in pounds sterling or such other currency as **tie** nominates.

IN WITNESS WHEREOF these presents on this and the preceding 16 pages together with Schedule 1 which is annexed and signed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED**

at **EDINBURGH**

on **14 MAY** 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

[Redacted Signature]

WILLIAM GALLAGHER

[Redacted Signature]

JOHN SMITH

[Redacted Address]

EDIN, EH1 1 1

EXECUTED for and on behalf of **SIEMENS
AKTIENGESELLSCHAFT**

at Erlangen

on May 14, 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

Siemens Aktiengesellschaft

Marlis Laux

Michael Witz

[Redacted Signature]

Walter Reißinger

Siemens Aktiengesellschaft
Werner-von-Siemens-Str. 50
91052 Erlangen
Germany

This is the Schedule referred to in the foregoing Guarantee Agreement.

Director/Authorised Signatory
tie Limited

Director/Authorised Signatory
SIEMENS AKTIENGESELLSCHAFT

SCHEDULE 1 DEMAND LETTER

[Date]

[Guarantor's name]
[Guarantor's address]
Attention: Authorised and responsible representative

EDINBURGH TRAM NETWORK

Dear Sirs,

We refer to the Guarantee Agreement dated May 14, 2008 between us and to the contract (the "Infraco Contract") dated May 14, 2008 between us and your subsidiary Siemens plc.

1. This letter is our formal demand for the payment of £[] pursuant to Clause 2.2. of the Guarantee Agreement, which amount is due and payable by your subsidiary Siemens plc and has not been paid. Please make payment to: tie Limited, [bank account number and details] as provided under Clause 18 of the Guarantee Agreement.

AND/OR

2. This letter is our formal demand that you perform and discharge [describe relevant obligations] the obligations, warranties, duties and undertakings of your subsidiary Siemens plc as required pursuant to Clause 2.1 of the Guarantee Agreement which your subsidiary, in breach of the Infraco Contract, has failed to perform and discharge. Please confirm by return the mobilisation arrangements you are making and the timetable for their deployment in Edinburgh and generally.

We confirm that we have made formal demand in writing on Bilfinger Berger UK Limited and that we have also made formal demand on Bilfinger Berger AG in relation to this matter.

Yours faithfully,

tie LIMITED

Authorised Signatory

Page 18 of 18 of Parent Company Guarantee No. 213025

Siemens Aktiengesellschaft, Vorsitzender des Aufsichtsrats: Gerhard Cromme, Vorstand: Peter Löscher, Vorsitzender, Wolfgang Dehen, Heinrich Hesinger, Joe Kaeser, Jim Reid-Anderson, Hermann Requardt, Siegfried Russwurm, Peter V. Soltesen, Sitz der Gesellschaft: Berlin und München, Registergericht: Berlin-Charlottenburg, HRB 15300, München, HRB 1634, WERLE-Reg. Nr. DE 25941132.



**(1) BILFINGER BERGER UK LIMITED
AND SIEMENS PLC
(TOGETHER THE "INFRACO")**

- and -

(2) CITY OF EDINBURGH COUNCIL

**COLLATERAL WARRANTY IN
FAVOUR OF CITY OF EDINBURGH
COUNCIL FROM INFRACO**

relating to

**THE PROVISION OF THE INFRACO
WORKS FOR THE EDINBURGH TRAM
NETWORK**

AGREEMENT

BETWEEN

- (1) **BILFINGER BERGER UK LIMITED**, a company incorporated in England and Wales under number 02418086 and having its registered office at 150 Aldersgate Street, London, EC1A 4EJ, which expression shall include its successors, permitted assignees and transferees and **SIEMENS PLC**, a company incorporated in England and Wales under number 00727817 and having its registered office at Faraday House, Sir William Siemens House, Frimley, Camberley, Surrey, GU16 8QD, which expression shall include its successors, permitted assignees and transferees,
- together (the "**Infraco**" and separately an "**Infraco Member**"); and
- (2) **CITY OF EDINBURGH COUNCIL**, the Local Authority for the said City constituted in terms of the Local Government etc. (Scotland) Act 1994 and having its principal offices at City Chambers, High Street, Edinburgh EH1 1YJ ("**Beneficiary**") which expression shall include its successors and permitted assignees;

BACKGROUND

- A By an agreement in writing dated 14 May 2008 (the "**Infraco Contract**"), **tie** Limited, a company incorporated in Scotland under number SC230949 and having its registered office at City Chambers, High Street, Edinburgh, EH1 1YJ, ("**tie**") appointed the Infraco to provide the Infraco Works (as hereinafter defined) in connection with the Edinburgh Tram Network.
- B It is a term of the Infraco Contract that the Infraco Members shall enter into this Agreement with the Beneficiary.

IT IS AGREED as follows:

1. DEFINITIONS AND INTERPRETATION

In this Agreement:

- 1.1 the following words and expressions have the following meanings, unless the context requires otherwise:

"**Agreement**" means this document (as amended from time to time pursuant to clause 11);

"**Deliverables**" means all documents, information, reports, diagrams, records, method statements, risk assessments, manuals, schedules, databases, photographs, formulae,

plans, designs, specifications, drawings (including as-built drawings), details, calculations, analysis, operation and maintenance manuals, software, data, data configuration designs, tools and details, software protocols, source and object codes, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by the Infraco (and/or any Infraco Party or any other third party) in relation to the Infraco Works, required to deliver the Infraco Works;

"Edinburgh Tram Network" means the tramway which is to be designed, constructed and maintained in Edinburgh pursuant to the Infraco Contract with respect to Phase 1a (forming part of Line One and Line Two as described in the Tram Legislation) and, if the Phase 1b option set out in Clause 85 of the Infraco Contract is exercised, Phase 1b, together with all associated works and facilities required pursuant to the Infraco Contract including all civil engineering and track works, Trams, infrastructure, plant, machinery and equipment installed or used for such tramway;

"Good Industry Practice" means using standards, practices, methods and procedures conforming to Law and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably be expected from a large, reputable, professionally qualified, competent and skilled organisation experienced in carrying out activities of a similar nature, scope and complexity to those comprised in the Infraco Works, and seeking in good faith to comply with its contractual obligations and all duties owed by it;

"Infraco IPR" means:

- (a) all Intellectual Property Rights in the Deliverables (including Intellectual Property Rights in relation to the Infraco Software) which were already existing and owned by, or licensed to, the Infraco and/or the Infraco Parties prior to the Effective Date;
- (b) any modifications or developments of any of the Intellectual Property Rights referred to in paragraph (a) above which are generic in nature and not specific to the carry out of the Infraco Works; and
- (c) all Intellectual Property Rights in tram signalling systems, communications systems, SCADA systems and system integration programmes, methodologies or software.

"Infraco Works" means the works and services to be undertaken by the Infraco under the Infraco Contract to design, construct, test, commission and maintain Phase 1a and, if instructed, Phase 1b and the Phase 1b Works;

"Intellectual Property Rights" means any rights in or to any patent, design right, utility model, trade mark, brand name, service mark, trade name, business name, logo, invention (whether registered or unregistered), domain name, semi-conductor right, topography right, software designs and/or other materials, source code, copyright, moral right, know-how, or rights in databases and any other rights in respect of any industrial or intellectual property, whether capable of being registered or not, including all rights to apply for any of the foregoing rights or for an extension, revival or renewal of any of the foregoing rights and any similar or analogous rights to any of the above, whether arising or granted under the law of Scotland or of any other jurisdiction;

"Law" means:

- (a) any Act or instruments of the Scottish Parliament or the United Kingdom Parliament or subordinate legislation within the meaning of section 21(1) of the Interpretation Act 1978, any exercise of the Royal Prerogative, and any enforceable community right within the meaning of section 2 of the European Communities Act 1972, and any bye-laws of any local or other statutory authority;
- (b) any applicable guidance, policy, direction or determination issued by any regulatory body with which the Infraco and/or the Infraco Parties are bound to comply; and
- (c) any applicable judgment of a relevant court of law which is a binding precedent,

in each case in force in Scotland;

"Liability Cap" means the liabilities and respective durations for such liabilities pursuant for such liabilities pursuant to the Infraco Contract and set out in Annex A to this Agreement;

"Party" means each and any of the parties to this Agreement and Parties shall be construed accordingly;

"Phase 1a" means Edinburgh Airport to Newhaven (inclusive), together with the Depot at Gogar and the spur at Roseburn Junction;

"Phase 1b" means Roseburn to Granton Square (inclusive);

"Project IPR" means any Intellectual Property Rights arising out of, used in or created to implement the Infraco Works and to produce Deliverables (including the Specially Written Software, any asset management system and/or Works programming system) and for the extension of the Edinburgh Tram Network in accordance with the Infraco Contract but excluding any Infraco IPR contained in the Deliverables;

"Trams" means all or any of the tram vehicles for the Edinburgh Tram Network to be provided under the Tram Supply Agreement and maintained under the Tram Maintenance Agreement; and

"Tram Legislation" means the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006, and such other legislation relative to the Edinburgh Tram Network as may be enacted from time to time; and

1.2 unless the context requires otherwise:

1.2.1 words importing:

1.2.1.1 the singular include the plural and vice versa; and

1.2.1.2 one gender include all other genders.

1.2.2 a reference to:

1.2.2.1 persons includes firms, companies, corporations, partnerships, trusts, authorities and other incorporated and/or unincorporated bodies; and

1.2.2.2 a clause is a reference to a clause in this Agreement.

1.3 The list of contents and clause headings in this Agreement are included for convenience only and do not affect its interpretation.

1.4 Where a party comprises two or more persons:

- 1.4.1 any obligations on the part of that party contained or implied in this agreement are deemed to be joint and several obligations on the part of those persons; and
- 1.4.2 references to that party shall include references to each and any of those persons.
- 1.5 Any capitalised terms not defined above shall have the meaning accorded to them pursuant to the Infraco Contract.

2. STANDARD OF CARE

- 2.1 The Infraco warrants and undertakes to the Beneficiary that it has carried out and shall carry out the Infraco Works and its other duties and obligations under the Infraco Contract including in relation to Phase 1b, if so instructed, subject to and in accordance with the terms thereof.
- 2.2 In addition to and without derogation from clause 2.1, the Infraco warrants to the Beneficiary that:
 - 2.2.1 in the performance of the Infraco Works and its other obligations under the Infraco Contract it shall exercise a reasonable level of professional skill, care and diligence to be expected of a properly qualified and competent contractor experienced in carrying out works and services similar to the Infraco Works in connection with projects of a similar type, nature and complexity;
 - 2.2.2 any design produced by Infraco will ensure compliance with the Employer's Requirements and Infraco Proposals; and
 - 2.2.3 any design produced by the Infraco will fully comply with Law.
- 2.3 The Infraco shall owe a duty of care to the Beneficiary in carrying out its duties and obligations under the Infraco Contract.

3. MATERIALS

- 3.1 The Infraco warrants to the Beneficiary that it has not and shall not specify for use or use in relation to the Infraco Works any materials which at the time of use or specification (as the case may be):

- 3.1.1 are known to be deleterious in the particular circumstances in which they are specified to be used (either to health and safety or to the durability of the Infraco Works); or
- 3.1.2 contravene any relevant standard or code of practice issued from time to time by the BSI Group or under a European directive relating to standards; or
- 3.1.3 do not accord with the guidelines contained in the edition of the publication "Good Practice in Selection of Construction Materials" (Ove Arup & Partners) current at the date of specification of use; or
- 3.1.4 contravene Good Industry Practice.

4. COPYRIGHT LICENCE

- 4.1 The Beneficiary and the Infraco acknowledge that under the terms of the Infraco Contract, the Infraco has assigned to **tie**, with full title guarantee the Project IPR which is created by the Infraco and used by it to carry out its obligations under the Infraco Contract.
- 4.2 The Beneficiary and the Infraco acknowledge that under the terms of the Infraco Contract the Infraco has granted to **tie** a non-exclusive perpetual irrevocable royalty free licence to use such Infraco IPR which is contained in the Deliverables as may be necessary for **tie** to use in relation to the Infraco Works and the Maintenance Services and any extension of the Edinburgh Tram Network and undertakes to procure for **tie** a licence on the same terms as above in respect of any Project IPR created by the Infraco Parties.
- 4.3 The Beneficiary and the Infraco acknowledge that under the terms of the Infraco Contract the Infraco grants to **tie**, with the prior written consent of the Infraco such consent not to be unreasonably withheld, the right to grant non-exclusive non-assignable sub-licences to third parties for such periods of time as **tie** may reasonably require and otherwise on the same terms as the licence granted to **tie** as described in clause 4.2 above, to use the Infraco IPR referred to in clause 4.2 (other than in relation to Third Party Software and commercially available software which is subject to the provisions of clause 102.9 of the Infraco Contract) in so far as is necessary or desirable for such third party to use such Infraco IPR in relation to the Infraco Works for the Edinburgh Tram Network, the Maintenance Services and any extension of the Edinburgh Tram Network. The Infraco hereby consents to the grant of such non-

exclusive non-assignable sub-licence by **tie** to the Beneficiary if **tie** so requires for the period of time as **tie** may reasonable require.

- 4.4 The Infraco shall, if so requested at any time, execute such documents and perform such acts as may be required fully and effectively to assure to the Beneficiary the rights referred to in this clause 4.
- 4.5 The Infraco shall provide to the Beneficiary (at the Beneficiary's cost) a copy of any of the Deliverables as soon as reasonably practicable after receipt by the Infraco of a written request from the Beneficiary to do so.

5. **REQUIRED INSURANCES**

- 5.1 The Infraco undertakes that:

- 5.1.1 cover under the Required Insurances (and the Additional Insurances, if any) is extended to include the Infraco's liabilities under this Agreement, to the extent that the Infraco is obliged to maintain such insurances under the Infraco Contract;
- 5.1.2 this Agreement has been disclosed to the Infraco's current insurers or brokers (as the case may be) and shall be disclosed to any future insurers or brokers providing the insurance required by this Agreement; and
- 5.1.3 the Infraco shall abide by the terms and conditions of the Required Insurances and the OCIP Insurances and shall use all reasonable endeavours not to do or omit to do anything that might prejudice the respective cover or rights to make a claim.

- 5.2 As and when reasonably required by the Beneficiary, the Infraco shall produce for inspection documentary evidence that such insurance is being properly maintained.
- 5.3 If the insurer makes or attempts to make any material alteration or purports to withdraw the Infraco's cover under the Required Insurances or the Additional Insurances (if any), or if the Infraco is unable to obtain insurance, the Infraco shall promptly give notice of this to the Beneficiary.

6. **ASSIGNATION**

- 6.1 Except as provided in clause 6.2 neither Infraco Member shall assign, novate or otherwise transfer the whole or any part of this Agreement without the prior written

agreement of the Beneficiary, such agreement not to be unreasonably withheld or delayed in the case that such assignment is to a subsidiary or associated company.

6.2 Subject to notice being served on **tie** and the Beneficiary, the Infraco shall be entitled to assign, novate or otherwise transfer the whole of this Agreement to any person who the Infraco assigns, novates or otherwise transfers (in whole) its duties and obligations under the Infraco Contract without the prior written agreement of the Beneficiary.

6.3 Subject to notice being served on the Infraco and on **tie**, the Beneficiary shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:

6.3.1 without the consent of the Infraco to any person provided that no more than two such assignments will be permitted. Any assignments by the Beneficiary to a subsidiary or associated company of the Beneficiary or a member of the same group of companies will not count as an assignment;

6.3.2 with the prior written consent of the Infraco (such consent not to be unreasonably withheld or delayed).

6.4 The Infraco undertakes to the Beneficiary not to contend in any court proceedings under this Agreement that any person to whom the Beneficiary assigns or has assigned its rights under this Agreement or any of them in accordance with the foregoing provisions of this clause 6 (*Assignment*) is to be precluded from recovering any loss resulting from any breach of this Agreement (whenever happening) by reason that such person is an assignee and not the original contracting party under this Agreement or by reason that the Beneficiary is named under this Agreement or any intermediate assignee of the Beneficiary escaped loss resulting from such breach by reason of the disposal of its interest in the same.

7. LIABILITY OF INFRACO

7.1 No provision of this Agreement is intended to exclude any obligation or liability which would otherwise be implied whether by the law of contract, delict or otherwise.

7.2 The responsibility of the Infraco under this Agreement is not to be reduced or in any way released or limited by any enquiry or inspection by or on behalf of any person notwithstanding that such enquiry or inspection may give rise to a claim by the Beneficiary against a third party.

- 7.3 The rights and benefits conferred upon the Beneficiary by this Agreement are in addition to any other rights and remedies that the Beneficiary may have against the Infraco including (without prejudice to the generality of the foregoing) any remedies in delict.
- 7.4 Subject to the other provisions of this Agreement, the liability of the Infraco to the Beneficiary is to be determined in all respects in accordance with the terms of the Infraco Contract and, in the event of any claim by the Beneficiary under this Agreement, the Infraco shall be entitled to rely upon any defence, right, limitation or exclusion under the Infraco Contract as though the Beneficiary were named as tie under it, except that:
- 7.4.1 the Beneficiary shall not be affected by any subsequent variation of the Infraco Contract which would adversely affect the obligations owed by the Infraco or the waiver, compromise or withdrawal of any claim made by tie; and
- 7.4.2 the Infraco shall not be entitled to exercise any right of set-off, retention or withholding against the Beneficiary to which the Infraco may be entitled against tie.
- 7.5 The Infraco shall not be liable to the Beneficiary for any delay in completing the Infraco Works.
- 7.6 Without prejudice to clause 7.4:
- 7.6.1 the Beneficiary acknowledges and agrees that the Infraco shall have no liability to the Beneficiary under this Agreement to the extent that such liability would result in the total aggregate liability of the Infraco in connection with the Edinburgh Tram Network exceeding the relevant Liability Cap; and
- 7.6.2 the Infraco shall have no liability to the Beneficiary under this Agreement following expiry of the period of 12 years from the earlier to occur of the date of issue of the Reliability Certificate and the date of termination of the Infraco Contract.

8. NOTICES

8.1 Any notice required to be given under this Agreement is to be hand delivered or sent by prepaid registered or recorded delivery post to the party concerned at its address set out in this Agreement or to such other addresses as may be notified by such party for the purposes of this clause.

8.2 Any notice given pursuant to this clause, if sent by special or recorded delivery, is deemed to have been received on proof of delivery.

9. RIGHTS OF THIRD PARTIES

9.1 A person who is not a party to this Agreement shall have no right to enforce any term of this Agreement.

10. INVALID TERMS

10.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable:

10.1.1 that term shall to that extent be deemed not to form part of this Agreement;
and

10.1.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

11. VARIATIONS AND WAIVERS TO BE IN WRITING

11.1 No variation, alteration or waiver of any of the provisions of this Agreement shall be effective unless it is in writing and signed by or on behalf of the Party against which the enforcement of such variation, alteration or waiver is sought.

12. WAIVER

12.1 Save where expressly stated, no failure or delay by either Party to exercise any right or remedy in connection with this Agreement shall operate as a waiver of it or of any other right or remedy nor shall any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.

12.2 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by law.

13. JURISDICTION AND LAW

13.1 This Agreement is governed by and is to be construed according to Scots law and the Scottish courts shall have jurisdiction in relation to all matters arising under it.

IN WITNESS WHEREOF these presents on this and the preceding 10 pages, together with the Annex are executed as follows:

EXECUTED for and on behalf of **BILFINGER
BERGER UK LIMITED**

at: EDINBURGH

on 14 May 2008 by:

Director

Full Name

Director

Full Name

SAM, SCOTT DUTTON

ALUMINO JOHN DUTTON

EXECUTED for and on behalf of **SIEMENS
PLC**

at: EDINBURGH

on 14 May 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name

C. KOTH

M. FLYNN

EXECUTED for and on behalf of **CITY OF
EDINBURGH COUNCIL**

at: EDINBURGH

on 30 May 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

GILL LINDSAY

MANDY WILSON

CITY CHAMBERS

EDINBURGH.

ACKNOWLEDGED for and on behalf of **TIE
LIMITED**

at: EDINBURGH

on 14 May 2008 by:

Director/Authorised Signatory

Full Name

Witness Signature

Full Name

Address

WILLIAM CALLAGHER

ANDREW SUTKLAND FITCHIE

c/o 66A RUTLAND SQUARE

EDINBURGH

ANNEX A

"Liability Cap" means:

- (i) Subject always to subparagraphs (ii) to (iv) below, in relation to:
 - (a) any claim brought or liability incurred by **tie** or the Indemnified Parties prior to the issue of the Reliability Certificate or within 6 months of the issue of the Reliability Certificate arising from or in connection with Infraco Works (other than Infrastructure Maintenance Services after the Service Commencement Date) carried out prior to the issue of the Reliability Certificate;
 - (b) latent defects and uncorrected Patent Defects;
 - (c) any third party claim made against **tie** or the Indemnified Parties for direct loss or damage made after the issue of the Reliability Certificate and arising from or in connection with latent defects;
 - (d) liabilities owed by the Infraco connected with liquidated damages outstanding from settlement of final account after Service Commencement;

twenty percent (20%) of the Construction Works Price (including, the value of any **tie** Changes arising from Clause 80 (*tie* Changes), Notified Departures, extensions to the Edinburgh Tram Network instructed through Clause 81 (*Infraco* Changes), Clause 85 (*Phase 1b*) or Clause 86 (*Network Expansions*) (the "**Construction Cap**"), subject to (A) in the case of any liability arising solely from the breach of contract or negligent acts or omissions of the SDS Provider, the SDS Liability Cap; and (B) in the case of any liability arising under (c) above, nine million pounds (£9,000,000);
- (ii) subject to sub-paragraphs (iii) and (iv), in respect of claims brought against or liabilities incurred by **tie** or the Indemnified Parties to which paragraph (i) above does not apply, an amount of three million, five hundred thousand pounds (£3,500,000) (in relation to Phase 1a), or the Maintenance Cap, whichever is lower;
- (iii) In relation to liability arising solely from any act or omission of the Tram Supplier, an amount when aggregated with all previous claims equal to twenty percent (20%) of the Aggregate Tram Price and (excluding the proceeds of all insurance, bonds and cash securities) as defined in the Tram Supply Agreement, such liability to be treated as outside the Construction Cap;

- (iv) In relation to liability arising from any act or omission of the Tram Maintainer , an aggregate amount of eighteen and one half percent (18.5%) of the aggregate Maximum Performance Payment over the Term of and as defined in the Tram Maintenance Agreement and annually twenty two and one half percent (22.5%) of the aggregate Maximum Performance Payment as defined in the Tram Maintenance Agreement of the Tram Maintenance Services, (in both cases excluding the proceeds of any insurance, bonds and cash securities) such liability to be treated as outside the Maintenance Cap;


Director/Authorised Signatory
BILFINGER BERGER UK LIMITED

.....
Director/Authorised Signatory
SIEMENS PLC

.....
Authorised Signatory
CITY OF EDINBURGH COUNCIL


Director/Authorised Signatory
tie LIMITED



**(1) BILFINGER BERGER UK LIMITED
AND SIEMENS PLC
(TOGETHER THE "INFRACO")**

- and -

(2) EDINBURGH AIRPORT LIMITED

**COLLATERAL WARRANTY IN
FAVOUR OF EDINBURGH AIRPORT
AUTHORITY FROM INFRACO**

relating to

**THE PROVISION OF THE INFRACO
WORKS FOR THE EDINBURGH TRAM
NETWORK**

CONTENTS

1. DEFINITIONS AND INTERPRETATION 1

2. STANDARD OF CARE5

3. MATERIALS5

4. COPYRIGHT LICENCE6

5. REQUIRED INSURANCES.....7

6. ASSIGNATION7

7. LIABILITY OF THE TRAM CONTRACTOR.....8

8. NOTICES 10

9. RIGHTS OF THIRD PARTIES 10

10. INVALID TERMS..... 10

11. VARIATIONS AND WAIVERS TO BE IN WRITING..... 10

12. WAIVER..... 10

13. JURISDICTION AND LAW 11

AGREEMENT

BETWEEN

- (1) **BILFINGER BERGER UK LIMITED**, a company incorporated in England and Wales under number 02418086 and having its registered office at 150 Aldersgate Street, London, EC1A 4EJ, which expression shall include its successors, permitted assignees and transferees and **SIEMENS PLC**, a company incorporated in England and Wales under number 00727817 and having its registered office at Faraday House, Sir William Siemens House, Frimley, Camberley, Surrey, GU16 8QD, which expression shall include its successors, permitted assignees and transferees, ("**Tram Contractor**"); and
- (2) **EDINBURGH AIRPORT LIMITED**, (company number SC096623) whose registered office is at St Andrew's Drive, Glasgow Airport, Paisley PA3 2SW ("**Beneficiary**" or "**EAL**" as appropriate) which expression shall include its successors and permitted assignees.

BACKGROUND

- A By an agreement in writing dated 14 May 2008 ("**Tram Main Works Agreement**"), **tie Limited** (as hereinafter defined) appointed the Tram Contractor to provide the Works (as hereinafter defined) in connection with the Edinburgh Tram Project.
- B It is a term of the Tram Main Works Agreement that the Tram Contractor shall enter into this Agreement with the Beneficiary.

IT IS AGREED as follows:

1. DEFINITIONS AND INTERPRETATION

In this Agreement:

- 1.1 the following words and expressions have the following meanings, unless the context requires otherwise:

"**Act**" means the Edinburgh Tram (Line Two) Act 2006;

"**Agreement**" means this document (as amended from time to time pursuant to clause 11);

"Deliverables" means all documents, information, reports, diagrams, pricing schedules, records, method statements, risk assessments, manuals, schedules, databases, reinforcement details, photographs, formulae, plans, designs, specifications, drawings (including as-built drawings), details, calculations, analysis, operation and maintenance manuals, software, data, data configuration designs, tools and details, software protocols, source and object codes, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by the Tram Contractor (and/or any Tram Contractor Party or any other third party) in relation to the Tram Main Works Agreement required to deliver the Works;

"Edinburgh Tram Project" means the project to construct and operate the Authorised Tramway (as defined in the Act);

"Good Industry Practice" means using standards, practices, methods and procedures conforming to law and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably be expected from a large, reputable, professionally qualified, competent and skilled organisation experienced in carrying out activities of a similar nature, scope and complexity to those comprised in the Works, and seeking in good faith to comply with its contractual obligations and all duties owed by it;

"Intellectual Property Rights" means any rights in or to any patent, design right, utility model, trade mark, brand name, service mark, trade name, business name, logo, invention (whether registered or unregistered), domain name, semi-conductor right, topography right, software designs and/or other materials, source code, copyright, moral right, know-how, or rights in databases and any other rights in respect of any industrial or intellectual property, whether capable of being registered or not, including all rights to apply for any of the foregoing rights or for an extension, revival or renewal of any of the foregoing rights and any similar or analogous rights to any of the above, whether arising or granted under the law of Scotland or of any other jurisdiction;

"Liability Cap" means as defined under the Tram Main Works Agreement;

"Party" means each and any of the parties to this Agreement and **"Parties"** shall be construed accordingly;

"Project IPR" means any Intellectual Property Rights arising out of, used in or created to implement the Works and to produce Deliverables (including the Specially Written Software, any asset management system and/or Works programming system) and for the extension of the Edinburgh Tram Network in accordance with the Tram Main Works Agreement but excluding any Tram Contractor IPR contained in the Deliverables;

"Site" means those areas of ground at Edinburgh Airport used (with the consent of EAL) in connection with the Works;

"Required Insurances" means the Required Insurances required under the Tram Main Works Agreement, which shall include professional indemnity insurance of not less than £10,000,000.00 on an each and every claim basis and in the aggregate during each twelve month period of insurance (subject to one reinstatement of the limit of indemnity for each twelve month period of insurance in the case of Bilfinger Berger UK Limited) so long as such professional indemnity insurance may be obtained in the European Union insurance market at commercially reasonable rates and on commercially reasonable terms to contractors of the same status as at the effective date of the Tram Contractor;

"Statutory Requirements" means all general or local Acts of Parliament and the regulations and Bye-laws of any local or other statutory authority which may be applicable to the Works, together with any accompanying code of practice or guidance, and the rules and regulations of all public bodies and companies whose property or rights are or may be affected in any way by the Works;

"tie Limited" means tie Limited, incorporated under the Companies Acts (Company Number SC230949) in Scotland and having its registered office at City Chambers, High Street, Edinburgh, EH1 1YJ;

"Tram Contractor IPR" means:

- (a) all Intellectual Property Rights in the Deliverables (including Intellectual Property Rights in relation to the Infraco Software) which were already existing and owned by, or licensed to, the Tram Contractor and/or the Tram Contractor Parties prior to the Effective Date;
- (b) any modifications or developments of any of the Intellectual Property Rights referred to in paragraph (a) above which are generic in nature and not specific to the carrying out of the Works; and
- (c) all Intellectual Property Rights in tram signalling systems, communications systems, SCADA systems and system integration programmes, methodologies or software

in all cases excluding:

- (A) all Intellectual Property Rights (including Intellectual Property Rights in relation to programs owned by the Tram Supplier and/or the Tram Maintainer) which the Tram Supplier and/or the Tram Maintainer can demonstrate by documentary evidence were

already existing and owned by, or licensed to, the Tram Supplier and/or the Tram Maintainer prior to the 13 May 2008 including, without limitation, any asset management system and/or works programming system operated by the Tram Supplier and/or the Tram Maintainer;

(B) all Intellectual Property Rights:

(i) created in the performance of the Tram Supply Obligations relating to the aesthetic and ergonomic detailed design and which are specific in nature to the performance of the Tram Supply Obligations; and/or

(ii) created in the performance of the Tram Maintenance Services which are specific in nature to the performance of the Tram Maintenance Services including any asset management system and/or works planning or programming system created by the Tram Maintainer in connection with the performance of the Tram Maintenance Services; and

(C) any modifications or developments of any of the Intellectual Property Rights referred to in paragraph (A) above which are generic in nature;

"Tram Contractor Party" means an Infraco Party as defined under the Tram Main Works Agreement; and

"Works" means any works authorised by the Act on or affecting the Site and to be undertaken by the Tram Contractor under the Tram Main Works Agreement; and

1.2 unless the context requires otherwise:

1.2.1 words importing:

1.2.1.1 the singular include the plural and vice versa; and

1.2.1.2 one gender include all other genders.

1.2.2 a reference to:

1.2.2.1 persons includes firms, companies, corporations, partnerships, trusts, authorities and other incorporated and/or unincorporated bodies; and

1.2.2.2 a clause is a reference to a clause in this Agreement.

1.3 The list of contents and clause headings in this Agreement are included for convenience only and do not affect its interpretation.

1.4 Where a party comprises two or more persons:

1.4.1 any obligations on the part of that party contained or implied in this agreement are deemed to be joint and several obligations on the part of those persons; and

1.4.2 references to that party shall include references to each and any of those persons.

1.5 Any capitalised terms not defined above shall have the meaning accorded to them pursuant to the Tram Main Works Agreement.

2. STANDARD OF CARE

2.1 The Tram Contractor warrants and undertakes to the Beneficiary that it has carried out and shall carry out the Works and its other duties and obligations under the Tram Main Works Agreement subject to and in accordance with the terms thereof.

2.2 In addition to and without derogation from clause 2.1, the Tram Contractor warrants to the Beneficiary that:

2.2.1 in the performance of the Works and its other obligations under the Tram Main Works Agreement it shall exercise a reasonable level of professional skill, care and diligence to be expected of a properly qualified and competent contractor experienced in carrying out works and services similar to the Works in connection with projects of a similar size, scope and complexity;

2.2.2 any design produced by the Tram Contractor will satisfy in every respect any relevant performance specification or any requirement included or referred to in the Tram Main Works Agreement and will be suitable in every respect for the purposes included in the Tram Main Works Agreement; and

2.2.3 any design produced by the Tram Contractor will fully comply with Statutory Requirements.

2.3 The Tram Contractor shall owe a duty of care to the Beneficiary in carrying out its duties and obligations under the Tram Main Works Agreement.

3. MATERIALS

3.1 The Tram Contractor warrants to the Beneficiary that it has not and shall not use in relation to the Works any materials which at the time of use:

3.1.1 are known to be deleterious in the particular circumstances in which they are used (either to health and safety or to the durability of the Works); or

- 3.1.2 contravene any relevant standard or code of practice issued from time to time by the BSI Group or under a European directive relating to standards; or
- 3.1.3 do not accord with the guidelines contained in the edition of the publication "Good Practice in Selection of Construction Materials" (Ove Arup & Partners) current at the date of specification of use; or
- 3.1.4 contravene Good Industry Practice.

4. COPYRIGHT LICENCE

- 4.1 The Beneficiary and the Tram Contractor acknowledge that under the terms of the Tram Main Works Agreement, the Tram Contractor has assigned to **tie** Limited, with full title guarantee the Project IPR which is created by the Tram Contractor and used by it to carry out its obligations under the Tram Main Works Agreement.
- 4.2 The Beneficiary and the Tram Contractor acknowledge that under the terms of the Tram Main Works Agreement the Tram Contractor has granted to **tie** Limited a non-exclusive perpetual irrevocable royalty free licence to use such Tram Contractor IPR which is contained in the Deliverables as may be necessary for **tie** Limited to use in relation to the Works and the Maintenance Services and any extension of the Edinburgh Tram Network and undertakes to procure for **tie** Limited a licence on the same terms as above in respect of any Project IPR created by the Tram Contractor Parties.
- 4.3 The Beneficiary and the Tram Contractor acknowledge that under the terms of the Tram Main Works Agreement the Tram Contractor grants to **tie** Limited, with the prior written consent of the Tram Contractor such consent not to be unreasonably withheld, the right to grant non-exclusive non-assignable sub-licences to third parties for such periods of time as **tie** Limited may reasonably require and otherwise on the same terms as the licence granted to **tie** Limited as described in Clause 4.2 above, to use the Tram Contractor IPR referred to in Clause 4.2 (other than in relation to Third Party Software and commercially available software which is subject to the provisions of Clause 102.9 of the Tram Main Works Agreement) in so far as is necessary or desirable for such third party to use such Tram Contractor IPR in relation to the Works for the Edinburgh Tram Network, the Maintenance Services and any extension of the Edinburgh Tram Network. The Tram Contractor hereby consents to the grant of such non-exclusive non-assignable sub-licence by **tie** Limited to the Beneficiary if **tie** Limited so requires for the period of time as **tie** Limited may reasonably require.

- 4.4 The Tram Contractor shall, if so requested at any time, execute such documents and perform such acts as may be required fully and effectively to assure to the Beneficiary the rights referred to in this Clause 4.
- 4.5 The Tram Contractor shall provide to the Beneficiary (at the Beneficiary's cost) a copy of any of the Deliverables as soon as reasonably practicable after receipt by the Tram Contractor of a written request from the Beneficiary to do so.

5. REQUIRED INSURANCES

5.1 The Tram Contractor undertakes that:

- 5.1.1 cover under the Required Insurances (and the Additional Insurances, if any) is extended to include the Tram Contractor's liabilities under this Agreement, to the extent that the Tram Contractor is obliged to maintain such insurances under the Tram Main Works Agreement;
- 5.1.2 this Agreement has been disclosed to the Tram Contractor's current insurers or brokers (as the case may be) and shall be disclosed to any future insurers or brokers providing the insurance required by this Agreement; and
- 5.1.3 the Tram Contractor shall abide by the terms and conditions of the Required Insurances and the OCIP Insurances and shall use all reasonable endeavours not to do or omit to do anything that might prejudice the respective cover or rights to make a claim.
- 5.2 As and when reasonably required by the Beneficiary, the Tram Contractor shall produce for inspection documentary evidence that such insurance is being properly maintained.
- 5.3 If the insurer makes or attempts to make any material alteration or purports to withdraw the Tram Contractor's cover under the Required Insurances or the Additional Insurances (if any), or if the Tram Contractor is unable to obtain insurance for any other reason whatsoever, the Tram Contractor shall promptly give notice of this to the Beneficiary.

6. ASSIGNATION

- 6.1 The Tram Contractor shall not assign, novate or otherwise transfer the whole or any part of this Agreement without the prior written agreement of the Beneficiary which will not be unreasonably withheld or delayed in respect of:

- 6.1.1 an assignation, novation or transfer of the whole of this Agreement to any person to which the whole of the Tram Main Works Agreement has been assigned, novated or otherwise transferred; or
 - 6.1.2 an assignation, novation or transfer of any part of this Agreement to any person to which the relevant and equivalent part of the Tram Main Works Agreement has been assigned, novated or otherwise transferred.
- 6.2 Subject to notice being served on the Tram Contractor and on **tie** Limited, the Beneficiary shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:
 - 6.2.1 without the consent of the Tram Contractor to any person provided that no more than two such assignations will be permitted. Any assignations by the Beneficiary to a subsidiary or associated company of the Beneficiary or a member of the same group of companies will not count as an assignation;
 - 6.2.2 with the prior written consent of the Tram Contractor (such consent not to be unreasonably withheld or delayed).
- 6.3 The Tram Contractor undertakes to the Beneficiary not to contend in any court proceedings under this Agreement that any person to whom the Beneficiary assigns or has assigned its rights under this Agreement or any of them in accordance with the foregoing provisions of this Clause 6 is to be precluded from recovering any loss resulting from any breach of this Agreement (whenever happening) by reason that such person is an assignee and not the original contracting party under this Agreement or by reason that the Beneficiary is named under this Agreement or any intermediate assignee of the Beneficiary escaped loss resulting from such breach by reason of the disposal of its interest in the same.

7. LIABILITY OF THE TRAM CONTRACTOR

- 7.1 No provision of this Agreement is intended to exclude any obligation or liability which would otherwise be implied whether by the law of contract, delict or otherwise.
- 7.2 The responsibility of the Tram Contractor under this Agreement is not to be reduced or in any way released or limited by any enquiry or inspection by or on behalf of any person notwithstanding that such enquiry or inspection may give rise to a claim by the Beneficiary against a third party.

- 7.3 The rights and benefits conferred upon the Beneficiary by this Agreement are in addition to any other rights and remedies that the Beneficiary may have against the Tram Contractor including (without prejudice to the generality of the foregoing) any remedies in delict.
- 7.4 Subject to the other provisions of this Agreement, the liability of the Tram Contractor to the Beneficiary is to be determined in all respects in accordance with the terms of the Tram Main Works Agreement and, in the event of any claim by the Beneficiary under this Agreement, the Tram Contractor shall be entitled to rely upon any defence, right, limitation or exclusion under the Tram Main Works Agreement as though the Beneficiary were named as **tie** Limited under it, except that:
- 7.4.1 the Beneficiary shall not be affected by any subsequent variation of the Tram Main Works Agreement which would adversely affect the obligations owed by the Tram Contractor or the waiver, compromise or withdrawal of any claim made by **tie** Limited; and
- 7.4.2 the Tram Contractor shall not be entitled to exercise any right of set-off, retention or withholding against the Beneficiary to which the Tram Contractor may be entitled against **tie** Limited.
- 7.5 The Tram Contractor shall not be liable to the Beneficiary for any delay in achieving the issue of any Certificate of Sectional Completion, Milestone Completion Certificate, the Network Certificate, Certificate of Tram Commissioning, the Certificate of Service Commencement and/or the Reliability Certificate.
- 7.6 Without prejudice to Clause 7.4:
- 7.6.1 the Beneficiary acknowledges and agrees that the Tram Contractor shall have no liability to the Beneficiary under this Agreement to the extent that such liability would result in the total aggregate liability of the Tram Contractor in connection with the Edinburgh Tram Network exceeding the relevant Liability Cap; and
- 7.6.2 the Tram Contractor shall have no liability to the Beneficiary under this Agreement in respect of any latent defects in the Works following expiry of the period of 12 years from the earlier to occur of the date of issue of the Reliability Certificate and the date of termination of the Tram Main Works Agreement.

8. NOTICES

- 8.1 Any notice required to be given under this Agreement is to be hand delivered or sent by prepaid registered or recorded delivery post to the party concerned at its address set out in this Agreement or to such other addresses as may be notified by such party for the purposes of this clause.
- 8.2 Any notice given pursuant to this Clause, if sent by recorded delivery, shall be deemed to have been received upon proof of delivery.

9. RIGHTS OF THIRD PARTIES

- 9.1 A person who is not a party to this Agreement shall have no right to enforce any term of this Agreement.

10. INVALID TERMS

- 10.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable:
- 10.1.1 that term shall to that extent be deemed not to form part of this Agreement; and
- 10.1.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

11. VARIATIONS AND WAIVERS TO BE IN WRITING

- 11.1 No variation, alteration or waiver of any of the provisions of this Agreement shall be effective unless it is in writing and signed by or on behalf of the Party against which the enforcement of such variation, alteration or waiver is sought.

12. WAIVER

- 12.1 Save where expressly stated, no failure or delay by either Party to exercise any right or remedy in connection with this Agreement shall operate as a waiver of it or of any other right or remedy nor shall any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.
- 12.2 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by law.

13. JURISDICTION AND LAW

13.1 This Agreement is governed by and is to be construed according to Scots law and the Scottish courts shall have jurisdiction in relation to all matters arising under it.

IN WITNESS WHEREOF these presents on this and the preceding 10 pages are executed as follows:

EXECUTED for and on behalf of BILFINGER
BERGER UK LIMITED at EDINBURGH

on 14th MAY 2008 by:

Director

Full Name

Director

Full Name

GARY STEVE DALTON

Richard John Warner.

EXECUTED for and on behalf of SIEMENS
PLC

at EDINBURGH

on 14 MAY 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name

M. K. K. K.

C. KOTH

EXECUTED for and on behalf of **EDINBURGH
AIRPORT LIMITED**

at Edinburgh
on 2 September 2008 by:

Authorised Signatory

Full Name

Witness Signature

Full Name

Address

GORDON DEWAR

TIMOTHY EDWARD WHITBAM

London

ACKNOWLEDGED for and on behalf of **TIE
LIMITED**

at Edinburgh on 14th MAY 2008 by:

Director/Authorised Signatory

Full Name

Witness Signature

Full Name

Address

WILLIAM GALLAGHER

ANDREW SUTHERLAND FITCHIE

COLLINS HOUSE, RUTLAND
SQUARE, EDINBURGH



**(1) BILFINGER BERGER UK LIMITED
AND SIEMENS PLC
(TOGETHER THE "INFRACO")**

- and -

(2) NETWORK RAIL INFRASTRUCTURE LIMITED

**COLLATERAL WARRANTY IN
FAVOUR OF NETWORK RAIL
INFRASTRUCTURE LIMITED FROM
INFRACO**

relating to

**THE PROVISION OF THE INFRACO
WORKS FOR THE EDINBURGH TRAM
NETWORK**

THIS AGREEMENT

BETWEEN:

- (1) **INFRACO** comprising of **BILFINGER BERGER UK LIMITED**, a company incorporated in England and Wales under number 02418086 and having its registered office at 150 Aldersgate Street, London, EC1A 4EJ, and **SIEMENS PLC**, a company incorporated in England and Wales under number 00727817 and having its registered office at Faraday House, Sir Williams Siemens House, Frimley, Camberley, Surrey, GU16 8QD (the "**Infraco**"); and
- (2) **NETWORK RAIL INFRASTRUCTURE LIMITED** registered in England and Wales under company number 2904587 and having its registered office at 40 Melton Street, London NW1 2EE ("**Beneficiary**").

WHEREAS:

- A By an agreement in writing dated 14 May 2008 (the "**Infraco Contract**"), **tie** Limited ("**tie**") appointed the Infraco to provide the Infraco Works (as hereinafter defined) in connection with the Edinburgh Tram Network.
- B By an agreement in writing dated 13 and 14 March 2008 (the "**APA**"), **tie** agreed with Network Rail to ensure that certain additional terms would apply in respect of the Infraco APA Works (as hereinafter defined) in connection with the Edinburgh Tram Network.
- C It is a term of the APA and the Infraco Contract that the Infraco shall enter into this Agreement with Network Rail.

NOW IT IS AGREED AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATION

- 1.1 In this Agreement (including the recitals), except where the context otherwise requires, the following words and expressions shall have the following meanings:

"**Edinburgh Tram Network**" means the tramway which is to be designed, constructed and maintained in Edinburgh pursuant to the Infraco Contract in Phase 1a (forming part of Line One and Line Two as described in the Tram Legislation) and, if the Phase 1b option set out in the Infraco Contract is exercised, Phase 1b, or either of them (as may be amended from time to time together with any modification, line extension, spur, interconnection and any additional line which may be instructed), to

be constructed in accordance with the Tram Legislation together with all associated works and facilities including all civil engineering and track works, Trams, infrastructure, plant, machinery and equipment installed or used for such tramway;

"Infraco APA Works" means that part of the works and services to be undertaken by the Infraco under the Infraco Contract which constitute the 'Works' as defined in the APA;

"Infraco Works" means the works and services to be undertaken by the Infraco under the Infraco Contract for the purpose of the Edinburgh Tram Network;

"Party" means each and any of the parties to this Agreement and Parties shall be construed accordingly;

"Phase 1a" means Edinburgh Airport to Newhaven (inclusive), together with the Depot at Gogar and the spur at Roseburn Junction;

"Phase 1b" means Roseburn Junction to Granton Square (inclusive);

"Trams" means the tram vehicles to be provided for operation on the Edinburgh Tram Network;and

"Tram Legislation" means the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006, and such other legislation relative to the Edinburgh Tram Network as may be enacted from time to time.

1.2 In this Agreement unless the context otherwise requires:

1.2.1 words importing any gender include every gender;

1.2.2 words importing the singular number only include the plural number and *vice versa*;

1.2.3 words importing persons include firms, companies and corporations and *vice versa*;

1.2.4 any reference to any statute (whether or not specifically named) shall include any statutory modification or re-enactment of it for the time being in force and any order, instrument, plan, regulation, permission and direction made or issued under it or under any statute replaced by it or deriving validity from it;

- 1.2.5 references to Clauses are references to the relevant Clause in this Agreement;
- 1.2.6 the words "include" and "including" are to be construed without limitation;
- 1.2.7 where any obligation is undertaken by two or more persons jointly those persons shall be jointly and severally liable in respect of that obligation (and each of Bilfinger Berger UK Limited and Siemens PLC acknowledge and agree that in enforcing performance of the Infraco's obligations under this Agreement or in taking action for breach of such obligations, the Beneficiary shall be entitled to raise proceedings or raise an action against Bilfinger Berger UK Limited and Siemens PLC or either of them jointly and/or severally); and
- 1.2.8 the headings to the Clauses are for convenience only and shall not affect the interpretation of this Agreement.

2. THE INFRACO'S OBLIGATIONS

- 2.1 The Infraco warrants and undertakes to the Beneficiary:
 - 2.1.1 that in performing the Infraco APA Works it has exercised and will continue to exercise all the skill, care and diligence to be reasonably expected of an appropriately qualified and competent contractor which is experienced in carrying out projects of a similar, scope, nature, complexity and size to the Works;
 - 2.1.2 that it has complied with and will comply with each and all of the obligations, duties and undertakings of the Infraco in relation to the Infraco APA Works under and pursuant to the Infraco Contract;
 - 2.1.3 that it has exercised and will exercise the level of skill, care and diligence specified in clause 2.1.1 to see that on completion the Infraco APA Works will satisfy all performance specifications and requirements contained or referred to in the APA and the Infraco Contract; and
 - 2.1.4 that the Beneficiary shall be deemed to have relied upon the Infraco's skill and judgment in respect of those matters relating to the Infraco APA Works as lie within the scope of the Infraco Contract and that the Infraco owes a duty of care in respect thereof to the Beneficiary (but not more onerous than that owed to ~~the~~ under the Infraco Contract).

3. LIABILITY

- 3.1 No approvals, comments, instructions, consents, attendance at meetings relating to the Infraco APA Works or advices from the Beneficiary shall in any way relieve the Infraco from its obligations under this Agreement.
- 3.2 Notwithstanding anything that may be contained elsewhere in this Agreement, the Infraco shall have no greater liability (whether in quantum or in scope) to the Beneficiary than it would have had if the Beneficiary had been named as joint employer under the Infraco Contract (for the purposes of the Infraco APA Works only) provided that, in relying on this clause, the Infraco shall not be entitled to rely on any provision of the Infraco Contract which has not been disclosed to the Beneficiary prior to the Works Commencement Date (as defined in the APA).
- 3.3 The Infraco shall be entitled in any action or proceedings by the Beneficiary to rely on any limitation in the Infraco Contract and to raise the equivalent rights in defence of liability (except set-off and counterclaim) as it would have against tie under the Infraco Contract (but only to the extent that the provisions in the Infraco Contract which are relied on for such purposes have been disclosed to the Beneficiary prior to the Works Commencement Date (as defined in the APA)); Provided that the liability of the Infraco to the Beneficiary for any breach of the terms of this Agreement shall not be affected or diminished where tie have suffered no loss, or a loss different from the Beneficiary, by reason of such breach. The Infraco undertakes to the Beneficiary not to contend that its liability to the Beneficiary is so affected or diminished, whether in defence of proceedings under this Agreement or otherwise.
- 3.4 No action or proceedings for any breach of this Agreement shall be commenced against the Infraco after the expiry of 12 years from the date of practical completion of the Infraco APA Works.
- 3.5 The Infraco shall not be liable to the Beneficiary (save as may be expressly provided under the Infraco Contract) for any delay in completing the Infraco APA Works.

4. INSURANCE

- 4.1 Except to the extent that tie have effected and maintained owner-controlled insurance in respect of the Infraco APA Works, the Infraco has either:
- 4.1.1 effected and will maintain professional indemnity insurance of not less than £5million to cover any one claim and in the aggregate during one period of

insurance (which period shall not be more than one year) against the Infraco for any negligent act, error or omission in the carrying out of the Infraco APA Works for a period of 12 years from the date of the issue of the certificate of practical completion of the Works, provided that such insurance continues to be generally available in the insurance market on commercially reasonable terms; or

4.1.2 has a credit rating of no less than BBB by Standard and Poor's or the equivalent.

4.2 As and when reasonably requested to do so by the Beneficiary, the Infraco shall provide evidence to the reasonable satisfaction of the Beneficiary that the insurances referred to in this Clause are being maintained in accordance with the provisions of this Clause or that the credit rating of the Infraco remains equal to or greater than BBB rating by Standard and Poor's or the equivalent.

5. NOTICES

Any notices to be given under this Agreement shall be either delivered personally or sent by first class recorded delivery post. The address for service of the Beneficiary and of the Infraco shall be as stated in this Agreement or such other address for service as the party to be served may have previously notified in writing to the other party. A notice shall be deemed to have been served as follows:

5.1 if personally delivered, at the time of delivery; or

5.2 if posted, at the expiration of 48 hours after the envelope containing the same was delivered into the custody of the postal authorities.

In proving such service, it shall be sufficient to prove that personal delivery was made or that the envelope containing such notice was properly addressed and delivered into the custody of the postal authorities as a pre-paid first class recorded delivery letter.

6. GENERAL

6.1 The Infraco shall have no claim whatsoever against the Beneficiary in respect of any damage, loss or expense howsoever arising out of or in connection with the Infraco Contract or any amounts due to the Infraco thereunder.

6.2 Subject to written notice being served on the Infraco, the Beneficiary may assign the whole or any part of this Agreement on a maximum of two occasions without the consent of the Infraco and no further assignments shall be permitted. The whole or

any part of this Agreement may also be assigned by way of security or charged without the consent of the Infraco to any mortgagee of the Beneficiary or its assignees on any number of occasions.

- 6.3 Nothing in this Agreement confers or purports to confer on a third party who is not a Party to this Agreement any benefits or rights to enforce a term of this Agreement.
- 6.4 If for any reason any Clause in this Agreement shall be found to be ineffective inoperable or unenforceable, it shall be severed and deemed to be deleted from this Agreement and in such event the remaining provisions of this Agreement shall continue to have full force and effect.
- 6.5 This Agreement shall be governed by and construed in accordance with the Scots law and any dispute or difference concerned with its terms shall be referred to the non-exclusive jurisdiction of the Scottish Courts.

IN WITNESS whereof these presents on this and the preceding 5 pages are executed as follows:

EXECUTED for and on behalf of
**NETWORK RAIL INFRASTRUCTURE
LIMITED**

at GLASGOW
on the 25TH day of JUNE 2008 by:



Director/Authorised Signatory

Full Name

Witness Signature

Full Name

Address


RONALD WILLIAM McQUAY

AMANDA MURBY
BUCHANAN HOUSE
58 PORT DUNDAS RD
GLASGOW
G4 0LQ.

EXECUTED for and on behalf of **BILFINGER
BERGER UK LIMITED**

at EDINBURGH

on 14 May 2008 by:

Director

Full Name

Director

Full Name

GARY STEVE DALTON

Richard James Lachen.

EXECUTED for and on behalf of **SIEMENS
PLC**

at EDINBURGH

on 14 May 2008 by:

Authorised Signatory

Full Name

Authorised Signatory

Full Name

C. ROTH

M. FLYNN



**THIS IS SCHEDULE PART 9 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 9

DISPUTE RESOLUTION PROCEDURE

1. The Parties agree that this Schedule Part 9 (*Dispute Resolution Procedure*) shall have effect for the resolution of any Dispute.
2. Subject to paragraph 15 hereof, any Dispute shall, in the first instance, be referred to the Internal Resolution Procedure in accordance with paragraph 9.
3. Neither Party shall commence any court proceedings until the procedures in paragraphs 9 to 54 have been completed, under exception that the provisions of this Schedule Part 9 (*Dispute Resolution Procedure*) shall not apply so as to prevent either Party seeking an interim order, or interim relief, in the Scottish courts.
4. In the event that any court proceedings whatsoever are initiated by either Party against the other, the Parties agree that the Court of Session, Scotland, shall have exclusive jurisdiction.
5. Neither Party shall be entitled to suspend the performance of its undisputed obligations under this Agreement merely by reason of the reference of any Dispute to the Dispute Resolution Procedure contained in this Schedule Part 9 (*Dispute Resolution Procedure*).
6. Subject to **tie's** and the Infraco's discretionary rights set out in paragraphs 55 to paragraph 71 to require that a Dispute and a Related Dispute (as defined in paragraph 55) be dealt with together at an appropriate stage of the Dispute Resolution Procedure, the provisions of this Schedule Part 9 (*Dispute Resolution Procedure*) are mandatory and binding upon the Parties. For the avoidance of doubt nothing in this Schedule Part 9 shall be intended to disapply section 80(2) and 79(2) of the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006 (together the "**Tram Acts**") respectively.
7. Except in relation to the matters provided for in paragraphs 14 to 54 and subject to the provisions of paragraph 8, in the event that either Party following the referral of any Dispute pursues such Dispute under the Dispute Resolution Procedure, and in the event that such Party fails to observe any time limit or timescale provided for in this Schedule Part 9 (*Dispute Resolution Procedure*) in relation to the pursuit or progression of such Dispute, such Party shall, upon such failure occurring and upon the expiry of 90 days following written notification from the other Party requiring the first Party to pursue the Dispute Resolution Procedure, be deemed to have irrevocably waived any right to pursue or progress such Dispute any further. In that event, such Party shall be deemed to have elected not to have referred such Dispute or to have withdrawn such Dispute from the Dispute Resolution Procedure and

shall be deemed to have irrevocably waived any right to refer any Dispute arising from the same or substantially the same Dispute or similar circumstances to the Dispute Resolution Procedure and shall be liable for payment of the whole fees incurred by any mediator or adjudicator who has acted in respect of such Dispute. This paragraph 7 is without prejudice to the rights of either Party to raise in defence to any Dispute any defence (including, without prejudice to the foregoing generality, any defence of retention, compensation or set-off) which would otherwise be available to it.

8. Notwithstanding the provisions of paragraph 7, in the event that a Party who pursues any Dispute under the Dispute Resolution Procedure fails to observe any time limit or timescale provided for in this Schedule Part 9 (*Dispute Resolution Procedure*) in relation to the pursuit or progression of the Dispute or fails to take action following a notification from the other Party pursuant to paragraph 7 above, the other Party may elect to waive such failure, in which event the time limit or timescale to which such failure relates shall be extended at the discretion of such other Party and the Dispute shall progress in accordance with the Dispute Resolution Procedure, subject that all other time limits and timescales provided for in this Schedule Part 9 (*Dispute Resolution Procedure*) which are affected by such extension shall be deemed to have been extended to give effect to such extension of the time limit or timescale to which such failure relates.

Internal Resolution Procedure

9. The following procedure is the Internal Resolution Procedure referred to in paragraph 2:
 - 9.1 In the event of any Dispute arising, the Infracore's Representative and **tie's** Representative shall seek to resolve the Dispute at a meeting to be convened within three Business Days of written notification by either Party to the other that it wishes to initiate the Internal Resolution Procedure in respect of that Dispute ("**Notification**"). Such Notification shall be given in accordance with the provisions of Clause 111 (*Notices*) of this Agreement.
 - 9.2 If following the meeting referred to in paragraph 9.1, the Dispute is not resolved or in the event that a meeting has not been convened within 3 Business Days pursuant to paragraph 9.1, each Party shall, before the expiry of the period of seven Business Days from Notification, serve, in accordance with the provisions of Clause 111 (*Notices*) of this Agreement, a written position paper ("**Position Paper**") upon the other Party. Each Party's Position Paper shall state in reasonable detail that Party's position and required objectives in relation to the Dispute; any required redress, and, where possible, any comments on the other Party's position.

- 9.3 Upon such service of a Position Paper by the Party initiating or pursuing the Dispute, the Chief Executive (or equivalent) of the Infraco and the Chief Executive (or equivalent) of **tie** (or their respective deputies in the event of their unavailability) shall seek to resolve the Dispute by meeting in good faith to discuss and negotiate upon the Dispute without recourse to legal or other proceedings.
- 9.4 In the event that resolution of the Dispute is achieved by the Chief Executive (or equivalent) of the Infraco and the Chief Executive (or equivalent) of **tie**, the resolution shall be reduced to writing and, once it is signed by the duly authorised representatives of both Parties, shall be binding on the Parties.
- 9.5 Unless concluded by a written legally binding agreement, all discussions and negotiations connected with the Dispute shall be conducted in confidence and without prejudice to the rights of the Parties in any future legal or other proceedings. Nor may such matters be produced or relied upon in evidence in any such proceedings.
10. In the event that any Dispute is not resolved by the Internal Resolution Procedure within a period of twenty Business Days from Notification (or longer if so agreed by the Parties) then the following provisions of this paragraph 10 shall apply;
- 10.1 The Chief Executive (or equivalent) of the Infraco and the Chief Executive (or equivalent) of **tie** (or their respective deputies in the event of their unavailability) shall, within a further period of five Business Days, seek to agree that the Dispute shall be resolved by any one of the following procedures:
- 10.1.1 mediation in accordance with paragraphs 11 to 13; or
- 10.1.2 adjudication in accordance with paragraphs 14 to 54; or
- 10.1.3 litigation before the Court of Session, Scotland, in which event the Summons in any such litigation shall be signeted and served within ten Business Days of the date of expiry of the period of 60 Business Days following the conclusion of the internal resolution procedure under paragraphs 9 and 10.
- In the event that the Chief Executive (or equivalent) of the Infraco and the Chief Executive (or equivalent) of **tie** (or their respective deputies in the event of their unavailability) are unable to agree that the Dispute be resolved by one of the procedures described in paragraphs 10.1.1, 10.1.2 or 10.1.3, the Party initiating or pursuing the Dispute may refer the Dispute to mediation (and thereafter adjudication, if necessary) in accordance with paragraphs 11 to 13 or in the case of a Related

Dispute conjoined by either Party pursuant to paragraph 55 or where a Related Dispute has already been referred to the decision of an adjudicator to adjudication in accordance with paragraphs 14 to 54 (without the need first to refer the Dispute to mediation).

Mediation

11. The Parties shall attempt in good faith to resolve the Dispute by a procedure of mediation in accordance with the Centre for Effective Dispute Resolution mediation rules or Model Mediation Procedure in force at the commencement of the mediation, (or in the event that the Centre for Effective Dispute Resolution has ceased to exist as at the time of the commencement of the mediation, mediation rules or a model mediation procedure offered by any other body offering commercial mediation services which shall be selected by agreement between the Parties failing such agreement by the Party referring the Dispute to mediation. In the event that any provision of such mediation rules or model mediation procedure conflicts with any provision of this Schedule Part 9 (*Dispute Resolution Procedure*), the provisions of this Schedule Part 9 (*Dispute Resolution Procedure*) shall take precedence. In the event that any timescales contained in such mediation rules or model mediation procedure conflicts with the timescales referred to in this Schedule Part 9 (*Dispute Resolution Procedure*), the timescales contained in such mediation rules or model mediation procedure shall be amended accordingly, such that the timescales referred to in this Schedule Part 9 (*Dispute Resolution Procedure*) shall be adhered to.
12. In the event that resolution of the Dispute is achieved in consequence of such mediation procedure, such agreed resolution shall be recorded in writing and, once it is signed by the duly authorised representatives of both Parties, shall be binding on the Parties. Unless concluded by a written legally binding agreement, all discussions and negotiations (including written submissions made and documents produced in relation thereto) connected with the mediation procedure referred to in paragraph 11 shall be conducted in confidence and without prejudice to the rights of the Parties in any future legal or other proceedings. Nor may such matters be produced or relied upon in evidence in any such proceedings.
13. If any Dispute to which this Schedule Part 9 (*Dispute Resolution Procedure*) relates is not resolved by the mediation procedure referred to in paragraphs 11 and 12 within a period of 30 Business Days from the referral of the Dispute to mediation (or longer if so agreed by the Parties), the mediation procedure shall be terminated and unless the Party initiating or pursuing the Dispute withdraws the Dispute the Dispute shall, within 60 days of the

termination of the mediation procedure be referred to adjudication in accordance with paragraphs 14 to 54.

Adjudication

14. In the event that either Party refers a Dispute to adjudication in terms of paragraph 10.1.2 or 13, or exercises a statutory right available to it under the Housing Grants, Construction and Regeneration Act 1996 to raise adjudication proceedings in relation to "construction operations" (within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996) which are not Authorised Works as defined in the Tram Acts, such adjudication shall be conducted in accordance with paragraphs 14 to 54, wherein any reference to "days" is a reference to calendar days.
15. Where a Related Dispute (as defined in paragraph 55) relates or is claimed by the other party to a Related Contract to relate to "construction operations" within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 and where such other party to a Related Contract claims to exercise a statutory right available to it under the Housing Grants, Construction and Regeneration Act 1996, then reference of the Dispute arising under this Agreement to the Internal Resolution Procedure (save as provided regarding the meeting to take place under paragraph 9.1) or to mediation shall not be a precondition to the commencement of adjudication proceedings. In the foregoing circumstances, **tie** or the Infraco shall be entitled to refer a Dispute at any time to adjudication in terms of paragraphs 14 to 54 hereof.

Notice of intention to seek adjudication

16. Either Party may give written notice (the "**Notice of Adjudication**") of its intention to refer the Dispute to adjudication and the Party giving such notice shall be the "**Referring Party**".
17. The Notice of Adjudication shall be given to the other Party and the Party receiving the Notice of Adjudication shall be the "**Responding Party**".
18. The Notice of Adjudication shall set out briefly:
 - 18.1 the nature and a brief description of the Dispute and of the parties involved;
 - 18.2 details of where and when the Dispute has arisen;
 - 18.3 the nature of the redress which is sought; and

- 18.4 the names and addresses of the Parties (including the addresses which the Parties have specified for the giving of notices).
19. The adjudicator selected to consider the Dispute shall be selected from one of the panels ("**Panels**") appointed by the Parties in accordance with the following:
- 19.1 there shall be three Panels, one in respect of legal matters, ("**Legal Panel**") one in respect of construction and operational matters ("**Construction/Operational Panel**"), and one in respect of financial matters ("**Financial Panel**").
- 19.2 each Panel shall be comprised of at least four members, who are listed in Schedule Part 10 (*Panels for the Dispute Resolution Procedure*) to the Agreement.
- 19.3 if any member of a Panel resigns or dies or becomes incapax or ill to the extent of being unable to reasonably discharge his duties as a member of the Panel, a replacement shall be appointed by the Parties as soon as practicable. Any such replacement shall be wholly independent of **tie**, any **tie** Party, TEL, Transport Scotland, the Infraco, any Infraco Party, CEC or any Relevant Authority, any Approval Body, the Tram Supplier, the Tram Maintainer, the MUDFA Contractor or any equipment supplier or any party associated with the Edinburgh Tram Network, and any successor to or subsidiary or parent of any of the aforementioned parties. If the Parties are unable to agree on the identity of such replacement(s), the President or Vice President for the time being of The Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers or the Law Society of Scotland shall appoint such replacement(s) within thirty days of any application for such appointment by either Party.
20. The Referring Party shall at the same time as giving the Notice of Adjudication to the Responding Party, send to each of the members of the relevant Panel a copy of the Notice of Adjudication and a request that each member of the relevant Panel advises both Parties within three days of the date of the Notice of Adjudication as to whether or not he is able and willing to act. The Referring Party shall (acting reasonably) be entitled to select which of the Panels is the relevant Panel in light of the subject matter of the Dispute. The Parties shall attempt to agree within two further days as to which one of the members of the relevant Panel who responded indicating that they are able and willing to act shall be requested to act as adjudicator. In the event that such agreement is reached, the Referring Party shall, within a further period of one day, request the member of the relevant Panel upon whom agreement has been reached to act as adjudicator. In the event that such agreement is not reached, the Responding Party shall, within a further period of two days, select one of the members of the

relevant Panel who responded indicating that they are able and willing to act and the Referring Party shall request that member to act as adjudicator.

21. If no member of the relevant Panel indicates that he is able and willing to act within three days of receiving a request to act as adjudicator, the Referring Party shall request the President or the Vice President for the time being of the Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers or the Law Society of Scotland to select a person to act as adjudicator.
22. Any person appointed, requested or selected to act as adjudicator in accordance with paragraphs 19, 20, 21, 24 and 25 shall be a natural person acting in his personal capacity. A person appointed, requested or selected to act as an adjudicator shall be wholly independent of **the**, any **the** Party, TEL, Transport Scotland, the Infraco, any Infraco Party, CEC or any Relevant Authority, any Approvals Body, the SDS Provider, the Tram Supplier, the Tram Maintainer, the MUDFA Contractor, or any equipment supplier or any party associated with the Edinburgh Tram Network, and Infraco Parties and any successor to or subsidiary or parent of any of the aforementioned parties.
23. The requests referred to in paragraphs 20 and 21 shall be accompanied by a copy of the Notice of Adjudication.
24. The Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers or the Law Society of Scotland must communicate the selection of an adjudicator to the Referring Party within three days of receiving a request to do so.
25. If the Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers or the Law Society of Scotland fails to comply with paragraph 24, the Referring Party may:
 - 25.1 agree with the other Party to the Dispute to request a specified person to act as adjudicator; or
 - 25.2 request any other adjudicator nominating body to select a person to act as adjudicator. An "adjudicator nominating body" shall mean a body (not being a natural person and not being a Party to the Dispute) which holds itself out publicly as a body which will select an adjudicator when requested to do so by a Referring Party.
26. The person requested to act as adjudicator in accordance with the provisions of paragraph 20 or 21 shall indicate whether or not he is willing to act within two days of receiving the request.

27. Where an adjudicator has been selected and appointed in accordance with paragraphs 19, 20 or 21 within seven days of the date of the Notice of Adjudication, then the Referring Party shall refer the Dispute in writing (the "**Referral**") to the adjudicator within that seven day period. Where an adjudicator has not been selected within and appointed within seven days of the Notice of Adjudication, then the Referral shall be made immediately upon such selection and appointment. Any failure on the part of the Referring Party to make the Referral within seven days of the date of the Notice of Adjudication shall not invalidate the decision of the adjudicator.
28. The Referral shall be accompanied by copies of, or relevant extracts from the Agreement and such other documents as the Referring Party intends to rely upon.
29. The Referring Party shall, at the same time as he sends to the adjudicator the documents referred to in paragraphs 27 and 28, send copies of those documents to the Responding Party.
30. The adjudicator may, with the consent of the parties to those Disputes, adjudicate at the same time on more than one Dispute under the Agreement.
31. The Parties may agree to extend the period within which the adjudicator may reach a decision in relation to all or any of these Disputes.
32. An adjudicator may resign at any time on giving notice in writing to the Parties.
33. An adjudicator must resign where the Dispute is the same or substantially the same as one which has previously been referred to adjudication, and a decision has been taken in that adjudication.
34. Where an adjudicator ceases to act under paragraph 32 or 33, or dies or becomes incapax or ill to the extent of being unable to reasonably discharge his duties:
- 34.1 the Referring Party may serve a fresh notice in accordance with paragraphs 16 to 18 and shall in accordance with paragraphs 19 to 29 request an adjudicator to act; and
- 34.2 if requested by the new adjudicator, the Parties shall supply him with copies of all documents which they had made available to the previous adjudicator.
35. The Parties to a Dispute may at any time agree to revoke the appointment of the adjudicator and in such circumstances the fees and expenses of that adjudicator shall, subject to paragraph 36, be determined and payable in accordance with paragraphs 52 and 53.

36. Where the revocation of the appointment of the adjudicator is due to the default or misconduct of the adjudicator, the Parties shall not be liable to pay the adjudicator's fees and expenses.

Powers of the Adjudicator

37. The adjudicator shall:

37.1 act impartially in carrying out his duties and shall do so in accordance with any relevant terms of the Agreement and shall reach his decision in accordance with Scots law; and

37.2 avoid incurring unnecessary expense.

38. The adjudicator may take the initiative in ascertaining the facts and the law necessary to determine the Dispute, and shall decide on the procedure to be followed in the adjudication. In particular, he may:

38.1 request either Party to supply him with such documents as he may reasonably require including, if he so directs, any written statement from either Party supporting or supplementing the Referral and any other documents given under paragraphs 28 and 29;

38.2 conduct the adjudication in the English language and decide whether a translation of any document is to be provided and, if so, by whom, by when, and at whose cost;

38.3 meet and question either Party and their representatives;

38.4 subject to obtaining any necessary consent from a third party or the Parties, make such site visits and inspections as he considers appropriate, whether accompanied by the Parties or not;

38.5 subject to obtaining any necessary consent from a third party or the Parties, procure the carrying out of any tests or experiments, and make directions as to the conditions for and responsibility for the cost of the same;

38.6 obtain and consider such representations and submissions as he requires, and, provided he has notified the Parties of his intention, appoint experts, assessors or legal advisers;

38.7 give directions as to the timetable for the adjudication, any deadlines, or limits as to the length of written documents or oral representations to be complied with; and

- 38.8 issue other directions relating to the conduct of the adjudication.
39. The Parties shall comply with any request or direction of the adjudicator in relation to the adjudication.
40. If, without showing sufficient cause, a Party fails to comply with any request, direction or timetable of the adjudicator made in accordance with his powers, fails to produce any document or written statement requested by the adjudicator, or in any other way fails to comply with a requirement under these provisions relating to the adjudication, the adjudicator may:
- 40.1 continue the adjudication in the absence of that Party or of the document or written statement requested;
 - 40.2 draw such inferences from that failure to comply as may, in the adjudicator's opinion, be justified in the circumstances;
 - 40.3 make a decision on the basis of the information before him, attaching such weight as he thinks fit to any evidence submitted to him outside any period he may have requested or directed;
 - 40.4 disqualify any part or parts of that Party's submissions affected by the failure to comply; and
 - 40.5 grant the other Party proper opportunity to consider and respond to any evidence or representation made late.
41. Subject to any agreement between the Parties to the contrary, either Party may be assisted by, or represented by, such advisers or representatives (whether legally qualified or not) as he considers appropriate.
42. The adjudicator shall consider any relevant information submitted to him by either Party and shall make available to them any information to be taken into account in reaching his decision.
43. The adjudicator and the Parties shall not disclose to any other person any information or document provided in connection with the adjudication which the Party supplying it has indicated is to be treated as confidential, except to the extent that disclosure is required by law or is necessary for the purposes of, or in connection with, the adjudication, or the information is already in the public domain.

Adjudicator's Decision

44. Unless otherwise agreed in accordance with paragraph 56.1 or 65.1 the adjudicator shall reach his decision not later than:
- 44.1 twenty eight days after the date of the Referral as defined in paragraph 27;
 - 44.2 forty two days after the date of the Referral if the Referring Party so consents; or
 - 44.3 such period exceeding twenty eight days after the Referral as the Parties may, after the giving of that notice, agree.
45. Where the adjudicator fails, for any reason, to reach his decision in accordance with paragraph 44:
- 45.1 either of the Parties to the Dispute may serve a fresh notice in accordance with paragraphs 16 to 18 and shall request an adjudicator to act in accordance with paragraphs 19 to 29; and
 - 45.2 if requested by the new adjudicator the Parties shall supply him with copies of all documents which they had made available to the previous adjudicator.
46. As soon as possible after he has reached a decision, the adjudicator shall deliver a copy of that decision to each of the Parties.
47. The adjudicator shall decide the matters in Dispute and may make a decision on different aspects of the Dispute at different times.
48. The adjudicator may take into account any other matters which the Parties agree should be within the scope of the adjudication or which are matters under the Agreement which he considers are necessarily connected with the Dispute and, in particular, he may:
- 48.1 open up, review and revise any decision taken or any notice certifying payment given by any person referred to in the Agreement, unless the Agreement states that the decision or notice certifying payment is final and conclusive;
 - 48.2 decide that any of the Parties to the Dispute is liable to make a payment under the Agreement (whether in sterling or some other currency) and, subject to the terms of the Agreement, when that payment is due and the final date for payment.
49. The adjudicator shall provide written reasons for his decision.

Effect of the Decision

50. In his decision, the adjudicator may, if he thinks fit, order either or both of the Parties to comply forthwith with his decision or any part of it. In the absence of any directions by the adjudicator relating to the time for performance of his decision, the Parties shall be required to comply with any decision of the adjudicator immediately on delivery of the decision to the Parties in accordance with paragraph 46.
51. The decision of the adjudicator shall be binding on the Parties, and they shall comply with it, until the Dispute is finally determined by legal proceedings or by agreement between the Parties.
52. The adjudicator shall be entitled to the payment of such reasonable amount as he may determine by way of fees and expenses incurred by him and the Parties shall be jointly and severally liable to pay that amount to the adjudicator.
53. Without prejudice to the right of the adjudicator to effect recovery from either Party in accordance with paragraph 52, the adjudicator may by direction determine the apportionment between the parties of liability for his fees and expenses.
54. The adjudicator shall not be liable for anything done or omitted in the discharge or purported discharge of his functions as adjudicator unless the act or omission is in bad faith, and any employee or agent of the adjudicator shall be similarly protected from liability.

Related Disputes

55. In the event that a Dispute arising under, out of or in connection with this Agreement which in the opinion of **tie** or the Infraco relates to a dispute or difference arising out of or in connection with any agreement associated with the Edinburgh Tram Network between **tie** and a third party or the Infraco and a third party (a "Related Contract") all such disputes or differences being referred to as a "**Related Dispute**", then providing that the Related Contract contains dispute resolution provisions in terms substantially the same as set out in this Schedule Part 9 (*Dispute Resolution Procedure*) (save for necessary changes), **tie** or the Infraco (as the case may be) may by written notice to the other request that the Dispute and the Related Dispute be dealt with together at an appropriate stage of the Dispute Resolution Procedure.

Referral of a Dispute under this Agreement to a Related Adjudicator

56. In the event that a Related Dispute has already been referred to the decision of an adjudicator ("**Related Adjudicator**") in accordance with the provisions of the Related Contract, and **tie** or the Infraco (as the case may be) is of the opinion, acting reasonably, that a Dispute is to be (but has not yet been) referred to adjudication under this Schedule Part 9 (*Dispute Resolution Procedure*), **tie** or the Infraco (as the case may be) may refer the Dispute to the Related Adjudicator. **tie** and the Infraco agree that, without fettering or restricting the adjudicator's power and authority in any way, it is their intention that such adjudicator shall, insofar as is relevant, practicable and appropriate, come to the same conclusion as to the facts and apply the same reasoning and analysis in reaching a decision on the Dispute as the adjudicator's conclusions, reasoning and analysis applied by him as the Related Adjudicator in the Related Dispute. The adjudicator shall:
- 56.1 if practicable, hear the Dispute at the same time as the Related Dispute and shall request such extension of time for producing his decision or award as he may require in order to reach a decision in respect of each of the Dispute and the Related Dispute at the same time. The Parties shall agree to such request for an extension of time, except in the event that the Dispute or the Related Dispute relates to "construction operations", which are not Authorised Works, within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the adjudicator);
- 56.2 except in the event that the Dispute or the Related Dispute relates to "construction operations", which are not Authorised Works, within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the adjudicator), have power (if so requested by **tie** and the Infraco) to make his decisions or awards in the Dispute and the Related Dispute in such a manner as if the rules applicable in the Court of Session, Scotland as to the joining of one or more defenders or third parties or conjoining actions were applicable to the Parties to the Dispute and the Related Dispute, and to the adjudicator; and
- 56.3 **tie** or the Infraco (as the case may be) shall procure that, as soon as practicable, the other party or parties to the Related Dispute shall give the Infraco or **tie** (as the case may be) copies of the Related Contract, the Referral Notice in the Related Dispute and

any other documentation provided to the adjudicator by any party to the Related Dispute.

tie's or Infraco's request to consolidate a Related Dispute with a Dispute

57. Where a Related Dispute has been referred to adjudication, **tie** or the Infraco (as the case may be) may by written notice request the adjudicator (copied to the Infraco or **tie** as the case may be and to the other party to the Related Dispute) to consolidate the Related Dispute with the Dispute with a view to allowing all questions arising out of the Dispute and the Related Dispute to be disposed of in the adjudication. Where **tie** or the Infraco (as the case may be) request the adjudicator to consolidate the Dispute and Related Dispute then **tie** or the Infraco (as the case may be) shall (or may procure that the other party to the Related Dispute shall) as soon as practicable, and in any case within fourteen (14) days of the referral of the Dispute to the adjudicator, give to the adjudicator conducting the adjudication under this Agreement and also to the other parties to the Dispute and the Related Dispute the following particulars:

57.1 a copy of the relevant Related Contract;

57.2 a preliminary statement from **tie**, the Infraco and/or, as the case may be, the other party to the Related Dispute setting out:

57.2.1 the basis and the grounds for consolidation of the Related Dispute and the Dispute;

57.2.2 the cases of the parties to the Related Dispute;

57.2.3 any relief sought by the parties to the Related Dispute; and

57.2.4 a list of any documents served in relation to the Related Dispute.

Any such particulars sent by **tie**, the Infraco or the other party to the Related Dispute (as the case may be) to the adjudicator shall be sent at the same time to **tie**, the Infraco and the other party to the Related Dispute (as the case may be.)

58. On receiving the particulars set out in paragraph 57 above, provided that such particulars have been received within fourteen (14) days of the referral of the Dispute to the adjudicator, the adjudicator shall if he considers that the Dispute and the Related Dispute are substantially the same or connected one to the other, immediately request that the parties to the Dispute and the other party to the Related Dispute attend a meeting with the adjudicator with a view to determining whether or not the Dispute and the Related Dispute should be consolidated. If the

Adjudicator and all the relevant parties agree, they may hold a telephone conference call instead of a meeting, and in such event references in paragraphs 58 to 62 to a meeting or to attending a meeting, shall mean a telephone conference call and taking part in such a telephone conference call.

59. **tie** or the Infraco (as the case may be) shall use its reasonable endeavours to procure that an authorised representative or nominee of the other party to the Related Dispute shall attend the meeting with the adjudicator referred to in paragraph 58 above. **tie** and the Infraco each agree to send an authorised representative or nominee to any meeting of this kind under this Agreement or under a Related Contract, which they may be requested to attend.
60. At the meeting referred to in paragraph 58 above, the Party which has not requested the adjudicator to consolidate the Dispute with the Related Dispute shall, as a preliminary matter, either:
- 60.1 confirm to the adjudicator that it accepts the proposed consolidation of the Related Dispute with the Dispute; or
- 60.2 inform the adjudicator that it does not accept the proposed consolidation of the Related Dispute with the Dispute.

Decision to Consolidate

61. Where paragraph 60.1 applies, or if **tie's** authorised representative or nominee or if the Infraco's authorised representative or nominee (as the case may be) does not attend the meeting referred to in paragraph 58 above (having received due notice thereof) the adjudicator shall if he considers that the Dispute and the Related Dispute are substantially the same or connected one to the other immediately issue a decision consolidating the Dispute and the Related Dispute and shall have the authority and the power referred to in paragraph 63 below.
62. Where paragraph 60.2 above applies, or if **tie's** authorised representative or nominee or if the Infraco's authorised representative or nominee (as the case may be) attends the meeting referred to in paragraph 58 above but does not confirm to the adjudicator whether or not **tie** or the Infraco (as the case may be) accepts or does not accept the proposed consolidation of the Related Dispute with the Dispute, the adjudicator shall issue within one (1) Business Day of the meeting referred to in paragraph 58 above his written decision, as to whether or not the Dispute and the Related Dispute are substantially the same or connected. If the adjudicator considers that the Dispute and the Related Dispute are not substantially the same or not connected one to the other, or has failed or is unable to reach a decision within one (1)

Business Day of the meeting referred to in paragraph 58, the Dispute and the Related Dispute shall not be consolidated. If the adjudicator considers that the Dispute and the Related Dispute are substantially the same or connected one to the other the adjudicator shall immediately issue a decision consolidating the Dispute and the Related Dispute and the adjudicator shall have the authority and the power referred to in paragraph 63 below.

63. The adjudicator shall have the authority and power to consolidate the Dispute and the Related Dispute and to direct that all procedural and/or evidential matters arising in both the Dispute and the Related Dispute are dealt with in whatever manner the adjudicator considers shall lead to the fair and expeditious resolution of both the Dispute and the Related Dispute and the parties (including the other party to the Related Dispute) shall thereafter abide by and implement such consolidation and any such direction and any decision of the adjudicator. For the foregoing purposes:

63.1 unless the context otherwise requires, the provisions of the adjudication rules in this Schedule Part 9 shall apply as between **tie** and the Infraco (as the case may be) and the other party to the Related Dispute, as they apply between the Infraco and **tie** in relation to the Dispute; and

63.2 the adjudicator shall have the same authority and powers as if the Related Dispute constituted a dispute or difference between **tie** and the Infraco.

64. In the event that the Related Dispute is consolidated with the Dispute, the adjudicator shall reach a decision on the Dispute and the Related Dispute at the same time and in any event within twenty eight (28) days of the earlier of the referral of the Dispute or the referral of the Related Dispute, or such longer period as is agreed by the parties to the Dispute and the Related Dispute after the date that the Related Dispute has been consolidated with the Dispute. The adjudicator shall be entitled to extend the said period of twenty eight (28) days by up to fourteen (14) days with the consent of the party by whom the Dispute and (where applicable) the Related Dispute were referred.

Referral of a Related Dispute to the Adjudicator

65. In the event that a Dispute has already been referred to the decision of an adjudicator, and **tie** or the Infraco (as the case may be) is of the opinion (acting reasonably) that a Related Dispute is to be (but has not yet been) referred to adjudication, **tie** or the Infraco (as the case may be) may refer the Related Dispute to the adjudicator appointed in relation to the Dispute under this Schedule Part 9 (*Dispute Resolution Procedure*). **tie** and the Infraco agree that, without fettering or restricting the adjudicator's power and authority in any way, it is their intention

that the adjudicator shall, insofar as is relevant, practicable and appropriate, come to the same conclusion as to the facts and apply the same reasoning and analysis in reaching a decision on the Related Dispute as the adjudicator's conclusions, reasoning and analysis applied by him as adjudicator in relation to the Dispute under this Agreement. The adjudicator shall:

- 65.1 if practicable, hear the Related Dispute at the same time as the Dispute and shall request such extension of time for producing his decision or award as he may require in order to reach a decision in respect of each of the Dispute and the Related Dispute at the same time. The Parties shall agree to such request for an extension of time, except in the event that the Dispute or the Related Dispute relates to "construction operations" which are not Authorised Works within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the Adjudicator);
- 65.2 except in the event that the Dispute or the Related Dispute relates to "construction operations" which are not Authorised Works within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the Adjudicator), have power (if so requested by **tie** and the Infraco) to make his decisions or awards in the Dispute and the Related Dispute in such a manner as if the rules applicable in the Court of Session, Scotland as to the joining of one or more defenders or third parties or conjoining actions were applicable to the Parties to the Dispute and the Related Dispute, and to the adjudicator; and
- 65.3 as soon as practicable, **tie** or the Infraco (as the case may be) shall give to the Infraco or **tie** (as the case may be) copies of the Related Contract, the Referral Notice in the Related Dispute and any other documentation provided to the adjudicator by any party to the Related Dispute.

Consolidation of a Dispute under this Agreement with a Related Dispute

- 66. In the event that, subject to paragraph 67, an adjudicator under a Related Contract (“**Related Adjudicator**”), who is permitted pursuant to the Related Contract to do so, decides that a Dispute under this Agreement be consolidated with a Related Dispute with which the Related Adjudicator is dealing under the Related Contract, then:
 - 66.1 notwithstanding anything in the adjudication rules in this Schedule Part 9, with effect from the time of such decision, the adjudicator shall cease to have authority or

- jurisdiction to determine the Dispute which shall instead be determined by the Related Adjudicator and the appointment of the adjudicator under this Agreement shall cease;
- 66.2 such decision shall be binding on **tie** and the Infraco and both of them shall acknowledge the appointment of the Related Adjudicator as the adjudicator of the Dispute;
- 66.3 **tie** and the Infraco shall be jointly liable with the other party to the relevant Related Contract for the Related Adjudicator's reasonable fees and expenses including those reasonable fees and expenses of any specialist consultant or adviser (excluding legal) appointed by the Related Adjudicator in accordance with the adjudication procedure in the Related Agreement, in respect of the period after the date on which the Dispute is consolidated with the Related Dispute pursuant to a decision of the Related Adjudicator;
- 66.4 without prejudice to the right of the Related Adjudicator to effect recovery from either party in accordance with paragraph 66.3, **tie** and the Infraco agree that the Related Adjudicator may by direction determine the apportionment between the parties of liability for his fees and expenses referred to in paragraph 66.3; and
- 66.5 notwithstanding anything to the contrary a Dispute under this Agreement shall only be consolidated with a Related Dispute, if the Related Adjudicator receives particulars of the Dispute within fourteen (14) days of the referral of the Related Dispute to the Related Adjudicator under the Related Contract.
67. Where the Related Adjudicator receives a request under the Related Contract, that a Dispute under this Agreement be consolidated with a Related Dispute with which he is dealing under the Related Contract, **tie** and the Infraco acknowledge that the Related Adjudicator may immediately request that they, together with the other party to the Related Dispute, attend a meeting with the Related Adjudicator with a view to determining whether or not the Dispute and the Related Dispute should be consolidated. If the Related Adjudicator and all the relevant parties agree, they may hold a telephone conference call instead of a meeting, and in such an event references in paragraphs 67 to 71 to a meeting or to attending a meeting shall mean a telephone conference call and taking part in such a telephone conference call.
68. **tie** and the Infraco each agree to send an authorised representative or nominee to any meeting of this kind under this Agreement or under a Related Agreement, which they may be requested to attend.

69. At the meeting referred to in paragraph 67 above, the Party which has not requested the Related Adjudicator to consolidate the Related Dispute with the Dispute shall, as a preliminary matter, either:
- 69.1 confirm to the Related Adjudicator that it accepts the proposed consolidation of the Dispute with the Related Dispute; or
- 69.2 inform the Related Adjudicator that it does not accept the proposed consolidation of the Dispute with the Related Dispute.
70. Where paragraph 69.1 applies, or if **tie's** authorised representative or nominee or if the Infracore's authorised representative or nominee (as the case may be) fails to attend the meeting referred to in paragraph 67 above (having received due notice thereof), the Related Adjudicator shall if he considers that the Dispute and the Related Dispute are substantially the same or connected one to the other, immediately issue a decision consolidating the Dispute and the Related Dispute and shall have the authority and the power to consolidate the Dispute and the Related Dispute and to direct that all procedural and/or evidential matters arising in both the Dispute and the Related Dispute are consolidated in whatever manner the Related Adjudicator considers shall lead to the fair and expeditious resolution of both the Dispute and the Related Dispute and the parties (including the party to the Related Dispute) shall thereafter abide by and implement such consolidation and any such direction.
71. Where paragraph 69.2 applies or if **tie's** authorised representative or nominee or if the Infracore's authorised representative or nominee (as the case may be) attends the meeting referred to in paragraph 67 but does not confirm to the Related Adjudicator whether or not that **tie** or the Infracore (as the case may be) accepts or does not accept the proposed consolidation of the Dispute with the Related Dispute, the Related Adjudicator shall within one (1) Business Day of the meeting referred to in paragraph 67 issue his written decision, as to whether or not the Dispute and the Related Dispute are substantially the same or connected. If the Related Adjudicator considers that the Dispute and the Related Dispute are not substantially the same or not connected one to the other, or has failed or is unable to reach a decision within 1 Business Day of the meeting referred in paragraph 67, the Dispute and the Related Dispute shall not be consolidated. If the Related Adjudicator considers that the Related Dispute and the Dispute are substantially the same or connected one to the other, the Related Adjudicator shall immediately issue a decision consolidating the Dispute and the Related Dispute and shall have the authority and the power to consolidate the Dispute and the Related Dispute and to direct that all procedural and/or evidential matters arising in both the Dispute and the Related Dispute are consolidated in whatever manner the Related Adjudicator considers shall lead to

the fair and expeditious resolution of both the Dispute and the Related Dispute and the parties (including the party to the Related Dispute) shall thereafter abide by and implement such consolidation and any such direction.



**THIS IS SCHEDULE PART 10 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE 10
PANELS FOR DISPUTE RESOLUTION PROCEDURE

CONSTRUCTION/OPERATIONAL

Alan Wilson

[REDACTED]

DERBYSHIRE

[REDACTED]

Tony Canham

[REDACTED]

NORWICH

[REDACTED]

Peter Chapman

[REDACTED]

OXSHOTT

SURREY

[REDACTED]

Guy Cottam

[REDACTED]

BATH

[REDACTED]

FINANCIAL

Nigel Lowe

Nigel Lowe Consulting Limited

[REDACTED]

LONDON

[REDACTED]

Bryan Porter

[REDACTED]

GLASGOW

[REDACTED]

John Hunter

Hunter Consulting

[REDACTED]

STIRLING

[REDACTED]

Eric Mouzer

[REDACTED]

BIRMINGHAM

[REDACTED]

LEGAL

Lord Dervaird (Prof. John Murray QC)

[REDACTED]
EDINBURGH
[REDACTED]

Gordon Coutts, QC

[REDACTED]
EDINBURGH
[REDACTED]

Robert Howie, QC

[REDACTED]
EDINBURGH
[REDACTED]

Nick Ellis

[REDACTED]
Parliament House
EDINBURGH
[REDACTED]



**THIS IS SCHEDULE PART 11 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 11

REQUIRED INSURANCES

PART 1

Infraco will no later than 7 days of receipt of a written request from **tie** (in respect of certificates) and as soon as reasonably practicable in respect of policies and other documents, to supply **tie** with copies of all placing slips, certificates, cover notes, renewal receipts and confirmations of renewal and payment of premiums and all policy documents (or confirmation of the terms of such policy documents where such policy documents cannot be made available) in respect of the Required Insurances, or upon request, to make available to you the originals of any or all such documents held by us;

1. PROFESSIONAL INDEMNITY INSURANCE

Insured Parties: **Bilfinger Berger UK Limited** and any sub consultants retained by a written contract and engaged in the delivery of the Infraco Works.

Coverage: To indemnify the Insured Parties against legal liability for damages or compensation made against them during the Period of Insurance arising out of or in consequence of or as a result of any act, error, or omission by the Infraco or the designer, their subcontractors and consultants in the performance of their professional activities and duties in connection with the activities forming the subject of this Agreement.

Limit of Indemnity: GBP 10,000,000 on an each and every occurrence basis and in the aggregate during each twelve month Period of Insurance subject to one reinstatement of the limit of indemnity for each twelve month Period of Insurance.

Period of Insurance: From the Effective Date for twelve months and thereafter each further twelve month period until the earlier of twelve years from the completion of the activities forming the subject of this Agreement or twelve years from the date of termination of this Agreement.

Extensions: The insurance must include the following minimum extensions:

- Libel or slander
- Dishonesty of employees
- Innocent non-disclosure
- Liability for acts of specialist designers, consultants, sub-consultants and sub-contractors of any tier employed by the Insured and retained by a written contract
- Breach of intellectual property rights
- Loss of documents
- Waiver of subrogation between Insured Parties
- Indemnity to principals
- Inclusion of directors, officers, partners and employees as Insured Parties

Maximum Permitted Deductible: GBP 25,000

2. EMPLOYERS' LIABILITY INSURANCE

Insured Party: Bilfinger Berger UK Limited

Coverage: To indemnify the Insured Party against legal liability for damages or compensation arising out of bodily injury including death, illness, disease and psychiatric damage sustained by any employee arising out of and in the course of the employee's employment caused during the Period of Insurance.

Limit of Liability: Minimum limit of indemnity of GBP10,000,000 any one occurrence or series of occurrences arising from one original cause or event, unlimited during the Period of Insurance.

Period of Insurance: From the Effective Date for twelve months and thereafter each further twelve month period until the expiry or earlier date of termination of this Agreement.

Minimum Extensions: The insurance must include the following minimum extensions:

- Contractual liability
- Claimant's and defence costs and expenses
- Indemnity to principals
- Inclusion of directors, officers, partners and employees as Insured Parties
- Health and Safety legislation prosecution costs including costs of an appeal
- Unsatisfied court judgements
- Compensation for court attendance
- Definition of employee to include as a minimum persons under a contract of service or apprenticeship, labour only subcontractors, self-employed persons, labour masters or persons supplied by them, operators and drivers of hired in plant.

Maximum Permitted Deductible: NIL

3. INFRACO CONTRACTOR'S PLANT

Insured Party: Bilfinger Berger UK Limited

Coverage: "All risks" of loss or destruction of or damage to the Property Insured by any cause not excluded.

Property Insured

Constructional plant, tools and equipment of any kind including site huts, temporary buildings and their contents the property of any Insured Party or for which they are responsible to insure.

Limit of Liability: The value of the plant, tools and equipment.

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| Period of Insurance: | From the Effective Date until expiry or earlier date of termination of this Agreement. |
| Minimum Extensions: | <p>The insurance must include the following minimum extensions:</p> <ul style="list-style-type: none"> • Property in transit other than mechanically-propelled plant in transit under its own power • Recovery of immobilised plant • Negligent breakdown of hired-in plant • Continuing hire charges |
| Exclusions: | BB's legal liability to loss or damage of third party property shall be covered by BB Annual Public Liability Policy. |
| Maximum Permitted Deductible: | EURO 100,000; 10% co-insurance for flood damage subject to minimum EURO 1,000,000, maximum EURO 5,000,000 |

4. COMPREHENSIVE MOTOR INSURANCE

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|--------------------------------------|---|
| Insured Party: | Bilfinger Berger UK Limited |
| Coverage: | Comprehensive in respect of loss or damage to Own Vehicles. Legal liability for death, injury or loss of or damage to Third Party Property. |
| Limit of Liability: | <p>Own Damage - Self Funded</p> <p>Third Party: Bodily Injury - Unlimited.</p> <p>Property Damage by Cars £20,000,000 any one occurrence</p> <p>Property Damage by Commercial Vehicles £5,000,000 any one occurrence</p> <p>unlimited during the Period of Insurance</p> |
| Period of Insurance: | From the 1 st January each year for twelve months and thereafter each further twelve month period until expiry or earlier date of termination of this Agreement. |
| Minimum Extensions | <p>The insurance must include the following minimum extensions:</p> <ul style="list-style-type: none"> • Contingent motor liability • Passenger indemnity and negligence of passengers • Occasional business use by employees • Unauthorised movement • Indemnity to principals • Unauthorised use by employees |
| Maximum Permitted Deductible: | <p>GBP 250 in respect of own damage</p> <p>GBP NIL in respect of third party liability</p> |

1. PROFESSIONAL INDEMNITY INSURANCE

Insured Parties: Siemens Transportation Systems

Coverage: To indemnify the Insured against legal liability for property damage or bodily injury made against them during the Period of Insurance arising out of or in consequence of or as a result of any act, error, or omission by the Insured in the performance of their professional activities and duties in connection with the activities forming the subject of this Agreement. Subcontractors are not covered under Siemens insurance and Key Subcontractors will be required to obtain their own coverage. Note:- Siemens will ensure that Key Sub Contractors will provide Professional Indemnity Insurance under their sub contracts.

Limit of Indemnity: Minimum GBP 10,000,000 (or such other sum as may be agreed in writing by ~~tie~~) on an each and every occurrence basis and in the aggregate during each twelve month Period. The aggregate limit would be in respect of Siemens Transportation Systems work on this project.

Period of Insurance: From the Effective Date for twelve months annually renewable thereafter until completion of the activities forming the subject of this Agreement. The insurance is on a claims occurring basis and would be renewed annually for the duration of Siemens activities on the project including maintenance phase.

Extensions: The insurance must include the following minimum extensions:
~~Libel or slander~~
~~Dishonesty of employees~~
~~Innocent non-disclosure~~
~~Liability for acts of specialist designers, consultants, sub-consultants and sub-contractors of any tier employed by the Insured~~
~~Breach of intellectual property rights~~
~~Loss of documents~~
~~Waiver of subrogation between Insured Parties~~

- Indemnity to principals
- Inclusion of directors, officers, partners and employees as Insured Parties. Siemens' Professional Indemnity coverage (bodily injury/property damage) is an extension of the Global Liability Program which doesn't include the deleted extensions. Siemens will self insure these extensions.

Maximum Permitted Deductible: deductible €20,000

2. EMPLOYERS' LIABILITY INSURANCE

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| Insured Party: | Siemens Transportation Systems |
| Coverage: | To indemnify the Insured Party against legal liability for damages or compensation arising out of bodily injury including death, illness, disease and psychiatric damage sustained by any employee arising out of and in the course of the employee's employment caused during the Period of Insurance. |
| Limit of Liability | Minimum limit of indemnity of GBP10,000,000 any one occurrence or series of occurrences arising from one original cause or event, unlimited during the Period of Insurance. |
| Period of Insurance: | From the Effective Date for twelve months and thereafter each further twelve month period until the expiry or earlier date of termination of this Agreement. |
| Minimum Extensions | <p>The insurance must include the following minimum extensions:</p> <ul style="list-style-type: none">• Claimant's and defence costs and expenses• Indemnity to principals• Inclusion of directors, officers, partners and employees as Insured Parties• Health and Safety legislation prosecution costs including costs of an appeal• Unsatisfied court judgements• Compensation for court attendance• Definition of employee to include as a minimum persons under a contract of service or apprenticeship, labour only subcontractors, self-employed persons, labour masters or persons supplied by them, operators and drivers of hired in plant• |
| Maximum Permitted Deductible: | NIL |

3. INFRACO CONTRACTOR'S PLANT

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|---------------------------|--|
| Insured Party: | Siemens Transportation Systems |
| Coverage: | <p>"All risks" of loss or destruction of or damage to the Property Insured by any cause not excluded.</p> <p><u>Property Insured</u></p> <p>Constructional plant, tools and equipment of any kind including site huts, temporary buildings and their contents the property of any Insured Party or for which they are responsible.</p> |
| Limit of Liability | The value of the plant, tools and equipment (maximum €30,000,000 any one site). |

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| Period of Insurance: | From the Effective Date until expiry or earlier date of termination of this Agreement. |
| Minimum Extensions | <p>The insurance must include the following minimum extensions:</p> <ul style="list-style-type: none"> • Property in transit other than mechanically propelled plant in transit is covered under Siemens Global Marine Program. • Coverage applicable to UK does cover additional expenditure reasonably incurred to avoid/reduce business interruption following a property damage claim but there is a sizeable excess as quoted. |
| Exclusions | The subject of this insurance is Siemens own plant – damage to other property would not be covered under this insurance. Legal liability for damage to other property insurable under Public Liability policy. |
| Maximum Permitted Deductible: | EURO 100,000; 10% co-insurance for flood damage subject to minimum EURO 1,000,000, maximum EURO 5,000,000 |

4. COMPREHENSIVE MOTOR INSURANCE

| | |
|--------------------------------------|--|
| Insured Party: | Siemens Transportation Systems |
| Coverage: | Legal Liability for death, injury, illness or disease or loss of or damage to Third Party Property. |
| Limit of Liability | <p>Own Damage - Self funded</p> <p>Third Party: Bodily Injury - Unlimited. Property Damage by Cars £20,000,000 any one occurrence Property Damage by Commercial Vehicles £5,000,000 any one occurrence unlimited during the Period of Insurance</p> |
| Period of Insurance: | From the Effective Date for twelve months and thereafter each further twelve month period until expiry or earlier date of termination of this Agreement. |
| Minimum Extensions | <p>The insurance must include the following minimum extensions:</p> <p>Contingent motor liability Passenger indemnity and negligence of passengers Occasional business use by employees Unauthorised movement Indemnity to principals Unauthorised use by employees</p> |
| Maximum Permitted Deductible: | Self funded in respect of third party liability (Siemens deductible £50,000). |

PART 2

FORM OF BROKERS LETTER OF UNDERTAKING

To: [THE EMPLOYER]

Dear Sirs

We confirm in our capacity as insurance brokers that the Required Insurances specified in Clause 76 (*Required Insurances*) and Schedule 11 (*Required Insurances*) of the Agreement dated ♦ between Bilfinger Berger UK Limited and Siemens Plc (together the "**Infraco**") and **tie** as defined therein are, as at the date hereof, in effect in respect of the risks set out in the attached cover notes.

We have arranged the Required Insurances on the basis of the information and instructions given by [Bilfinger Berger UK Limited] [Siemens Plc]. We have not made any particular or special enquiries regarding the Required Insurances beyond those that we would normally make in the ordinary course of arranging the insurances on behalf of our insurance broking clients.

The confirmations set out in this letter are given by reference to our state of knowledge at the date hereof.

Pursuant to instructions received from [Bilfinger Berger UK Limited] [Siemens Plc], we hereby undertake in respect of the interests of [Bilfinger Berger UK Limited] [Siemens Plc] and **tie** in the Required Insurances referred to in the attached cover notes:

1. to use reasonable endeavours to have endorsed on each and every policy evidencing the Required Insurances when the same is issued, endorsements substantially in the form set out in Schedule 11 (*Required Insurances*) of the Agreement;
2. to advise **tie**:
 - 2.1 promptly after receiving notice of any insurer's cancellation or suspension of any of the Required Insurances or receiving notice of the intended cancellation or suspension of any of the Required Insurances;
 - 2.2 promptly upon our receipt from [Bilfinger Berger UK Limited] [Siemens Plc] of any notice of any changes proposed to be made to the Required Insurances which, if effected, would result in a material reduction in limits or coverage (including in respect of extensions of cover) or in an increase in deductibles, exclusions or exceptions;
 - 2.3 of any default in the payment of any premium for any of the Required Insurances;
 - 2.4 at least twenty days prior to the expiry of any of the Required Insurances if we have not received written renewal instructions from [Bilfinger Berger UK Limited] [Siemens Plc] or if we receive written instructions to renew, to advise **tie** of the details thereof; and
 - 2.5 on receipt of notice of any act or omission of [Bilfinger Berger UK Limited] [Siemens Plc] or any Sub-Contractor which will invalidate or render unenforceable in whole or in part, any of the Required Insurances;
3. no later than 7 days (in respect of certificates) and as soon as reasonably practicable in respect of policies and other documents, to supply you and/or your insurance advisors (or your or their

authorised representative) copies of all placing slips, certificates, cover notes, renewal receipts and confirmations of renewal and payment of premiums and all policy documents (or confirmation of the terms of such policy documents where such policy documents cannot be made available) in respect of the Required Insurances, or upon request, to make available to you the originals of any or all such documents held by us;

4. to disclose to the insurers any fact, change of circumstance or occurrence is material to the risks insured against under the Required Insurances;
5. to treat as confidential all information in relation to the Required Insurances supplied to us by [Bilfinger Berger UK Limited] [Siemens Plc] or any Sub-Contractor or **tie** and not to disclose, without the written consent of **tie**, such information to any third party other than the insurers under the Required Insurances, unless required to do so by law or any regulatory authority; and
6. to notify **tie** as soon as reasonably practicable prior to our ceasing to act as brokers to [Bilfinger Berger UK Limited] [Siemens Plc], unless impracticable because of circumstances beyond our control, in which case we shall notify **tie** as soon as reasonably practicable upon becoming aware that we shall cease, or have ceased, so to act.

Where insurers wish any of the Required Insurances to be cancelled for reasons of non-payment of premium, we will request those insurers to give you a reasonable opportunity of paying such amounts outstanding before issuing notice of cancellation on behalf of such insurers.

The above undertakings are given subject to our continuing appointment for the time being as insurance brokers to the [Bilfinger Berger UK Limited] [Siemens Plc] in relation to the Required Insurances concerned and the monitoring and handling of claims in relation to the [Bilfinger Berger UK Limited] [Siemens Plc], and our obligations set out in this letter shall automatically cease upon termination of our appointment.

For the avoidance of doubt all undertakings and other confirmations given in this letter relate solely to the Required Insurances. They do not apply to any other insurances and nothing in this letter should be taken as providing any undertakings or confirmations in relation to any other such insurance that ought to have been placed or may at some future date be placed by other brokers.

This letter is given by us on the instructions of the [Bilfinger Berger UK Limited] [Siemens Plc] and with [Bilfinger Berger UK Limited's] [Siemens Plc's] full knowledge and consent as to its terms as evidenced by [Bilfinger Berger UK Limited's] [Siemens Plc's] signature below.

This letter shall be governed by and shall be construed in accordance with Scots Law and any dispute as to its terms shall be submitted to the exclusive jurisdiction of the courts of Scotland.

Yours faithfully

.....
For and on behalf of (Insurance Broker)

.....
For and on behalf of ([Bilfinger Berger UK Limited] [Siemens Plc])

PART 3

INSURANCE QUESTIONNAIRE

| ALL CLASSES OF REQUIRED INSURANCES | |
|--|--|
| <p>Do your current insurance policies comply with the full scope of cover required for each class of Required Insurance as detailed in the Schedules?</p> <p>If NO, please identify the class of Required Insurance and provide full details</p> | YES/NO |
| Where your current insurance policies do not comply with the full scope of the Required Insurances | |
| (a) can your policies be amended or extended and if so please provide cost implications, or | |
| (b) please provide reasons why the full scope of insurance as detailed in the Schedules will not be carried | |
| 1.0 PROFESSIONAL INDEMNITY | |
| 1.1 Name & Address of Insurers | |
| 1.2 Policy Number(s) | |
| 1.3 Renewal Date | |
| 1.4 Limit of Indemnity | i. any one event £ ii. in the aggregate £ |
| 1.5 Scope of professional duties insured as stated in the policy. Please confirm that all of the Investigation Works required under the Terms and Conditions of Contract are covered by your professional indemnity insurance. | |
| 1.6 What excess(es) are applicable? | |
| 1.7 Is cover included for sub-consultants? | YES/NO |
| 1.8 Is cover included for the costs of mitigation of loss | YES/NO |
| 1.9 Does the policy include a General Indemnity to Principals/Main Contractors Clause? | YES/NO |
| 1.10 Is cover subject to any material exclusions or limitations? | YES/NO |
| (If YES please supply copies thereof) | |

| | | |
|------------|--|--------|
| 1.11 | Does the policy respond to judgements made outside UK | YES/NO |
| 2.0 | EMPLOYERS' LIABILITY | |
| 2.1 | Name & Address of Insurers | |
| 2.2 | Policy Number(s) | |
| 2.3 | Renewal Date | |
| 2.4 | Limit of Indemnity | £ |
| 2.5 | Is the policy subject to a heat warranty or condition of any sort and/or any height or depth restrictions? If so attach copies. | YES/NO |
| 2.6 | Is Contractual Liability included? | YES/NO |
| 2.7 | What is the definition of "employee"? | |
| 2.8 | Does the policy include a cross liability provision and a General Indemnity to Principals/Main Contractors Clause? | YES/NO |
| 2.9 | Does the policy respond to judgements made outside UK? | YES/NO |
| 3.0 | CONTRACTORS' PLANT ALL RISKS INSURANCE | |
| 3.1 | Name& Address of Insurers: | |
| 3.2 | Policy Number: | |
| 3.3 | Renewal Date: | |
| 3.4 | Sum Insured for Contractors Plant, Tools & Equipment | £ |
| 3.5 | Is cover subject to any material exclusions or limitations? (If YES please supply copies thereof). In particular are there any restrictions on working at heights or depth? | YES/NO |
| 3.6 | Is the Principal/Main Contractor named as a Joint Insured? | YES/NO |
| 3.7 | Is full Terrorism cover provided? | YES/NO |

| | | |
|---|---|--------|
| 4.0 COMPREHENSIVE MOTOR INSURANCE | | |
| 4.1 | Name & Address of Insurers | |
| 4.2 | Policy Number(s) | |
| 4.3 | Renewal Date | |
| 4.4 | Limits of Indemnity in respect of (Please state whether any one occurrence or in the aggregate) | |
| a. | Third Party Property Damage | £ |
| b. | Third Party Bodily Injury (if any) | £ |
| 4.5 | Is the policy subject to a Deductible or excess? If so please provide details. | YES/NO |
| 4.6 | Are there any restrictions on usage or types of drivers? If so please provide details. | YES/NO |
| 4.7 | Please confirm that your policy will name tie as an additional insured. | YES/NO |
| 5.0 DIRECTORS' & OFFICERS' LIABILITY INSURANCE | | |
| 5.1 | Name & Address of Insurers | |
| 5.2 | Policy Number(s) | |
| 5.3 | Renewal Date | |
| 5.4 | Limits of Indemnity (Please state whether any one occurrence or in the aggregate) | £ |
| 5.5 | Is the policy subject to a Deductible or excess? If so please provide details. | YES/NO |
| 5.6 | Is cover subject to any material exclusions or limitations? If YES so please provide details. | YES/NO |
| 5.7 | Please confirm what the provisions of your policy are in respect of – Extended reporting period | |

| | | |
|------------|--|--------|
| | Bodily injury and property damage exclusion Insured versus insured claims | |
| 6.0 | CRIME INSURANCE | |
| 6.1 | Name & Address of Insurers | |
| 6.2 | Policy Number(s) | |
| 6.3 | Renewal Date | |
| 6.4 | Limits of Indemnity (Please state whether any one occurrence or in the aggregate) | £ |
| 6.5 | Is the policy subject to a Deductible or excess? If so please provide details. | YES/NO |
| 6.6 | Is cover subject to any material exclusions or limitations? If YES so please provide details. | YES/NO |
| 6.7 | Please confirm what the provisions of your policy are in respect of – Discovery following expiry Cover in respect of electronic funds transfer | |
| 7.0 | SELF –INSURANCE ARRANGEMENTS | |
| 7.1 | Please advise if any of the above classes of business are completely self-insured and provide details of the arrangements (self-insurance funds, captive insurers etc) | |
| 7.2 | Please advise if significant elements or levels of the covers required are self-insured and provide details of the arrangements | |

DECLARATION:

We confirm that the foregoing details are accurate and that the above policies are subject to no special terms, conditions and exceptions other than those referred to above. We also confirm that all premiums due to date have been paid.

Signed.....

Position.....

Name

Date.....

For and on behalf of

.....
.....
.....

This form should be completed by your Insurers or your Registered Insurance Brokers ONLY.

The above information is agreed on behalf of the Infraco Member by the Infraco Member's Authorised Representative:

Name.....

Signed.....

For and on behalf of.....

Date.....

PART 4

Edinburgh Tram Network Project

Construction Owner Controlled Insurance

Summary of Cover

This document is a summary of the cover arranged. For full details of cover reference must be made to the policy.

Phase 1a Only – version 4 prepared 9th April 2008

INSURED: Sections 1 – Construction All Risks and Section 2 – Third Party Liability

- (i) **tie** Limited as principal
- (ii) The main contractors as declared under the MUDFA, Infracore and Tramco contracts (Tram Supply and Tram Maintenance)
- (iii) Trade contractors, co-contractors and/or sub-contractors of any tier and any other contractors including Advance Works Contractors and the maintenance contractors
- (iv) Architects and/or engineers and/or suppliers and/or consultants not forming part of (ii) or (iii) above as regards their on-site activities only
- (v) Local authorities and utility providers including private utility owners as required
- (vi) Transdev Edinburgh Tram Limited
- (vii) Transport Edinburgh Limited (TEL)
- (viii) Any other party having an insurable interest (and not mentioned above) to the extent that the Insured (i) is required by contract or agreement to provide insurance to such parties
- (ix) The Scottish Ministers/Scottish Executive, Transport Scotland and City of Edinburgh Council
- (x) Network Rail Infrastructure Ltd in respect of the Asset Protection Agreement only

Section 3 – Delay in Start Up

Insured (i) (vi) and (vii) above and CEC

PERIOD: From: 23rd July 2007 To: 25th January 2011

plus the balance of the maintenance/defects liability period thereafter

INTEREST: All work including design, engineering, procurement, demolition, fabrication, construction, erection, installation, testing, commissioning (including trial running of trams) and defects maintenance including all ancillary and associated works and activities.

Section 1 – Construction All Risks

- Contract works whether permanent or temporary

- Property or goods the property of the Insured or for which they may be responsible for in connection with the works
- Plant, equipment, temporary buildings, camps and contents owned, leased or hired by the Insured (insured sub (ii), (iii) and (iv) are excluded) (*note - no items currently insured under this head of cover*)

Section 2 – Third Party Liability

To indemnify the Insured against all sums (including claimants' costs and expenses) arising out of:

- death or bodily injury to or illness or disease or psychiatric damage suffered by any person, invasion of privacy, wrongful arrest, libel and slander;
- loss or damage to physical property;
- obstruction, loss of amenities, nuisance, trespass, stoppage of traffic, infringement of any easement or right of air, light, water or way or any like cause

happening or consequent upon a cause occurring during the Period of Insurance and arising out of or in connection with the Edinburgh Tram Network Construction Phase

Section 3 – Delayed Start Up

To indemnify the Insured (i), (vi) and (vii) against loss of

- anticipated gross revenue
- standing charges
- increased costs or working

following an indemnifiable loss under Section 1.

SUMS INSURED /LIMITS OF INDEMNITY:

Section 1 – Construction All Risks

Estimated contract value £341.9m for 1a.

Cover for MUDFA applies in respect 1a and 1b areas.

Existing structures –limit £6,000,000 any one occurrence.

Section 2 – Third Party Liability

£155m any one occurrence.

£155m any one occurrence and in the aggregate during the Period of Insurance in respect of products liability.

£155m any one occurrence and in the aggregate during the Period of Insurance in respect of pollution or contamination.

Unlimited liability for bodily injury as required under Road Traffic Acts.

Section 3 – Delayed Start Up

£24m - To cover loss of revenue resulting from delay in commencement of passenger operations caused by insured damage to the Property Insured under Section 1.

Maximum indemnity period 24 months.

Additional increase in cost of working – Limit £250,000.

EXCESS:

Section 1 Construction All Risks

£20,000 each and every occurrence and/or series of occurrences increasing to

£40,000 each and every occurrence in respect of storm, tempest, flood, water damage, subsidence, collapse, landslip, frost and claims arising out of maintenance or testing and commissioning activities.

£250,000 each and every occurrence in respect of LEG 3 (design) claims.

Section 2 Third Party Liability

£10,000 each and every occurrence and/or series of occurrences in respect of property damage and bodily injury.

Section 3 Delayed Start Up

60 days aggregate time excess.

TERRITORIAL LIMITS:

Anywhere in the European Union (including inland transits and transits by ro/ro ferries and off-site storage) but worldwide excluding the USA/Canada in respect of Section 2.

CONDITIONS:

Section 1 Construction All Risks

- Full (guarantee) maintenance for first 12 months, followed by 12 months extended maintenance
- Defective design, materials and/or workmanship LEG 3
- Professional fees clause – Limit £1,000,000 any one occurrence
- Debris removal clause – Limit 15% of loss and a maximum of £1,000,000 any one occurrence
- 72 hour clause – storm, tempest, flood, , riot, civil commotion
- Principal supplied materials clause
- Automatic increase clause (25%)
- Expediting expenses – Limit 15% of loss and a maximum of £500,000 any one occurrence
- Public, Local Authorities and European Union reinstatement clause – Limit

£1,000,000 any one occurrence

- Preventive measures clause/minimisation of loss – Limit £250,000 any one occurrence and £500,000 in the aggregate during the Period of Insurance
- Waiver of subrogation
- Munitions clause
- Terrorism to full value within Great Britain – via Pool Re. Terrorism outside Great Britain excluded
- Plans and documents including computer records - £250,000 any one occurrence
- Marine 50/50 clause
- Payments on account
- Temporary repairs
- Automatic reinstatement of sum insured at additional premium to be agreed but not exceeding pro-rata and nil for losses not exceeding £1,000,000
- Non-vitiating and severability of interest clauses
- Off-site storage and specified suppliers - Limit £2,500,000 any one occurrence (limit does not apply to trams if stored in CAF depots or in Edinburgh worksite)
- Transit by road, rail, inland waterway or sea (roll on/roll off ferries only) including during loading/unloading, transshipments and storage en route – Limit £2,000,000 any one occurrence
- Undamaged foundations clause
- Testing and Commissioning of the Works
- Testing, commissioning and trial running of trams for passenger service – 4 months limit per tram. Excludes testing, commissioning and trial running outside the United Kingdom
- Recovery of immobilised plant
- Plant and Hired in Plant / Continuing hire charges / Negligent breakdown of hired-in plant – Excludes first 48 hours of hire charges – Limit £1,000,000 any one occurrence
- Existing property and principal's property as required – Limit £6,000,000 any one occurrence
- Buildings due for demolition
- Fire Brigade Charges

- Emergency Braking
- Operator Error

Section 2 Third Party Liability

- Contractual liability
- Claimants' and defence costs and expenses in addition to the Limit of Indemnity
- Personal representatives
- Cross liabilities clause
- Indemnity to Principals
- Unauthorised movement of vehicles
- Inclusion of directors, officers and employees as insured parties
- Waiver of subrogation
- Non-vitiation clauses
- Testing and commissioning of the works
- Testing and trial running for passenger service
- Motor Contingent Liability – limited to Great Britain, Northern Ireland, the Channel Islands, the Isle of Man
- Defective Premises Act Clause.
- Data Protection Act Defence Costs.
- Compensation for court attendance
- Sudden and Accidental Pollution Clause.
- Health and Safety at Work
- Munitions of War Clause.
- Consumer Protection Act
- Food Safety Act
- Project Supervisory Design and Construction Stage
- Wrongful Arrest
- Contracts (Rights of Third Parties) Act 1999

- JCT 21.2.1 – Limit £50m any one occurrence
- Pure financial loss – Limit £2,000,000 in the aggregate during the Period of Insurance, deductible £10,000, claims made basis of cover

Section 3 Delayed Start Up

- off-site storage and premises of specified suppliers where materials/plant/equipment for incorporation into the works is in the process of manufacture or being stored - damage by fire, lightning, explosion or aircraft only covered – Limit £2,500,000 any one occurrence
- prevention of access - Limit £2,500,000 any one occurrence, limited to damage to property within a radius of 1km of the site of the contract or within 1km of either side of the proposed tram route
- damage to the supply of water, gas, electricity or telecommunications systems to any site – Limit £1,000,000 any one occurrence
- delay caused by damage to the Insured Property during transit by road, rail or sea (roll on/roll off ferries only) including during loading/unloading, transshipments and storage en route – Limit £6,000,000 any one occurrence
- terrorism to full value – via Pool Re within Great Britain. Terrorism outside Great Britain is excluded
- non-vitiation and severability of interest clauses
- including consequential losses arising from loss or damage to Constructional Plant and Equipment
- professional fees – Limit 15% of finally-agreed settlement or £500,000 any one occurrence whichever is the lower.

PRINCIPAL EXCLUSIONS:

Section 1 Construction All Risks

- Consequential loss
- Wear and tear and corrosion but not consequent damage
- Inventory losses
- Claims deductibles
- Acts of fraud or theft committed by employees
- Building contractors and sub contractors plants, tools and equipment
- Liquidated damages
- War, invasion, acts of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection or military or usurped power
- Nuclear risks

- Sonic bangs
- Design Exclusion LEG 3
- Aircraft or marine vessels
- Vehicles licensed for road use other than tool of trade risk (exclusion does not apply to trams during testing, commissioning and trial running)
- Money
- Tyres by the application of brakes, punctures, cuts or bursts
- Suspension of work in excess of three months
- Normal upkeep or normal making good
- Electronic data exclusion – cover limited to physical damage caused by fire, explosion, collision, derailment
- Piling exclusions and restrictions
- Pre-existing defects in respect of existing structures

Section 2 – Third Party Liability

- Employers' Liability
- Liability arising out of the use of, ownership or possession of any motor vehicle in circumstances where the Road Traffic Acts require compulsory insurance or security. The exclusion does not apply to trams whilst undergoing testing, commissioning and trial running
- Liability arising out of the use of, ownership or possession of any aircraft or waterborne craft
- Asbestos exclusion (cover applies to bodily injury or damage to material property following accidental discovery of asbestos on a claims made basis – limit £1,000,000 in the aggregate during the Period of Insurance, deductible £10,000)
- Liquidated damages
- Fines, penalties, punitive or exemplary damages
- War, invasion, acts of foreign enemies, hostilities (whether declared or not), civil war, rebellion, revolution, insurrection or military or usurped power.
- Nuclear risks
- Seepage, pollution or contamination unless caused by sudden, unintended and unexpected happening.
- Professional indemnity, but not excluding personal or bodily injury or

damage to tangible property.

- Liability arising out of performance warranties
- Property belonging to the Insured or in their care, custody or control
- Repairing or making good faulty, defective or incorrect workmanship, design or specification, materials, goods or other property supplied or installed or erected
- Excluding use of explosives or extent of cover to be agreed
- Product recall, product guarantee
- Terrorism
- Deductibles

Section 3 Delay in Start Up

- Public authority delay
- Rectification of defects
- Non-availability of funds
- Modifications
- Costs incurred to reduce delay during Claims Deductible period
- Suspension, lapse or cancellation of licence after commencement of operations



**THIS IS SCHEDULE PART 12 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 12

KEY PERSONNEL

| Role | Name | Company | Infraco Contract Clause 26 role |
|------------------------------------|--|-----------|---------------------------------|
| Project Director - BBS | Scott McFadzen/Colin Brady (see note 1) | BB | Infraco's Representative |
| Project Director - S | Roland Brueckmann | S | Deputy Infraco's Representative |
| Commercial Director | Alfred Brandenburger | S | |
| Engineering Manager | David Taylor | BB | |
| Construction Manager - BB | Jim Rice/TBA (see note 2) | BB | |
| Construction Manager - S | TBA | S | |
| Planning Manager | Steve Sharp | BB | |
| Commercial Manager - B | Tom Murray | BB | |
| Quality Manager | TBA | BB | |
| HSE Manager | TBA | BB | |
| Public Liaison Manager | TBA | BB | |
| Package Manager 1 | TBA | BB | |
| Package Manager 2 | TBA | BB | |
| Systems Engineer | Robert Kraemer | S | |
| E&B, EMC | Manfred Menge | S | |
| Signalling, Comms and Control | Steffen Roehner | S | |
| SQE Engineer - S | Steven von Bertele | S | |
| Traction Power and Electrification | Goeran Wendt | S | |
| RAMS | Uwe Tittelbach | S | |
| Section 7 Manager | Rober McVittie | Farrans | |
| Section 6 Manager | Donald Shearer/TBA (see note 3) | Barr | |
| Section 5 Manager | TBA | BB | |
| Section 4 Manager | Gabriel Hall | Graham | |
| Section 3 Manager | TBA | BB/TBA | |
| Section 2 Manager | TBA | BB | |
| Section 1 Manager | Spencer Carey | RJ McLeod | |

note 1: The Project Director - BBS will be Scott McFadzen initially until Colin Brady is available to assume the role

note 2: The Construction Manager - B will be Jim Rice initially until TBA is available to assume the role

note 3: The Section 6 Manager will be Donald Shearer initially until TBA is available to assume the role



**THIS IS SCHEDULE PART 13 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 13
THIRD PARTY AGREEMENTS

SECTION A

CONTENTS

| | |
|---|----|
| Section 1 - Forth Ports plc | 4 |
| Section 2 - Alexander Latto (1986) Limited | 9 |
| Section 3 - Trillium (Prime) Property GP Limited and Land Securities Trillium Limited | 9 |
| Section 4 - Trustees of the City Point Unit Trust | 12 |
| Section 5 - Ocean Terminal Limited | 16 |
| Section 6 - Norman, Downie & Kerr | 21 |
| Section 7 - The Royal Yacht Britannia Trust | 22 |
| Section 8 - Haymarket Yards Limited | 25 |
| Section 9 - West Craigs Limited (formerly Meadowfield Developments Limited) | 26 |
| Section 10 - FSH Nominees Limited | 28 |
| Section 11 - First Scotland Limited | 30 |
| Section 12 - Stakis Limited | 33 |
| Section 13 - Universities Superannuation Scheme Limited | 36 |
| Section 14 - Safeway Stores Limited and WM Morrisons Supermarkets plc | 41 |
| Section 15 - New Ingliston Limited and Highland Properties (Scotland) Limited | 46 |
| Section 16 - Edinburgh Airport Limited | 52 |
| Section 17 - Verity Trustees Limited | 53 |
| Section 18 - ADM Milling Limited | 56 |
| Section 19 - Selex Sensors and Airborne Systems Limited | 57 |
| Section 20 - Norwich Union Life and Pensions Limited | 58 |
| Section 21 - National Grid Property Holdings Limited, Port Greenwich Limited and WM Morrison Supermarkets plc | 60 |
| Section 22 - Institute of Chartered Accountants | 63 |
| Section 23 - Holyrood Services Limited | 64 |
| Section 24 - Servisair (UK) Limited | 65 |

| | |
|---|-----|
| Section 25 - Historic Scotland..... | 66 |
| Section 26 - Murrayfield Indoor Sports Club..... | 68 |
| Section 27 - Royal Mail Group plc and Post Office Limited | 70 |
| Section 28 - UGC Properties Limited and Unipart Automotive Limited..... | 73 |
| Section 29 - JPSE Limited..... | 75 |
| Section 30 - New Edinburgh Limited and Edinburgh Park (Management) Limited..... | 76 |
| Section 31 - Chris Holmes Cabinetmakers..... | 86 |
| Section 32 - Network Rail Infrastructure Limited..... | 87 |
| Section 33 - Roderick James McLean | 92 |
| Section 34 - Clerical Medical Investment Group Limited | 93 |
| Section 35 - Scottish Rugby Union plc | 95 |
| Section 36 - Roseburn Garage..... | 103 |
| Section 37 - Scottish Natural Heritage | 104 |
| Section 38 - Stanley Casinos Limited | 105 |
| Section 39 - Marks & Spencer plc..... | 108 |
| Section 40 - Adshel Limited..... | 113 |
| Section 41 - Miscellaneous..... | 114 |

SECTION 1 - FORTH PORTS PLC

- 1.1 In this Section 1 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Bridges" means Bridge One and Bridge Two together;

"Bridge One" means the most easterly bridge forming part of Ocean Drive as the location of such is shown marked D on Arup Drawing 0661 which forms part of the Site Specific Plans;

"Bridge Two" means the most westerly bridge forming part of Ocean Drive as the location of such is shown marked adjacent to Letter F on Arup Drawing 0662 which forms part of the Site Specific Plans;

"Drawings" means parliamentary drawings allocated sheet numbers 6 to 12 inclusive as annexed to the Edinburgh Tram (Line One) Act 2006;

"Forth Ports" shall mean Forth Ports plc, a company incorporated under the Companies Act (company number SC134741) and having its registered office at 1 Prince of Wales Dock, Leith, Edinburgh EH6 7DX and its successors and assignees as proprietors of property on the Site;

"Forth Ports Agreement" means the agreement entered into between Forth Ports and CEC in respect of the withdrawal of Forth Ports objection to the Edinburgh Tram (Line One) Bill and dated 10 and 15 February 2006;

"Licence" means a licence to be entered into between CEC and Forth Ports pursuant to the Forth Ports Agreement relating to access onto the Site for the purposes of carrying out the Infracore Works;

"Licence Site" means the plot of ground which is the subject of each respective Licence;

"LLAU" means, subject to paragraph 1.5, insofar as they relate to the Site, the limits of land to be acquired and used for the purposes of the carrying out of the Infracore Works as more particularly shown on the Drawings;

"LOD" means, subject to paragraph 1.4, insofar as they relate to the Site, the limits of deviation within which the Edinburgh Tram Network will be constructed and operated as more particularly shown on the Drawings;

"Ocean Terminal Building" means the retail and leisure centre belonging to Ocean Terminal Limited and known as and forming Ocean Terminal, Ocean Drive, Leith, Edinburgh;

"Site" means those areas of ground in the City of Edinburgh identified on the Drawings as either LLAU or LOD and which are as at the last date of execution of the Forth Ports Agreement within the ownership of Forth Ports;

"Site Specific Plans" means the drawings prepared on behalf of Forth Ports by Ove Arup and Partners Ltd and each identified as being the "Site Specific Plans referred to in paragraph 1.1 of section 1 of Schedule 13" which form Part 1 of Appendix 1 to this Schedule Part 13; each individual drawing is referred to herein by its particular number all of which plans are further interpreted or explained by the Table which shall for all purposes be deemed to form part of the Site Specific Plans;

"Table" means the table headed "Leith Docks Tram Integration" which is comprised in Part 2 of Appendix 1 to this Schedule Part 13 and which is to be read along with the Site Specific Plans; and

"Utilities" means services of gas, electricity, water, drainage, telecommunications and the cables, conduits, pipes and others provided or in place for the delivery of the same.

- 1.2 The Infraco shall not design or construct any part of the Edinburgh Tram Network on the Site outside of the LOD as shown on the Drawings. The Infraco shall also ensure that the route for Edinburgh Tram Network will generally adopt the line shown on the Site Specific Plans. In the event that this becomes, or is found not to be, reasonably practicable, then such other most proximate and appropriate route shall be adopted by the Infraco in line with the consultation carried out between CEC and Forth Ports pursuant to clause 2.2 of the Forth Ports Agreement. **tie** will procure that the Infraco's views are sought in respect of any such consultation.
- 1.3 In respect of the Arup Drawing number 0663 within the Site Specific Plans and the demonstration at letter K, the Infraco shall ensure that during the carrying out of the Infraco Works, it shall not encroach upon on any land beyond the junction of the North East leg of the roundabout unless the Infraco is instructed otherwise by **tie** in accordance with this Agreement.
- 1.4 Along the frontage and extent of the Ocean Terminal Building, the LOD will be as shown on the Site Specific Plans relative to the face of the Ocean Terminal Building. The LOD on the South East edge in this location will be in accordance with the Drawings. At the location in the vicinity of the letter U marked on Arup drawing 0666 forming part of the Site Specific

Plans, the LOD will be as shown on the Arup drawing referred to. Unless instructed otherwise by **tie** in accordance with this Agreement, the Infraco shall not design or construct any part of the Edinburgh Tram Network on the Site on any land outwith the LOD as referred to in this paragraph 1.4.

- 1.5 The LLAU will be deemed to be as shown on the Drawings, save that the plots identified as 88a and 89a are excluded therefrom. Unless instructed otherwise by **tie** in accordance with this Agreement, the Infraco shall not encroach on such plots for the purposes of carrying out the Infraco Works, provided that, if such plots have not been utilised for development purposes at the time of carrying out the Infraco Works, the Infraco shall, subject to **tie's** consent (not to be unreasonably withheld or delayed), be entitled to occupy and use such plots on a temporary basis as the site of a construction compound, provided that **tie's** consent shall not be deemed to be unreasonably withheld or delayed where the consent of Forth Ports is withheld or delayed by Forth Ports in accordance with the Forth Ports Agreement.
- 1.6 The Infraco shall carry out and/or procure the carrying out of the Infraco Works strictly in accordance with any site specific code of construction practice which may be in place from time to time in respect of the Site as notified to the Infraco by **tie**. The Infraco will provide **tie** with all reasonable assistance requested by **tie** in relation to the negotiation and agreement of any such code.
- 1.7 The Infraco acknowledges that Forth Ports require specific finishes to be adopted in areas of particular public realm importance to Forth Ports and its redevelopment of the Site. In this regard, the Infraco shall comply with all reasonable requirements of Forth Ports as notified by **tie** to the Infraco so as to ensure that on completion of the Infraco Works there is due and proper cohesion and uniformity between the finish of the Infraco Works and the surrounding areas of public realm works being undertaken by Forth Ports.
- 1.8 The Infraco acknowledges that Forth Ports have a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings on the Site. In the event that any such fixing is nonetheless considered by the Infraco to be the most appropriate solution, they will first seek the approval of **tie** on such matter and take due and proper cognisance of the reasonable representations of Forth Ports as notified by **tie** to the Infraco in this respect.
- 1.9 The Infraco shall have due and proper regard to the representations by Forth Ports, as notified by **tie** to the Infraco, in relation to the period proposed for carrying out the Infraco Works at the Site, any proposals regarding the area proposed to be affected by such Infraco Works, procedures proposed for carrying out the Infraco Works and any amendments to the draft

Programme and will use reasonable endeavours to ensure that its proposed period of the relevant Infraco Works will be made to accord with Forth Ports' reasonable requirements as notified by **tie** to the Infraco.

- 1.10 Prior to completion of the Infraco Works on each Licence Site, the Infraco shall provide **tie** with notice, in respect of each Licence Site specifying:

1.10.1 the estimated date upon which the Infraco Works at the relevant Licence Site are due to be completed; and

1.10.2 the estimated date upon which possession of the relevant Licence Site will be returned to **tie**;

Provided that such notice shall be provided to **tie** having regard to the need to facilitate an inspection of the relevant Licence Site pursuant to paragraph 1.11.

- 1.11 The Infraco shall facilitate the carrying out of an inspection of the relevant Licence Site by Forth Ports and a representative of CEC and/or **tie**, such inspection to be carried out on a date to be specified by **tie**, declaring that the relevant date will be at least 5 days before the estimated date of return of possession of the relevant Licence Site to **tie**.

- 1.12 The Infraco shall take due and proper cognisance of all reasonable and proper representations of Forth Ports, as notified by **tie** to the Infraco, in terms of the sufficiency of the Infraco Works at the relevant Licence Site in order to ensure that on return of possession of such to Forth Ports, the Licence Site should be in a condition fully commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.

- 1.13 The Infraco acknowledges that Forth Ports intend to carry out such works as may be necessary to bring Ocean Drive as it passes over the Bridges up to an adoptable standard. The Infraco shall ensure that any programme of Infraco Works to be undertaken to the Bridges or the surrounding road areas will be carried out with reasonable co-ordination so as to give rise to the least practicable requirement for either **tie** or Forth Ports to undo or replace works undertaken by or on behalf of the other.

- 1.14 In carrying out the Infraco Works the Infraco will act always in accordance with the Programme relevant to any element of the Infraco Works at the Licence Site and will have due and proper regard to the requirement of Forth Ports to be able to access their property and all parts of it at all times in order to carry on their business activities and the like requirement of Forth Ports' tenants and occupiers to go about their respective business activities.

- 1.15 The Infraco shall ensure that any disturbance of any access route at the Site will be in place for the minimum period reasonably practicable. In intimating any proposed programme for Infraco Works in respect of any Licence Site to **tie** the Infraco shall provide in each instance its best estimate of any period of disruption of such access rights and routes. Without prejudice to the foregoing generality the Infraco shall give **tie** reasonable prior notice of any proposed disconnection of any Utilities at the Site as may be required to carry out the Infraco Works.
- 1.16 Where there is disruption to normal routes and rights of access, the Infraco shall ensure that such disruption is kept to the minimum. In particular, the Infraco shall ensure that where an existing access route is disturbed at the Site, alternative and suitable access and egress arrangements are made and the original access/egress route is restored to an equivalent standard as existed prior to the commencement of the Infraco Works at the Site by a date not later than that set out in the Programme.
- 1.17 The Infraco shall facilitate access for Forth Ports to the East breakwater adjacent to and forming part of Granton Harbour (as highlighted by the letter "W" on the Site Specific Plans) for pedestrian and vehicular purposes to facilitate inspection and repair works by Forth Ports at such times as may be specified by **tie**.
- 1.18 The Infraco shall ensure so far as reasonably practicable that Utilities remain in service and are only disturbed to the minimum.
- 1.19 The Infraco acknowledges that Forth Ports may in the future wish to run Utilities under the route of the Edinburgh Tram Network. In this regard, the Infraco will take due and proper cognisance of the requirements or requests of Forth Ports as intimated to the Infraco by **tie**. The Infraco further acknowledges that wherever reasonably practicable, such crossing of Utilities shall be to the junctions and crossings demonstrated in the Site Specific Plans and that wherever reasonably practicable Forth Ports shall ensure that Utilities do not run parallel beneath the Edinburgh Tram Network.

SECTION 2 - ALEXANDER LATTO (1986) LIMITED

- 2.1 In this Section 2 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Secure Parking Area" means a vehicle parking area in the vicinity of the Property, the exact location and the extent of which will be subject to the approval of **tie** (not to be unreasonably withheld or delayed); and

"Property" means the motor recovery and service premises at 111-115 Constitution Street, Edinburgh EH6 7AE.

- 2.2 Subject to Paragraph 2.3 below, in carrying out the Infraco Works in the vicinity of the Property, the Infraco shall at all times ensure 24 hour access to the Property.
- 2.3 The Infraco shall use all reasonable endeavours to ensure that vehicle access to the Property will not be disrupted for more than one weekend whilst Infraco Works are being carried out directly outside the Property.
- 2.4 To the extent that access to the Property is disrupted due to the Infraco Works, the Infraco shall provide a Secure Parking Area, which will have 24 hour access for a reasonable number of vehicles, including recovered vehicles.
- 2.5 To the extent that the Infraco is required to provide the Secure Parking Area in accordance with paragraph 2.4 above, the Infraco shall, at its own cost, provide and maintain security measures for the Secure Parking Area including all lights, guards, fencing and watching.
- 2.6 With regard to overhead electrification, the Infraco shall ensure that any poles supporting overhead cabling within the vicinity of the Property will be sited at the side of the road and not in the middle with a view to ensuring that the turning of long vehicles into the Property is not impeded.
- 2.7 The Infraco shall provide **tie** with reasonable and adequate notice prior to the commencement of any Infraco Works in the vicinity of the Property and shall consult with Alexander Latto (1986) Limited (company no. SC099503) or its representatives in relation to the carrying out of the Infraco Works in the vicinity of the Property if requested to do so by **tie**.

**SECTION 3 - TRILLIUM (PRIME) PROPERTY GP LIMITED AND
LAND SECURITIES TRILLIUM LIMITED**

- 3.1 In this Section 3 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawing" means parliamentary drawing sheet number 22 as annexed to the Edinburgh Tram (Line One) Act 2006;

"Noise and Vibration Policy" means the noise and vibration policy referred to in section 66 of each of the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006 as the same may be amended and/or updated from time to time;

"Plan" means the plan forming part 1 of Appendix 2 of Schedule Part 13;

"Property" means the area shown hatched on the Plan comprising 0.202 hectares or thereby (0.5 acres or thereby) from Haymarket Terrace towards Rosebery Crescent, known as and forming Haymarket House together with a car park to the rear;

"Route Plan" means the plan forming part 2 of Appendix 2 of Schedule Part 13;

"Site" means that area of ground extending to 8 square metres or thereby at Haymarket House, Haymarket, as identified as Plot 300 on the Drawing; and

"Trillium" means Trillium (Prime) Property GP Limited, a company incorporated under the Companies Act with registered number 03424587 and having its registered office at Bastion House, 140 London Wall, London EC2Y 1BN and its successors and assignees.

- 3.2 During the carrying out of the Infraco Works, the Infraco shall not encroach upon the Site, unless instructed otherwise by **tie** in accordance with this Agreement.
- 3.3 The Infraco shall ensure that the route of the Edinburgh Tram Network will generally adopt the line shown on the Route Plan. In the event that this becomes or is found not to be reasonably practicable then, subject always to paragraph 3.2 above, such other most proximate and appropriate route will be adopted by the Infraco, the Infraco having due regard to the reasonable representations of Trillium as notified to the Infraco by **tie** in this regard but not in any event so as to include or impinge on any part of the Property.
- 3.4 In advance of the Infraco Works commencing in the vicinity of the Property, the Infraco shall provide **tie** with such assistance as it may require in relation to any discussion between **tie** and Trillium regarding the specific measures to be adopted to protect the Property and its users.

- 3.5 The Infraco shall adopt the targets in the Noise and Vibration Policy in the design of the Edinburgh Tram Network and shall comply with the Noise and Vibration Policy in respect of the carrying out of the Infraco Works at or in the vicinity of the Property.
- 3.6 If required by **tie**, the Infraco shall carry out or facilitate the carrying out by **tie** of:
- 3.6.1 an assessment of both the baseline noise and vibration levels at the Property; and
- 3.6.2 an assessment of the noise and vibration levels at the Property during the operation of the Edinburgh Tram Network;
- within such reasonable timescales as may be detailed by **tie**. Where the Infraco is required to carry out such an assessment, the Infraco shall ensure that the person appointed is an appropriately skilled and experienced technical expert.
- 3.7 The Infraco shall, if required by **tie**, ensure that the results of the assessments referred to in paragraph 3.6 above are delivered to **tie** and copied to Trillium forthwith.
- 3.8 The Infraco shall, at **tie**'s request, either carry out or facilitate the carrying out by **tie** of appropriate structural condition surveys of the Property;
- 3.8.1 prior to the commencement of the Infraco Works in the vicinity of the Property; and
- 3.8.2 following the completion of the Infraco Works in the vicinity of the Property.
- 3.9 The Infraco shall, if required by **tie**, ensure that the results of the surveys referred to in paragraph 3.8 above are delivered to **tie** forthwith.
- 3.10 In the event that any assessments or surveys carried out by or on behalf of **tie** or CEC prior to and after completion of the Infraco Works disclose that damage has been caused to the Property by the Infraco Works, the Infraco will take all steps necessary to repair the Property and make good any defects and damage as soon as reasonably practicably possible causing the least possible disruption reasonably practicable to Trillium and any other occupiers of the Property at that time.

SECTION 4 - TRUSTEES OF THE CITY POINT UNIT TRUST

4.1 In this Section 4 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Citypoint" means ALL and WHOLE the subjects known as and forming Citypoint 65-67 Haymarket Terrace, Edinburgh at the corner of Haymarket Terrace and Haymarket Yards shown outlined in red on Plan 1;

"CPUT" means City Point Unit Trust;

"Drawing" means parliamentary drawing number 22 as annexed to the Edinburgh Tram (Line One) Act 2006;

"Licence" means a licence to be entered into between CEC and the Trustees relating to access onto the Site for the purpose of carrying out the Infraco Works;

"Licence Period" means the period of a Licence from the Entry Date (as defined in the Licence) to the date of expiry of the Licence;

"Limits of Deviation" means insofar as they relate to the Site, the limits of deviation within which the Edinburgh Tram Network will be constructed and operated as more particularly set out in the Edinburgh Tram (Line One) Act 2006 and the Drawing;

"Plan 1" means the plan forming part 1 of Appendix 3 to this Schedule Part 13;

"Plan 2" means the plan forming part 2 of Appendix 3 to this Schedule Part 13;

"Site" means that area of ground at Citypoint identified as Plot 424 on the Drawing insofar as falling within the Limits of Deviation;

"Small Vehicles" means motor cars, motor bikes, mopeds, bicycles, small vans and other similar vehicles but specifically excluding vehicles of a size and nature that would result in that vehicle occupying greater than a single parking space;

"Tenants" means all tenants or their authorised occupiers, present and future, of Citypoint and the Site or any part or parts thereof; and

"Trustees" means the trustees of CPUT being Walbrook Trustees (Jersey) Limited, a company incorporated under the laws of Jersey (registered number 12781) and Walbrook Properties Limited, a company incorporated under the laws of Jersey (registered number

45279), both companies having their registered office at PO Box 238, Lord Coutanche House, 66/68 Esplanade, St Helier, Jersey JE4 5PS.

- 4.2 The Infraco acknowledges that in respect of the Site and Plot 423, only Plot 423 as identified on the Drawing will be compulsorily acquired for the purposes of the Edinburgh Tram Network and the Infraco shall not therefore design or construct any part of the Edinburgh Tram Network on the Site. Without prejudice to the foregoing terms of this paragraph 4.2, the Infraco shall be entitled to take temporary possession of such parts of the Site as fall within the Limits of Deviation for the purposes of required regulation of entrance levels and kerb realignment, all in terms of the relevant licence as notified to the Infraco by **tie** in accordance with this Agreement.
- 4.3 Upon completion of the Infraco Works, the Site shall be reinstated to a condition no worse than that in which the Site was found prior to the commencement of the Infraco Works.
- 4.4 The Infraco shall, in carrying out the Infraco Works at Citypoint, comply with any directions reasonably given by **tie** so that the impact on the normal operation of the Tenants' business at Citypoint and any building thereon is minimised as far as reasonably practicable having regard to the scope and nature of the Infraco Works.
- 4.5 Without prejudice to any other terms of this Agreement, the Infraco shall make good all damage caused to Citypoint as a result of the Infraco Works to the reasonable satisfaction of **tie**.
- 4.6 The Infraco acknowledges that CPUT has a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to Citypoint and any building thereon. In the event that any such fixings are nonetheless considered by the Infraco to be the most appropriate solution, the Infraco shall first consult with CPUT on such matter and take due and proper cognisance of the reasonable representations of CPUT as notified to the Infraco by **tie** in this respect.
- 4.7 The Infraco shall ensure that throughout the construction of the Infraco Works, continuous vehicular access to, and egress from, the car park and each car parking space at Citypoint will be capable of being taken to and from the nearest public road.
- 4.8 The Infraco shall ensure that pedestrian access to and egress from Citypoint will be available at all times in the period during which the Infraco Works are being carried out in the vicinity of Citypoint.

- 4.9 In the event that use of some of the car parking spaces within the car park at Citypoint is interrupted or frustrated by the carrying out of the Infraco Works the Infraco shall use all reasonable endeavours to provide an alternative site or sites for the exclusive unrestricted use by CPUT and the Tenants for the purposes of the exclusive temporary car parking of 35 Small Vehicles during the Licence Period and (if necessary) at all other times until the Infraco Works in the vicinity of Citypoint have been completed (which alternative site is hereinafter referred to as the "**Temporary Site**") and that within that area of Haymarket Yards bounded by Balbirnie Place, Haymarket Station, Haymarket Terrace and the Haymarket railway lines, all as shown outlined in red on Plan 1 (hereinafter referred to as "**Haymarket Yards**"). The location of the car parking spaces will be subject to the prior written consent of **tie**.
- 4.10 In the event that the Infraco (acting reasonably) cannot reasonably provide a Temporary Site within Haymarket Yards as aforesaid, then the Infraco shall be bound to provide an alternative exclusive temporary site or sites outwith Haymarket Yards but within an area north of the existing railway and within a 250 metre radius of Citypoint as shown outlined in blue on Plan 2 (hereinafter referred to as "**the Extended Area**") declaring for the avoidance of doubt that for the purposes of this paragraph 4.10 only, the Extended Area shall specifically exclude that car park known as 'Morrison Street Car Park' and any other car park located to the south of the Edinburgh to Glasgow railway line as shown on Plan 2.
- 4.11 The Infraco (acting reasonably) shall be entitled to relocate the Temporary Site to another temporary site or sites within Haymarket Yards or the Extended Area, at any time or times, within the Licence Period as shall be reasonably required for the purposes of the proper carrying out of the Infraco Works, provided that each such proposed relocation shall be subject to **tie** receiving not less than 35 days' prior written notice.
- 4.12 The Infraco (acting reasonably) shall be entitled to divide the Temporary Site between two or more sites as shall be reasonably required for the purposes of the proper carrying out of the Infraco Works and to accommodate the said 35 Small Vehicles, provided that each such proposed division shall be subject to **tie** receiving not less than 35 days' prior written notice.
- 4.13 The Infraco shall ensure that the said 35 Small Vehicles parking spaces to be provided within Haymarket Yards or the Extended Area (as the case may be) shall be for the exclusive use of CPUT and the Tenants and shall be available for use at all times.
- 4.14 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the date upon which the Infraco Works are due to be completed and the date upon which possession of the Site will be returned to **tie**.

- 4.15 From the Entry Date (as defined in the relevant Licence) relevant to a Licence and during the relevant Licence Period, subject to the other terms of this Agreement the Infraco's occupation of that part of the Site it occupies will be at the Infraco's risk.

SECTION 5 - OCEAN TERMINAL LIMITED

5.1 In this Section 5 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawing" means parliamentary drawing allocated sheet number 7 as annexed to the Edinburgh Tram (Line One) Act 2006;

"Licence" means a licence to be entered into between CEC and Ocean Terminal relating to access onto the Site for the purposes of carrying out the Infraco Works;

"Licence Site" means the plot of ground which is the subject of each respective Licence;

"LLAU" means, subject to paragraph 5.6, insofar as they relate to the Site, the limits of land to be acquired and used for the purposes of the carrying out of the Infraco Works as more particularly set out in the Edinburgh Tram (Line One) Act 2006;

"LOD" means, subject to paragraph 5.4, insofar as they relate to the Site, the limits of deviation within which the Edinburgh Tram Network will be constructed as more particularly shown on the Drawing;

"Ocean Terminal" means Ocean Terminal Limited, a company incorporated under the Companies Act with registered number SC178696 and having its registered office at 1 Prince of Wales Dock, Leith, Edinburgh, EH6 7DX and its successors and assignees as proprietors of the Site;

"Ocean Terminal Agreement" means the agreement entered into between Ocean Terminal and CEC in respect of the withdrawal of Ocean Terminal's objection to the Edinburgh Tram (Line One) Act 2006;

"Ocean Terminal Building" means the retail and leisure centre belonging to Ocean Terminal and known as and forming Ocean Terminal, Ocean Drive, Leith, Edinburgh;

"Site" means those areas of ground in the City of Edinburgh registered in the Land Register of Scotland under Title Number MID 11162 and comprising various plots on the Drawing;

"Site Specific Plans" means the drawings prepared on behalf of Ocean Terminal by Ove Arup and Partners Ltd and each identified as being the "Site Specific Plans referred to in paragraph 5.1 of section 5 of Schedule 13" which are set out in part 1 of Appendix 4 to Schedule Part 13; each individual drawing is referred to herein by its particular number all of which plans are

further interpreted or explained by the Table which shall for all purposes be deemed to form part of the Site Specific Plans;

"**Table**" means the table headed "The Table" which is set out in part 2 of Appendix 4 to Schedule Part 13 and should be read together with the Site Specific Plans; and

"**Utilities**" means services of gas, electricity, water, drainage, telecommunications and the cables, conduits, pipes and others provided or in place for the delivery of the same.

- 5.2 The Infraco shall ensure that the route for the Edinburgh Tram Network will generally adopt the line shown on the Site Specific Plans. In the event that this becomes, or is found not to be, reasonably practicable, then such other most proximate and appropriate route shall be adopted by the Infraco, in line with the consultation carried out between CEC and Ocean Terminal pursuant to clause 2.2 of the Ocean Terminal Agreement. **tie** will procure that the Infraco's views are sought in respect of any such consultation.
- 5.3 In respect of Arup Drawing number 0663 within the Site Specific Plans and the demonstration at letter K, the Infraco shall ensure that during the carrying out of the Infraco Works, it shall not encroach upon on any land beyond the junction of the North East leg of the roundabout unless the Infraco is instructed otherwise by **tie** in accordance with this Agreement.
- 5.4 Along the frontage and extent of the Ocean Terminal Building, the LOD will be as shown on the Site Specific Plans relative to the face of the Ocean Terminal Building. The LOD on the South East edge in this location will be in accordance with the Drawing. Unless instructed otherwise by **tie** in accordance with this Agreement, the Infraco shall not design any part of the Edinburgh Tram Network upon, and shall not encroach upon any land outwith the LOD as specified in the preceding provisions of this paragraph 5.4.
- 5.5 Whilst carrying out Infraco Works at the Site, the Infraco shall not impede the availability of coach parking facilities, which shall be of no lesser scale than that currently enjoyed by Ocean Terminal at the Site.
- 5.6 The LLAU will be deemed to be as shown on the Drawing. Unless instructed otherwise by **tie** in accordance with this Agreement the Infraco shall not encroach upon any land in respect of Infraco Works at the Site outwith the LLAU shown on the Drawing.
- 5.7 The Infraco shall carry out and/or procure the carrying out of the Infraco Works strictly in accordance with any site specific code which may be in place from time to time in respect of the Site as notified to the Infraco by **tie**. The Infraco will provide **tie** with all reasonable

assistance requested by **tie** in relation to the negotiation and agreement of any such code with Ocean Terminal.

- 5.8 The Infraco acknowledges that Ocean Terminal require specific finishes to be adopted in areas of particular public realm importance to Ocean Terminal and its redevelopment of the Site. In this regard, the Infraco shall comply with all reasonable requirements of Ocean Terminal as notified by **tie** to the Infraco so as to ensure that on completion of the Infraco Works there is due and proper cohesion and uniformity between the finish of the Infraco Works and the surrounding areas of public realm works being undertaken by Ocean Terminal.
- 5.9 The Infraco acknowledges that Ocean Terminal have a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings on the Site. In the event that any such fixing is nonetheless considered by the Infraco to be the most appropriate solution, they will first seek the approval of **tie** on such matter and take due and proper cognisance of the reasonable representations of Ocean Terminal as notified by **tie** to the Infraco in this respect.
- 5.10 Prior to completion of the Infraco Works at each Licence Site, the Infraco shall provide **tie** with notice in respect of each Licence Site specifying:
- 5.10.1 the estimated date upon which the Infraco Works at the relevant Licence Site are due to be completed; and
- 5.10.2 the estimated date upon which possession of the relevant Licence Site will be returned to **tie**;
- provided that such notice shall be provided to **tie**, having regard to the need to facilitate an inspection of the relevant Licence Site pursuant to paragraph 5.12.
- 5.11 The Infraco shall have due and proper regard to the representations made by Ocean Terminal, as notified by **tie** to the Infraco, in relation to the period proposed for carrying out the Infraco Works at the Site, any proposals regarding the area proposed to be affected by such Infraco Works, procedures proposed for carrying out the Infraco Works and any amendments to the draft Programme and will use reasonable endeavours to ensure that its proposed period of the relevant Infraco Works will be made to accord with Ocean Terminal's reasonable requirements as notified by **tie** to the Infraco.
- 5.12 The Infraco shall facilitate the carrying out of an inspection of the relevant Licence Site by Ocean Terminal and a representative of CEC and/or **tie**, such inspection to be carried out on a

date to be specified by **tie** declaring that the relevant date will be at least 5 days before the estimated date of return of possession of the relevant Licence Site to **tie**.

- 5.13 The Infraco shall take due and proper cognisance of all reasonable and proper representations of Ocean Terminal, as notified by **tie** to the Infraco, in terms of the sufficiency of the Infraco Works at the relevant Licence Site in order to ensure that on return of possession of such to Ocean Terminal, the Licence Site should be in a condition fully commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.
- 5.14 In carrying out the Infraco Works at the Site, the Infraco will act always in accordance with the programme relevant to any element of the Infraco Works at the Licence Site and will have due and proper regard to the requirement of Ocean Terminal to be able to access their property and all parts of it at all times in order to carry on their business activities and the like requirement of Ocean Terminal's tenants and occupiers to go about their respective business activities. The Infraco shall ensure that any disturbance of any access route at the Site will be in place for the minimum period reasonably practicable. In intimating any proposed programme for Infraco Works in respect of any Licence Site to **tie**, the Infraco will provide in each instance its best estimate of any period of disruption of access rights and routes. Without prejudice to the foregoing generality, the Infraco shall give **tie** reasonable prior notice of any proposed disconnection of any Utilities at the Site as may be required to carry out the Infraco Works.
- 5.15 Whilst carrying out the Infraco Works at the Site, the Infraco shall take all reasonable and proper steps to ensure that any disruption to normal routes and rights of access is kept to the minimum and in particular that at all times where an existing access route is disturbed that an alternative and reasonably suitable access route will be provided and the original access way returned to operation at a date not later than that disclosed in the Programme for the relevant element of the Infraco Works.
- 5.16 The Infraco shall ensure that at all times during the carrying out of the Infraco Works at the Site, access is available by Ocean Terminal and members of the public to Ocean Terminal's premises by way of the main central access doorway by at least half the total width of the doorway referred to.
- 5.17 The Infraco shall ensure that the fire safety requirements of Ocean Terminal and its operation of its shopping centre will have priority so that at all times wholly sufficient routes of access and egress will be provided for fire escape purposes along with either no disruption to the existing fire muster safety areas or the substitution of wholly suitable alternate fire muster

safety areas so that Ocean Terminal can at all times operate safely and in accordance with fire regulations and requirements.

- 5.18 Whilst carrying out the Infraco Works at the Site, the Infraco shall ensure so far as reasonably practicable that Utilities remain in service and only be disturbed to the minimum.
- 5.19 The Infraco acknowledges that Ocean Terminal may in the future wish to run Utilities under the route of the Edinburgh Tram Network. In this regard, the Infraco will take due and proper cognisance of the requirements or requests of Ocean Terminal as intimated to the Infraco by **tie**. The Infraco further acknowledges that wherever reasonably practicable, such crossing of Utilities shall be to the junctions and crossings demonstrated in the Site Specific Plans and that wherever reasonably practicable Ocean Terminal shall ensure that Utilities do not run parallel beneath the Edinburgh Tram Network.

SECTION 6 - NORMAN, DOWNIE & KERR

6.1 In this Section 6 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Property" means the offices of Norman, Downie & Kerr at 130 Constitution Street Edinburgh EH6 6AJ.

6.2 Vehicular access to the Property may only be disrupted for up to one weekend approximately whilst Infracore Works are being carried out directly outside the Property.

6.3 Subject to paragraph 6.2 above, the Infracore shall ensure that access is available to the Property throughout the construction of the Infracore Works.

6.4 The Infracore shall provide **tie** with reasonable and adequate notice prior to the commencement of any Infracore Works in the vicinity of the Property.

6.5 The Infracore shall ensure that disruptions to services provided by utility service providers to the Property are limited.

6.6 During the course of the Infracore Works, if any services provided by utility service providers to the Property are disrupted, the Infracore shall ensure that alternative supplies are provided for the Property.

SECTION 7 - THE ROYAL YACHT BRITANNIA TRUST

7.1 In this Section 7 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawing" means parliamentary drawing allocated sheet number 7 as annexed to the Edinburgh Tram (Line One) Act 2006;

"LLAU" means, subject to paragraph 7.6, insofar as they relate to the Site, the limits of land to be acquired and used for the purposes of the carrying out of the Infraco Works as more particularly shown on the Drawing;

"LOD" means, subject to paragraph 7.3, insofar as they relate to the Site, the limits of deviation within which the Edinburgh Tram Network will be constructed as more particularly shown on the Drawing;

"Ocean Terminal Limited" means Ocean Terminal Limited, a company incorporated under the Companies Act with registered number SC 178696 and having its registered office at 1 Prince of Wales Dock, Leith, Edinburgh, EH6 7DX and its successors and assignees as proprietors of the Site;

"Ocean Terminal Building" means the retail and leisure centre belonging to Ocean Terminal Limited and known as and forming Ocean Terminal, Ocean Drive, Leith, Edinburgh;

"RYB" means The Royal Yacht Britannia Trust, a company incorporated under the Companies Acts with registered number SC 185443 and having its registered office at Princes Exchange, 1 Earl Grey Street, Edinburgh, EH3 9EE;

"RYB Agreement" means the agreement entered into between RYB and CEC in respect of the removal of RYB's objections to the Edinburgh Tram (Line One) Bill and dated 14 and 23 February 2006;

"Site" means those areas of ground in the City of Edinburgh identified on the Drawing as either LLAU or LOD and which are within the ownership of Ocean Terminal Limited as at the last date of signing of the RYB Agreement;

"Site Specific Plans" means the drawings prepared by Ove Arup and Partners Ltd and identified as being "plan number x relative to agreement between the City of Edinburgh Council and Ocean Terminal Limited" which are set out in part 1 of Appendix 5 to Schedule Part 13; each individual drawing is referred to herein by its particular number all of which

plans are further interpreted or explained by the Table which shall for all purposes be deemed to form part of the Site Specific Plans; and

"Table" means the table which is set out in part 2 of Appendix 5 to Schedule Part 13 and should be read together with the Site Specific Plans.

- 7.2 The Infraco shall ensure that the route for the Edinburgh Tram Network will generally adopt the line shown on the Site Specific Plans. In the event that this becomes, or is found not to be, reasonably practicable, then such other most proximate and appropriate route shall be adopted by the Infraco in line with the consultation carried out between CEC and RYB pursuant to clause 2.2 of the RYB Agreement. **tie** will procure that the Infraco's views are sought in respect of any such consultation.
- 7.3 Unless otherwise instructed by **tie** in accordance with this Agreement, in carrying out the Infraco Works at the Site, the Infraco shall not design or construct any part of the Edinburgh Tram Network at the Site on any land outwith the LOD. For the purposes of the preceding provisions of this paragraph 7.3, along the frontage and extent of the Ocean Terminal Building, the LOD will be deemed to be as shown on the Site Specific Plans relative to the face of the Ocean Terminal Building and the LOD on the south east edge in this location will be in accordance with the Drawing.
- 7.4 In respect of the Site Specific Plans and the demonstration at letter K, the Infraco shall ensure that during the carrying out of the Infraco Works, it shall not encroach upon on any land beyond the junction of the North East leg of the roundabout unless the Infraco is instructed otherwise by **tie** in accordance with this Agreement.
- 7.5 Whilst carrying out the Infraco Works at the Site, the Infraco shall not impede the availability of coach parking facilities, which shall be of no lesser scale than that currently enjoyed by RYB at the Site.
- 7.6 Unless instructed otherwise by **tie** in accordance with this Agreement the Infraco shall not encroach upon any land in respect of Infraco Works at the Site outwith the LLAU shown on the Drawing.
- 7.7 The Infraco shall carry out and/or procure the carrying out of the Infraco Works strictly in accordance with any site specific code which may be in place from time to time in respect of the Site as notified to the Infraco by **tie**. The Infraco will provide **tie** with all reasonable assistance requested by **tie** in relation to the negotiation and agreement of any such code with RYB.

- 7.8 The Infraco shall have due and proper regard to the representations made by RYB, as notified by **tie** to the Infraco, in relation to the period proposed for carrying out the Infraco Works at the Site, any proposals regarding the area proposed to be affected by such Infraco Works, procedures proposed for carrying out the Infraco Works and any amendments to the draft Programme and will use reasonable endeavours to ensure that its proposed period of the relevant Infraco Works will be made to accord with RYB's reasonable requirements as notified by **tie** to the Infraco.
- 7.9 The Infraco shall take due and proper cognisance of all reasonable and proper representations of RYB, as notified by **tie** to the Infraco, in terms of the sufficiency of the Infraco Works at the Site in order to ensure that on return of possession of such to RYB, the Site should be in a condition fully commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.
- 7.10 In carrying out the Infraco Works at the Site, the Infraco will act always in accordance with the Programme relevant to any element of the Infraco Works at the Site and will have due and proper regard to the requirement of RYB to be able to access their property and all parts of it at all times in order to carry on their business activities including the requirement for suitable and sufficient coach parking and drop off facilities. The Infraco shall ensure that any disturbance of any access route at the Site will be in place for the minimum period reasonably practicable. The Infraco shall notify **tie** its best estimate of any period of disruption of access rights and routes.
- 7.11 Whilst carrying out the Infraco Works at the Site, the Infraco shall take all reasonable and proper steps to ensure that any disruption to normal routes and rights of access is kept to the minimum and in particular that at all times where an existing access route is disturbed that an alternative and reasonably suitable access route will be provided and the original access way returned to operation at a date not later than that disclosed in the Programme for the relevant element of the Infraco Works.
- 7.12 The Infraco shall ensure that at all times during the carrying out of the Infraco Works at the Site, access is available by RYB and members of the public to RYB's premises and that coaches are allowed to park in the immediate vicinity of the entrance doorway to RYB's facility.

SECTION 8 - HAYMARKET YARDS LIMITED

- 8.1 The Infraco shall ensure that occupation of sites 405, 406 and 407 as identified in the plans attached to the Edinburgh Tram (Line One) Act 2006 and sites 519, 520 and 521 on the plans attached to the Edinburgh Tram (Line Two) Act 2006 will be for the shortest reasonable time possible during the carrying out of the Infraco Works.
- 8.2 Appropriate access arrangements will be retained at all reasonable times to the sites referred to in paragraph 8.1 above and land in the ownership of Haymarket Yards Limited to the north. Where alternative access arrangements require to be provided, the Infraco shall give **tie** at least 35 days' notice of its proposals. The Infraco shall assist **tie** in respect of any consultation and negotiation relating to access restrictions to the sites referred to in this paragraph 8.2.
- 8.3 The Infraco shall comply with any instructions provided to it by **tie** in respect of the maintenance of appropriate access arrangements in respect of the sites referred to in paragraphs 8.1 and 8.2 above.
- 8.4 In relation to the design of the traffic management system in the vicinity of Haymarket Yards, the Infraco shall, at least 35 days before the implementation of any roads traffic regulation order in relation thereto, make available to **tie**, details of the proposed traffic management system and its operation together with all such supporting technical material as **tie** may instruct the Infraco to provide.
- 8.5 The Infraco shall ensure that the design of the traffic management system to be implemented by the Infraco in the vicinity of Haymarket Yards shall comply with relevant traffic regulation orders and be approved by the relevant roads authority at that time.

**SECTION 9 - WEST CRAIGS LIMITED
(FORMERLY MEADOWFIELD DEVELOPMENTS LIMITED)**

- 9.1 In this Section 9 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Depot" means the buildings and ancillary facilities for the storing, parking and maintenance of the trams permitted by the Tram Legislation within Plots 256, 259 and 260 shown on the Drawings;

"Drawings" means sheets numbered 15 and 16 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"Limits of Deviation" means, insofar as they relate to the Site, the limits within which the Edinburgh Tram Network will be constructed;

"MDL Land" means ALL and WHOLE the subjects at Wester Barnton and Meadowfield Farm, Edinburgh, being the subjects registered in the Land Register for Scotland under Title Number MID34648;

"New Limits" means the Limits of Deviation as amended from those shown on the Drawings to the new Limits of Deviation as shown by the broken red line on the Plan;

"Plan" means the plan set out in Appendix 6 to this Schedule Part 13; and

"Site" means those parts of the MDL Land which for the purposes of the Edinburgh Tram (Line Two) Act 2006 comprise Plot numbers 249, 250, 260, 261, 263, 265, 273 to 275, 286, 291 to 295, part of 296, part of 297, 298 and part of 299 as shown on the Drawings.

- 9.2 Subject to paragraphs 9.3 and 9.4 of this Section 9 of Section A of Schedule Part 13, the Infraco shall design and construct the Edinburgh Tram Network over the parts of the Site within the Limits of Deviation to the west of Castle Gogar Road with a view to ensuring that the width of the area required for the Edinburgh Tram Network at the Site shall not generally exceed 10 metres together with such additional land immediately adjacent thereto as is reasonably required in order to carry out the Infraco Works.
- 9.3 Whilst carrying out the Infraco Works at the Site, unless otherwise instructed by **tie** in accordance with this Agreement, the Infraco shall not design or construct any part of the Edinburgh Tram Network upon any land beyond the New Limits.

- 9.4 The Infraco shall not be entitled to design or construct any part of the Edinburgh Tram Network on or through Plot 274 as shown on the Drawings.
- 9.5 In the event that **tie** requires the Infraco to landscape Plot 274 as shown on the Drawings, the Infraco shall ensure that such landscaping will not detrimentally impact on the existing visibility splay at the junction of Gogar Farm Road with the A8 road.
- 9.6 The Infraco shall make good to the reasonable satisfaction of **tie** any damage caused in the carrying out of the Infraco Works so as to ensure that the Site is left in no worse condition that it was prior to the carrying out of the Infraco Works.
- 9.7 The Infraco shall carry out and/or procure the carrying out of the Infraco Works in such a way as to ensure that the Infraco Works will have no detrimental impact on the field drainage of the MDL Land.
- 9.8 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the estimated date upon which the Infraco Works are due to complete and the estimated date upon which possession of the Site will be returned to **tie**.
- 9.9 The Infraco shall ensure that the Depot is located generally as shown on the Plan so as to accommodate an access from the Gogar Roundabout.
- 9.10 The Infraco shall construct as part of the Infraco Works, a single carriageway access road and associated footpaths, built to adoptable standard (the "**Depot Access Road**") serving the Depot, which Depot Access Road will be located from points X-Y within the area hatched in green on the Plan and which will then continue westwards from point Y with sufficient room to accommodate in the future a dual carriageway road from the Gogar Roundabout, in the area hatched in green on the Plan, the Depot Access Road to lie outside the boundaries of the Depot save for the spur road leading therefrom to serve exclusively the Depot.
- 9.11 The Infraco acknowledges that the Site is affected by a high pressure gas pipeline and agrees that occupation of any part of the Site is subject to the rights of Scotland Gas Networks Limited as grantee of a servitude in respect of a pipeline and ancillary rights.

SECTION 10 - FSH NOMINEES LIMITED

- 10.1 In this Section 10 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawing" means sheet number 20 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"FSH Nominees" means FSH Nominees Limited, a company incorporated under the Companies Act with registered number 04046945 and having its registered office at 11-15 Wigmore Street, London, W1A 2JZ and its successors and assignees;

"Licence Site" means the area delineated and hatched red on the Plan, declaring for the avoidance of doubt that the boundaries of the said area are taken to be the outermost edges of the said red lines;

"New Limits" means the new deemed limits of deviation as shown delineated by the green lines on the Plan, declaring for the avoidance of doubt that the boundaries of the New Limits are taken to be the outermost edges of the said green lines;

"Plan" means the Faber Maunsell drawing Number 30894/C319 Rev D and set out in Appendix 7 to Schedule Part 13; and

"Site" means ALL and WHOLE that plot or area of ground extending to 4.092 hectares (40,920 square metres) or thereby lying to the east of Eastfield Road, Edinburgh in the County of Midlothian, which subjects are shown delineated in red and hatched red and cross hatched red and blue and cross hatched red and green on Plan 1 (which subjects are also shown as aforesaid for identification purposes on Plan 2) both plans annexed and signed as relative to Disposition by New Ingliston Limited in favour of IBIS (598) Limited dated fifth and recorded in the General Register of Sasines for the County of Midlothian on tenth both days of October two thousand and which for the purposes of the Edinburgh Tram (Line Two) Act 2006 comprises Plot 327 on the Drawing.

- 10.2 The Infraco acknowledges that land within the New Limits shall not be permanently acquired for the purposes of the construction of the Edinburgh Tram Network and the Infraco shall therefore not design or construct any part of the Edinburgh Tram Network at the Site outwith the New Limits.
- 10.3 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not encroach upon any land outwith the New Limits or the Licence Site, unless instructed otherwise by **tie** in accordance with this Agreement.

- 10.4 The Infraco shall ensure that no part of the Site, the New Limits or Plots 317 and 320 of sheet number 19 as annexed to the Edinburgh Tram (Line Two) Act 2006 shall be used to provide compensatory floodwater storage in connection with the Infraco Works or the Edinburgh Tram Network.
- 10.5 The Infraco shall ensure that no detrimental impact is caused to the Site field drainage as a result of the Edinburgh Tram Network and/or the Infraco Works.
- 10.6 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the estimated date upon which the Infraco Works are due to complete and the estimated date upon which possession of the Site will be returned to **tie**.

SECTION 11 - FIRST SCOTRAIL LIMITED

- 11.1 In this Section 11 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"First" means First Scotrail Limited, a company incorporated under the Companies Act with registered number SC 185018 and having its registered office at 395 King Street, Aberdeen AB24 5RP;

"First Agreement" means the agreement entered into by **tie**, CEC and First dated 27th October and 1st November 2005 in respect of the removal of First's objection to the Edinburgh Tram (Line Two) Bill;

"Haymarket Depot" means the Haymarket Passenger Light Maintenance Depot, Edinburgh currently owned by Network Rail Infrastructure Limited and leased to and operated by First and being currently configured as shown on the plan set out in Appendix 8 to Schedule Part 13; and

"HMRI" means Her Majesty Railway Inspectorate.

- 11.2 **tie** shall provide the Infraco with the profile of First's typical current and anticipated future seven day access and egress requirements as provided to **tie** by First in accordance with clause 2.1 of the First Agreement. At all times during the carrying out of the Infraco Works, the Infraco shall safeguard and ensure access and egress for First to and from Haymarket Depot. Without prejudice to the foregoing generality, the Infraco shall not carry out any Infraco Works at or in the vicinity of any operational entrance or exit of Haymarket Depot at such times and dates as may be notified in advance to the Infraco by **tie**. The Infraco shall comply with any extraordinary access requirements for heavy load vehicles notified to it by **tie**.
- 11.3 The Infraco shall comply with such amendments to its construction methodology as may be required by First and notified to the Infraco by **tie** in relation to the continuity of access to and egress from Haymarket Depot.
- 11.4 As required by **tie**, the Infraco shall consult with First and **tie** in relation to access arrangements at Haymarket Depot, and (without prejudice to the foregoing), shall assist **tie** in developing a regime to facilitate access to and egress from Haymarket Depot by First which is not opposed by HMRI.
- 11.5 Subject to any conclusions reached or determinations made following consultation with HMRI, **tie** shall ensure that traffic light signals or such other similar signals are installed to

facilitate access to Haymarket Depot by First, such traffic light or other system to be capable of manual override by First in the event of signal system failure.

- 11.6 At all times during the carrying out of the Infraco Works, the Infraco shall ensure that the continuous operation of train fuelling equipment fed by the fuel tanks located within Haymarket Depot is not adversely affected.
- 11.7 At all times during the carrying out of the Infraco Works, the Infraco shall ensure safe and unrestricted access to the fuel tanks at Haymarket Depot by First for all necessary purposes (including without limitation the supply of fuel to the tanks and maintenance operations).
- 11.8 In the event that fuel tanks located within Haymarket Depot require to be relocated, the Infraco shall ensure that there is uninterrupted access to alternative fuel tanks whilst the relevant fuel tanks are being relocated.
- 11.9 During the Infraco Works, the Infraco shall ensure that First is provided with replacement temporary car parking spaces for the exclusive use of First in relation to its business at Haymarket Depot, the number of such replacement temporary car parking spaces to be equivalent to the number of car parking spaces lost during the Infraco Works. Such replacement car parking spaces shall be:
- 11.9.1 at a single location in or immediately adjacent to the area outlined in red on the plan set out in Appendix 8 to this Schedule Part 13;
- 11.9.2 within 150 metres of the Russell Road entrance to Haymarket Depot;
- 11.9.3 capable of allowing ready access and egress by users without undue congestion or delay;
- 11.9.4 secure;
- 11.9.5 of well constructed drained and maintained hard standing; and
- 11.9.6 capable of clear and unambiguous signage to and from Haymarket Depot.
- 11.10 Upon conclusion of construction of the Infraco Works in the vicinity of Haymarket Depot, the Infraco shall, following consultation with **tie** and CEC, ensure that First is provided with permanent car parking spaces which:
- 11.10.1 are of a standard no less than that of the car parking system existing at Haymarket Depot prior to the commencement of the Infraco Works;

11.10.2 are located on a site or sites at Haymarket Depot; and

11.10.3 are equivalent in number to the number of car parking spaces lost as a result of the Infraco Works.

- 11.11 Before the commencement of any Infraco Works at Haymarket Depot, the Infraco shall provide a notice to **tie** specifying the projected commencement date of the Infraco Works at Haymarket Depot and the period of notice it shall endeavour to provide to **tie** of its intention to commence the Infraco Works in the vicinity of Haymarket Depot.
- 11.12 The Infraco shall, in the design, construction and maintenance of the Infraco Works, take reasonable measures necessary to prevent electromagnetic interference with the railway infrastructure and signalling equipment at Haymarket Depot.
- 11.13 In carrying out the Infraco Works, the Infraco shall take due cognisance of First's need to ensure the safe and full continued operation of the facilities at Haymarket Depot.

SECTION 12 - STAKIS LIMITED

12.1 In this Section 12 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Car Park Works" means the construction/reconfiguration of the New Car Park on the Property and all ancillary works required in accordance with the terms of the Planning Permission and any Requisite Consents required;

"Drawing" means the parliamentary drawing allocated sheet number 20 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"Letting Documentation" means (1) lease between Edinburgh Airport Limited and Stakis plc dated 10 March and 5 April and recorded in the Division of the General Register of Sasines applicable to the County of Midlothian as in the Books of Council and Session on 21 April, both months in the year 1995, and (2) Minute of Variation of Lease between Edinburgh Site No. 1 (CI) Limited and Stakis Limited dated 27 November and 19 December both months in the year 2003, and recorded in the Division of the General Register of Sasines applicable to the County of Midlothian as in the Books of Council and Session on 14 April 2004;

"New Car Park" means the car parking spaces coloured green on Plan 2;

"Plan 1" means Faber Maunsell Drawing Number 30894/C283 Rev G as set out in part 1 of Appendix 9 to Schedule Part 13;

"Plan 2" means Faber Maunsell Drawing Number 30894/C298 Rev C as set out in part 2 of Appendix 9 to Schedule Part 13;

"Planning Application" means the application for planning permission to be applied for by the Infracore in respect of the Car Park Works, which application shall only require the consent of Stakis in the event that the configuration of the New Car Park is to differ from that shown on Plan 2;

"Planning Authority" means CEC acting as local planning authority;

"Planning Permission" means the planning permission to be granted pursuant to the Planning Application in respect of the Car Park Works;

"Property" means ALL and WHOLE the subjects let by virtue of the Letting Documentation, and which subjects are shown outlined in green for indicative purposes on Plan 1;

"Requisite Consents" means the building regulation consents, local authority approvals, and any other consents, licences and authorisations required from any competent authority, statutory undertaker or person either for the carrying out of the Car Park Works or for the intended use of the Property as contemplated *inter alia* by the terms of the Planning Permission;

"Site" means those subjects forming part of the Property and which, for the purposes of the Edinburgh Tram (Line Two) Act 2006 comprise Plot numbers 329, 330, 333 and 334 on the Drawing but only to the extent that the same are let to Stakis by virtue of the Letting Documentation; and

"Stakis" means Stakis Limited, a company incorporated under the Companies Act with registered number SC022163 and having its registered office at 4 Cadogan Square, Cadogan Street, Glasgow G2 7PH and its successors and assignees.

- 12.2 During the carrying out of the Infraco Works at the Site, the Infraco shall not at any time encroach upon that part of the Site forming Plot 334 on the Drawing unless the Infraco is instructed otherwise by **tie** in accordance with this Agreement.
- 12.3 During the carrying out of the Infraco Works at the Site, the Infraco shall only enter upon those parts of the Site that are shown as hatched blue and/or cross hatched in red on Plan 1, unless the Infraco is instructed otherwise by **tie** in accordance with this Agreement. The Infraco shall not design or construct any part of the Edinburgh Tram Network on the Site outwith the area hatched in blue on Plan 1.
- 12.4 The Infraco shall carry out the Infraco Works at the Site in accordance with such instructions as may be provided by **tie** with a view to ensuring that the impact on the normal operation of Stakis' business at the Site is minimised so far as reasonably practicable having regard to the scope and nature of the Infraco Works.
- 12.5 Without prejudice to the preceding provisions of this Section 12, the Infraco shall at all times throughout the carrying out of the Infraco Works at the Site, consult with local hotel management on the issue of fire alarm congregation points.
- 12.6 The Infraco shall ensure that the carrying out of the Infraco Works at the Site shall not prevent continual access to and from the Property such that the ability of Stakis to operate the hotel at the usual business level will not be adversely affected.

- 12.7 Without prejudice to the generality of the terms of paragraph 12.6 above, the Infraco shall ensure that:
- 12.7.1 access for the purposes of carrying out the Infraco Works will not be taken via that stretch of Eastfield Road in so far as the same lies adjacent to the Property, but rather by a haul road which will be located in a position lying generally to the south of the Property; and
- 12.7.2 no construction compound in relation to the Infraco Works shall be located adjacent to the Property.
- 12.8 The Infraco shall procure appropriate structural and building fabric condition surveys (in a form and to an extent to be agreed by **tie** and Stakis and notified to the Infraco by **tie**) of the buildings constructed on the Property (1) prior to the commencement of the Infraco Works in the vicinity of the buildings constructed on the Property and (2) following completion of the Infraco Works.
- 12.9 The Infraco shall make the Planning Application, and shall use all reasonable endeavours (keeping **tie** fully informed as to progress) to obtain the Planning Permission to allow the Infraco to carry out the Car Park Works to provide the New Car Park.
- 12.10 It is acknowledged by Infraco and **tie** that construction of the New Car Park in the location detailed in Plan 2 is subject to any over-riding consent and requirements of the Planning Authority.
- 12.11 The Infraco shall procure that the Car Park Works are completed as quickly as reasonably possible and in any event prior to the commencement of the Infraco Works in the vicinity of the Site.
- 12.12 The Infraco shall return the spaces coloured yellow on Plan 2 to **tie** just as soon as reasonably possible following completion of the Infraco Works at the Site.
- 12.13 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the estimated date upon which the Infraco Works are due to complete and the estimated date upon which possession of the Site will be returned to **tie**.

SECTION 13 - UNIVERSITIES SUPERANNUATION SCHEME LIMITED

13.1 In this Section 13 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Accommodation Works" means (a) any Infraco Works to or in the Gyle Car Park so far as outwith the New Limits; (b) without prejudice to but not limited by (a) aforesaid, works to ensure no reduction in available car parking spaces and circulation path standards consequent upon the Works generally or the works specified at (a) aforesaid; and (c) similarly without prejudice or limitation as aforesaid, all necessary associated restoration works, all of which works referred to at (a), (b) and (c) aforesaid will be described in the Accommodation Works Method Statement;

"Accommodation Works Method Statement" means the method statement to be developed by the Infraco pursuant to paragraph 13.7 as the same may be amended pursuant to this Section 13 of Section A of Schedule Part 13;

"Depot" means the buildings and ancillary facilities for the storing, parking and maintenance of the trams to be generally located within Plots 259, 494, 496, 497 and 499 on the Drawing;

"Drawing" means plans numbered 14 and 15 as attached to the Edinburgh Tram (Line Two) Act 2006;

"Licence" means a licence to be entered into by CEC in respect of access to the Site to allow the carrying out of *inter alia* the Infraco Works;

"Licence Site" means the subject of a Licence;

"Method Statements" means the Accommodation Works Method Statement and the Works Method Statement as the context may require;

"New Limits" means the new limits of deviation as shown hatched red on the Plan;

"Plan" means the plan set out in Appendix 10 to Schedule Part 13;

"Site" means that area of ground known as and forming the Gyle Shopping Centre together with the car park, access roads and all ancillary services being the subjects described in the Feu Contract between The City of Edinburgh Council and Marks & Spencer plc and Safeway Stores plc recorded in the Division of the General Register of Sasines for the County of Midlothian on 10 January 1997 and comprising Plot Numbers 478, 479, 480, 481, 482, 483, 484 and 486 as shown on the Drawing;

"Tram" means Edinburgh Tram Line Two, tram vehicles, tram roads, tramways, tram stops and all associated infrastructure, plant and equipment as envisaged by the Tram Legislation;

"USS" means Universities Superannuation Scheme Limited, a company incorporated under the Companies Act with registered number 01167127 and having its registered office at Royal Liver Building, Liverpool L3 1PY and its successors and assignees;

"Works" means Work No 8 and Work No 9 insofar as in the vicinity of the Site as described in Schedule 1 of the Edinburgh Tram (Line Two) Act 2006, being works required in respect of the construction of the Edinburgh Tram Network but specifically excluding any works required in the future to maintain the Edinburgh Tram Network; and

"Works Method Statement" means the method statement to be developed by the Infraco pursuant to paragraph 13.5 as the same may be amended pursuant to this Section 13 of Section A of Schedule Part 13.

- 13.2 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not design or construct any part of the Edinburgh Tram Network on any land outwith the New Limits.
- 13.3 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not encroach upon any land outwith the area shown hatched blue on the Plan unless instructed otherwise by **tie** in accordance with this Agreement.
- 13.4 The Infraco shall design and construct the Edinburgh Tram Network at the Site within the New Limits with a view to ensuring that the width of the area required for the Edinburgh Tram Network shall not generally exceed 10 metres, together with such additional land as is reasonably required in order to carry out the Infraco Works.
- 13.5 The Infraco shall provide all required assistance to **tie** in respect of the drafting of a Works Method Statement in respect of the Infraco Works to be carried out in the vicinity of the Site. The Works Method Statement will deal specifically with *inter alia* specified working hours, specified time of year and peak retailing periods when working will be avoided, mitigation measures to minimise adverse impact on service and customer access including measures to reconfigure the car park if necessary, mitigation measures to avoid dust/vibration/noise having an adverse effect on trading, restoration of any Licence Site (including landscaping and signage) insofar as applicable to the Infraco Works in the vicinity of the Site and where applicable will mirror the terms of Schedule Part 3 (*Code of Construction Practice*).

- 13.6 The Infraco Works which constitute Works shall not be commenced until the Works Method Statement has been finalised by **tie**.
- 13.7 The Infraco shall provide all required assistance to **tie** in relation to the drafting of an Accommodation Works Method Statement in respect of the Accommodation Works. The Accommodation Works Method Statement shall deal specifically with *inter alia* specified working hours, specified times of the year and peak retailing periods when working will either cease or be avoided, mitigation measures to minimise adverse impact on service and customer access including measures to reconfigure the car park if necessary, mitigation to avoid dust/vibration/noise having an adverse effect on trading, restoration of any Licence Site (including layout of the car park, landscaping and signage) insofar as applicable to the Accommodation Works to the extent that they constitute Infraco Works and where applicable will mirror the terms of Schedule Part 3 (*Code of Construction Practice*).
- 13.8 The Infraco Works at the Site which constitute Accommodation Works shall not be commenced until the Accommodation Works Method Statement has been finalised by **tie** and USS. The Infraco shall provide **tie** with all reasonable assistance requested by **tie** in relation to the negotiation and agreement of the Accommodation Works Method Statement between **tie** and USS.
- 13.9 The Infraco shall carry out or procure the carrying out of the Infraco Works at the Site strictly in accordance with the terms of the finalised Method Statements.
- 13.10 Those elements of the Works which constitute the Infraco Works will be carried out in a good and workmanlike manner so that impact on the normal operation of USS business is minimised so far as is reasonably practical in accordance with the finalised Method Statements.
- 13.11 The Infraco acknowledges that USS has a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings situated on the Site. In the event that the Infraco considers that such fixings are nonetheless the most appropriate solution, the Infraco shall first consult with **tie** and take due and proper cognisance of the reasonable representations of USS in this respect as notified to the Infraco by **tie**.
- 13.12 Prior to completion of the Accommodation Works on each Licence Site, the Infraco shall serve notice on **tie** specifying the estimated date upon which the Accommodation Works on that particular Licence Site are due to be completed and the estimated date upon which possession of the Licence Site will be returned to **tie**, provided that such notice shall be

provided to **tie** having regard to the need to facilitate an inspection of the relevant Licence Site pursuant to paragraph 13.13.

- 13.13 The Infraco shall facilitate the carrying out of an inspection of the relevant Licence Site by USS and a representative of CEC and/or **tie**, such inspection to be carried out on a date to be specified by **tie** declaring that the relevant date will be at least 5 days before the estimated date of return of possession of the relevant Licence Site to **tie**.
- 13.14 The Infraco shall take due and proper cognisance of all reasonable and proper representations of **tie** in terms of the sufficiency and completeness of the Infraco Works at the Site in order to ensure that on return of possession of such to **tie** the Site should be in a condition fully commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.
- 13.15 Any interference with access to any part of the Site proposed by the Infraco in pursuance of the Infraco Works shall only be given effect, whether as to route or other locational factors, or as to timing and duration, after due consultation with and approval thereto from **tie**.
- 13.16 The Infraco shall ensure that there is two-way traffic flow along Glasgow Road within half a mile in each direction from Gogar Roundabout at all times during the carrying out of the Infraco Works.
- 13.17 The Infraco shall ensure that the Depot is generally located to the north of Glasgow Road within Plots 259, 494, 496, 497 and 499 as shown on the Drawing and will comply with the requirements of the Town and Country Planning (Safeguard Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 (SEDD Circular 2/2003).
- 13.18 The Infraco shall not construct any interlacing track on the Site.
- 13.19 In carrying out the Infraco Works, the Infraco shall ensure that it does not at any time connect to any of the adopted or unadopted drains located within the Site.
- 13.20 Further to any obligations under this Agreement to investigate and survey land at the Site, the Infraco shall consult with **tie** in relation to the location and timing of such surveys and use reasonable endeavours to minimise any disruption and shall make good any damage and leave the Site in no worse condition as existed prior to the carrying out of such surveys and investigations.

- 13.21 With regard to the location of any signage, the Infraco shall consult with **tie** in relation to the location of such signs so as to ensure any such signage does not interfere in any material or misleading way with the normal operation of the Gyle Shopping Centre.

**SECTION 14 - SAFEWAY STORES LIMITED AND
WM MORRISONS SUPERMARKET PLC**

14.1 In this Section 14 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Accommodation Works" means (a) any Infraco Works to or in the Gyle Car Park so far as outwith the New Limits; (b) without prejudice to but not limited by (a) aforesaid, works to ensure no reduction in available car parking spaces and circulation path standards consequent upon the Works generally or the works specified at (a) aforesaid; and (c) similarly without prejudice or limitation as aforesaid, all necessary associated restoration works, all of which works referred to at (a), (b) and (c) aforesaid will be described in the Accommodation Works Method Statement;

"Accommodation Works Method Statement" means the method statement to be developed by the Infraco pursuant to paragraph 14.7 as the same may be amended pursuant to this Section 14 of Section A of Schedule Part 13;

"Depot" means the buildings and ancillary facilities for the storing, parking and maintenance of the trams to be generally located within Plots 259, 494, 496, 497 and 499 on the Drawing;

"Drawing" means plans numbered 14 and 15 as attached to the Edinburgh Tram (Line Two) Act 2006;

"Licence" means a licence to be entered into by CEC in respect of access to the Site to allow the carrying out of *inter alia* the Infraco Works;

"Licence Site" means the subject of a Licence;

"Method Statements" means Accommodation Works Method Statement and/or the Works Method Statement as the context may require;

"Morrisons" means Wm Morrisons Supermarket PLC, a company incorporated under the Companies Act with registered number 00358949 and having its registered office at Hilmore House, Thornton Road, Bradford, West Yorkshire BD8 9AX and its successors and assignees;

"New Limits" means the new limits of deviation as shown hatched red on the Plan;

"Plan" means the plan set out in Appendix 11 to Schedule Part 13;

"Proprietors" means Safeway and Morrisons;

"**Safeway**" means Safeway Stores Limited, a company incorporated under the Companies Act with registered number 00746956 and having its registered office at Hilmore House, Thornton Road, Bradford, Yorkshire, BD8 9AX;

"**Site**" means that area of ground known as and forming the Gyle Shopping Centre together with the car park, access roads and all ancillary services being the subjects described in the Feu Contract between The City of Edinburgh Council and Marks & Spencer plc and Safeway Stores plc recorded in the Division of the General Register of Sasines for the County of Midlothian on 10 January 1997 and for the purposes of the Bill Amendment comprising Plot Numbers 478, 479, 480, 481, 482, 483, 484 and 486 as shown on the Drawing;

"**Works**" means Work No 8 and Work No 9 insofar as in the vicinity of the Site as described in Schedule 1 of the Edinburgh Tram (Line Two) Act 2006, being works required in respect of the construction of the Edinburgh Tram Network but specifically excluding any works required in the future to maintain the Edinburgh Tram Network; and

"**Works Method Statement**" means the method statement to be developed by the Infraco pursuant to paragraph 14.5 as the same may be amended pursuant to this Section 13 of Section A of Schedule Part 13.

- 14.2 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not design or construct any part of the Edinburgh Tram Network on any land outwith the New Limits.
- 14.3 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not encroach upon any land outwith the area shown hatched blue on the Plan unless instructed otherwise by **tie** in accordance with this Agreement.
- 14.4 The Infraco shall design and construct the Edinburgh Tram Network at the Site within the New Limits with a view to ensuring that the width of the area required for the Edinburgh Tram Network shall not generally exceed 10 metres, together with such additional land as is reasonably required in order to carry out the Infraco Works.
- 14.5 The Infraco shall provide all required assistance to **tie** in respect of the drafting of a Works Method Statement in respect of the Infraco Works to be carried out at the Site. The Works Method Statement will deal specifically with *inter alia* specified working hours, specified time of year and peak retailing periods when working will be avoided, mitigation measures to minimize adverse impact on service and customer access including measures to reconfigure the car park if necessary, mitigation measures to avoid dust/vibration/noise having an adverse

effect on trading, restoration of any Licence Site (including landscaping and signage) insofar as applicable to the Infraco Works at the Site and where applicable will mirror the terms of Schedule Part 3 (*Code of Construction Practice*).

- 14.6 The Infraco Works at the Site which constitute Works shall not be commenced until the Works Method Statement has been finalised by **tie**.
- 14.7 The Infraco shall provide all required assistance to **tie** in respect of the drafting of an Accommodation Works Method Statement in respect of the Accommodation Works. The Accommodation Works Method Statement shall deal specifically with *inter alia* specified working hours, specified times of the year and peak retailing periods when working will either cease or be avoided, mitigation measures to minimise adverse impact on service and customer access including measures to reconfigure the car park if necessary, mitigation to avoid dust/vibration/noise having an adverse effect on trading, restoration of any Licence Site (including layout of the car park, landscaping and signage) insofar as applicable to the Accommodation Works to the extent that they constitute Infraco Works and where applicable will mirror the terms of Schedule Part 3 (*Code of Construction Practice and Code of Maintenance Practice*).
- 14.8 The Infraco Works which constitute Accommodation Works shall not be commenced until the Accommodation Works Method Statement has been finalised by **tie** and Morrisons. The Infraco shall provide **tie** with all reasonable assistance requested by **tie** in relation to the negotiation and agreement of the Accommodation Works Method Statement between **tie** and Morrisons.
- 14.9 The Infraco shall carry out or procure the carrying out of the Infraco Works at the Site strictly in accordance with the terms of the finalised Method Statement.
- 14.10 Those elements of the Works which constitute the Infraco Works will be carried out in a good and workmanlike manner so that impact on the normal operation of the Proprietors business is minimised so far as is reasonably practical in accordance with the finalised Method Statements.
- 14.11 The Infraco acknowledges that Morrisons has a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings situated on the Site. In the event that the Infraco considers that such fixings are nonetheless the most appropriate solution, the Infraco shall first consult with **tie** and take due and proper cognisance of the reasonable representations of Morrisons in this respect as notified to the Infraco by **tie**.

- 14.12 Prior to completion of the Accommodation Works on each Licence Site, the Infraco shall serve notice on **tie** specifying the estimated date upon which the Accommodation Works on that particular Licence Site are due to be completed and the estimated date upon which possession of the Licence Site will be returned to **tie**, provided that such notice shall be provided to **tie** having regard to the need to facilitate an inspection of the relevant Licence Site pursuant to paragraph 14.13.
- 14.13 The Infraco shall facilitate the carrying out of an inspection of the relevant Licence Site by Morrisons and a representative of CEC and/or **tie**, such inspection to be carried out on a date to be specified by **tie** declaring that the relevant date will be at least 5 days before the estimated date of return of possession of the relevant Licence Site to **tie**.
- 14.14 The Infraco shall take due and proper cognisance of all reasonable and proper representations of **tie** in terms of the sufficiency and completeness of the Infraco Works at the Site in order to ensure that on return of possession of such to **tie** the Site should be in a condition fully commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.
- 14.15 Any interference with access to any part of the Site proposed by the Infraco in pursuance of the Infraco Works (including the Accommodation Works) shall only be given effect, whether as to route or other locational factors, or as to timing and duration, after due consultation with and approval thereto from **tie**.
- 14.16 The Infraco shall ensure that there is two-way traffic flow along Glasgow Road within half a mile in each direction from Gogar Roundabout at all times during the carrying out of the Infraco Works
- 14.17 The Infraco shall ensure that the Depot is generally located to the north of Glasgow Road within Plots 259, 494, 496, 497 and 499 as shown on the Drawing and will comply with the requirements of the Town and Country Planning (Safeguard Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 (SEDD Circular 2/2003).
- 14.18 The Infraco shall not construct any interlacing track on the Site.
- 14.19 In carrying out the Infraco Works, the Infraco shall ensure that it does not at any time connect to any of the adopted or unadopted drains located within the Site.
- 14.20 Further to any obligations under this Agreement to investigate and survey land at the Site, the Infraco shall consult with **tie** in relation to the location and timing of such surveys and use reasonable endeavours to minimise any disruption and shall make good any damage and leave

the Site in no worse condition as existed prior to the carrying out of such surveys and investigations.

- 14.21 With regard to the location of any signage, the Infracore shall consult with **the** in relation to the location of such signs so as to ensure any such signage does not interfere in any material or misleading way with the normal operation of the Gyle Shopping Centre.

**SECTION 15 - NEW INGLISTON LIMITED AND
HIGHLAND PROPERTIES (SCOTLAND) LIMITED**

- 15.1 In this Section 15 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Above Ground Level Grade Separated Crossing" means a road crossing at above ground level finished to an adoptable standard, extending in length over the whole of the CPO Site at the point of crossing sufficient to accommodate a dual carriageway of 16.6 metres in width or such other width as accords with the then current standard for a dual carriageway at the time of construction or such smaller road crossing as determined by NIL together with associated bus lanes and cycle and pedestrian ways and verges on either side;

"At Grade Crossings" means the First Crossing and the Second Crossing, being road crossings at rail level finished to an adoptable standard, extending in length over the whole of the CPO Site at the point of crossing sufficient to accommodate a dual carriageway of 16.6 metres in width or of such other width as accords with the then current standard for a dual carriageway at the time of construction together with associated bus lanes and cycle and pedestrian ways and verges on either side;

"Below Ground Level Grade Separated Crossing" means a road crossing at below ground level finished to an adoptable standard, extending in length over the whole of the CPO Site at the point of crossing sufficient to accommodate a dual carriageway of 16.6 metres in width or such other width as accords with the then current standard for a dual carriageway at the time of construction or such smaller road crossing as determined by NIL together with associated bus lanes and cycle and pedestrian ways and verges on either side;

"CPO Site" means each and every part of the Site which is compulsorily acquired by CEC for the purposes of the Edinburgh Tram Network;

"Depot" means the buildings and ancillary facilities for the storing, parking and maintenance of the trams to be located within Plots 256, 259 and 260 on the Drawings;

"Drawings" means parliamentary sheets numbered 16, 17, 18 and 19 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"First Crossing" means the crossing envisaged within the area hatched orange in Plan 1;

"Grade Separated Crossings" means each Above Ground Level Grade Separated Crossing and/or each Below Ground Level Grade Separated Crossing, as the context so permits;

"Highland" means Highland Properties (Scotland) Limited, a company incorporated under the Companies Act with registered number SC 165975 and having its registered office at Gogar Mains Estate Office, Gogar Mains Farm Road, Edinburgh EH12 9BP;

"Limits of Deviation" means insofar as they relate to the Site, the limits within which the Edinburgh Tram Network will be constructed and which limits are shown on the Drawings;

"New Limits" means, subject to the provisions of paragraph 15.2, the restricted Limits of Deviations from those shown on the Drawings to the new Limits of Deviation as shown outlined in blue on Plan 1;

"New LLAUs" means, subject to the provisions of paragraph 15.2, the new limits of land to be acquired or used shown outlined in green on Plan 1;

"NIL" means New Ingliston Limited, a company incorporated under the Companies Act with registered number SC 157185 and having its registered office at Gogar Mains Estate Office, Gogar Mains Farm Road, Edinburgh EH12 9BP and its successors and assignees;

"NIL Agreement" means the agreement entered into by CEC, NIL and Highland dated 8th November 2005 and 9th November 2005 in respect of the removal of the objections to the Edinburgh Tram (Line Two) Bill lodged on behalf of NIL and Highland;

"Plan 1" means the plan set out in part 1 of Appendix 12 to Schedule Part 13;

"Plan 2" means the plan set out in part 2 of Appendix 12 to Schedule Part 13;

"Plan 3" means the plan set out in part 3 of Appendix 12 to Schedule Part 13;

"Plans" means Plan 1, Plan 2 and Plan 3;

"Plot 320" means plot 320 as attached shown on the Drawings;

"Second Crossing" means the crossing envisaged within the area hatched red on Plan 1;

"Sewer" means the private sewer which serves the steading belonging to Highland and the office accommodation developed by Highland at the steading and which sewer is shown by way of a red line on Plan 1;

"Site" means ALL and WHOLE that area of ground partly edged red and partly shaded purple on Plan 3;

"**SNH**" means Scottish Natural Heritage, or such other body who may be designated or substituted from time to time to carry out their functions;

"**Tram Line**" means that part of the Edinburgh Tram Network consisting of the land within and including the actual rails and the land immediately outwith the actual rails but only to the extent required for the safe passage of tram vehicles along the rails including the full extent of any swept path;

"**Tram Stop**" means an additional tram stop which tram stop will be constructed to the same specification as other tram stops in a similar setting forming part of the Edinburgh Tram Network; and

"**Utilities**" means services of gas, electricity, water, drainage, telecommunications and others and the cables, conduits, pipes and others provided or to be provided or in place for the delivery of the same.

- 15.2 The Infraco shall ensure that the route of the Tram Line follows the route on the Plans save that in the event that the route of the Tram Line requires to be realigned to accommodate the relocation of badger setts as notified to the Infraco by **tie** or as determined by SNH, then the route of the Tram Line and the New Limits and the New LLAUs shall be adjusted to the most limited degree as is necessary to accommodate the relocation of the badger setts all following consultation with NIL and having due regard to the reasonable representations of NIL as notified to the Infraco by **tie**.
- 15.3 In relation to the carrying out of any Infraco Works at the Site, the Infraco shall, unless otherwise instructed by **tie** in accordance with this Agreement, only occupy, use or possess such parts of the Site within the New LLAUs and only in so far as may be reasonably required in relation to the Infraco Works.
- 15.4 The Infraco shall not design or construct any part of the Edinburgh Tram Network at the Site outwith the New Limits. The Infraco shall not encroach upon any land outwith the New Limits whilst carrying out Infraco Works at the Site unless otherwise instructed by **tie** in accordance with this Agreement.
- 15.5 The Infraco shall ensure that the width of the area required for the Edinburgh Tram Network at the Site shall not exceed 10 metres, together with such additional land immediately adjacent thereto as is reasonably required for the Infraco Works.
- 15.6 The Infraco shall not encroach upon Plot 320 or any part thereof for the purposes of carrying out the Infraco Works unless instructed otherwise by **tie** in accordance with this Agreement.

- 15.7 The Infraco shall as soon as reasonably practicable after the completion of the Infraco Works at the Site make good any damage caused so as to ensure that the Site is left in no worse condition than it was prior to the carrying out of the Infraco Works.
- 15.8 The Infraco shall ensure that the Depot is located so as to allow the future provision of an access sufficient to accommodate a dual carriageway road from the Gogar Roundabout to *inter alia* Edinburgh Airport within the area hatched green on Plan 2 (with a grade separation between the Edinburgh Tram Network and the access by way of a route which does not require to go over, under or across any part of the Depot itself).
- 15.9 In the event that NIL construct At Grade Crossings prior to the carrying out of the Infraco Works by the Infraco, the Infraco shall comply with any servitude or other right in favour of NIL in respect of such crossing (as the same shall be notified to the Infraco by **tie**) and shall minimise so far as reasonably practicable the extent of any period of interruption or impediment of access over any such At Grade Crossings and shall at all times during the construction of the Infraco Works provide at its own cost alternative vehicular and pedestrian access of a suitable standard and of at least half the pre-existing capacity of the At Grade Crossings across the CPO Site to and from the surrounding road network and the Infraco undertakes to minimise as far as reasonably practicable the extent of and the period of such interruption or impediment.
- 15.10 If requested to do so by **tie**, the Infraco shall construct the At Grade Crossings as part of the Infraco Works.
- 15.11 The Infraco shall, if requested to do so by **tie**, facilitate the construction by NIL of:
- 15.11.1 as many Above Ground Level Grade Separated Crossings as NIL may require; and
- 15.11.2 as many Below Ground Level Grade Separated Crossings as NIL may require.
- 15.12 The Infraco shall comply with any servitude or other rights over Grade Separated Crossings as may be notified by **tie** from time to time.
- 15.13 In the event that NIL construct Grade Separated Crossings prior to the carrying out of the Infraco Works by the Infraco, the Infraco shall minimise so far as reasonably practicable the extent of any period of interruption or impediment of access over any such Grade Separated Crossings and shall at all times during the construction of the Infraco Works provide at its own cost alternative vehicular and pedestrian access of a suitable standard and of at least half the pre-existing capacity of the Grade Separated Crossings across the CPO Site to and from

the surrounding road network and the Infraco undertakes to minimise as far as reasonably practicable the extent of and the period of such interruption or impediment.

- 15.14 During the carrying out of the Infraco Works at the Site, the Infraco shall ensure that Utilities as far as practicable remain in service and are only disturbed to the minimum.
- 15.15 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall ensure that at all times there is access to Gogar Mains House by Gogar Mains Farm Road.
- 15.16 The Infraco shall not encroach upon, use or possess temporarily or compulsorily Gogar Mains Farm Road or any part thereof for the purposes of carrying out the Infraco Works unless instructed otherwise by **tie** in accordance with this Agreement.
- 15.17 The Infraco shall not prevent NIL from upgrading Gogar Mains Farm Road.
- 15.18 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not damage or make use of the Sewer as part of the Infraco Works.
- 15.19 In the event that the Infraco is required to construct that section of the Edinburgh Tram Network lying to the west of Eastfield Road as part of the Infraco Works, the Infraco shall include as part of the Infraco Works an at grade road crossing at the point where the Edinburgh Tram Network crosses the roadway which currently connects the various car parks situated immediately to the west of Eastfield Road.
- 15.20 If Plots 304, 305 and 306 as shown on the Drawings are compulsorily acquired by CEC, the Infraco shall landscape such areas in an environmentally and ecologically sensitive manner in consultation with NIL, subject always to the terms of the Town and Country Planning (Safeguard Aerodromes, Technical Sites and Military Explosives Storage Areas (Scotland) Direction 2003 (SEDD Circular 2/2003).
- 15.21 The Infraco acknowledges that, pursuant to clause 9.2 of the NIL Agreement, NIL is entitled to carry out the landscaping of that part of the CPO Site outwith the line of the fence erected to secure the Tram Line. In such circumstances, the Infraco shall permit NIL to carry out such landscaping works and shall comply with any servitude or other rights granted by CEC in order for such works to be carried out.
- 15.22 If requested by **tie**, the Infraco shall construct as part of the Infraco Works (at a location where the nearest edge of the Tram Stop is within 10 metres (or within such other distance as shall be agreed with NIL and notified to the Infraco by **tie**) of either side of the Second Crossing) the foundations of the Tram Stop.

15.23 The Infraco shall provide **tie** with all required assistance with regard to agreeing the system of badger mitigation required in respect of the Edinburgh Tram Network at the Site. In the event that badger mitigation is required for the badger setts currently located within the New Limits or the New LLAUs, then the Infraco shall implement the scheme of mitigation agreed or determined between CEC and NIL pursuant to the NIL Agreement.

SECTION 16 - EDINBURGH AIRPORT LIMITED

- 16.1 In this Section 16 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Depot Plan" means the plan entitled Depot Layout Option B General Arrangement (Drawing Number 30894/C305 Rev D) as set out in Part 2 of Appendix 13 to Schedule Part 13;

"Drawings" means drawings sheet numbers 15, 20, 21 and 22 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"EAL" means Edinburgh Airport Limited, a company incorporated under the Companies Act with registered number SC 096623 and having its registered office at St Andrews Drive, Glasgow Airport, Paisley PA3 2SW;

"Plan" means the plan set out in part 1 of Appendix 13 to this Schedule Part 13; and

"Site" means those areas of ground at Edinburgh Airport being land identified for the purposes of the Edinburgh Tram (Line Two) Act 2006 as Plots 256, 257, 258, 328, 330 - 353 inclusive, and 360, on the Drawings in so far as owned by EAL.

- 16.2 The Infraco shall ensure that the Tramstop at the Site will be located where shown as point C on the Plan.
- 16.3 The Infraco shall ensure that the Depot is located so as to allow the future provision of an access sufficient to accommodate a dual carriageway road from Gogar Roundabout to inter alia Edinburgh Airport generally in the area hatched on the Depot Plan (with grade separation as between the Edinburgh Tram Network and the access).
- 16.4 For the avoidance of doubt the Infraco shall fully comply with the obligations in Schedule Part 44 (*EAL Works*).

SECTION 17 - VERITY TRUSTEES LIMITED

- 17.1 In this Section 17 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawings" means drawing number 22 as annexed to the Edinburgh Tram (Line One) Act 2006 and drawing number 4 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"Plan 1" means the plan which forms part of Verity's Land Certificate Title Number MID4503 which is marked as Plan 1 and is set out in part 1 of Appendix 14 to Schedule Part 13;

"Plan 3" means Mott MacDonald Drawing Number 203011/EDIN/0973 Rev P3, which is marked as Plan 3 and is set out in part 2 of Appendix 14 to Schedule Part 13;

"Property" means ALL and WHOLE the subjects at 19 Haymarket Yards, Edinburgh, being the subjects registered in the Land Register for Scotland under Title Number MID4503, which subjects are shown delineated in red on Plan 1, part of which subjects comprise the Site;

"Site" means those subjects forming part of the Property and which, for the purposes of the Tram Legislation comprise the following Plot Numbers:

Edinburgh Tram (Line One) Act : Plots 413 to 418, and 292a; and

Edinburgh Tram (Line Two) Act : Plots 508 to 513 and 41a

all as identified on the Drawings; and

"Verity" means Verity Trustees Limited, a company incorporated under the Companies Act with registered number 00744017 and having its registered office at Verity House, 6 Canal Wharf, Leeds, West Yorkshire LS11 5BQ.

- 17.2 The Infraco shall not design or construct any part of the Edinburgh Tram Network on Plot 292a/41a as shown on the Drawings other than any required regulation of entrance levels and kerb realignment. Upon completion of the Infraco Works at the Site, Plot 292a/41a of the Site shall be reinstated and returned to ~~tie~~ in no worse condition than that in which Plot 292a/41a was found prior to the commencement of the Infraco Works.
- 17.3 The Infraco shall not design or construct any part of the Edinburgh Tram Network on Plots 416, 417 and 418/510, 509 and 508 as shown on the Drawings other than any required regulation of entrance levels and kerb realignment. Upon completion of the Infraco Works at the Site, Plots 416, 417 and 418/510, 509 and 508 of the Site shall be reinstated and returned

to **tie** in no worse condition than that in which Plots 416, 417 and 418/510, 509 and 508 were found prior to the commencement of the Infraco Works.

- 17.4 If requested to do so by **tie**, the Infraco shall consult with **tie** and Verity with regard to the carrying out of the Infraco Works on Verity's business.
- 17.5 During the carrying out of the Infraco Works at the Site, the Infraco shall comply with any particular conditions on working agreed between CEC and Verity and notified to the Infraco by **tie**, and Infraco shall ensure that any impact on the normal operation of Verity's business is minimised so far as this is reasonably practicable having regard to the scope and nature of the Infraco Works.
- 17.6 The Infraco shall only design and construct part of the Edinburgh Tram Network over Plots 413 and 414/512 and 513 as shown on the Drawings to the extent that the Infraco has received express advance approval thereto from **tie**.
- 17.7 Subject to paragraph 17.6 of this Section 17 of Section A of Schedule Part 13, the Infraco shall construct or procure that there is constructed on Plots 413, 414 and 415/511, 512 and 513 a roadway, including the provision of a signalised junction (hereinafter referred to as the "**Access Road**") and that in the position generally indicated on Plan 3, which Access Road will give access to and egress from Haymarket Yards and the existing Network Rail car park. The Access Road and all services relating thereto shall be constructed so as to retain an unobstructed maintenance strip of 2 metres minimum width between all parts of the Access Road (and relative services) and Verity House, the said maintenance strip being the area shown coloured yellow on Plan 3.
- 17.8 The Infraco shall provide or procure that there is provided on a portion of Plot 413/511, an area of hard landscaping the situation and extent of which will be notified to the Infraco by **tie** and which it is understood will be utilised by Verity for the purposes of servicing, loading and unloading of goods.
- 17.9 During the carrying out of the Infraco Works in and around the Site, the Infraco shall ensure that connections from the Site
- 17.9.1 to the electricity sub-station located in the area shown coloured green on Plan 3; and
- 17.9.2 over a two metre strip for foul sewer in connection with the Property, which strip is located on Plots 409, 410 and 411/517, 516 and 515;

shall be maintained. In the event that the connections referred to above necessarily require to be severed, the Infraco shall secure alternative arrangements.

17.10 With regard to the carrying out of the Infraco Works in and around the Site, the Infraco shall:

17.10.1 use reasonable endeavours to ensure that the Infraco Works are carried out either during the weekend or outwith normal business hours;

17.10.2 ensure that continuous vehicular access to and egress from the Property is capable of being taken to and from the public road, Monday through Friday during normal business hours; and

17.10.3 ensure that pedestrian access to and egress from the Property will be available at all times.

17.11 Whilst the Infraco shall use all reasonable endeavours to ensure or procure that the Infraco Works are carried out either during the weekend or outwith normal business hours, in the event that access and egress is so frustrated, the Infraco shall provide temporary car parking spaces, the location of which shall be subject to the approval of **tie**.

17.12 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the date on which the Infraco Works are due to be completed and the date upon which possession of the Site will be returned to **tie**.

17.13 The Infraco shall as soon as reasonably practicable after the completion of the Infraco Works at the Site reinstate the Site to the condition in which it was found prior to the commencement of the Infraco Works.

17.14 The Infraco shall ensure that, on completion of the Infraco Works in the vicinity of the Site, vehicular and pedestrian access to and egress from the Property shall be available to and from the public road.

SECTION 18 - ADM MILLING LIMITED

- 18.1 In this Section 18 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**ADM**" means ADM Milling Limited, a company incorporated under the Companies Act with registered number 02445197 and having its registered office at ADM International Limited, Church Manorway, Erith, Kent DA8 1DL;

"**Plan**" means the plan set out in Appendix 15 to Schedule Part 13; and

"**Site**" means the flour milling facility at Chancelot Mill, Western Harbour, Leith Docks, Edinburgh outlined in red on the Plan.

- 18.2 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall ensure that at all times ADM and their customers have continued vehicular and pedestrian access to, and egress from, the Site for all reasonable purposes in connection with ADM's flour milling business at all times.
- 18.3 The Infraco shall carry out and/or procure the carrying out of the Infraco Works strictly in accordance with any site specific code of construction practice which may be in place from time to time in respect of the Site as notified to the Infraco by **tie**. The Infraco shall provide **tie** with all assistance required in relation to the negotiation and agreement of any such site specific code.

SECTION 19 - SELEX SENSORS AND AIRBORNE SYSTEMS LIMITED

- 19.1 In this Section 19 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawing" means drawing number 16 as annexed to the Edinburgh Tram (Line One) Act 2006;

"Plan" means the plan set out in Appendix 16 to this Schedule Part 13; and

"Site" means that area of ground at Crewe Toll, Drylaw, Edinburgh identified as Plots 173 and 174 on the Drawing.

- 19.2 During the carrying out of the Infraco Works at the Site, the Infraco shall not design or construct any part of the Edinburgh Tram Network upon, and shall ensure that it does not at any time otherwise encroach upon, that part of the Site which is identified as Plot 173 as shown on the Drawing, unless instructed otherwise by **tie** in accordance with this Agreement.
- 19.3 As part of the Infraco Works, the Infraco shall erect a post and mesh and/or hoop top plastic coated fence or fencing of approximately 1.25 metres in height to be located between the current Selex car park (comprising Plot 173 on the Drawing and the southern aerial site) and the tram corridor (comprising Plots 174 and 175 on the Drawing) the location of which is shown coloured red for indicative purposes on the Plan.

SECTION 20 - NORWICH UNION LIFE AND PENSIONS LIMITED

20.1 In this Section 20 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Access Road" means the roadway to be constructed by the Infraco including the provision of a signalised junction on Plots 288 and 289 as shown on the drawings annexed to the Edinburgh Tram (Line One) Act 2006 and Plots 49 and 50 as shown on the drawings annexed to the Edinburgh Tram (Line Two) Act 2006, which will give access to and egress from Haymarket Yards and the existing Network Rail car park;

"Noise and Vibration Policy" means the noise and vibration policy referred to in section 66 of each of the Edinburgh Tram (Line One) Act 2006 and the Edinburgh Tram (Line Two) Act 2006 as the same may be amended and/or updated from time to time;

"NULAP" means Norwich Union Life and Pensions Limited, a company incorporated under the Companies Act with registered number 03253947 and having its registered office at 2 Rougier Street, York YO90 1UU and having an interest in Rosebery House;

"Plan" means the plan set out in Appendix 17 to this Schedule Part 13; and

"Rosebery House" means the subjects known as Rosebery House and situated at Haymarket Terrace, Edinburgh, together with the car parking to the rear of the subjects within the Network Rail car park, all shown delineated in red on the Plan.

20.2 The Infraco shall construct the Access Road.

20.3 The Infraco shall use all reasonable endeavours to reinstate the car parking spaces within the Network Rail car park in the ownership of NULAP, which car parking spaces are shown hatched on the Plan. In the event that the Infraco cannot reasonably reinstate the car parking spaces as aforesaid, the Infraco shall provide, at **tie's** cost, permanent parking spaces in a location to be approved by **tie**.

20.4 If requested to do so by **tie**, the Infraco shall participate in consultation with **tie** and NULAP in relation to the impact of the Infraco Works on the operation of NULAP's business. The Infraco acknowledges that the intention behind such consultation is to minimise the impact of the Infraco Works on NULAP's business so far as reasonably practicable, having regard to the nature and scope of the Infraco Works.

- 20.5 At least 2 months prior to the start of the Infraco Works in the vicinity of Rosebery House, the Infraco shall, if requested to do so by **tie**, consult with **tie** and NULAP with regard to the proposed approach to the Infraco Works and the proposed Programme. The Infraco shall have due and proper regard to any representations made by NULAP during such consultation. If requested to do so by **tie**, the Infraco shall participate in similar consultations with **tie** and NULAP during the carrying out of the Infraco Works in the vicinity of Rosebery House.
- 20.6 If requested to do so by **tie**, the Infraco shall consult with **tie** and NULAP prior to the finalisation of the design, in relation to the design and in particular in relation to the impacts on the immediate surroundings and the alternatives considered. The Infraco shall have due and proper regard to any reasonable and appropriate design alternatives suggested by NULAP where the adoption of such alterations to the design will not result in overly onerous obligations on either party or be viewed as unreasonable in the context of the desired quality of environment to be achieved at and around Rosebery House.
- 20.7 The Infraco shall comply with the Noise and Vibration Policy. The Infraco shall, if requested by **tie**, carry out an appropriate detailed noise and vibration assessment, the terms of which will be subject to **tie**'s approval. In carrying out such an assessment, the Infraco shall be entitled to use such technical experts as it considers appropriate, but shall ensure that such assessment shall be carried out in accordance with relevant guidelines and good industry practice. The Infraco shall provide the results of the detailed noise and vibration assessment to **tie** within 10 days of receipt by the Infraco of such results. The results of this assessment will form the basis of the identification of any necessary mitigation measures to be put in place by the Infraco.
- 20.8 Wherever reasonably practicable the Infraco Works at or around Rosebery House shall be carried out in a single pass without any significant periods of inactivity.

**SECTION 21 - NATIONAL GRID PROPERTY HOLDINGS LIMITED,
PORT GREENWICH LIMITED AND WM MORRISON SUPERMARKETS PLC**

21.1 In this Section 21 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Greenwich" means Port Greenwich Limited, incorporated under the Companies Act (company number 02392867) and having its registered office at 1-3 Strand, London, WC2N 5EH and its successors and assignees;

"Land to be Acquired" means the subjects shown shaded purple on the Plan;

"Larger Subjects" means subjects at West Granton Road, Edinburgh being the whole subjects registered in the Land Register of Scotland under Title Number MID15716;

"Limits of Deviation" means, in so far as they relate to the Site, the limits within which the Edinburgh Tram Network will be constructed;

"Morrisons" means Wm Morrison Supermarkets Plc, a company incorporated under the Companies Acts (company number 00358949) and having its Registered Office at Hilmore House, Thornton Road, Bradford, West Yorkshire, BD8 9AX and its successors and assignees;

"National Grid" means National Grid Property Holdings Limited (formerly known as Secondsite Property Holdings Limited having changed its name conform to certificate of incorporation on change of name dated 10 October 2005), incorporated under the Companies Act (Company Number 03797578) and having its registered office at 1-3 Strand, London, WC2N 5EH and its successors and assignees;

"New Limits" means the Limits of Deviation as amended and restricted to the new limits of deviation as shown shaded green on the Plan;

"Plan" means the White Young Green Drawing No. 173 Revision E set out in part 1 of Appendix 18 to Schedule Part 13;

"Site" means that area of ground shown coloured green on the Plan which area forms part and portion of the Larger Subjects;

"Supermarket Plan" means the White Young Green Drawing Number A007183/115/Revision I set out in part 2 of Appendix 18 to Schedule Part 13;

"Supermarket Site" means that area of ground lying generally to the north of West Granton Road, Edinburgh extending to 7.01 acres or 2.84 hectares or thereby shown delineated in red and marked "Retail Site" on the Supermarket Plan; and

"Utilities" means services of gas, electricity, water, drainage, telecommunications and the cables, conduits, pipes and others provided or in place for the delivery of the same.

- 21.2 Unless otherwise instructed by **tie** in accordance with this Agreement, the Infraco shall not design or construct any part of the Edinburgh Tram Network upon any land at the Site beyond the New Limits.
- 21.3 The Infraco shall carry out and/or procure the carrying out of the Infraco Works strictly in accordance with any site specific code of construction practice which may be in place from time to time in respect of the Site as notified to the Infraco by **tie**. The Infraco shall provide **tie** with all assistance required in relation to the negotiation and agreement of any such site specific code.
- 21.4 The Infraco acknowledges that Greenwich, Morrisons and National Grid have a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings situated on the Site or the Supermarket Site. In the event that such fixing is nonetheless considered by the Infraco to be the most appropriate solution, the Infraco shall first seek the approval of **tie** on such matter and take due cognisance of the reasonable representations of Greenwich, Morrisons and National Grid as notified to the Infraco by **tie**, in this respect.
- 21.5 Prior to the completion of the Infraco Works on the Site, the Infraco shall serve a notice on **tie** specifying the estimated date upon which the Infraco Works at the Site are due to complete and the estimated date upon which possession of the Site will be returned to **tie**, provided that such notice shall be provided to **tie** having regard to the need to facilitate an inspection of the Site pursuant to paragraph 21.6.
- 21.6 The Infraco shall facilitate access to the Site to allow Greenwich and **tie** to inspect the Infraco Works. Such inspection shall take place at least 5 days prior to the completion of the Infraco Works at the Site.
- 21.7 The Infraco shall take due and proper cognisance of all reasonable and proper representations of **tie** in terms of the sufficiency and completeness of the Infraco Works at the Site in order to ensure that on return of possession of such to **tie** the Site should be in a condition fully

commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.

- 21.8 At all times during the carrying out of the Infraco Works the Infraco shall have due and proper regard to the requirements of National Grid, Greenwich and Morrisons to be able to access their property and all parts of it (including the Supermarket Site) at all times in order to carry out business activities and the like requirements of Greenwich and National Grid's successors, assignees tenants and occupiers to go about their respective business activities.
- 21.9 At all times during the carrying out of the Infraco Works the Infraco shall ensure that any disturbance of any access route will be in place for the minimum period reasonably practicable. The Infraco shall provide to **tie** its best estimate for any period of disruption of access rights and routes.
- 21.10 At all times during the carrying out of the Infraco Works, the Infraco shall take all reasonable and proper steps to ensure that that disruption to normal routes and rights of access will be kept to the minimum and in particular that at all times where an existing access route is disturbed that an alternative and reasonably suitable access route will be provided and the original access way returned to operation at a date not later than that disclosed in the Programme for the relevant element of the Infraco Works.
- 21.11 Notwithstanding the preceding provisions of this Section 21, at all times during the carrying out of the Infraco Works the Infraco shall ensure that access is maintained for customers and their vehicles to and from the local centre development to be erected on the Supermarket Site and for the drop off and collection of deliveries to and from the proposed local centre development.
- 21.12 At all times during the carrying out of the Infraco Works at the Site and the Supermarket Site, Utilities should as far as reasonably practicable remain in service and only be disturbed to the minimum.
- 21.13 The Infraco acknowledges that Greenwich and/or Morrisons may in future wish to run Utilities under the route of the Edinburgh Tram Network and the Infraco shall accordingly ensure that the design and implementation of the Infraco Works will take due and proper cognisance of the requirements or requests of Greenwich and/or Morrisons as notified to the Infraco by **tie** in this respect. The Infraco further acknowledges that wherever reasonably practicable, such crossing of Utilities shall be directed to existing junctions and crossings and that Greenwich and/or Morrisons shall ensure that the Utilities do not run parallel beneath the Edinburgh Tram Network.

SECTION 22 - INSTITUTE OF CHARTERED ACCOUNTANTS

22.1 In this Section 22 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**ICAS**" means the Institute of Chartered Accountants in Scotland, having a place of business at CA House, 21 Haymarket Yards, Edinburgh, Midlothian EH12 5BH;

"**Plan**" means the plan set out in Appendix 19 to this Schedule Part 13; and

"**Site**" means the land shown numbered 46, 48, 52, 53, 54, 55 and 56 on the Plan and includes CA House.

22.2 The Infraco shall not design or construct any part of the Edinburgh Tram Network on the Site outside the black dotted line on the Plan marked "northern extent of land at ICAS required permanently for tramway operations and maintenance". For the avoidance of doubt, this does not restrict the rights of the Infraco to occupy land temporarily in accordance with the Tram Legislation.

22.3 The Infraco shall, if requested to do so by **tie**, consult with **tie** and/or ICAS in relation to the design of the Edinburgh Tram Network in the vicinity of the Site.

22.4 If requested to do so by **tie**, the Infraco shall provide **tie** and/or ICAS with all relevant design data relating to the vibration impact of the Edinburgh Tram Network on CA House and take required remedial measures to minimise the vibration impact on CA House.

22.5 The Infraco shall not attach overhead line equipment to CA House unless it is not reasonably practicable to install such equipment in the area in any other way and the Infraco is required to do so in accordance with the conditions of a planning permission. If required to do so by **tie**, the Infraco shall consult with **tie** and/or ICAS and take into account ICAS' comments prior to the submission of the relevant application for approval from the planning authority.

22.6 The Infraco shall, if requested to do so by **tie**, consult with **tie** and/or ICAS generally in relation to the Programme for the Infraco Works in the vicinity of the Site. **tie** may require that such consultation takes place on a regular basis. In particular, the Infraco may be required to discuss the specific timing of major civil engineering works to be undertaken in the vicinity of the Site.

22.7 The Infraco shall use all reasonable endeavours to ensure that the Infraco Works in the vicinity of the Site are carried out over the shortest time period practicable.

SECTION 23 - HOLYROOD SERVICES LIMITED

- 23.1 In this Section 23 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**Plan**" means the Mott MacDonald Drawing Number 203011/EDIN/0584 Rev. P3 as set out in Appendix 20 of Schedule Part 13; and

"**Site**" means ALL and WHOLE that area of ground at Granton Harbour, Edinburgh as shown outlined in black and shaded in red and partly crossed by a broken black line on the Plan being part and portion on that area of ground at Granton Harbour, Edinburgh, registered in the Land Register of Scotland under Title Number MID54065 and for the purposes of the Edinburgh Tram (Line One) Act 2006, comprising the eastern part of Plot Number 116.

- 23.2 Unless instructed otherwise by **tie** in accordance with this Agreement, the Infraco should not design or construct any part of the Edinburgh Tram Network upon the Site and shall not encroach upon the Site for the purposes of carrying out the Infraco Works.

SECTION 24 - SERVISAIR (UK) LIMITED

24.1 In this Section 24 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**Site**" means SUK's operating base and associated land in the vicinity of Edinburgh Airport; and

"**SUK**" means Servisair (UK) Ltd, a subsidiary of Penauille Servisair UK Limited, such holding company being incorporated under the Companies Acts with registered number 00509585 and having its registered office at Atlantic House, Atlas Business Park, Simonsway, Manchester M22 5PR.

24.2 Whilst carrying out Infraco Works at the Site on Eastfield Road, Edinburgh over Plots 337 and 338 as shown on drawing 20 attached to the Edinburgh Tram (Line Two) Act 2006, the Infraco shall ensure that it does not preclude other road users taking access across these Plots.

24.3 Whilst carrying out Infraco Works at the Site, the Infraco shall ensure that the Infraco Works shall have no direct impact upon Turnhouse Road.

24.4 Whilst carrying out Infraco Works at the Site, the Infraco shall ensure that the Infraco Works will not require the closure of the A8 trunk road.

24.5 Whilst carrying out Infraco Works at the Site insofar as traffic restrictions may be imposed affecting the A8 trunk road, the Infraco shall ensure that these will be confined to the vicinity of the Gogar roundabout, and all reasonable endeavours will be taken to maintain two lanes of traffic to pass in both easterly and westerly directions, either via the main carriageways of the A8 or via the sliproads to and from the junction with the City of Edinburgh Bypass.

24.6 The Infraco shall assist and participate if and when requested by **tie** in any consultation carried out by **tie** with SUK in relation to the proposed traffic management arrangements in the vicinity of the Gogar roundabout and shall give **tie** not less than 35 days' prior notice of each new or altered restriction affecting traffic on the A8 trunk road.

24.7 The Infraco shall ensure that the remaining Plots on Eastfield Avenue and Gogar Bridge Road (as shown on drawing 20 attached to the Edinburgh Tram (Line Two) Act 2006) shall only be used on a temporary basis in order to ensure that access to carry out the Infraco Works is achieved.

SECTION 25 - HISTORIC SCOTLAND

25.1 In this Section 25 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Design Working Group" means a group to be set up by **tie** and/or CEC, the remit of which will be to:

- (a) discuss and review the emerging design of the tram system against the requirements of the Design Manual;
- (b) review the environmental impact of the emerging design to confirm that the impact of the design is not materially worse than that identified in the Environmental Statement and to mitigate this so far as is reasonably practicable; and
- (c) advise on the supporting, environmental and other information that will be appropriate to submit with the prior applications;

"Edinburgh World Heritage Site" means the various conservation areas shown in the plan as set out in Appendix 21 of this Schedule Part 13, as the same shall be updated from time to time and notified to the Infraco by **tie**; and

"Historic Scotland" means Historic Scotland based at Longmore House, Salisbury Place, Edinburgh EH9 1SH.

25.2 The Infraco shall assist **tie** in any consultation with Historic Scotland regarding the design of the Edinburgh Tram Network in relation to that part of the route which runs through the Edinburgh World Heritage Site.

25.3 The Infraco shall, if required by **tie**, facilitate and/or participate in the Design Working Group which shall meet fortnightly or at such other intervals as **tie** may advise the Infraco.

25.4 The Infraco shall comply with the provisions of this Section 25 in order to:

25.4.1 ensure that Historic Scotland is fully involved in the relevant parts of the design process; and

25.4.2 resolve any issues prior to the submission of an application for prior approval and thus avoiding objection to the application at a late stage in the process.

25.5 The Infraco will co-operate with **tie**, if required, in respect of any review of the operation of the Design Working Group.

SECTION 26 - MURRAYFIELD INDOOR SPORTS CLUB

26.1 In this Section 26 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**Access Route**" means the access to the entrance of the premises on the Site via the route marked in blue on the Plan;

"**Club**" means Murrayfield Indoor Sports Club, having a place of business at 25 Roseburn Street, Edinburgh, EH12 5PE and its successors and assignees the present trustees of which are George Russell, residing at 6 Drylaw Place, Edinburgh, George Manson residing at 13 Sighthill Grove, Edinburgh and John Small residing at 47 Hillview Terrace;

"**Drawing**" means drawing number 5 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"**Plan**" means the plan set out in Appendix 22 to this Schedule Part 13; and

"**Site**" means those second floor premises at Roseburn Street outlined in green on the Plan and including the areas identified as Plot 90 on the Drawing.

26.2 The Infraco shall construct, for the benefit of the Club, a fire escape at the location marked "A" on the Plan from the Club's premises, such construction to take place at a time to be agreed between **tie** and the Club and notified to the Infraco by **tie**. The Infraco shall ensure that the construction referred to in the preceding provisions of this paragraph 26.2 shall cause the minimum disturbance reasonably practicable to the normal operation of the premises on the Site.

26.3 During the carrying out of the Infraco Works at the Site, the Infraco shall ensure that the Access Route shall be maintained.

26.4 During the carrying out of the Infraco Works at the Site, the Infraco shall have due regard to the requirement of the Club to be able to access their property via the Access Route at all reasonable times in order to carry out the Club's activities.

26.5 Unless otherwise instructed by **tie** in accordance with this Agreement, regarding the Infraco's access onto the Site, the Infraco shall ensure:

26.5.1 that its exercise of access on the Site causes the minimum disturbance reasonably practicable to the normal operation of the Club; and

26.5.2 that access on the Site shall, wherever possible be taken outwith the period between 1700hrs and 0100hrs.

SECTION 27 - ROYAL MAIL GROUP PLC AND POST OFFICE LIMITED

27.1 In this Section 27 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Post Office Limited" means a company registered under the companies acts with registered number 02154540 and having its registered office at 80-86 Old Street, London EC1V 9NN;

"Postal Services" means in relation to Royal Mail Group PLC the delivery and collection by Royal Mail Group PLC of letter and parcel post including handling letters, postal packets and high value (registered) packets and in respect of Post Office Limited the operation of the national network of Post Office Counter offices and the delivery and collection of cash, stock, and other valuable items from the national network of Post Office Counter offices;

"Post Box" includes a pouch box, and for this purpose pouch box means a receptacle belonging to RMPO used for the storage of postal packets and materials required for the collection of postal packets from post boxes;

"Protected Premises" means those delivery offices, post offices and sub post offices located within 100 metres of any works to be undertaken by or on behalf of CEC under the Tram Legislation and specified as follows:

- (a) Royal Mail PLC Sorting and Delivery Office, Russell Road, Edinburgh;
- (b) St James' Centre DMB, St James' Centre, Edinburgh;
- (c) Frederick Street DMB, Frederick Street, Edinburgh;
- (d) Tallents House, 21 South Gyle Crescent, Edinburgh;
- (e) The Edinburgh Mail Centre, Cultins Road, Edinburgh; and
- (f) Parcel Force Depot, 100 Bankhead Crossway North, Edinburgh;

"RMPO" means in any case whichever of Royal Mail Group PLC or Post Office Limited is affected in that case, or if both are affected, each of them;

"Royal Mail Group PLC" means a company registered under the companies acts with registered number 04138203 and having its registered office at 148 Old Street, London EC1V 9HQ; and

"Specified Work" means any part of the Infraco Works that is within 10 metres (measured in any direction) of a Post Box or of premises occupied or operated by RMPO.

- 27.2 The Infraco shall, not less than 100 days before commencing any Specified Work, notify **tie** thereof and assist **tie** in relation to any required consultation with RMPO with a view to carrying out the Specified Work in such a way as to:
- 27.2.1 avoid where reasonably practicable the removal or relocation of Post Boxes; and
- 27.2.2 minimise disruption to Postal Services and interference with access to Post Boxes.
- 27.3 In compliance with paragraph 27.2 above, the Infraco shall, at **tie's** request, assist **tie** in specifying the Post Boxes that will require to be moved to enable construction of the Infraco Works to be carried out and shall assist **tie** in supplying to RMPO such plans, drawings and other details relating to the Infraco Works as RMPO may reasonably require in order to assess how its Postal Services, including Post Boxes, may be affected by the Infraco Works.
- 27.4 The Infraco shall not commence construction of any Specified Work that involves the removal of any Post Box or prevents reasonable and necessary access to any Post Box until such plans, drawings and other details referred to in paragraph 27.3 have been approved by RMPO and such approval has been notified accordingly by **tie** to the Infraco.
- 27.5 In carrying out the Specified Work and due to an emergency, or for some other unforeseen and immediate reason, if the Infraco requires to relocate or close a Post Box, it shall give **tie** at least 72 hours' notice of its intention to do so.
- 27.6 The Infraco shall not prevent or substantially inhibit vehicular or pedestrian access to or egress from any of the Protected Premises, either temporarily or permanently.
- 27.7 In the event that a Post Box is specified for removal (other than in the event of an emergency or other unforeseen and immediate reason), and the approval for such removal has been intimated to the Infraco by **tie**, the Infraco acknowledges that such removal shall be carried out by Royal Mail Group PLC. If the removal has not been carried out within 28 days of RMPO's approval being intimated to the Infraco by **tie**, the Infraco may, subject to **tie's** approval, itself remove the Post Box.
- 27.8 The Infraco shall not alter or remove any Post Box belonging to the Royal Mail Group PLC except in accordance with the provisions of this Section 27 of Section A of Schedule Part 13.

- 27.9 Without prejudice to any other requirement set out in this Agreement, the Infraco shall give **tie** at least 48 days' notice in writing of the commencement of any Specified Work.
- 27.10 Not later than 100 days before the commencement of Infraco Works which may interfere with the use by Royal Mail Group plc of roads in connection with the provision of Postal Services, the Infraco shall require that **tie** requests from RMPO a breakdown of van movements and related matters pertinent to any permanent or temporary stopping up of a road.
- 27.11 The Infraco shall give **tie** not less than 35 days' notice of the commencement of any Infraco Works (other than Specified Works) situated in a road, where the Infraco reasonably considers that such Infraco Works or stopping up may interfere with the use by RMPO of the road in connection with the provision of Postal Services.
- 27.12 During the construction of the Infraco Works, the Infraco shall use all reasonable endeavours to minimise disruption to Postal Services.
- 27.13 The Infraco shall only obtain access to RMPO's Russell Road site in order to construct a retaining wall on the south side of the building, and to maintain fire escape routes from the building. Such access will be governed by the terms of this Section 27 of Section A of Schedule Part 13.

SECTION 28 - UGC PROPERTIES LIMITED AND UNIPART AUTOMOTIVE LIMITED

28.1 In this Section 28 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Drawing" means drawing number 5 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"Plan" means plan 30894/C280 Rev A and as set out in Appendix 23 to this Schedule Part 13;

"Premises" means the property at 13 Roseburn Street, Edinburgh, registered in the Land Register of Scotland under title number MID51438;

"Site" means that area of ground mainly to the south-west of the Premises, which is identified as Plot 80 on the Drawing;

"UGC" means UGC Properties Limited, a company incorporated under the companies acts with registered number 4842174 and having its registered office at Unipart House, Garsington Road, Cowley, Oxford OX4 2PG and its successors and assignees;

"Unipart" means Unipart Automotive Limited (formerly known as Partco Limited), a company incorporated under the companies acts with registered number 658368 and having its registered office at Unipart House, Garsington Road, Cowley, Oxford OX4 2PG and its successors and assignees;

"UGC/UNI" means UGC and Unipart. For the avoidance of doubt reference to "UGC/UNI" shall mean whichever of UGC or Unipart as are affected, or if both are affected, each of them; and

"UGC/UNI Agreement" means the agreement entered into between UGC, Unipart and CEC on 25 October 2005 and 21 November 2005 in respect of the removal of UGC/UNI's objection to the Edinburgh Tram (Line Two) Bill.

28.2 The Infraco acknowledges that, pursuant to clause Three (2) of the UGC/UNI Agreement, CEC has been granted unrestricted and unencumbered pedestrian and vehicular access, with or without construction traffic, over, across and through the Site for the purposes of the Infraco Works.

28.3 The Infraco shall notify **tie** at least 35 days prior to the date upon which the Infraco wishes to exercise its rights of access over the Site specified in paragraph 28.2 above, specifying the

proposed date on which the proposed rights of access will require to commence. In the event that the Infraco removes all plant and equipment from the Site and desist all Infraco Works thereon for a period exceeding 28 days then the Infraco shall be obliged to re-notify **tie** at least 7 working days prior to the date upon which the Infraco intends to re-enter the Site to re-commence exercise of its rights, otherwise all in accordance with this paragraph 28.3.

28.4 Whilst carrying out the Infraco Works in the vicinity of the Site, the Infraco shall ensure that access and egress through the Site is maintained for UGC/UNI to:

28.4.1 a car parking area to be situated on the South East of the Premises at the location more particularly shown outlined and cross-hatched in red on the Plan;

28.4.2 the loading bay situated on the South West face of the Premises at the point marked 'A' on the Plan for the purposes only of loading and off-loading goods to and from the said building, declaring that such rights are required pursuant to the UGC/UNI Agreement to be exercised as quickly as reasonably possible with vehicles being removed from the loading bay immediately upon completion of loading or off-loading, always having regard to nature of the Infraco Works and to any requirements of the Infraco's Representative; and

28.4.3 the fire exit door situated on the South-West face of the Premises at the point marked 'B' on the Plan.

28.5 The Infraco shall only access the Site between the hours of 7am and 7pm unless otherwise instructed by **tie** under this Agreement.

28.6 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the estimated date upon which the Infraco Works are due to be completed at the Site and the date upon which possession of the Site will be returned to **tie**.

SECTION 29 - JPSE LIMITED

29.1 In this Section 29 of the Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**Drawings**" means drawing numbers 6 and 7 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"**Jenners**" means JPSE Limited (formerly Jenners Princes Street Edinburgh Limited), a company incorporated under the Companies Acts with registered number SC013150 and having its registered office at 16 Charlotte Square, Edinburgh EH2 4DF and its successors and assignees;

"**Jenners Agreement**" means the agreement entered into between Jenners and CEC on 18th January and 27th January 2006 in respect of the removal of Jenners' objection to the Edinburgh Tram (Line Two) Bill;

"**Plan**" means drawing number 30894/C286 Rev B dated 4 July 2005 produced by Faber Maunsell and set out in Appendix 24 to this Schedule Part 13; and

"**Site**" means that area of ground at 140 Balgreen Road, Edinburgh identified as Plots 139,140 and 141 on the Drawings and also shown for indicative purposes on the Plan.

29.2 The Infraco shall design and construct the relevant section of the Edinburgh Tram Network in accordance with the "**high option**" as defined in Clause 2.2.1(a) of the Jenners Agreement.

29.3 The Infraco acknowledges that the Site will not be permanently acquired for the purposes of the Edinburgh Tram Network and the Infraco shall not therefore design or construct any part of the Edinburgh Tram Network on the Site. Subject to the terms of the relevant licence, the foregoing terms of this paragraph 29.3 of Section A of Schedule Part 13 are without prejudice to the rights of the Infraco to take temporary possession of part of the Site in accordance with the Tram Legislation.

29.4 Upon imminent completion of the Infraco Works at the Site, the Infraco shall serve written notice on **tie** specifying the estimated date upon which the Infraco Works are due to complete and the estimated date upon which possession of the Site will be returned to **tie**.

**SECTION 30 - NEW EDINBURGH LIMITED AND
EDINBURGH PARK (MANAGEMENT) LIMITED**

30.1 In this Section 30 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Access Road" means that length of road from Hermiston Gait roundabout to the New Limits as shown hatched black on Plan 2;

"Drawings" means drawing numbers 12, 13 and 14 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"Edinburgh Park" means that area of ground indicatively outlined in red on Plan 1;

"EPML" means Edinburgh Park (Management) Limited, a company incorporated under the Companies Acts with registered number 137394 and having its registered office at Miller House, 2 Lochside View, Edinburgh Park, Edinburgh EH12 9DH and its successors and assignees;

"Ground Works" means the Infraco Works which are the main heavy works of excavation, utilities, backfilling and making safe accordingly;

"Hermiston Gait" means that area of ground indicatively outlined in blue and green on Plan 1;

"Hotel Site" means that part of Hermiston Gait indicatively outlined in green on Plan 1;

"LLAU" means insofar as they relate to Edinburgh Park or Hermiston Gait, the limits of land that may be acquired and used for the purposes of the Infraco Works;

"LOD" means insofar as they relate to Edinburgh Park or Hermiston Gait, the limits of deviation within which the Edinburgh Tram Network will be constructed and operated;

"Maintenance Schedule" means the schedule set out in part 6 of Appendix 25 of this Schedule Part 13;

"NEL" means New Edinburgh Limited, a company incorporated under the Companies Acts with registered number 126384 and having its registered office at Miller House, 2 Lochside View, Edinburgh Park, Edinburgh EH12 9DH and its successors and assignees;

"**New Limits**" shall have the meaning assigned to that term by paragraph 30.2 of this Section 30;

"**Plan 1**" means Halcrow Drawing Number 04-4582-PODEPL-102-9011 and forming part 1 of Appendix 25 to this Schedule Part 13;

"**Plan 2**" means Faber Maunsell Drawing Number 30894/C210, Rev.L and forming part 2 of Appendix 25 of this Schedule Part 13;

"**Plan 3**" means Faber Maunsell Drawing Number 30894/C209, Rev.E and forming part 3 of Appendix 25 of this Schedule Part 13;

"**Plan 4**" means Faber Maunsell Drawing Number 04-4582-PODEPL-102-9010, Rev.C and forming part 4 of Appendix 25 of this Schedule Part 13; and

"**Plan PT**" means drawing number PT/1/01/001/2/293F and forming part 5 of Appendix 25 to this Schedule Part 13;

30.2 The LLAU shall be deemed to be amended from those shown on the Drawings and shall be restricted, insofar as they relate to Edinburgh Park and/or Hermiston Gait, to the extent shown by the broken purple line on Plan 2 and, shall for the purposes of this Section 30 of Section A of Schedule Part 13, be called the "**New Limits**" and for the avoidance of any doubt, save as aforementioned, the New Limits shall otherwise be as shown by the broken red lines on Plans 2 and 3.

30.3 The Infraco acknowledges that:

30.3.1 only those parts of Edinburgh Park and/or Hermiston Gait as are required for the Edinburgh Tram Network which are within either the LOD or the New Limits will be permanently acquired; and

30.3.2 the Hotel Site will not be permanently acquired.

30.4 The Infraco shall assist **tie**, as required, in supplying to the directors or relevant employees of NEL or EPML such information regarding the Edinburgh Tram Network as NEL or EPML may from time to time reasonably request.

30.5 Upon request from **tie**, the Infraco shall make available for examination to NEL or EPML copies of all insurance policies taken out by the Infraco in accordance with this Agreement and evidence that the premiums payable thereunder have been paid to date and that the insurances are in full force and effect.

- 30.6 The Infraco shall use all reasonable endeavours to ensure that such of the Ground Works which are to be constructed:
- 30.6.1 to the north of the point marked "B" on Plan 2 are completed within 12 months of their commencement; and
- 30.6.2 to the south of the point "B" on Plan 2 are completed within 24 months of their commencement.
- 30.7 The Infraco shall ensure that the centre line of the Edinburgh Tram Network between the points S and T shown on Plan 2 and Plan 3 shall not extend further to the east from the centre line of the tramways shown on Plan 2 and Plan 3, subject always to the ground conditions, comparative cost of alternative proposals and other engineering factors and any requirement made by the planning authority under clause 29 of Part 11 of Schedule 1 of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (whether as a consequence of the refusal of an approval by it under that Part, or by reason of any conditions attaching to an approval under that Part).
- 30.8 The Infraco shall not encroach upon any land in Edinburgh Park or Hermiston Gait which lies outwith the LOD and/or the New Limits unless otherwise instructed by **tie** in accordance with this Agreement.
- 30.9 With regard to the formation by the Infraco of an at-grade crossing of the way designated as Lochside Avenue in Edinburgh Park which also permits access to and egress from the Edinburgh Tram Network at that point, the Infraco shall ensure:
- 30.9.1 the tram junctions are surfaced using appropriate natural stone materials; and
- 30.9.2 traffic sensors are installed linking to traffic signals to enable signal staging and phasing to be modified, so as to reduce as far as possible traffic queuing distances.
- 30.10 Before commencing the execution of the Infraco Works at Hermiston Gait or Edinburgh Park, the Infraco shall give notice in writing to **tie** of the works intended, accompanied by plans of those works showing the manner in which and the materials with which they are to be constructed, together with details of the proposed timescale and any further information NEL and EPML reasonably require as notified to the Infraco by **tie**.
- 30.11 In preparing the plans referred to in paragraph 30.10 above, where fencing is required around the tram lines the Infraco shall have regard to Plan PT (but under declaration that any references therein to a guided busway shall be deemed to be references to the Edinburgh Tram

Network and the said drawing shall be interpreted accordingly) and to the design criteria set out in paragraph 30.12 below, and in the event that the works depicted on the plans referred to in paragraph 30.10 above differ in any material respect from those anticipated by Plan PT or from the design criteria set out in paragraph 30.12 below the Infraco shall, when submitting the plans referred to in paragraph 30.10 above to **tie**, give full written reasons for any such differences.

30.12 The design criteria referred to in paragraph 30.11 above are as follows:

30.12.1 where safety railings are required, their design will be in accordance with accepted British Standards and will incorporate such architectural or artistic enhancements as NEL or EPML may reasonably require provided these do not contravene accepted British Standards;

30.12.2 all retaining wall features will be faced in split-faced natural stone with dressed stone copes to established Edinburgh Park standards;

30.12.3 all materials used in connection with the Infraco Works will be of a high standard and shall be so far as is reasonably practicable similar to or consistent with the existing materials used within the common parts of Edinburgh Park; and

30.12.4 all Tramstops in Edinburgh Park or Hermiston Gait shall be lit and monitored by CCTV and will be fully accessible and provide bicycle racks for cyclists.

30.13 The Infraco acknowledges that, if NEL or EPML reasonably considers that by reason of their design or appearance, the Infraco Works as proposed to be constructed would injure the amenity of the urban landscape of Edinburgh Park and the said design or appearance of the Infraco Works is reasonably capable of modification to avoid such injury, they may, within 14 days of the receipt of the notice referred to in paragraph 30.10 above by notice to CEC in writing specify the alterations that they seek. **tie** shall forward any such notice on to the Infraco as soon as reasonably practicable. The Infraco shall alter the said design or appearance of those works in such a proper and reasonable way as may be required by NEL or EPML and notified to the Infraco by **tie**, having regard always to the standard of design commensurate with that of Edinburgh Park existing as at the date of this Agreement, so as to avoid such injury.

30.14 The Infraco acknowledges that NEL and EPML are not entitled to request any alteration to the design of the Edinburgh Tram Network or the Infraco Works pursuant to paragraph 30.13 above:

30.14.1 on the basis that the Infraco should be required to construct any structure as part of or adjacent to the Infraco Works to facilitate the construction by NEL or EPML of any lochan, lake, pond, marsh, wetland or other body of water adjacent to those works; or

30.14.2 where to do so would conflict with:

- (a) any requirement made by the planning authority pursuant to Clause 29 of Part 11 of Schedule 1 of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (whether as a consequence of the refusal of an approval by it under that Part, or by reason of any conditions attaching to an approval under that Part); or
- (b) a requirement of the planning authority where the Infraco has sought to include a requirement of NEL or EPML pursuant to paragraph 30.13 above in any planning application for the Infraco Works, but can demonstrate that the said alteration is unacceptable to the planning authority and will materially delay the procurement of a planning permission for the Infraco Works.

30.15 In this paragraph 30.15 "**construction site**" means any parcel of land in Edinburgh Park or Hermiston Gait which CEC may acquire or has acquired or in which it may acquire or has acquired any interest (whether temporarily or permanently) under the powers of the Tram Legislation or by agreement with NEL or EPML, for the purpose of constructing the relevant Infraco Works:

30.15.1 Subject to the provisions of this Section 30 of Section A of Schedule Part 13, the Infraco shall not use any road or way within Edinburgh Park in connection with the construction of the Edinburgh Tram Network without the prior written consent of **tie**.

30.15.2 The Infraco may use the ways within Edinburgh Park designated as Roads 1 and 8 in connection with the construction of the junction between the Edinburgh Tram Network and the road or way designated as Road 8, including in connection with the construction and placing of all facilities ancillary to that junction.

30.15.3 Nothing in this paragraph affects the Infraco's ability to:

- (a) use any land in respect of which CEC/**tie** has secured access by virtue of the Tram Legislation or any other right or agreement; or
- (b) to gain access to and egress from any such land from and to any public highway; or

- (c) to use the roads and other ways within Edinburgh Park in connection with the operation of the Edinburgh Tram Network.

30.15.4 In the construction of the relevant Infraco Works, no motor vehicles shall be parked outwith any construction site.

30.15.5 Any motor vehicle of the Infraco that breaks down whilst in Edinburgh Park and going to or from a construction site shall be dealt with by or on behalf of the Infraco in an efficient and timely manner.

30.15.6 No offloading or loading of construction materials shall be made by the Infraco outwith the construction sites. All noxious refuse on a construction site shall be stored so as to avoid so far as is reasonably practicable unsightly visual impact, airborne debris and noxious smells, and shall be removed from Edinburgh Park at regular intervals.

On completion of the construction of the relevant Infraco Works, all debris, rubble, waste and refuse not required for landscaping of the relevant Infraco Works shall be removed by the Infraco from Edinburgh Park.

30.15.7 During the construction of the relevant Infraco Works, a 20 mph speed limit shall apply to all construction vehicles within Edinburgh Park.

30.15.8 The Infraco shall report any damage caused by it to property in Edinburgh Park outwith the construction sites in writing to **tie** as soon as reasonably practicable after it has become aware of that damage. Any such damage caused by the Infraco shall be repaired by the Infraco to the reasonable satisfaction of EPML and NEL (as confirmed to the Infraco by **tie**) at the Infraco's expense. In the event of failure by the Infraco to comply with this requirement within a period of 30 working days, or such longer period as NEL shall reasonably allow (as notified to the Infraco by **tie**), the Infraco acknowledges that NEL or EPML may effect such repairs to its reasonable satisfaction and the Infraco shall pay the proper and reasonable costs of doing so to **tie** or (if requested by **tie**) directly to NEL or EPML.

30.15.9 All litter and accidental spillages outwith the construction sites shall be removed by the Infraco as soon as possible from the areas affected. In the event of failure to comply with this requirement, the Infraco acknowledges that EPML may undertake that removal to its reasonable satisfaction and the Infraco shall pay the reasonable costs of doing so to **tie** or (if requested by **tie**) directly to NEL or EPML.

30.15.10 During dry weather conditions, the Infraco shall dampen roads in the construction sites in order to minimise airborne dust.

30.15.11 The Infraco shall use reasonable endeavours to minimise noise created by the construction of the relevant Infraco Works.

30.15.12 The Infraco shall not discharge any surface water into any of the lochans in Edinburgh Park.

30.15.13 The Infraco shall ensure that the wheels of all motor vehicles leaving the construction sites are properly cleaned at or near their point of egress.

30.15.14 The Infraco shall ensure that all roads in Edinburgh Park to and from the construction sites are kept free of mud and dust as far as reasonably practicable. In the event of failure by the Infraco to keep all such roads clean to the reasonable satisfaction of NEL or EPML, the Infraco acknowledges that NEL or EPML may effect such cleaning to its reasonable satisfaction and the Infraco shall pay the reasonable costs of doing so to **tie** or (if requested by **tie**) directly to NEL or EPML.

30.15.15 The Infraco shall provide to **tie** the following contacts in respect of the Infraco Works being carried out at Edinburgh Park and Hermiston Gait, including their respective telephone numbers:

- (a) project manager;
- (b) site foreman;
- (c) site security officer;
- (d) site health and safety officer; and
- (e) three out-of-hours emergency contact numbers and contact details.

The Infraco shall notify **tie** as soon as reasonably practicable, of any changes in the information previously provided.

30.15.16 Prior to commencing the relevant Infraco Works at any construction site, the Infraco shall erect a hoarding to the specifications, and at locations, shown on Plan 4 around that site and the Infraco shall maintain the hoarding to a reasonable standard throughout the period of construction. On completion of the Infraco Works, the

Infraco shall remove the hoarding to the reasonable satisfaction of NEL and EPML as confirmed to the Infraco by **tie**.

In the event of failure by the Infraco to hoard the site in accordance with this provision to the reasonable satisfaction of NEL or EPML after having been called upon to do so, and having failed to do so within a reasonable period, NEL or EPML may effect such hoarding to its reasonable satisfaction and recover the proper and reasonable costs of doing so from the Infraco.

- 30.16 The Infraco shall ensure that all workmanship is at least to the standard of workmanship which has been applied in Edinburgh Park.
- 30.17 The Infraco shall ensure that the effects of construction of the Edinburgh Tram Network on noise and vibration and other environmental impacts on buildings within Edinburgh Park constructed and occupied as at the date of this Agreement shall not at any time be significantly worse than the levels envisaged by the Environmental Statement.
- 30.18 The Infraco will advise **tie** fully in relation to the construction programme for the Infraco Works at Edinburgh Park and Hermiston Gait and shall provide **tie** with a monthly update of such programme with a written explanation of all material alterations to the programme.
- 30.19 All Maintenance Services carried out on the Edinburgh Tram Network at the Site shall be carried out in accordance with the Maintenance Schedule.
- 30.20 It is acknowledged by the Infraco that the Edinburgh Tram Network will cross the Edinburgh to Glasgow railway line by means of a viaduct bridge to be located between the points marked "A" and "B" on Plan 2 (the "**Bridge**"). The Infraco shall ensure that the Bridge will be an open structure (as opposed to solid embankment) on concrete pillars and will be of a design complementary with the landscaping already in existence in Edinburgh Park and the Infraco shall assist **tie** in relation to any consultation with NEL and EPML on the proposed design of the Bridge.
- 30.21 The Infraco acknowledges that NEL or EPML shall be entitled to impose such barriers/control systems or other regulation on the Access Road as they may deem necessary (acting reasonably) from time to time in order to regulate and control the flow, access and egress of vehicular traffic to and from Edinburgh Park provided always that the said barriers/control systems or other regulations shall not at any time prevent pedestrian and vehicular access with or without construction traffic of the Infraco to and from Edinburgh Park and Hermiston Gait

for the purposes of the construction of the Edinburgh Tram Network in accordance with the Tram Legislation and this Agreement.

30.22 Upon imminent completion of the relevant part of the Infraco Works the Infraco shall serve written notice on **tie** specifying the estimated date upon which the relevant part of the Infraco Works are due to complete and the estimated date upon which possession of the relevant site will be returned to **tie**.

30.23 Notwithstanding the provisions of the Edinburgh Tram (Line Two) Act 2006, unless otherwise instructed by **tie** in accordance with this Agreement, the Infraco shall not design or construct any part of the Edinburgh Tram Network on or otherwise encroach upon:

30.23.1 Plot 196;

30.23.2 Plot 208A;

30.23.3 Plot 218;

30.23.4 Plot 220; or

30.23.5 Plot 221;

all as shown on the Drawings, unless otherwise instructed by **tie** in accordance with this Agreement.

30.24 The Infraco shall install drainage in accordance with Plan 2 and Plan 3 and shall ensure that it will take the following form:

35.24.1 Preliminary Catchment No. 9

(a) Subject to the approval of **tie**, connect to and discharge from the Edinburgh Tram Network to the 450mm diameter storm water drain to be constructed by NEL for the further development of Edinburgh Park and for the purposes of the Tram Legislation as appropriate, at the point marked "C" on Plan 2, and for the purposes of which drain NEL has set aside land to attenuate flows prior to discharge thereto.

(b) In the event that the construction of the Edinburgh Tram Network at Edinburgh Park or Hermiston Gait precedes the said drains' construction, temporarily connect and discharge instead to the Gogar Burn, as culverted, between the points marked "C" and "D" on Plan 2 until such time as NEL

construct the said drain, but that subject to the Infraco procuring all necessary statutory consents for such connection and discharge.

30.24.2 Preliminary Catchment No.10

- (a) Subject to the approval of **tie**, connect to and discharge from the Edinburgh Tram Network to the 750mm diameter sewer constructed by NEL in Lochside Avenue, at the point marked "E" on Plan 3;
- (b) In the event that soakaway tests, undertaken at the detailed design of the Edinburgh Tram Network, prove that the ground conditions are satisfactory, then the Infraco shall install a SUDS system to allow a reduction in the peak discharge from the Edinburgh Tram Network.

30.25 The Infraco shall not design or construct any part of the Edinburgh Tram Network on, and shall not encroach upon Plots 192 and 194 as shown on the Drawings unless otherwise instructed by **tie** in accordance with this Agreement. For the avoidance of doubt, no use shall be made of these plots which shall at any time prevent the use of the roundabout in question by NEL, EPML and any relevant third parties.

30.26 The Infraco shall not encroach upon Plot 197 as shown on the Drawings unless otherwise instructed by **tie** in accordance with this Agreement.

30.27 With regard to Plots 212, 213, 214 and 216 as shown on the Drawings, the Infraco Works shall be carried out so as to cause as little practicable interference as possible with the existing services, conducting media, traffic management equipment, CCTV, traffic light controls and counters, EPML switchgear or the like.

30.28 With regard to Plot 219 as shown on the Drawings, the Infraco Works shall be carried out in a manner so as to ensure no damage to the lochan liners and shall in the event of any damage arising, make good all direct and indirect damage as soon as reasonably practicable.

SECTION 31 - CHRIS HOLMES CABINETMAKERS

31.1 In this Section 31 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**CHC**" means Chris Holmes Cabinetmakers, a cabinet making workshop having a place of business at Gogar Church, 194 Glasgow Road, Edinburgh EH12 9BR; and

"**Planting Plan**" means Faber Maunsell Drawing Number 30894iee/MO1 as set out in Appendix 26 to this Schedule Part 13.

31.2 The Infraco shall ensure that it complies with the Planting Plan which sets out the requirements necessary to shield, to the extent possible, the proposed tram stop in the vicinity of CHC's workplace at 194 Glasgow Road, Edinburgh. The planting shall take the form of broadleaf woodland at the location indicated on the Planting Plan to provide visual screening with, in addition, hedge planting in a continuous line along the back of the said stop to restrict, to the extent possible, lateral pedestrian movement. All planting will be carried out in accordance with CAA bird hazard guidelines and the Environmental Statement.

31.3 The Infraco shall provide to **tie**, quarterly progress reports of the design process until such time as the proposed vertical alignment of the Edinburgh Tram Network as it will travel north along Gogar Burn is completed, at which time the Infraco will prepare a design report which sets out the constraints and the manner in which the vertical alignment design fits within these in light of the concerns expressed by CHC (as the same are notified to the Infraco by **tie**). Such report shall be sent by the Infraco to **tie**.

31.4 The Infraco shall advise **tie** of the results of the archaeological survey and provide a copy to **tie**.

SECTION 32 - NETWORK RAIL INFRASTRUCTURE LIMITED

32.1 In this Section 32 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Access Agreement" has the meaning given by section 83 of the Railways Act 1993;

"Legal Requirement" means:

- (i) any enactment to the extent that it applies to that party;
- (ii) any regulation made by the Council or the Commission of the European Union to the extent that it applies to that party or a decision taken by the Commission which is binding on that party to the extent that it is so binding; and
- (iii) any interpretation of law, or finding, contained in any judgement given by a court or tribunal of competent jurisdiction in respect of which the period for making an appeal has expired which requires any legal requirement falling within paragraphs (i) or (ii) above to have effect in a way which is different to that in which it previously had effect;

"Network" means that part of the railway network of which Network Rail is the facility owner (as defined in section 17(6) of the Railways Act 1993 (as amended by the Transport Act 2000) which is situated in England, Wales and Scotland;

"Network Licence" means the licence relating to the rail network granted to Network Rail pursuant to section 8 of the Railways Act 1993;

"Network Operation Issue" means;

- (i) any relevant Safety Critical Event;
- (ii) any relevant Operational Emergency;
- (iii) any relevant Legal Requirement;
- (iv) any relevant requirement of the Network Licence;
- (v) a contractual commitment of Network Rail existing on or prior to agreement to undertake any Protective Work;

"Network Rail" means:

- (i) Network Rail Infrastructure Limited, a company incorporated under the Companies Acts with registered number 2904587 and having its registered office at 40 Melton Street, London NW1 2EE;
- (ii) any associated company of Network Rail Infrastructure Limited which holds property for railway purposes;
- (iii) the servants, agents and contractors of any of those companies; and
- (iv) the successors and assignees of any legal person within paragraph (i), (ii) or (iii) above;

"Network Rail Agreement" means the protective provisions agreement entered into by tie, CEC and Network Rail on 17 June and 21 June, both dates in 2005 in relation to the Edinburgh Tram Network;

"Network Rail Company Standards" means a standards document issued by Network Rail for its own use in relation to the Network as a whole which applies to the performance of the Infraco Works (or the equivalent of such document together with such amendments as may from time to time be made by Network Rail to reflect changes in Legal Requirements and/or for safety related reasons);

"Operational Emergency" means disruption to scheduled railway services on any relevant part of the Network in Scotland, arising (whether directly or indirectly) as a result of any unforeseen circumstance or event affecting the Network in Scotland or any part thereof;

"Operator Costs" means costs, direct losses and expenses (including loss of revenue) payable by Network Rail to a Train Operator pursuant to an Access Agreement;

"Protective Work" means any work, which Network Rail specifies should be carried out before the commencement of construction of any Infraco Works to ensure the safety or stability of Railway Property or the continuation of safe and efficient operation of the Network or the services of Train Operators;

"Railway Group Standards" means (i) technical standards to which railway assets or equipment used on or as part of the Network must conform and (ii) operating procedures with which the operators of railway assets must comply, in each case as issued by the Rail Safety and Standards Body Limited and authorised pursuant to the Railway Group Standards Code;

"Railway Operational Procedures" means procedures, requirements, and obligations on Network Rail, specified under (i) any Access Agreement or (ii) any station/depot lease, or (iii) Network Rail's asset stewardship criteria, or (iv) Network Rail's Network Licence;

"Railway Property" means any property belonging to Network Rail and forming part of the Network including any railway infrastructure, station, depot, buildings, lands, works, apparatus and equipment belonging to Network Rail or a relevant associated company connected therewith and includes any land held or used by Network Rail, including any servitude or other property interest held or used by Network Rail for the purposes of such railway, Network, or station, depot, buildings, lands, works, apparatus or equipment;

"Relevant Work" means:

- (a) so much of any of the Infraco Works as is situated upon, across, under, over (i) Railway Property, or (ii) within 15 metres of Railway Property, or (iii) which may in any way adversely affect, Railway Property; and
- (b) any Protective Work constructed or to be constructed by the Infraco;

"Safety Critical Event" means a relevant risk to the health and safety of any person(s) or risk of material damage or destruction to any Railway Property, or any incident, which may reduce the safety integrity levels of any item of infrastructure on the Network; and

"Train Operator" means any person who operates trains in accordance with a licence under section 8 of the Railways Act 1993 or an exemption under section 7 of the Railways Act 1993.

32.2 Unless otherwise instructed by **tie** in accordance with this Agreement, the Infraco shall not encroach upon any Railway Property whilst carrying out the Infraco Works. The Infraco shall not carry out any Relevant Work unless it has received confirmation from **tie** that the plans in respect of the Relevant Work have been agreed by Network Rail.

32.3 When the Infraco is instructed to carry out Infraco Works on Railway Property, it shall carry out the Infraco Works subject to such reasonable conditions as may be specified by Network Rail and notified to the Infraco by **tie**. The Infraco acknowledges that the reasonable conditions will be for the protection of Railway Property and rail operations and the reasonable conditions will be:-

32.3.1 required to ensure the safety, integrity, and stability of Railway Property, and

- 32.3.2 required to ensure the continuing, safe and efficient operation of the Network and the services of the Train Operators operating on the Network; and
- 32.3.3 required as a consequence of any Network Operation Issue, Network Rail Company Standards, Railway Group Standards, any relevant Railway Operational Procedures or regulatory requirement.
- 32.4 The Infraco shall ensure that any Infraco Works to all new or existing overbridges and underbridges, including footbridges, will comply with Railway Group Standards, and Network Rail Company Standards, together with the requirements of HMRI.
- 32.5 The Infraco shall not construct any public and/or private level crossings which straddle the Network.
- 32.6 The Infraco shall ensure that an appropriate traffic light system, or other control system is installed with a view to ensuring that, so far as the operation of the Edinburgh Tram Network over the access road to Network Rail's Haymarket Depot is concerned, the existing access to such depot is not materially adversely affected. The Infraco shall assist **tie** in developing and agreeing the details of such traffic light or other control system with Network Rail prior to the implementation of such system.
- 32.7 The Infraco acknowledges that:
- 32.7.1 Network Rail signalling and telecommunications equipment may require to be immunised, and/or require other related works, prior to the installation and energisation of any overhead line equipment relevant to the Edinburgh Tram Network to protect Network Rail's signalling equipment; and
- 32.7.2 the provision of cross-bonding and stray-voltage collection mats may, amongst other related works, be required to protect Network Rail's overhead line electrification equipment.
- 32.8 In recognition of and acknowledging the provisions of paragraph 32.7 above, the Infraco shall in the design and construction of the Infraco Works, take all necessary measures to prevent electromagnetic interference with Network Rail infrastructure and shall establish with **tie** appropriate arrangements to verify such measures.
- 32.9 If any:
- 32.9.1 damage to Railway Property; or

32.9.2 interference with the conduct of rail traffic on the Network or obstruction of the Network;

is caused by or is a consequence of the carrying out by the Infraco of any obligations related to powers conferred by the Tram Legislation, including construction activities associated with any Relevant Work to be carried out by the Infraco hereunder, the Infraco shall:

32.9.3 make good such damage; and

32.9.4 pay to **tie** an amount equal to **tie's** liability to pay Operator Costs to Network Rail pursuant to Clause 9(3)(ii) of the Network Rail Agreement.

32.10 The Infraco's liability under this Section 32 shall be limited in that:

32.10.1 to the extent that paragraph 32.9.4 includes Operator Costs which arise prior to the Service Commencement Date and for which recovery under Clause 16 is available (or would be available but for the application of the caps or the exceptions expressly specified in Clause 16), the provisions of Clause 16 shall supersede paragraph 32.9.4 and paragraph 32.9.4 shall not apply to those Operator Costs;

32.10.2 the Infraco shall have no liability under paragraph 32.9.4 in respect of any Additional Expense as defined in the Asset Protection Agreement; and

32.10.3 the limitations of liability set out in Clause 16.72 and 16.73 shall apply where relevant.

SECTION 33 - RODERICK JAMES MCLEAN

33.1 In this Section 33 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**McLeans**" means Roderick James McLean and Julie Bremner McLean, residing at 97 Ravelston Dykes Road, Edinburgh;

"**Plan**" means the plan set out in Appendix 27 to this Schedule Part 13;

"**Retained Subjects**" means Plots 82, 83, 86, 88, 89, 90, 91, 92 and 95 as shown on the drawings attached to the Edinburgh Tram (Line Two) Act 2006; and

"**Subjects**" means the rear lean-to at 27 Roseburn Street, Edinburgh shown hatched on the Plan.

33.2 The Infraco shall not design or construct any part of the Edinburgh Tram Network upon, or otherwise encroach upon the Retained Subjects unless otherwise instructed by **tie** in accordance with this Agreement.

33.3 The Infraco shall ensure that any temporary road closure of Roseburn Street as required for the purposes of the Infraco Works shall be effected so as to cause the least practical disturbance to the McLeans' business, as located at the Subjects, the Retained Subjects and any other location used by such business as a result of the implementation of the Infraco Works, and such road closure shall be for as short a period as practicable and all reasonable endeavours shall be taken by the Infraco to keep such period of road closure to a minimum.

33.4 As part of the Infraco Works, the Infraco shall sub-divide the Subjects and the Retained Subjects within such timescale as may be specified by **tie** and to the reasonable satisfaction of the McLeans (as notified to the Infraco by **tie**).

33.5 Regarding the Infraco Works specified in paragraph 33.4 above, the Infraco shall deliver to **tie** copies of all requisite building warrants, docqueted plans, completion certificates, planning permission and all other requisite documentation in accordance with all relevant regulations and legal requirements.

SECTION 34 - CLERICAL MEDICAL INVESTMENT GROUP LIMITED

34.1 In this Section 34 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Clerical Medical" means Clerical Medical Investment Group Limited, a company incorporated under the Companies Acts with registered number 03196171 and having its registered office at 33 Old Broad Street, London, EC2N 1HZ and its successors and assignees;

"Drawing" means drawing sheet number 12 as attached to the Edinburgh Tram (Line Two) Act 2006;

"Limits of Deviation" means, insofar as they relate to the Site, the limits within which the Edinburgh Tram Network will be constructed;

"Plots" means Plots 188, 189, 190 and 191, all as shown on the Drawing;

"Property" means **ALL** and **WHOLE** that area of ground extending to Seventeen Acres and Two Hundred and Five One Thousandth parts of an Acre or thereby (17.205 Acres or thereby) being the subjects registered in the Land Register of Scotland under title number MID65614;

"Site" means that area of ground at the Property identified as the Plots in so far as falling within the Limits of Deviation; and

"Tenants" means all tenants or other authorised occupiers, present and future, of the Property and the Site or any part or parts thereof;

34.2 During the carrying out of the Infraco Works, the Infraco shall not design or construct any part of the Edinburgh Tram Network on and shall not encroach upon Plot 190 unless otherwise instructed by **tie** in accordance with this Agreement.

34.3 The Infraco acknowledges that the Site will not be permanently acquired for the purposes of the Edinburgh Tram Network and accordingly the Infraco shall not design or construct any part of the Edinburgh Tram Network upon any part of the Site. For the avoidance of doubt, the Infraco may take temporary possession of part of the Site for the purposes of carrying out the Infraco Works (which may include works to regulate entrance levels, kerb realignment and insertion of local retaining structure).

34.4 Upon completion of the Infraco Works at the Site, the Site shall be reinstated and returned to **tie** in no worse condition than that in which the Site was found prior to the commencement of the Infraco Works.

- 34.5 The Infraco shall, if required, assist **tie** in any consultation with Clerical Medical as regards the impact of the carrying out of the Infraco Works on the operation of the tenant's business at the Property and any building thereon. Prior to commencing the Infraco Works the Infraco shall, if required, assist **tie** in reaching a mutually acceptable solution with Clerical Medical in relation to the timing of the carrying out of the Infraco Works so that the impact on the normal operation of the tenant's business at the Property and any building thereon is minimised so far as reasonably practicable having regard to the scope and nature of the Infraco Works.
- 34.6 The Infraco acknowledges that Clerical Medical has a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings on the Property and any building thereon. In the event that any such fixings are nonetheless considered by the Infraco to be the most appropriate solution the Infraco shall first consult with **tie** and (if requested by **tie**), Clerical Medical on such matter and shall take due and proper cognisance of the reasonable representations of Clerical Medical, as notified to the Infraco by **tie**, in this respect.
- 34.7 Upon imminent completion of the Infraco Works at the Site the Infraco shall serve written notice on **tie** specifying the date upon which the Infraco Works at the Site are due to be completed and the date upon which possession of the Site will be returned to **tie**.
- 34.8 The Infraco shall ensure that vehicular and pedestrian access to and egress from the Property is capable of being taken at all times by way of the Hermiston Gait Roundabout forming Plots 192 and 194 as shown on the Drawing ("**the Roundabout**"). The Infraco shall not materially impede such access to the Roundabout.

SECTION 35 - SCOTTISH RUGBY UNION PLC

35.1 In this Section 35 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Adopted Highway LLAU" means the area hatched light blue on the Plan;

"Drawings" means sheets numbered 5 and 6 as annexed to the Edinburgh Tram (Line Two) Act 2006;

"Event" means a Major Event and/or a Minor Event as the case may be;

"Licence" means the licence to be entered into between CEC and the SRU in respect of the Oversailing LLAU, the Normal LLAU, the Temporary LLAU, the Optional LLAU, and the Reconfiguration LLAU;

"Licence Site" means the relevant part of the Site to become the subject of each respective Licence;

"Local Construction Plan" means the local construction plan (revision 6) set out in part 2 of Appendix 28 to this Schedule Part 13; and which will be developed in accordance with paragraph 35.14 of this Section 35;

"Major Event" means a full stadium event at which the anticipated number of spectators exceeds twenty thousand or such other event as may be agreed between SRU, CEC and the Safety Officer (and notified to the Infraco by **tie**) as being a Major Event;

"Minor Event" means any event, exhibition, conference or function which is not a Major Event;

"Normal LLAU" means the area hatched purple on the Plan;

"Optional LLAU" means the area hatched pink on the Plan;

"Oversailing LLAU" means the area hatched brown on the Plan;

"Pitches" means the pitches located in the area delineated in blue on the Plan;

"Pitches Specification" means the specification set out in part 3 of Appendix 28 to this Schedule Part 13;

"Plan" means Drawing 30894/SK05 Rev G as set out in part 1 of Appendix 28 to this Schedule Part 13;

"Reconfiguration LLAU" means the area hatched dark green on the Plan;

"Reconfiguration Works" means the reconfiguration works required as set out in the Local Construction Plan including works required to cover the open space, relocate the turnstiles, reconfigure paving and parking at the Site and the works required to the Wanderers Club;

"Safety Certificate" means the certificate issued by the Safety Officer which permits the Event to take place;

"Safety Officer" means the relevant safety officer appointed by CEC;

"Shared Access LLAU" means the area hatched yellow on the Plan;

"Shared Access LOD" means the area hatched dark blue on the Plan;

"Site" means ALL and WHOLE that area of ground known as and forming the Murrayfield Stadium and ancillary ground and facilities being the land shown outlined in red on the Plan;

"SRU" means Scottish Rugby Union Plc, a company incorporated under the Companies Acts with registered number 132061 and having its registered office at Murrayfield, Edinburgh, EH12 5JP and its successors and assignees;

"SRU Agreement" means the agreement to be entered into between SRU and CEC in respect of the withdrawal of SRU's objection to the Edinburgh Tram (Line One) Bill;

"Temporary Use LLAU" means, subject to the provisions of paragraph 35.4, the area hatched red on the Plan; and

"Wanderers Club" means the clubhouse to the south of the stadium.

- 35.2 The Infraco shall not design or construct any part of the Edinburgh Tram Network at the Site on Plot 108 as shown on the Drawings, declaring that the SRU shall be entitled to access the Shared Access LOD.
- 35.3 The Infraco shall not design or construct any part of the Edinburgh Tram Network upon, or otherwise encroach upon the area hatched green on the Plan for the purposes of the Infraco Works unless otherwise instructed by **tie** in accordance with this Agreement.

- 35.4 The Infraco shall not encroach upon the Optional LLAU for the purposes of the Infraco Works, provided that if the Infraco requires the Optional LLAU as a lay down area then provided always that at the relevant time the Optional LLAU has not be utilised for development purposes, **tie** will use its reasonable endeavours to arrange for the Infraco to temporarily occupy and use the Optional LLAU subject to such terms and conditions as the SRU may specify (as notified to the Infraco by **tie**). If the Optional LLAU is occupied by the Infraco in accordance with this Agreement, then the Optional LLAU shall be deemed to be part of the Temporary Use LLAU for the purposes of this Section 35.
- 35.5 The Infraco acknowledges that the Adopted Highway LLAU is outwith the Site but provides necessary day to day access to the Site. Accordingly if the Infraco's use of the Adopted Highway LLAU results in any changes to the traffic circulation or to the access to the Site, the Infraco will forthwith provide notice to **tie** of such changes.
- 35.6 The Infraco acknowledges that the SRU will be entitled to use the Shared Access LLAU for access to the offices and shops with the Site, the Wanderers Club, the Temporary Use LLAU and the Normal LLAU. The Infraco acknowledges that its access through the Shared Access LLAU may be restricted by the SRU and the Safety Officer (as will be notified to the Infraco by **tie**). The Infraco agrees to consult if required by **tie** with the SRU and the Safety Officer in respect of the restrictions to such access. For the avoidance of doubt that the Shared Access LLAU shall only be used by the Infraco as the main construction access to the Temporary Use LLAU and the Normal LLAU when the east-west spectator link is blocked due to the Infraco Works.
- 35.7 The Infraco's use of the Oversailing LLAU to operate a crane will be subject to the following conditions:-
- 35.7.1 the Infraco shall give **tie** at least 9 days written notice of its intention to install and operate the crane and at least 9 days written notice of its intention to remove the crane;
- 35.7.2 the Infraco shall ensure that the crane is operated in a proper, good and workmanlike manner; and
- 35.7.3 the crane and all other equipment must oversail the highest part of the Oversailing LLAU by at least 5 metres.
- 35.8 Prior to the completion of the Infraco Works on each Licence Site, the Infraco shall serve notice on **tie** specifying the estimated date upon which the Infraco Works on that particular

Licence Site are due to be completed and estimated date upon which possession of the Licence Site will be returned to **tie**.

- 35.9 Not less than five days prior to the estimated date of return of possession of the Licence Site to **tie**, the Infraco shall facilitate the inspection of the relevant site by the SRU, **tie** and CEC. The SRU will be entitled to make representations to CEC or **tie** in relation to any matters of concern to it in relation to the condition of the Licence Site and of any extent to which it appears to the SRU that there may not have been full or satisfactory compliance with the terms of the SRU Agreement and the Local Construction Plan. **tie** shall inform the Infraco of any such representations as soon as possible and the Infraco shall remedy any fault or inadequacy in the Infraco Works in accordance with this Agreement.
- 35.10 Without prejudice to paragraph 35.9 above, the Infraco shall take due and proper cognisance of all reasonable and proper representations of the SRU, as notified to the Infraco by **tie**, in terms of the sufficiency of the Infraco Works at the relevant Licence Site in order to ensure that on return of possession of such to the SRU, the Licence Site should be in a condition fully commensurate with the full and proper compliance by the Infraco of its obligations under this Agreement and the Local Construction Plan.
- 35.11 The Infraco acknowledges that the Normal LLAU can be temporarily occupied and used by the Infraco continually and without interruption for the duration of the Infraco Works as a construction compound and that on the terms and conditions set out in paragraphs 35.8, 35.9 and 35.10 above.
- 35.12 The Infraco's possession and use of the Temporary Use LLAU will be subject to the following conditions:-
- 35.12.1 for the period commencing at least 5 days before an Event until at least 5 days after said Event, the Infraco shall vacate the Temporary Use LLAU and shall procure that all workers and equipment are removed from the Temporary Use LLAU;
- 35.12.2 where two Events take place in close succession, the Infraco shall not be obliged to re-enter the Site during the period in between Events;
- 35.12.3 the terms of paragraphs 35.8, 35.9 and 35.10 shall apply.
- 35.13 The Infraco acknowledges that it shall temporarily occupy the Reconfiguration LLAU in order to facilitate the Reconfiguration Works. The Infraco's possession and use of the Reconfiguration LLAU will be subject to:

- 35.13.1 the terms of paragraphs 35.8, 35.9 and 35.10; and
- 35.13.2 the condition that on completion of the Reconfiguration Works the Reconfiguration LLAU will then be excluded from the LLAU and the Infraco shall not thereafter encroach upon the Reconfiguration LLAU.
- 35.14 The Infraco shall, if required, assist **tie** in evolving the Local Construction Plan in conjunction with the SRU so as to ensure that:
- 35.14.1 the Infraco Works at the Site are carried out in a manner which is to the mutual satisfaction of **tie** and the SRU; and
- 35.14.2 the normal operation of the SRU's business is minimised so far as reasonably practicable having regard to the scope and nature of the Infraco Works declaring that in the event of any inconsistency between Schedule Part 3 (*Code of Construction Practice*) and the Local Construction Plan, the terms of the Local Construction Plan shall prevail.
- 35.15 During the carrying out of the Infraco works, the Infraco acknowledges that the SRU shall be obliged to liaise with the safety office to ensure that the Safety Certificate remains valid in respect of any Event at the Site for which a Safety Certificate is required in sufficient time to allow the Event to take place bearing in mind the nature and stage of the Infraco Works and the likely impact those works may have on the issuing of a Safety Certificate. In the event that the Safety Officer confirms that the Safety Certificate is valid but subject to conditions or restrictions which have been imposed as a result of the construction works (the "**Conditions**"), **tie** shall advise the Infraco of the Conditions and the Infraco shall use all reasonable endeavours to ensure that the Conditions are met.
- 35.16 Where the Infraco requires assistance from the SRU in order to meet the Conditions, **tie** shall procure that the SRU uses all reasonable endeavours to assist the Infraco.
- 35.17 Following the first Event after the completion of the Infraco Works at the Site, CEC, the SRU and the Safety Officer shall carry out a post event briefing and in the event that any further works are required to ensure that the Safety Certificate is granted, the Infraco shall, if required by **tie**, ensure that such works are carried out as soon as reasonably practicable.
- 35.18 The Infraco shall make good any damage caused in the course of the Infraco Works or the Maintenance Services so as to ensure that the Site is left in no worse condition than it was prior to the exercise of said right.

- 35.19 The Infraco shall, if required, assist **tie** in consulting with the SRU regarding the design of the bridge to be erected over Roseburn Street and the retaining wall as follows:-
- 35.19.1 not less than 3 months prior to the anticipated submission of any application to the Planning Authority for prior approval in respect of the bridge, the Infraco will provide **tie** with a copy of the draft application including all drawings;
- 35.19.2 the Infraco will have due and proper regard to any representations made by the SRU (either directly or as notified to the Infraco by **tie**); and
- 35.19.3 in the event that the SRU fail to make representations, the Infraco may, subject to the other terms of this Agreement, submit the application for prior approval.
- 35.20 The Infraco shall ensure that any design of the bridge referred to in paragraph 35.19 provides for a minimum clearance of 5.3m.
- 35.21 Any security features and/or fencing requiring to be carried out to the Site as part of the Infraco Works shall be implemented by the Infraco on the terms and conditions and to the standards more particularly set out in Schedule Part 3 (*Code of Construction Practice*) and the Local Construction Plan. Following completion of the Infraco Works any fencing and/or security features of the Site removed and/or damaged as part of the Infraco Works shall be reinstated to the standard and condition in which they existed prior to the commencement of the Infraco Works.
- 35.22 Any advertising boards which are removed due to the construction of the Edinburgh Tram Network will be relocated on the Site. The Infraco acknowledges that the exact location of the relocated boards is subject to the consent of the SRU (as notified to the Infraco by **tie**).
- 35.23 The Infraco shall be responsible for obtaining the necessary planning consent in the relocation of the advertising boards and **tie** shall procure that the SRU shall use all reasonable endeavours to assist the Infraco in obtaining such consent.
- 35.24 The Infraco shall, as requested, assist **tie** in consulting with the SRU and the police to ensure that the "Tram Stop", as more particularly shown on the Drawings, safely meets with the pedestrian access requirements of the SRU, and in particular but without prejudice to the foregoing generality, on those days that matches take place at Murrayfield Stadium.

- 35.25 The Infraco acknowledges that the Wanderers Club will be required to be reconfigured to relocate the stairs and storage area which require to be moved to accommodate the Infraco Works all as detailed in the Local Construction Plan. Accordingly the Infraco shall assist **tie** as required to consult and agree with the tenants of the Wanderers Club and the SRU the nature of the reconfiguration and the programme of such Reconfiguration Works bearing in mind the progress of the detailed design.
- 35.26 For the avoidance of doubt, all Reconfiguration Works will be carried out so that they comply with all buildings regulations and other statutory requirements and in particular with the Disability Discrimination Act 1995.
- 35.27 For the avoidance of doubt, the Infraco will be responsible for obtaining the necessary planning consents and permissions in respect of any Reconfiguration Works. The SRU will use all reasonable endeavours to assist the Infraco in obtaining such consents.
- 35.28 In the event that any planning consent obtained in respect of the Reconfiguration Works has conditions attached to it which, in the opinion of the SRU acting reasonably, are detrimental to the SRU and/or the tenants of the Wanderers Club, the Infraco shall use all reasonable endeavours to:
- 35.28.1 comply with or to procure compliance with the conditions; and
- 35.28.2 minimise the impact of such conditions on the SRU or the tenants.
- 35.29 The Infraco shall ensure that the Edinburgh Tram Network will have no detrimental impact on the future flood prevention schemes being considered by either CEC or proposed by SRU (the "**Scheme**"). Further, the Infraco will use reasonable endeavours to minimise inconvenience to the Scheme insofar as it is able having regard to the nature of the Infraco Works, in the event that funding for both the Edinburgh Tram Network and the Scheme is released at the same time and to minimise the impact on the SRU should both schemes proceed at the same time.
- 35.30 The Infraco shall relocate and reinstate the Pitches in accordance with the Pitches Specification.
- 35.31 The Infraco shall carry out any such enhancements to the Pitches Specification as may be notified to it by **tie**, provided that **tie** may not require any such enhancement where this would cause delay to the Infraco Works.

- 35.32 **tie** shall advise the Infraco if and when the relocation by the Infraco of the Pitch marked '6' on the Plan is to take place.
- 35.33 The relocation of all Pitches is strictly conditional upon the receipt, if required, of planning permission for the said relocation in terms acceptable to both **tie** and the SRU. The Infraco shall be responsible for submission of the relocation planning application and the pursuance of the same until a decision is granted on the application.
- 35.34 In the event that the Infraco is unable to obtain on terms satisfactory to **tie**, any planning permissions or consents in respect of the relocation of the Pitches or the reconfiguration works at the Wanderers Club, the Infraco shall assist **tie** in any consultation with the SRU regarding the reconfiguration of the Pitches.

SECTION 36 - ROSEBURN GARAGE

36.1 In this Section 36 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**Mr Khalil**" means the proprietor of the business known as Roseburn Garage, and having a place of business at 35 Roseburn Street, Edinburgh EH12 5PE; and

"**Property**" means Roseburn Garage at 35 Roseburn Street, Edinburgh EH12 5PE.

36.2 Whilst carrying out the Infraco Works within the vicinity of the Property, the Infraco shall make every reasonable effort to ensure that the construction impacts of the Infraco Works on the Property are minimised.

36.3 At least 6 months prior to the commencement of the Infraco Works within the vicinity of the Property, the Infraco shall assist **tie** in consulting with Mr Khalil in relation to the design of the Infraco Works at and around the Property.

SECTION 37 - SCOTTISH NATURAL HERITAGE

37.1 In this Section 37 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**SNH**" means Scottish Natural Heritage; and

"**SSSI**" means the Firth of Forth Site of Special Scientific Interest at Wardie Shore, Edinburgh, as more particularly shown hatched on the plan at Appendix 29 of Schedule Part 13.

37.2 In the event that the Infraco requires to gain access to the SSSI pursuant to the Infraco Works, the Infraco shall:

37.2.1 comply fully with the Nature Conservation (Scotland) Act 2004; and

37.2.2 fully consult with **tie** and (if required by **tie**) SNH and/or the appropriate regulatory authority (as defined in the Nature Conservation (Scotland) Act 2004);

in order to avoid damage being caused to the interests of the SSSI, including the geological interest at Wardie Shore, Edinburgh.

SECTION 38 - STANLEY CASINOS LIMITED

38.1 In this Section 38 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Ancillary Requirements" means the following:

- (a) the provision of a direction sign indicating the entrance to the new/reconfigured car park to be provided in accordance with this Section 38 of Section A of Schedule Part 13, the type and location of such sign is subject to the approval of **tie**, not to be unreasonably withheld or delayed;
- (b) the current external lighting to the southern façade of the building which is to be removed by virtue of the Infracore Works will be replaced with equivalent standard lighting, and lighting (the form and standard of which is subject to **tie**'s approval, not to be unreasonably withheld or delayed) to the new/reconfigured car park entrance will be provided, all in compliance with modern safety standards; and
- (c) the provision of CCTV coverage at the entrance to the new/reconfigured car park as aforesaid, and also the taxi drop off area, the specifics of which are subject to **tie**'s approval, not to be unreasonably withheld or delayed;

"Car Park" means the 77 standard car parking spaces and 4 disabled car parking spaces at the Site as detailed in the Existing Planning Consent;

"Car Park Works" means the construction/reconfiguration of the Reconfigured Car Parking Spaces and the New Loading Area, and the provision of the Ancillary Requirements, all as the same are more particularly described in paragraph 38.4 below;

"Drawing" means drawing number 6 as annexed to the Edinburgh Tram (Line One) Act 2006;

"Existing Planning Consent" means application reference 99/02128/FUL in respect of which a Decision Notice was granted on 21 October 1999;

"Footway Works" means the works described in paragraph 38.11 of this Section A of Schedule Part 13;

"Limits of Deviation" means, insofar as they relate to the Site, the limits within which the Edinburgh Tram Network will be constructed and operated as more particularly set out in the Edinburgh Tram (Line One) Act 2006;

"New Loading Area" means the loading bay/taxi drop off area to be constructed, the proposed location of which is shown coloured yellow and annotated "See detail A" on Plan 1 and the detail of which (including, for the avoidance of doubt, the provision of (i) the replacement section of the boundary wall and (ii) removable bollards, the design of which is to be agreed between the parties, both acting reasonably) is shown coloured orange and brown and designated "Detail A - Drop Off/Loading Bay Plan" on Plan 2;

"Plan 1" means Scott Wilson Scotland Limited drawing number B137101/STAN/1/01 as set out in part 1 of Appendix 30 to this Schedule Part 13;

"Plan 2" means Scott Wilson Scotland Limited drawing number B137101/STAN/1/02 as set out in part 2 of Appendix 30 to this Schedule Part 13;

"Property" means the property described in the Minute of Lease between Forth Ports plc and Stanley dated 26 January and 11 February and registered in the Books of Council and Session for preservation and execution on 14 March, all in the year 2000;

"Reconfigured Car Parking Spaces" means the car parking spaces shown coloured yellow on Plan 1 to the extent that these fall outwith the Limits of Deviation;

"Site" means that area of ground on Ocean Drive, Leith, identified as Plots 40, 45 and 46 on the Drawing; and

"Stanley" means Stanley Casinos Limited, a company incorporated under the Companies Acts with registered number 1519689 and having its registered office at Stanley House, 151 Dale Street, Liverpool, L2 2JW and its successors and assignees;

- 38.2 During the carrying out of the Infraco Works, the Infraco shall not design or construct any part of the Edinburgh Tram Network on and shall not encroach upon Plot 46 as shown on the Drawing unless otherwise instructed by **tie** in accordance with this Agreement.
- 38.3 If requested to do so by **tie**, the Infraco shall consult with **tie** and Stanley as regards the impact of carrying out the Infraco Works on the operation of Stanley's business. The Infraco acknowledges that the intention behind such consultation is to reach a mutually acceptable solution with Stanley in relation to the timing of carrying out the Infraco Works so that the impact on the normal operation of Stanley's business is minimised so far as reasonably practicable having regard to the scope and nature of the Infraco Works.
- 38.4 The Infraco shall carry out the Car Park Works, which, for the avoidance of doubt shall include the following:

- 38.4.1 the reconfiguration of the Car Park to provide the Reconfigured Car Parking Spaces;
- 38.4.2 the construction of the New Loading Area; and
- 38.4.3 the provision of the Ancillary Requirements.
- 38.5 The Infraco shall submit any planning application required in respect of the Car Park Works to CEC (as planning authority) in a form acceptable to **tie** and Stanley (as the same is notified to the Infraco by **tie**) and shall use all reasonable endeavours to obtain planning permission in relation thereto.
- 38.6 Without prejudice to paragraph 38.5 of this Section A of Schedule Part 13, the Infraco shall consult with **tie** and (if requested to do so by **tie**) Stanley with regard to the terms of such planning application.
- 38.7 The Infraco shall not commence the Car Park Works until the planning permission referred to in paragraph 38.5 of this Section A of Schedule Part 13 is issued.
- 38.8 Subject to paragraph 38.7 of this Section A of Schedule Part 13, the Infraco shall complete the Car Park Works in accordance with this Agreement as quickly as is reasonably possible, using all reasonable endeavours to complete the Car Park Works prior to the commencement of the construction of the Edinburgh Tram Network in the vicinity of the Site.
- 38.9 The Infraco will use all reasonable endeavours to minimise disruption to Stanley's property and business, and shall ensure that access to and from the building located on the Property is maintained during normal business hours.
- 38.10 Throughout the duration of the Car Park Works and the Infraco Works, the Infraco shall ensure that there is available for use at all times at least 50% of the number of car parking spaces currently available in terms of the Existing Planning Consent.
- 38.11 The Infraco shall relocate the existing footway lying generally to the south of the Property to a position approximately 2 metres south of its current position, all as the same is coloured grey on Plan 1 and Plan 2. The relocation of the footway shall, for the avoidance of doubt, include the insertion of a pedestrian crossing point, the approximate location of which is shown and designated "pedestrian crossing point" on Plan 1.
- 38.12 Without prejudice to the other requirements of this Agreement, the Footway Works shall be carried out in a good and workmanlike manner, using good quality suitable materials, and in compliance with a standard road specification, and brought to adoptable standard.

SECTION 39 - MARKS & SPENCER PLC

39.1 In this Section 39 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Accommodation Works" means (a) any Infracore Works to or in the Gyle Car Park so far as outwith the New Limits (b) without prejudice to but not limited by (a) aforesaid, works to ensure no reduction in available car parking spaces and circulation path standards consequent upon the Works generally or the works specified at (a) aforesaid and (c) similarly without prejudice or limitation as aforesaid, all necessary associated restoration works, all of which works referred to at (a), (b) and (c) aforesaid will be described in the Accommodation Works Method Statement;

"Accommodation Works Method Statement" means the method statement to be developed by the Infracore pursuant to paragraph 39.7 as the same may be amended pursuant to this Section 39 of Section A of Schedule Part 13;

"Depot" means the buildings and ancillary facilities for the storing, parking and maintenance of the trams to be generally located within Plots 259, 494, 496, 497 and 499 on the Drawing;

"Drawing" means plans numbered 14 and 15 as attached to the Edinburgh Tram (Line Two) Act 2006;

"Licence" means a licence to be entered into by CEC in respect of access to the Site to allow the carrying out of *inter alia* the Infracore Works;

"Licence Site" means the subject of a Licence;

"M & S" means Marks and Spencer Plc, a company incorporated under the Companies Act with registered number 00214436 and having its registered office at Waterside House, 35 North Wharf Road, London, W2 1NW and its successors and assignees

"Method Statements" means the Accommodation Works Method Statement and the Works Method Statement as the context may require;

"New Limits" means the new limits of deviation as shown hatched red on the Plan;

"Plan" means the plan set out in Appendix 31 to Schedule Part 13;

"Site" means that area of ground known as and forming the Gyle Shopping Centre together with the car park, access roads and all ancillary services being the subjects described in the

Feu Contract between The City of Edinburgh Council and Marks & Spencer plc and Safeway Stores plc recorded in the Division of the General Register of Sasines for the County of Midlothian on 10 January 1997 and comprising Plot Numbers 478, 479, 480, 481, 482, 483, 484 and 486 as shown on the Drawing;

"**Tram**" means Edinburgh Tram Line Two, tram vehicles, tram roads, tramways, tram stops and all associated infrastructure, plant and equipment as envisaged by the Tram Legislation;

"**Works**" means Work No 8 and Work No 9 insofar as in the vicinity of the Site as described in Schedule 1 of the Edinburgh Tram (Line Two) Act 2006, being works required in respect of the construction of the Edinburgh Tram Network but specifically excluding any works required in the future to maintain the Edinburgh Tram Network; and

"**Works Method Statement**" means the method statement to be developed by the Infraco pursuant to paragraph 39.5 as the same may be amended pursuant to this Section 39 of Section A of Schedule Part 13.

- 39.2 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not design or construct any part of the Edinburgh Tram Network on any land outwith the New Limits.
- 39.3 In carrying out or procuring the carrying out of the Infraco Works at the Site, the Infraco shall not encroach upon any land outwith the area shown hatched blue on the Plan unless instructed otherwise by **tie** in accordance with this Agreement.
- 39.4 The Infraco shall design and construct the Edinburgh Tram Network at the Site within the New Limits with a view to ensuring that the width of the area required for the Edinburgh Tram Network shall not generally exceed 10 metres, together with such additional land as is reasonably required in order to carry out the Infraco Works.
- 39.5 The Infraco shall provide all required assistance to **tie** in respect of the drafting of a Works Method Statement in respect of the Infraco Works to be carried out in the vicinity of the Site. The Works Method Statement will deal specifically with *inter alia* specified working hours, specified time of year and peak retailing periods when working will be avoided, mitigation measures to minimise adverse impact on service and customer access including measures to reconfigure the car park if necessary, mitigation measures to avoid dust/vibration/noise having an adverse effect on trading, restoration of any Licence Site (including landscaping and signage) insofar as applicable to the Infraco Works in the vicinity of the Site and where applicable will mirror the terms of Schedule Part 3 (*Code of Construction Practice*).

- 39.6 The Infraco Works which constitute Works shall not be commenced until the Works Method Statement has been finalised by **tie**.
- 39.7 The Infraco shall provide all required assistance to **tie** in relation to the drafting of an Accommodation Works Method Statement in respect of the Accommodation Works. The Accommodation Works Method Statement shall deal specifically with *inter alia* specified working hours, specified times of the year and peak retailing periods when working will either cease or be avoided, mitigation measures to minimise adverse impact on service and customer access including measures to reconfigure the car park if necessary, mitigation to avoid dust/vibration/noise having an adverse effect on trading, restoration of any Licence Site (including layout of the car park, landscaping and signage) insofar as applicable to the Accommodation Works to the extent that they constitute Infraco Works and where applicable will mirror the terms of Schedule Part 3 (*Code of Construction Practice*).
- 39.8 The Infraco Works at the Site which constitute Accommodation Works shall not be commenced until the Accommodation Works Method Statement has been finalised by **tie** and M & S. The Infraco shall provide **tie** with all reasonable assistance requested by **tie** in relation to the negotiation and agreement of the Accommodation Works Method Statement between **tie** and M & S.
- 39.9 The Infraco shall carry out or procure the carrying out of the Infraco Works at the Site strictly in accordance with the terms of the finalised Method Statements.
- 39.10 Those elements of the Works which constitute the Infraco Works will be carried out in a good and workmanlike manner so that impact on the normal operation of M & S business is minimised so far as is reasonably practical in accordance with the finalised Method Statements.
- 39.11 The Infraco acknowledges that M & S has a material preference that no fixing of any component part of the Edinburgh Tram Network should be made to any buildings situated on the Site. In the event that the Infraco considers that such fixings are nonetheless the most appropriate solution, the Infraco shall first consult with **tie** and take due and proper cognisance of the reasonable representations of M & S in this respect as notified to the Infraco by **tie**.
- 39.12 Prior to completion of the Accommodation Works on each Licence Site, the Infraco shall serve notice on **tie** specifying the estimated date upon which the Accommodation Works on that particular Licence Site are due to be completed and the estimated date upon which possession of the Licence Site will be returned to **tie**, provided that such notice shall be

provided to **tie** having regard to the need to facilitate an inspection of the relevant Licence Site pursuant to paragraph 39.13.

- 39.13 The Infraco shall facilitate the carrying out of an inspection of the relevant Licence Site by M & S and a representative of CEC and/or **tie**, such inspection to be carried out on a date to be specified by **tie** declaring that the relevant date will be at least 5 days before the estimated date of return of possession of the relevant Licence Site to **tie**.
- 39.14 The Infraco shall take due and proper cognisance of all reasonable and proper representations of **tie** in terms of the sufficiency and completeness of the Infraco Works at the Site in order to ensure that on return of possession of such to **tie** the Site should be in a condition fully commensurate with the full and proper compliance by the Infraco with its obligations under this Agreement.
- 39.15 Any interference with access to any part of the Site proposed by the Infraco in pursuance of the Infraco Works shall only be given effect, whether as to route or other locational factors, or as to timing and duration, after due consultation with and approval thereto from **tie**.
- 39.16 The Infraco shall ensure that there is two-way traffic flow along Glasgow Road within half a mile in each direction from Gogar Roundabout at all times during the carrying out of the Infraco Works.
- 39.17 The Infraco shall ensure that the Depot is generally located to the north of Glasgow Road within Plots 259, 494, 496, 497 and 499 as shown on the Drawing and will comply with the requirements of the Town and Country Planning (Safeguard Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 (SEDD Circular 2/2003).
- 39.18 The Infraco shall not construct any interlacing track on the Site.
- 39.19 In carrying out the Infraco Works, the Infraco shall ensure that it does not at any time connect to any of the adopted or unadopted drains located within the Site.
- 39.20 Further to any obligations under this Agreement to investigate and survey land at the Site, the Infraco shall consult with **tie** in relation to the location and timing of such surveys and use reasonable endeavours to minimise any disruption and shall make good any damage and leave the Site in no worse condition as existed prior to the carrying out of such surveys and investigations.

39.21 With regard to the location of any signage, the Infraco shall consult with **tie** in relation to the location of such signs so as to ensure any such signage does not interfere in any material or misleading way with the normal operation of the Gyle Shopping Centre.

SECTION 40 - ADSHEL LIMITED

40.1 In this Section 40 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"**Adshel**" means Adshel Limited (company number 03153077) having its registered office at 33 Golden Square, London, W1R 3PA;

"**Advertisement**" shall mean any word, letter, model, sign, placard, board notice, device or representation whether illuminated or not in the nature of and employed wholly or partly for the purposes of advertisement, announcement or direction; and

"**the Shelter(s)**" shall mean any bus passenger shelter(s) provided by Adshel under the Minute of Agreement between the City of Edinburgh Council and Adshel Limited dated 27 September and 15 October 1996.

40.2 Alterations to Shelters and Advertisements

The Infraco while carrying out the Infraco Works shall ensure that neither it nor any of its servants, agents, or sub-contractors shall at any time affix any notices or signs to a Shelter nor, without the prior written consent of **tie**, make any alterations to or otherwise interfere with any Shelter or Advertisement posted or affixed to any such Shelter.

40.3 Removal of Adshel Property

If the Infraco requires to dismantle any Shelter or remove any bus stop poles or any other property owned by Adshel because of the Infraco Works, then the Infraco shall inform **tie** giving not less than 40 days' notice that such Shelters, bus stop poles, or any other property requires to be removed.

SECTION 41 MISCELLANEOUS

41.1 In this Section 41 of Section A of Schedule Part 13, the following expressions shall, unless the context otherwise requires, have the following meanings:

"Authorised Car Park" means the car park shown outlined in red on the plan set out in Appendix 32 to this Schedule Part 13;

"Drawing" means parliamentary sheet number 5 as annexed to Edinburgh Tram (Line Two) Act 2006;

"Plot 73" means Plot 73 as shown on the Drawing;

"Police Box Coffee Bar" means the police box coffee bar situated on the pedestrian area to the east of St Mary's RC Cathedral, close to the junction with Little King Street at Picardy Place, Edinburgh;

"Premises" means the properties known as Inchkeith House, 139 Leith Walk, Edinburgh, and Allander House, 141 Leith Walk, Edinburgh;

"Property" means the flats at Rennies Isle, Leith and the car park forming part thereof;

"Royal Mail" means Royal Mail Group Limited a company registered under the companies acts with registered number 04138203 and having its registered office at 148 Old Street, London EC1V 9HQ, the tenant of the property at the Royal Mail Russell Road Sorting and Delivery Office, Russell Road, Edinburgh; and

"Trust" means Lothian Primary Care NHS Trust, together with its successors and assignees.

41.2 During the carrying out of the Infraco Works, the Infraco shall ensure that the utility services which feed into the Police Box Coffee Bar are not unduly disrupted.

41.3 The Infraco shall not encroach upon Police Box Coffee Bar land and shall ensure that pedestrian access and egress to and from the Police Box Coffee Bar is maintained at all times during the carrying out of the Infraco Works.

41.4 Throughout the period of the Infraco Works, the Infraco shall use all reasonable endeavours to ensure that access to and egress from the Property and, in particular, access to and egress from the car park forming part of the Property, via Ocean Drive, to and from the road network, shall be maintained at all times throughout the period of the Infraco Works.

- 41.5 Notwithstanding the provisions of paragraph 41.4 above, where usual access to and egress from the car park referred to in paragraph 41.4 cannot be maintained, the Infraco shall ensure that alternative temporary access is provided to allow access to and egress from the car park.
- 41.6 Prior to the commencement of any Infraco Works in the vicinity of the Property, the Infraco shall assist **tie**, as required, in any consultation with third parties regarding the likely duration of the Infraco Works in the vicinity of the Property and the impact of such Infraco Works.
- 41.7 The Infraco shall carry out surveys of the properties along Wester Coates Terrace which back on to the Roseburn Railway Corridor being numbers 1 to 19 and that prior to the commencement of the Infraco Works which are described as "Works No. 12" in the Edinburgh Tram (Line One) Act 2006.
- 41.8 The Infraco shall not use Wester Coates Terrace as a construction access route for the purposes of carrying out the Infraco Works.
- 41.9 The Infraco shall carry out a survey of the property situated at 11A Craigmyle Drive prior to the commencement of the Infraco Works which are described as "Works No. 12" in the Edinburgh Tram (Line One) Act 2006 and provide a copy of the report at the Infraco's cost to each of **tie** and Mr Mark M Clarke at 11A Craigmyle Drive, Edinburgh EH4 3HR.
- 41.10 The Infraco shall not encroach on the Authorised Car Park for the purposes of carrying out the Infraco Works.
- 41.11 Access to and egress from the Authorised Car Park shall be maintained at all times during construction of the Infraco Works in the vicinity of the Premises. In the event that the construction of the Infraco Works prevents access being taken to the Authorised Car Park by the means current as at the date that the Infraco Works commence in the vicinity of the Premises, the Infraco shall provide an alternative access route of a nature and in a location acceptable to the Trust (as notified to the Infraco by **tie**).
- 41.12 The Infraco shall, if requested to do so by **tie**, co-operate and consult with **tie** and the Edinburgh and Lothians Badger Group in respect of any issues caused by the existence, presence or change in activities of badgers in the vicinity of the area to be affected by the Infraco Works. The Infraco shall comply with **tie**'s requirements in relation to badger mitigation as the same is notified to the Infraco by **tie** from time to time.
- 41.13 The Infraco shall not, in designing or carrying out the Infraco Works, amend the height or span of the bridge structure crossing Groathill Road South, Edinburgh.

- 41.14 The Infraco shall procure that an area with a width of 2 metres along the boundary of the properties known as 32 and 34 Groathill Road South and the land adjacent to such properties to be used for the construction of the Infraco Works shall be fenced off to protect the hedges and other foliage growing along said boundary.
- 41.15 Upon completion of any Infraco Works at Plot 73, the Infraco shall ensure that the final condition of Plot 73 is no worse than it is was prior to the commencement of the Infraco Works at Plot 73.
- 41.16 If requested to do so by **tie**, the Infraco shall participate in consultation with **tie** and the Royal Mail in relation to agreeing detailed arrangements to ensure that the Royal Mail is able to meet its fire safety obligations during the Infraco Works at Plot 73 and upon completion of the Infraco Works at Plot 73.

SECTION B

THIRD PARTY DOCUMENTATION

1 Forth Ports Plc

- 1.1 Minute of Agreement between The City of Edinburgh Council and Forth Ports PLC dated 10 and 15 February 2006.

2 Alexander Latto (1986) Limited

- 2.1 Letter from **tie** to Alexander Latto dated 2 September 2005.

3 Trillium (Prime) Property GP Limited and Land Securities Trillium Limited

- 3.1 Minute of Agreement between The City of Edinburgh Council and Trillium (Prime) Property GP Limited and Land Securities Trillium Limited dated 2 September 2005 and 14 September 2005 and registered in the Books of Council and Session on 19 September 2005.

4 Trustees of the City Point Unit Trust

- 4.1 Minute of Agreement between The City of Edinburgh Council and the Trustees of the City Point Unit Trust dated 10 May 2006.

5 Ocean Terminal Limited

- 5.1 Minute of Agreement between The City of Edinburgh Council and Ocean Terminal Limited dated 10 and 15 February 2006.

6 Norman, Downie & Kerr

- 6.1 Letter from **tie** to Jack Kerr dated 14 September 2005.

7 The Royal Yacht Britannia Trust

- 7.1 Minute of Agreement between The City of Edinburgh Council and The Royal Yacht Britannia Trust dated 14 and 23 February 2006.

8 Haymarket Yards Limited

- 8.1 Letter of comfort dated 27 October 2005.

9 West Craigs Limited (formerly Meadowfield Developments Limited)

9.1 Minute of Agreement between The City of Edinburgh Council and Meadowfield Developments Limited dated 25 and 28 November 2005.

10 FSH Nominees Limited

10.1 Minute of Agreement between The City of Edinburgh Council and FSH Nominees Limited and FSH (Edinburgh) Services Limited and Frogmore Developments Limited and Salmon Harvester Properties Limited dated 25 November 2005 and 2 December 2005 and 6 December 2005.

11 First Scotrail Limited

11.1 Minute of Agreement between The City of Edinburgh Council and ~~the~~ Limited and The City of Edinburgh Council and First Scotrail Limited dated 1 November 2005 and 27 October 2005.

12 Stakis Limited

12.1 Minute of Agreement between The City of Edinburgh Council and Stakis Limited dated 13 September 2005 and 20 September 2005.

13 Universities Superannuation Scheme Limited

13.1 Minute of Agreement between The City of Edinburgh Council and Universities Superannuation Scheme Limited with the consent of Safeway Stores Ltd and WM Morrison Supermarkets plc dated 15 November 2005 and 9 December 2005 and 23 December 2005.

14 Safeway Stores Limited and WM Morrisons Supermarkets Plc

14.1 Agreement between The City of Edinburgh Council and Safeway Stores Limited and WM Morrison Supermarkets plc with the consent of Universities Superannuation Scheme Limited dated 13 November 2005, 24 November 2005 and 15 March 2005.

15 New Ingliston Limited and Highland Properties (Scotland) Limited

15.1 Minute of Agreement between The City of Edinburgh Council and New Ingliston Limited and Highland Properties (Scotland) Limited dated 8 November 2005 and 9 November 2005.

16 Edinburgh Airport Limited

- 16.1 Minute of Agreement between The City of Edinburgh Council and Edinburgh Airport Limited dated 14 September 2005.
- 16.2 Licence between The City of Edinburgh Council and Edinburgh Airport Limited dated 28 January and 25 February 2008.
- 16.3 Agreement to Lease between The City of Edinburgh Council and Edinburgh Airport Limited dated 20 and 25 February 2008.

17 Verity Trustees Limited

- 17.1 Minute of Agreement between The City of Edinburgh Council and Verity Trustees Limited dated 28 October 2005 and 4 November 2005.

18 ADM Milling Limited

- 18.1 Minute of Agreement between The City of Edinburgh Council and ADM Milling Limited dated 23 January 2006.

19 Selex Sensors and Airborne Systems Limited

- 19.1 Minute of Agreement between The City of Edinburgh Council and Selex Sensors and Airborne Systems Limited dated 20 and 25 January 2006.

20 Norwich Union Life and Pensions Limited

- 20.1 Minute of Agreement between The City of Edinburgh Council and Norwich Union Life and Pensions Limited, National Car Parks Limited and George Watt Limited dated 3 May 2007 and 23 May 2007.

21 National Grid Property Holdings Limited, Port Greenwich Limited and WM Morrison Supermarkets Plc

- 21.1 Minute of Agreement between The City of Edinburgh Council Limited, National Grid Property Holdings Limited, Port Greenwich Limited and WM Morrison Supermarkets Plc, dated 28 February 2006 (not fully executed).

22 Institute of Chartered Accountants

- 22.1 Minute of Agreement between The City of Edinburgh Council and The Institute of Chartered Accountants for Scotland dated 27 September 2006 and 23 October 2006. (ETL1).
- 22.2 Minute of Agreement between The City of Edinburgh Council and The Institute of Chartered Accountants for Scotland dated 27 September 2006 and 23 October 2006. (ETL2).

23 Holyrood Services Limited

- 23.1 Minute of Agreement between The City of Edinburgh Council and Holyrood Services Limited dated 17 December 2004.

24 Servisair (UK) Limited

- 24.1 Letter from **tie** to Ian Robertson dated 21 October 2005.
- 24.2 Letter of comfort from **tie** to Jim Shapton dated 16 November 2005.

25 Historic Scotland

- 25.1 Letter from D & W to Historic Scotland dated 17 May 2005.

26 Murrayfield Indoor Sports Club

- 26.1 Minute of Agreement between The City of Edinburgh Council and George Russell, George Manson, John Small, the trustees of Murrayfield Indoor Sports Club dated 25 October 2005 and 2 November 2005.

27 Royal Mail Group Plc and Post Office Limited

- 27.1 Minute of Agreement between The City of Edinburgh Council and Royal Mail Group Plc and Post Office Limited dated 2 March 2006 and 8 February 2006.

28 UGC Properties Limited and Unipart Automotive Limited

- 28.1 Minute of Agreement between The City of Edinburgh Council and UGC Properties Limited and Unipart Automotive Limited dated 25 October 2005 and 21 November 2005.

29 JPSE Limited

- 29.1 Minute of Agreement between The City of Edinburgh Council and JPSE Limited dated 18 January 2006 and 27 January 2006.

30 New Edinburgh Limited and Edinburgh Park (Management) Limited

- 30.1 Minute of Agreement between The City of Edinburgh Council and Edinburgh Park (Management) Limited dated 7 October 2005 and 4 October 2005.
- 30.2 Letter from The City of Edinburgh Council to New Edinburgh Limited dated 7 October 2005.

31 Chris Holmes Cabinetmakers

- 31.1 Letter of comfort from **tie** to Chris Holmes dated 3 November 2005, attaching Schedule of Undertakings.

32 Network Rail Infrastructure Limited

- 32.1 Minute of Agreement between **tie** Limited and The City of Edinburgh Council and Network Rail Infrastructure Limited dated 17 June 2005 and 21 June 2005.

33 Roderick James McLean

- 33.1 Missives between The City of Edinburgh Council and Roderick James McLean and Julie Bremner McLean dated October 2005.

34 Clerical Medical Investment Group Limited

- 34.1 Minute of Agreement between The City of Edinburgh Council and the Clerical Medical Investment Group with the consent of Clerical Medical and General Life Assurance Society dated 2 June 2006 and 14 June 2006.

35 Scottish Rugby Union Plc

- 35.1 Draft Minute of Agreement between The City of Edinburgh Council and Scottish Rugby Union plc.
- 35.2 Letter to Faber Maunsell from Carl Bro dated 19 December 2005.

36 Roseburn Garage

36.1 Letter from **tie** to M Khali dated 21 October 2005.

36.2 Letter of comfort to M Khali dated 30 September 2005.

37 Scottish Natural Heritage

37.1 Letter from **tie** to Scottish Natural Heritage dated 26 August 2005.

37.2 Letter from **tie** to Private Bills Unit dated 26 August 2005.

38 Stanley Casinos Limited

38.1 Draft Minute of Agreement between The City of Edinburgh Council and Stanley Casinos Limited.

39 Marks & Spencer Plc

39.1 Minute of Agreement is in draft form and is not available - terms match the Safeway Stores and WM Morrisons Agreement. Relevant obligations have been flowed down to Schedule 13.

40 Adshel Limited

40.1 Minute of Agreement between The City of Edinburgh Council and Adshel Limited dated 27 September 1996 and 15 October 1996.

40.2 Street Furniture Operating Lease between the City of Edinburgh Council and More Group UK Limited dated 3 August 1999 and 2 August 1999.

41 Miscellaneous

41.1 Mrs Alison Bourne

41.1.1 Letter to Mrs A Bourne dated 30 May 2005.

41.1.2 Letter to "Resident" dated 16 December 2004.

41.1.3 Letter to Mrs Bourne dated 13 January 2005.

41.2 Mr & Mrs M Clarke

41.2.1 Letter to Mark Clarke dated 21 February 2006.

41.3 Mrs Patricia Craik

41.3.1 Letter to Patricia Craik dated 29 June 2005.

41.3.2 Letter to P Craik dated 12 January 2005.

41.4 Police Box Coffee Bars

41.4.1 Letter to Gordon Coutts Thomson dated 20 January 2005.

41.5 Lothian Healthcare

41.5.1 Letter to Murray Duncanson, Chief Executive, Lothian Primary Care NHS Trust dated 20 March 2006, together with Schedule.

41.6 O Milne

41.6.1 Letters to Odell Milne dated 21 February 2006.

41.6.2 Letter to Odell Milne regarding Wester Coates Terrace dated 5 December 2006.

41.7 Edinburgh and Lothian Badgers Group

41.7.1 Letter to Patricia Alderson, Edinburgh and Lothian Badgers Group dated 18 November 2005 (ETL 1).

41.7.2 Letter to Patricia Alderson, Edinburgh and Lothian Badgers Group dated 7 November 2005 (ETL 2).

41.8 Groathill Residents

41.8.1 Letter from **tie** to Resident dated 12 January 2005.

41.9 Beauchamp Investments

41.9.1 Letter from **tie** to Tim Mallett dated 11 August 2005.

A. CLOSURES

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| ETL 1 | |
| CALA MANAGEMENT - CONSTITUTION ST. | |
| 1. | Letter to Kevin Whitaker, Cala Management from tie , dated 7 September 2005. |
| 2. | Letter to Jane Sutherland, PBU from Ledingham Chalmers regarding CALA Management Limited dated 8 September 2005. |
| DEWAR, R - NEW ORCHARDFIELD | |
| 3. | Letter to Robert Dewar from tie dated 3 November 2006. |
| S. FRAME - TELFORD DR. | |
| 4. | Letter to Simon Frame from tie dated 19 March 2007. |
| J. PEARSON, OCEAN DRIVE | |
| 5. | Letter to Ewan Kennedy, from tie , dated 25 August 2005 enclosing letter to J. Pearson, from tie , dated 19 August 2005. |
| 6. | Letter to Ms. J.H. Pearson from tie , dated 17 March 2005 |
| 7. | Letter to Judith Pearson from tie , dated 21 February 2006. |
| 8. | Draft Minute of Agreement, dated 17 May 2005 |
| M. SCOTT, OCEAN DRIVE | |
| 9. | Letter to Mr. Scott from tie dated 2 February 2007. |
| ETL 1 + 2 | |
| SCOTTISH ENTERPRISE - HAYMARKET | |
| 10. | Letter to Kirsty Ramsay from tie dated 15 February 2007 |
| VERISCOLOUR - CLIFFORD TERRACE | |
| 11. | Letter to Bonar Mackenzie dated 14 September 2005 |
| ETL 2 | |
| COLLINSON CERAMICS | |
| 12. | Letter of Closure from tie Limited to Collinson Ceramics dated 19 October 2005. |
| CUSTOM PROJECTS LIMITED - ROSEBURN STREET | |
| 13. | Draft Minute of Agreement between The City of Edinburgh Council and Customs Projects Limited. |

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| FRANK EARLEY (PROLAMINATES) | |
| 14. | Correspondence with Frank Earley dated 5 April 2007. |
| GRAY'S MILL COACHWORKS | |
| 15. | Draft Minute of Agreement between The City of Edinburgh Council and Gray's Mill Coachworks. |
| D. KAUR | |
| 16. | Letters to Davidson Chalmers LLP regarding Dalwinder Kaur dated 21 October and 18 November 2005. |
| MRM COACHWORKS | |
| 17. | Letter of Closure to Mr. James Gibb from tie dated September 2005 |
| NATIONAL CAR PARKS | |
| 18. | Letter of Closure to Mr. Sutherland from tie dated 14 November 2005 |
| 19. | Draft Minute of Agreement between The City of Edinburgh Council, Norwich Union Life and Pensions Limited, National Car Parks Limited and George Watt Limited. |
| NATS LIMITED | |
| 20. | Email from Kate Shudall to Elaine Cropley dated 22 January 2007. |
| NCR VANGUARD | |
| 21. | Letter of Closure from tie Limited to Vanguard Rental (UK) Limited dated 11 October 2005. |
| PD LABELS | |
| 22. | Letter to PD Labels from tie dated 16 September 2005 |
| 23. | Draft Minute of Agreement between The City of Edinburgh Council and PD Labels. |
| TNT EXPRESS | |
| 24. | Letter to AD Pratt regarding TNT Express Services UK and Ireland dated 10 January 2007. |
| VIKING INTERNATIONAL (T/A STEPGRADE MOTOR ACCESSORIES LIMITED) | |
| 25. | Letter of Closure from tie Limited to Fairhurst Estates Limited in relation to Viking International dated 11 October 2005. |

B. COMFORTS AND ASSURANCES

| CLG ASSURANCES | |
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| Please see separate tie summary of CLG Commitments (version 2) dated 24 August 2007. | |
| 1. | BAIRD DRIVE CLG |
| 2. | CRAIGLEITH CLG |
| 3. | DRYLAW TELFORD RESIDENTS |
| 4. | ELBG - BADGER GROUP |
| 5. | FRUWCA - ROSEBURN CORRIDOR |
| 6. | GARSCUBE TERRACE RESIDENTS |
| 7. | GROATHILL AVENUE RESIDENTS |
| 8. | LEITH BLG |
| 9. | LEITH CLG |
| 10. | LOWER GRANTON ROAD CLG |
| 11. | RATHO STATION CLG |
| 12. | ROSEBURN BLG |
| 13. | ROSEBURN CORRIDOR PUBLIC NOTICE (in relation to environmental mitigation) |
| 14. | TRINITY STARBANK CLG |
| 15. | WEST END CLG |
| ETL 1 | |
| 16. | G BARKER Letter to G Barker dated 11 October 2005. |
| 17. | BHS Letter to Biggart Baillie Solicitors regarding BHS Ltd. dated 21 May 2007. |
| 18. | J CAMPBELTON Letter to John Campbelton regarding Plot 30 - Tower Street dated 20 December 2006. |

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| 19. CAVERSHAM TRADING |
| Letter to Gillespie MacAndrew WS LLP regarding Caversham Trading Limited dated 10 January 2007. |
| 20. CEC (THOMSON G) |
| Email to Clare Norman and George Duke regarding CEC buildings on Smith Place dated 21 December 2006. |
| 21. MR AND MRS CLARKE (Starbank Road) |
| Letter to MR M and Ms D Clarke dated 22 April 2005. |
| 22. CONELL - GUARINO |
| Letter to Ms Irene Connel-Guarino regarding Plot 30-Tower Street dated 4 January 2007. |
| 23. MR AND MRS CRASKE |
| Letter to John and Alison Craske dated 24 March 2005. |
| 24. A DEAN |
| Letter to Anthony White and Ann Dean dated 24 March 2005. |
| 25. DEBENHAMS |
| Letter to Biggart Baillie Solicitors regarding Debenhams Plc dated 21 May 2007. |
| 26. MR DEGG |
| Email to Mr Degg regarding Ocean Drive dated 21 December 2006. |
| 27. MR DONAGHUE |
| Letter to Mr D Donaghue dated 24 March 2005 and letter to Mr D Donaghue dated 22 April 2005. |
| 28. F DOUGLAS |
| Letter to Fiona Douglas regarding Plot 30 - Tower Street dated 11 December 2006. |
| 29. R DRYSDALE |
| Letter to Mr R Drysdale dated 24 March 2005. |
| 30. G DUFF |
| Email to Graham Duff dated 20 April 2005. |

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| 31. G&A DUNCAN |
| Letter to George & Audrey Aileen Duncan dated 21 December 2006. |
| 32. EDINBURGH MASONIC CLUB |
| Letter to Walter Sneddon dated 27 January 2005. |
| 33. MRS MEM FORREST |
| Letter to Mrs Forrest dated 22 April 2005. |
| 34. C FOSTER |
| Letter to Christopher Foster dated 3 November 2006. |
| 35. GARLANDS |
| Letter to Gillian Nicoll of Garlands Florists dated 10 July 2007. |
| 36. S GAYNOR - TOWER STREET |
| Email to Sheila Gaynor dated 21 December 2006. |
| 37. F GERMI - ELM ROW |
| Letter to Francesco Germi dated 17 March 2005. |
| 38. MR GHULAM |
| Note of meeting between Andy Dixon, Bob Clarke and Mr Ghulam dated 14 November 2006. |
| 39. G GILBERT - OCEAN DR |
| Letter to Gary Gilbert dated 19 February 2004. |
| 40. AM GILLON |
| Letter to Anne Marie Gillon dated 11 December 2006. |
| 41. L HAGGERTY & L HILL |
| Draft Letter to Ms L Haggerty and Ms L Hill dated 17 March 2005. |
| 42. MR HANNAN AND SPENCE |
| Draft Letter to Ms Spence and Mr Hannan dated 22 April 2005. |
| 43. M HETHERINGTON - TOWER STREET |
| Letter to Leslie Wolfson & Co regarding Murray Hetherington dated 10 January 2007. |

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| 44. MR AND MRS HUDSON |
| Draft Letter to Lorna and Nick Hudson dated 11 April 2005. |
| 45. E. INNES - CONSTITUTION STREET |
| Draft Letter to Eric Innes dated 17 March 2005, issued by email on 11 April 2005. |
| 46. IRISH LIFE ASSURANCE |
| Email to Caroline Hood regarding Ocean Point dated 21 December 2006. |
| 47. MR AND MRS JOY |
| Letter to Mr and Mrs Joy dated 3 March 2006. |
| 48. MR AND MRS KANE - LEITH WALK |
| Letter to Mrs Kane dated 10 July 2007 |
| 49. R KEEN |
| Letters to Ms Rachel Keen dated 17 March 2005, 15 January 2007 and 29 January 2007. |
| 50. MR AND MRS LAIRD - OCEAN WAY |
| Notes of Meeting between Andy Dixon, Bob Clarke and Mr & Mrs Laird dated 14 February 2007. |
| 51. PROF LANG - OCEAN DRIVE |
| Letter to Professor Margaret Lang dated 21 December 2006. |
| 52. F&G LOW - OCEAN DRIVE |
| Letter to Georgia Low dated 19 February 2004 and acknowledgement from Fergus Low dated 11 March 2004. |
| 53. MAD JACKS BACK - ELM ROW |
| Letter to Kate Mackenzie dated 9 July 2007. |
| 54. L MARSH - CONSTITUTION STREET |
| Letter to Lynne Marsh regarding Plot 30 - Tower Street dated 11 December 2006, and email dated 11 December 2006. |
| 55. MR MCKEOWN - COLTBRIDGE AVENUE |
| Email to Brian McKeown dated 2 November 2006. |

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| 56. C MCLEOD - CRAIGLEITH ROAD |
| Email to Steve Mitchell regarding Carolyn McLeod dated 12 August 2005. |
| 57. L MCNAUGHT - CONSTITUTION STREET |
| Letter to Mrs Lee-Anne McNaught dated 18 October 2005. |
| 58. MR MINTO |
| Minute of Meeting regarding Mr Minto dated 26 March 2004. |
| 59. MR & MRS MURPHY |
| Letter to Ms Jill Murphy dated 27 July 2005. |
| Letter to Adams Lawyers and Estate Agents dated 1 November 2005. |
| Letter from tie Limited to Mr and Mrs Murphy dated 22 December 2005. |
| 60. D O'CARROLL |
| Letter to Derek O'Carroll dated 17 March 2005. |
| 61. MR & MRS PARNELL |
| Draft letter to Karen Hamilton regarding Andrew & Birgitta Parnell. |
| 62. MS PEIFFER - TOWER STREET |
| Letter to Doreen Peiffer regarding Plot 30 - Tower Street dated 8 January 2007. |
| 63. MR PENDER |
| Email to Martin Pender dated 15 March 2005. |
| 64. A PRITCHARD |
| Email to Mr Pritchard, undated. |
| 65. F RENNIE |
| Letter to Mrs F Rennie regarding Plot 30 - Tower Street dated 11 December 2006. |
| 66. C ROONEY |
| Letter to Ms C Rooney dated 24 March 2005. |
| 67. S SCOTLAND |
| Letter to Miss Samantha Scotland regarding Plot 30 - Tower Street dated 22 January 2007. |

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| 68. M SCOTT - OCEAN DRIVE |
| Letter to Marshall Scott regarding Ocean Drive dated 4 January 2007. |
| 69. N SHEEHAN - TOWER STREET |
| Letter to Natalie Sheehan regarding Plot 30 - 4/6 Constitution Street dated 4 February 2004. |
| 70. I SHIRLEY - TIMBER BUSH |
| Letter to Ian Shirley dated 19 June 2006. |
| 71. C SPROTT - TOWER PLACE |
| Letter to Ms Sprott dated 20 February 2007. |
| 72. N STANSFIELD |
| Letter to Nick Stansfield dated 10 July 2007. |
| 73. P TOSH |
| Letter to Pamela Tosh and Neil Willett dated 22 April 2005. |
| 74. TRADITIONAL BARBERS - LEITH WALK |
| Letter to Janet Dunbar regarding Traditional Barbers dated 9 July 2007. |
| 75. WEL - WEST HARBOUR ROAD |
| Letter to Colin MacKenzie from Waterfront Edinburgh Limited dated 3 January 2007. |
| 76. JB WILKEN |
| Letter to JB Wilken dated 22 April 2005. |
| 77. B WILLIAMS - TOWER STREET |
| Letter to Gordon D Hamilton regarding Mrs B Williams, Plot 30 - Tower Street dated 22 January 2007. |
| ETL 1 + 2 |
| 78. CLOWES DEVELOPMENTS - COATES CRESCENT |
| Letter to Ms Alison Welsh regarding Clowes Development (Scotland) Ltd. dated 18 December 2006. |
| 79. MR CULLEN - BALBIRNIE PLACE |
| Email to Elaine Cropley regarding telephone call between Geoff Duke and Mr Cullen dated 12 December 2006. |

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| 80. M DUTHIE - ROSEBURN MALTINGS |
| Letter to Margaret Duthie dated 21 June 2005. |
| 81. EURO - HOSTELS - PRINCES STREET |
| Email to Ian Curry regarding Euro-Hostels dated 9 December 2005. |
| 82. A HARKNESS - ATHOLL PLACE |
| Letter to Alistair Harkness dated 17 March 2005. |
| 83. HODKINSON & MITCHELL - ROSEBURN MALTINGS |
| Letter to Darren Hodgkinson and Jacqueline Mitchell dated 16 September 2005 and email to Darren Hodgkinson dated 26 July 2006. |
| 84. I MUNRO - BALBIRNIE PLACE |
| Email to Mr Munro dated 12 July 2005. |
| 85. NEW LOOK RETAILERS |
| Letter to Biggart Baillie Solicitors regarding New Look Retailers Ltd dated 21 May 2007 and email to Anna Veal, New Look dated 22 January 2007. |
| 86. H REYNOLDS - BALBIRNIE PLACE |
| Letter to Miss H. T. Reynolds dated 30 May 2005. |
| 87. J ROBERTSON - BALBIRNIE PLACE |
| Letter to Jane Robertson dated 25 July 2005. |
| 88. L SMITH - ROSEBURN MALTINGS |
| Letter to Lynsey Smith dated 18 October 2005. |
| 89. STARBUCKS |
| Letter to Biggart Baillie Solicitors regarding Starbucks Cooffee Company Ltd dated 21 May 2007. |
| 90. C SYME - BALBIRNIE PLACE |
| Letter to Christian Syme dated 7 April 2005. |

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| ETL 2 | |
| 91. E BALL | Letter to Mrs E. J. Ball dated 30 May 2005. |
| 92. D BREWSTER | Letter to Mr D Brewster dated 15 October 2003. |
| 93. DAVID FLATMAN LTD | Note of telephone call from Lizzie Flatman dated 3 November 2006. |
| 94. A HAMILTON | Letter to Mr Hamilton and Ms Sansom dated 17 August 2004 and various. |
| 95. L. McTIGHE | Notes of meeting between Geoff Duke, Cliff Hutt, Alasdair Sim and Libby McTighe dated 26 May 2004. |
| 96. STAPLES UK RETAIL LTD PLOT | Letter to Richard Smalley dated 21 December 2006. |
| 97. J STEVENSON | Letter to Jeffrey Stevenson dated 23 June 2005. |
| 98. THAMES RICO - NEWBRIDGE SERVICE STATION | Letter to Sarah MacLeod re Thames Rico, dated 21 April 2006 enclosing letter of comfort and draft Side Agreement. |
| 99. P TORRENT | Email to Peter Torrent dated 21 December 2006. |
| 100. K WILSON | Letters to K Wilson dated 3 August 2005, 30 March 2005 and 11 October 2005. |

C. LICENCES

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| 1. FORTH PORTS |
| Licence to Occupy by Forth Ports plc in favour of CEC, dated 29 March 2007. Letter from D & W to tie dated 3 April 2007 enclosing Forth Ports Licence. |
| 2. NIL |
| Licence to Occupy by New Ingliston Limited in favour of CEC, dated 21 June 2007 and 22 June 2007. |
| 3. WEST CRAIGS |
| Licence to Occupy by West Craigs Limited in favour of CEC, dated 25 June 2007 and 3 July 2007. |

D. UNDERTAKINGS

| |
|---|
| ETL 1 |
| 1. D HARTE - CONSTITUTION STREET |
| Email to Deirdre Harte dated 18 July 2006. |
| 2. J MURPHY |
| Letter to Mr and Mrs Murphy dated 22 December 2005. |
| 3. WESTERN GENERAL HOSPITAL |
| Letter to Professor James Barbour OBE, NHS Lothian, dated 6 February 2006. |
| ETL 2 |
| 4. BEAUCHAMP INVESTMENTS - RUSSELL ROAD |
| 4.1 Letter to John Lee, ASO Property Services (UK) Ltd, dated 2 May 2007. |
| 4.2 Letter to Joanne Plant, Farningham McCreadie Partnership re Royal Mail Sorting Office, dated 2 May 2007. |
| 4.3 Emails between D & W and tie and tie and David Marwick. |
| 5. EDINBURGH LEISURE - CARRICK KNOWE GOLF COURSE |
| Email to Alasdair Dunlop dated 15 January 2007. |
| 6. REDPATH MCLEAN - RUSSELL ROAD |
| Email in relation to call with Keith McLean dated 23 March 2007. |

E. DOCUMENTATION NOT IN RELATION TO PHASE 1A

| | |
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| ETL 1 | |
| 1. CROWN ESTATE COMMISSIONERS - LOWER GRANTON ROAD | |
| 1.1 | Letter to Alan Menzies, Crown Estate Solicitor, dated 26 March 2004. |
| 1.2 | Internal emails dated 19 April, 21 and 22 May 2007. |
| ETL 1+2 | |
| 2. CALEDONIAN ALE HOUSE - HAYMARKET | |
| 2.1 | Grant offer to the City of Edinburgh Council for Purchase of The Caledonian Ale House and 27 Roseburn Street dated 26 October 2005. |
| 2.2 | Schedule of Condition referred to in the lease between The City of Edinburgh Council and David Elliot. |
| 3. CGM EDINBURGH LIMITED - HAYMARKET | |
| Minute of Agreement between The City of Edinburgh Council and CGM (Edinburgh) Limited with the Consent of the Governor and Company of the Bank of Scotland dated 13 May 2005, 16 May 2005 and 19 May 2005. | |
| 4. KENMORE CAPITAL - HAYMARKET | |
| Minute of Agreement between The City of Edinburgh Council and Kenmore Capital Edinburgh Limited with the consent of The Governor and Company of the Bank of Scotland unsigned. | |
| ETL 2 | |
| 5. BRB RESIDUARY - RATHO | |
| Minute of Agreement between The City of Edinburgh Council and BRB (Residuary) Limited dated 31 January 2006 and 9 February 2006. | |
| 6. GRAMPIAN COUNTRY FOODS - NEWBRIDGE | |
| Minute of Agreement between the City of Edinburgh Council and Marshall Food Group Limited dated 14 September 2005 and 23 September 2005. | |
| 7. MCDONALDS - NEWBRIDGE | |
| Minute of Agreement between The City of Edinburgh Council and McDonalds Restaurant Limited dated 8 November 2005 and 18 January 2005. | |
| 8. M RBSI - HANOVER PROPERTIES PLOT - NEWBRIDGE | |
| Minute of Agreement between The City of Edinburgh Council and Trustees of Hanover Property Unit Trust and RBSI Custody Bank Limited and RBSI Trust Company Limited dated 12 October 2005 and 12 December 2005. | |

9. RHASS - INGLISTON

Minute of Agreement between The City of Edinburgh Council and The Royal Highland Agricultural Society of Scotland dated 8 November 2005 and 9 November 2005.

F. ROUTE WIDE AGREEMENTS

1. BRITISH TRANSPORT POLICE

1.1 Agreement letter between The City of Edinburgh Council and British Transport Police dated 11 November 2005.

1.2 Agreement letter between The City of Edinburgh Council and British Transport Police dated 11 November 2005.

2. BT

Minute of Agreement between The City of Edinburgh Council and British Telecommunications Plc dated 7 February 2006 and 25 January 2006.

3. CABLE AND WIRELESS

Minute of Agreement between The City of Edinburgh Council and Cable and Wireless UK dated 5 October 2006.

4. EASYNET TELECOMMUNICATIONS LIMITED

Minute of Agreement between The City of Edinburgh Council and Easynet Telecommunications Limited dated 1 December 2006 and 28 November 2005.

5. NTL

Minute of Agreement between **tie** Limited and The City of Edinburgh Council and NTL Group Limited and NTL National Networks Limited dated 17 October 2005 and 18 October 2005 and 10 October 2005.

6. SCOTTISH WATER

Minute of Agreement between **tie** Limited and The City of Edinburgh Council and Scottish Water dated 20 June, 23 June and 3 August 2005.

7. THUS

Minute of Agreement between **tie** Limited and The City of Edinburgh Council and Thus Plc dated 7 December 2005 and 1 December 2005.

8. TRANSCO

8.1 Minute of Agreement between **tie** Limited and The City of Edinburgh Council and Transco Plc and Scottish Gas Networks Limited.

8.2 Side letter dated 7 December 2005.

G. SECTION 75 AGREEMENTS

| |
|--|
| 1. CAPITAL CITY HOMES - |
| 1.1 Covering letter and Minute of Agreement between The City of Edinburgh Council and Capital City Homes dated 5 January 2006 and 9 January 2006. |
| 1.2 Covering letter and Minute of Agreement between The City of Edinburgh Council and Capital City Homes dated 20 January 2006 and 26 January 2006. |
| 1.3 Covering letter and Minute of Agreement between The City of Edinburgh Council and Capital City Homes dated 7 November 2006 and 11 November 2006. |
| 2. CLYDESIDE INVESTMENT PROPERTIES Covering letter and Minute of Agreement between The City of Edinburgh Council and Clydeside Investment Properties dated 14 November 2005 and 23 November 2005. |
| 3. FORTH PORTS - Granton Harbour |
| 3.1 Minute of Agreement between The City of Edinburgh Council and Forth Ports Plc dated 19 June 2003 and 20 June 2003. |
| 3.2 Minute of Agreement between The City of Edinburgh Council and Forth Ports Plc dated 28 June 2002 |
| 4. NEL |
| 4.1 Covering letter and Minute of Agreement between The City of Edinburgh Council and New Edinburgh Limited and tie Ltd and The Edinburgh Branded Hotel and Leisure LLP with the consent of The Governor and Company of The Bank of Scotland dated 13, 17, 19 and 23 August 2005 and 1 and 8 September 2005. |
| 4.2 Covering letter and Minute of Agreement between The City of Edinburgh Council and New Edinburgh Limited with the consent of The Governor and company of the Bank of Scotland dated 25 November 2005, 5 December 2006 and 9 January 2006. |
| 5. RBS - GOGAR Minute of Agreement between The City of Edinburgh Council and The Royal Bank of Scotland Plc dated 6 November 2002 and 8 November 2002. |
| 6. SECONDSITE - PORT GREENWICH Minute of Agreement between The City of Edinburgh Council Limited and Port Greenwich Limited dated 28 February 2006. |
| 7. SKILLEXPRESS Letter enclosing Minute of Agreement between The City of Edinburgh Council and SkillExpress Limited dated 27 April 2005 and 3 May 2005. |
| 8. TUSCAN DAWN Letter enclosing Minute of Agreement between The City of Edinburgh Council and Tuscan Dawn Limited dated 29 September 2005 and 3 October 2005. |

SCHEDULE PART 13

INDEX OF APPENDICES

1. Appendix 1 - Forth Ports plc
 - 1.1 Part 1 (Site Specific Plans)
 - 1.2 Part 2 (Table headed Leith Docks Tram Integration)
2. Appendix 2 - Trillium (Prime) Property GP Limited and Land Securities Trillium Limited
 - 2.1 Part 1 (Plan)
 - 2.2 Part 2 (Route Plan)
3. Appendix 3 - City Point Unit Trust
 - 3.1 Part 1 (Plan 1)
 - 3.2 Part 2 (Plan 2)
4. Appendix 4 - Ocean Terminal Limited
 - 4.1 Part 1 (Site Specific Plans)
 - 4.2 Part 2 (Table headed Ocean Terminal Tram Integration)
5. Appendix 5 - The Royal Yacht Britannia Trust
 - 5.1 Part 1 (Site Specific Plans)
 - 5.2 Part 2 (Table)
6. Appendix 6 - Meadowfield Developments Limited
 - 6.1 Plan
7. Appendix 7 - FSH Nominees Limited
 - 7.1 Plan
8. Appendix 8 - First Scotrail Limited
 - 8.1 Plan
9. Appendix 9 - Stakis Limited
 - 9.1 Part 1 (Plan 1)
 - 9.2 Part 2 (Plan 2)

10. Appendix 10 - Universities Superannuation Scheme Limited
 - 10.1 Plan
11. Appendix 11 - Safeway Stores Limited and WM Morrisons Supermarket plc
 - 11.1 Plan
12. Appendix 12 - New Inghliston Limited and Highland Properties (Scotland) Limited
 - 12.1 Part 1 (Plan 1)
 - 12.2 Part 2 (Plan 2)
 - 12.3 Part 3 (Plan 3)
13. Appendix 13 - Edinburgh Airport Limited
 - 13.1 Part 1 (Plan)
 - 13.2 Part 2 (Depot Plan)
14. Appendix 14 - Verity Trustees Limited
 - 14.1 Part 1 (Plan 1)
 - 14.2 Part 2 (Plan 3)
15. Appendix 15 - ADM Milling Limited
 - 15.1 Plan
16. Appendix 16 - Selex Sensors and Airborne Systems Limited
 - 16.1 Plan
17. Appendix 17 - Norwich Union Life and Pensions Limited
 - 17.1 Plan
18. Appendix 18 - National Grid Property Holdings Limited, Port Greenwich Limited and WM Morrison Supermarkets plc
 - 18.1 Part 1 (Plan)
 - 18.2 Part 2 (Supermarket Plan)
19. Appendix 19 - Institute of Chartered Accountants
 - 19.1 Plan
20. Appendix 20 - Holyrood Services Limited
 - 20.1 Plan

- 21. Appendix 21 - Historic Scotland
 - 21.1 Plan
- 22. Appendix 22 - Murrayfield Indoor Sports Club
 - 22.1 Plan
- 23. Appendix 23 - UGC Properties Limited and Uniport Automotive Limited
 - 23.1 Plan
- 24. Appendix 24 - JPSE Limited
 - 24.1 Plan
- 25. Appendix 25 - New Edinburgh Limited and Edinburgh Park (Management) Limited
 - 25.1 Part 1 (Plan 1)
 - 25.2 Part 2 (Plan 2)
 - 25.3 Part 3 (Plan 3)
 - 25.4 Part 4 (Plan 4)
 - 25.5 Part 5 (Plan PT)
 - 25.6 Part 6 (Maintenance Schedule)
- 26. Appendix 26 - Chris Holmes Cabinet Makers
 - 26.1 Planting Plan
- 27. Appendix 27 - Roderick James McLean
 - 27.1 Plan
- 28. Appendix 28 - Scottish Rugby Union
 - 28.1 Part 1 (Plan)
 - 28.2 Part 2 (Local Construction Plan)
 - 28.3 Part 3 (Pitches Specification)
- 29. Appendix 29 - Scottish Natural Heritage
 - 29.1 Plan
- 30. Appendix 30 - Stanley Casinos Limited
 - 30.1 Part 1 (Plan 1)
 - 30.2 Part 2 (Plan 2)

31. Appendix 31 - Marks & Spencer plc

Appendix 1

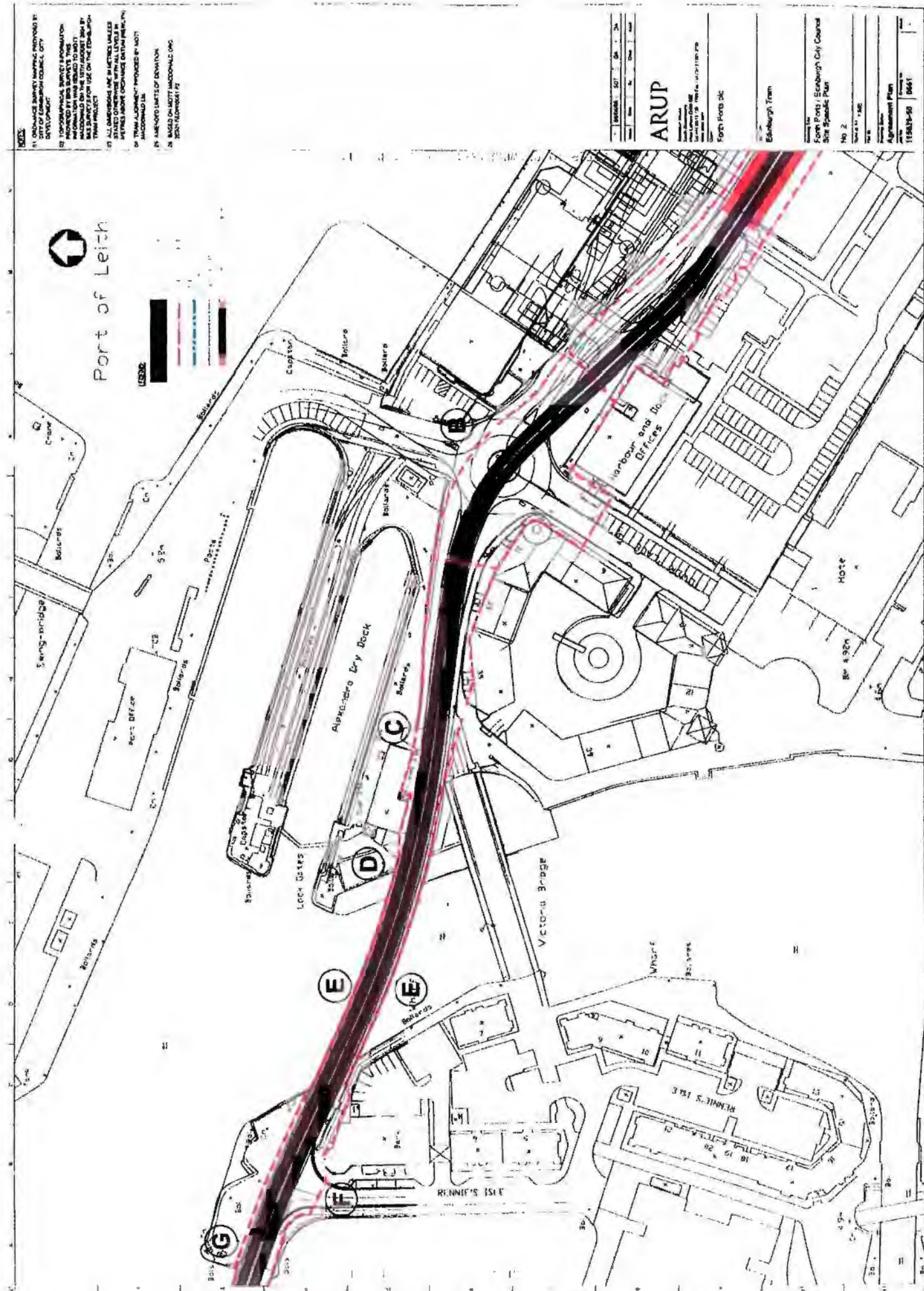
Forth Ports plc

Part 1 (Site Specific Plans)

Part 2 (Table headed Leith Docks Tram Integration)

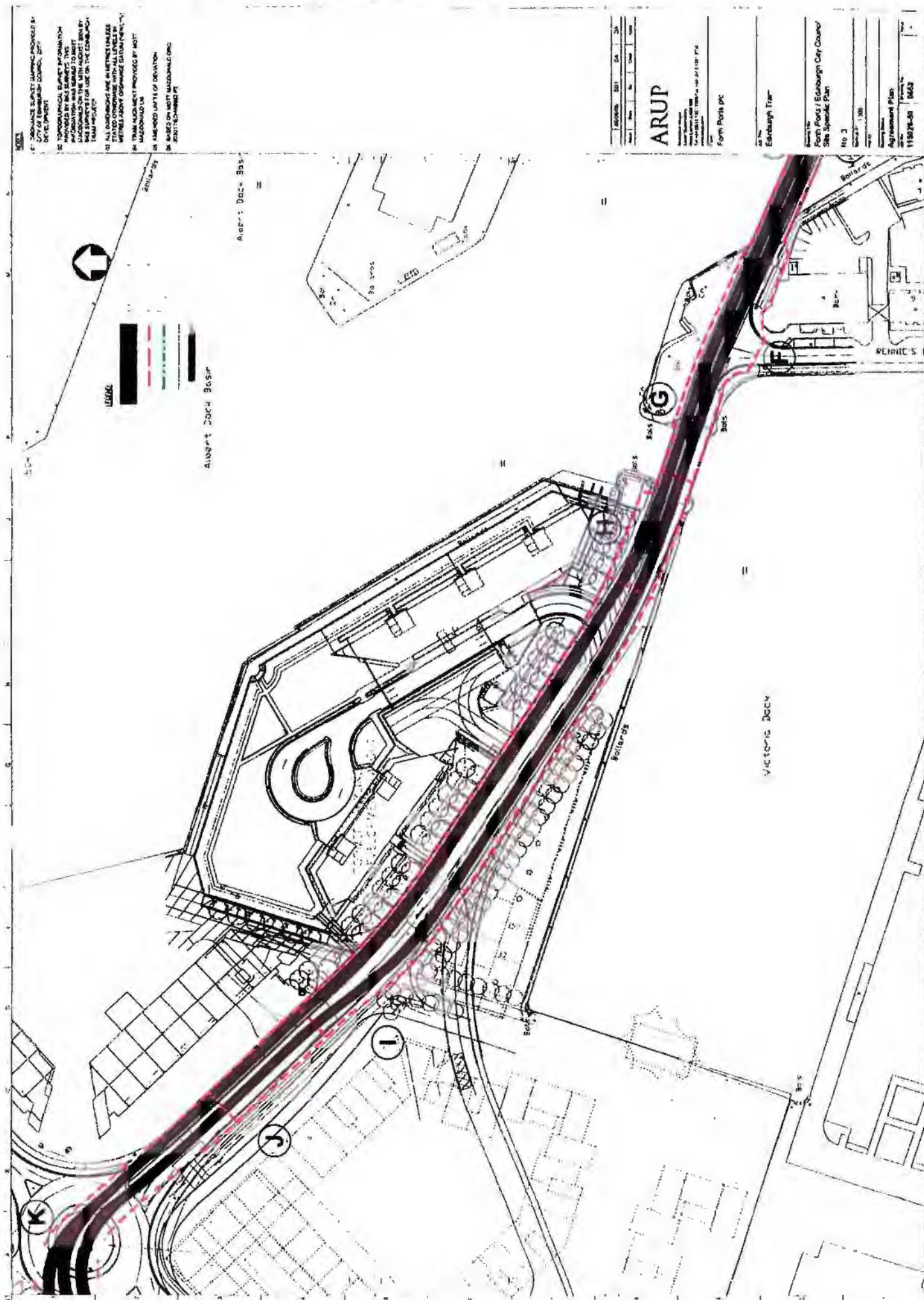


These are the Site Specific Plans referred to in paragraph 1.1 of Section 1 of Schedule 13.



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These are the Site Specific Plans referred to in paragraph 1.1 of Section 1 of Schedule 13.



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EVEN FROM THE

Edinburgh Times

Funding No.
 Forest Assets / Edinburgh City Council
 Site Specific Plan

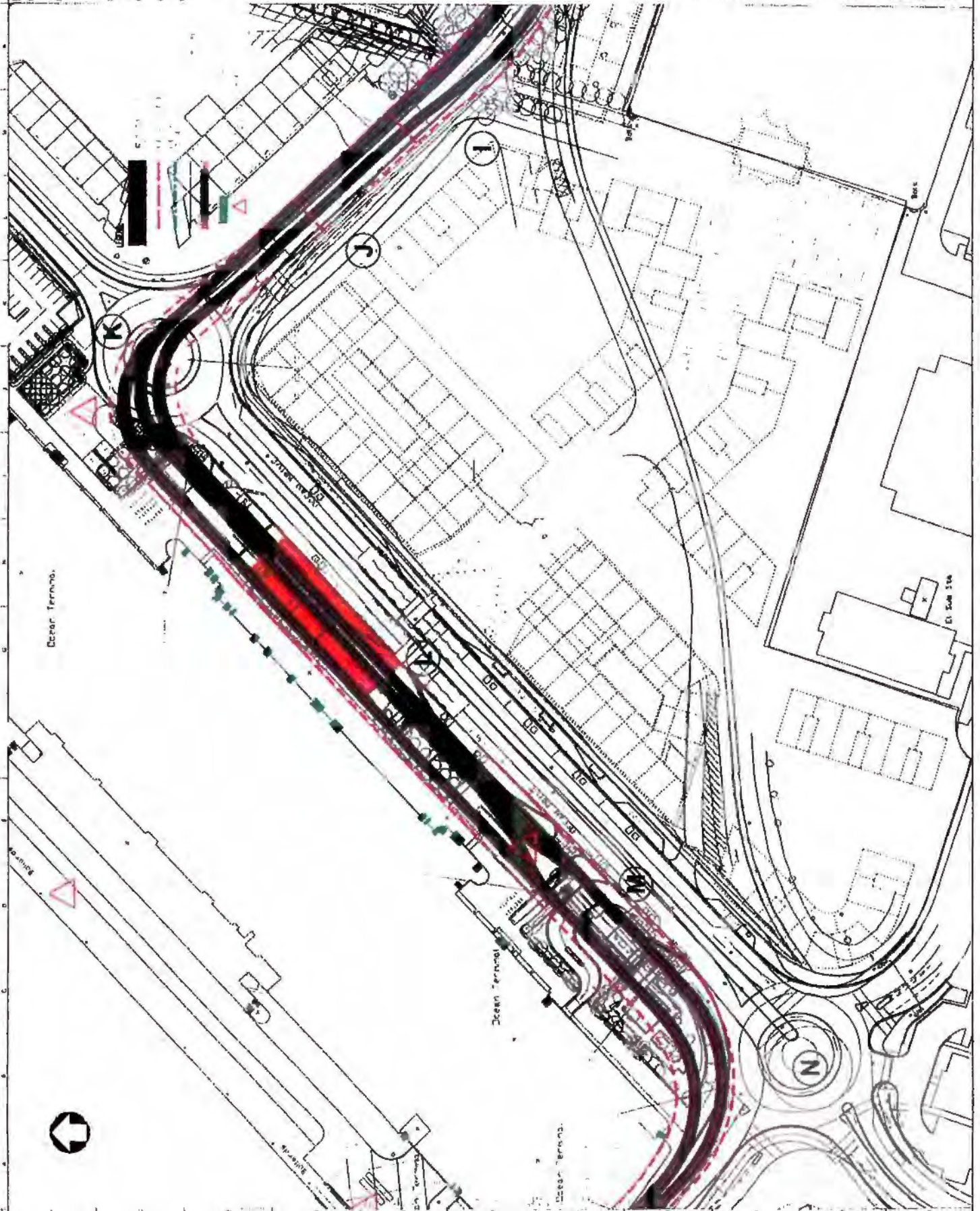
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Figure 1

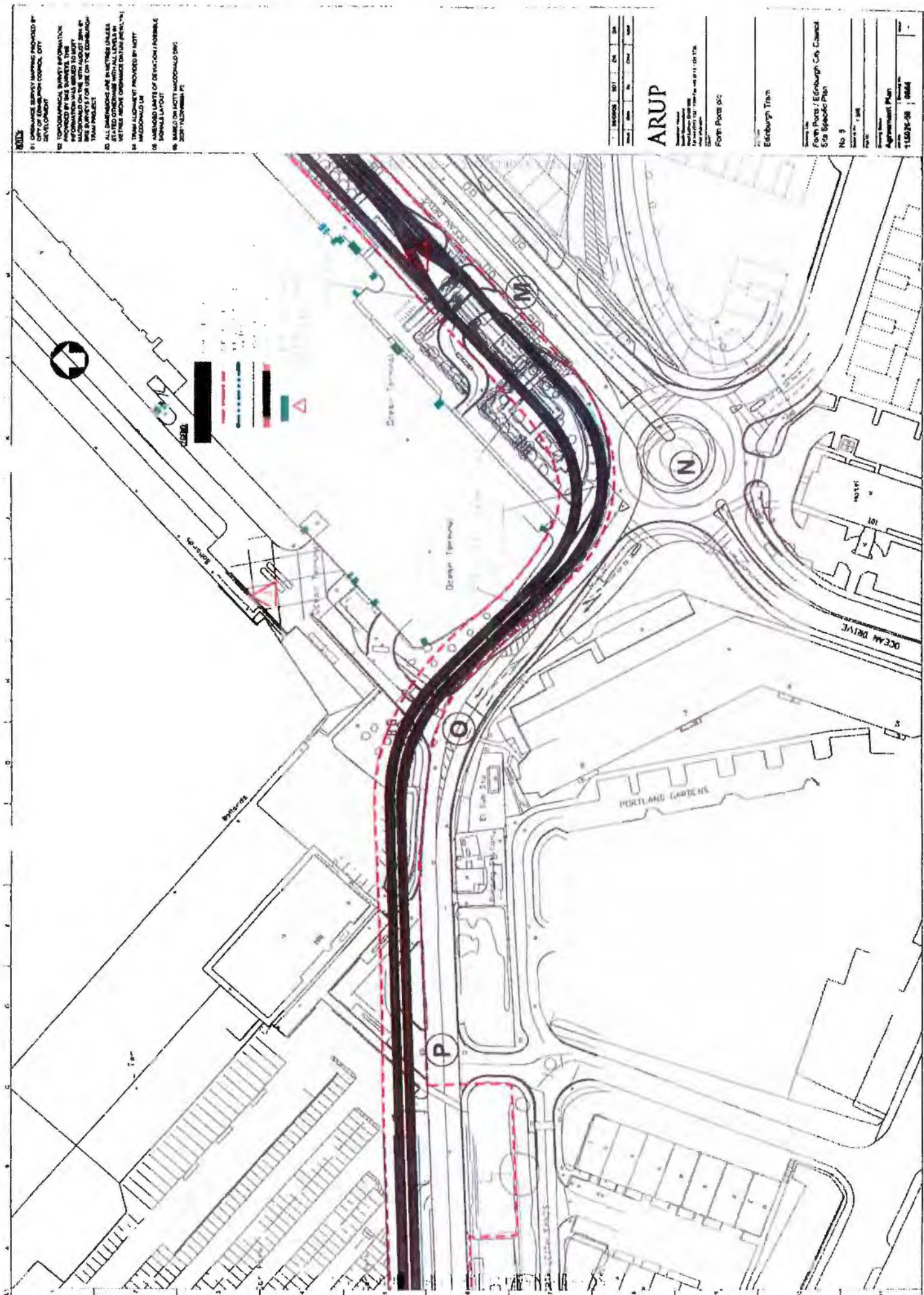
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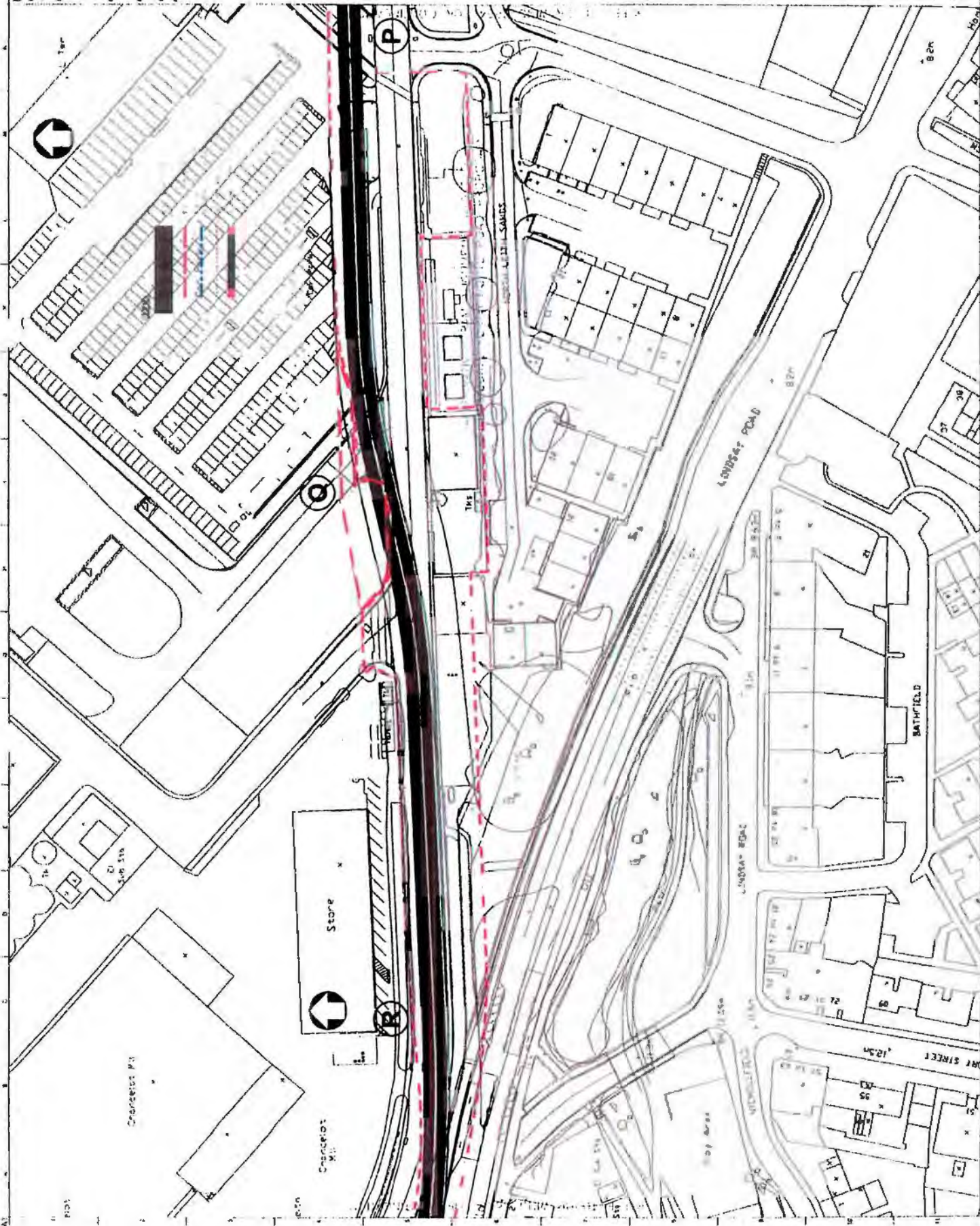
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These are the Site Specific Plans referred to in paragraph 1.1 of Section 1 of Schedule 13.







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Forti Ports p. 2

Edinburgh Train

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 See Specifics Plan

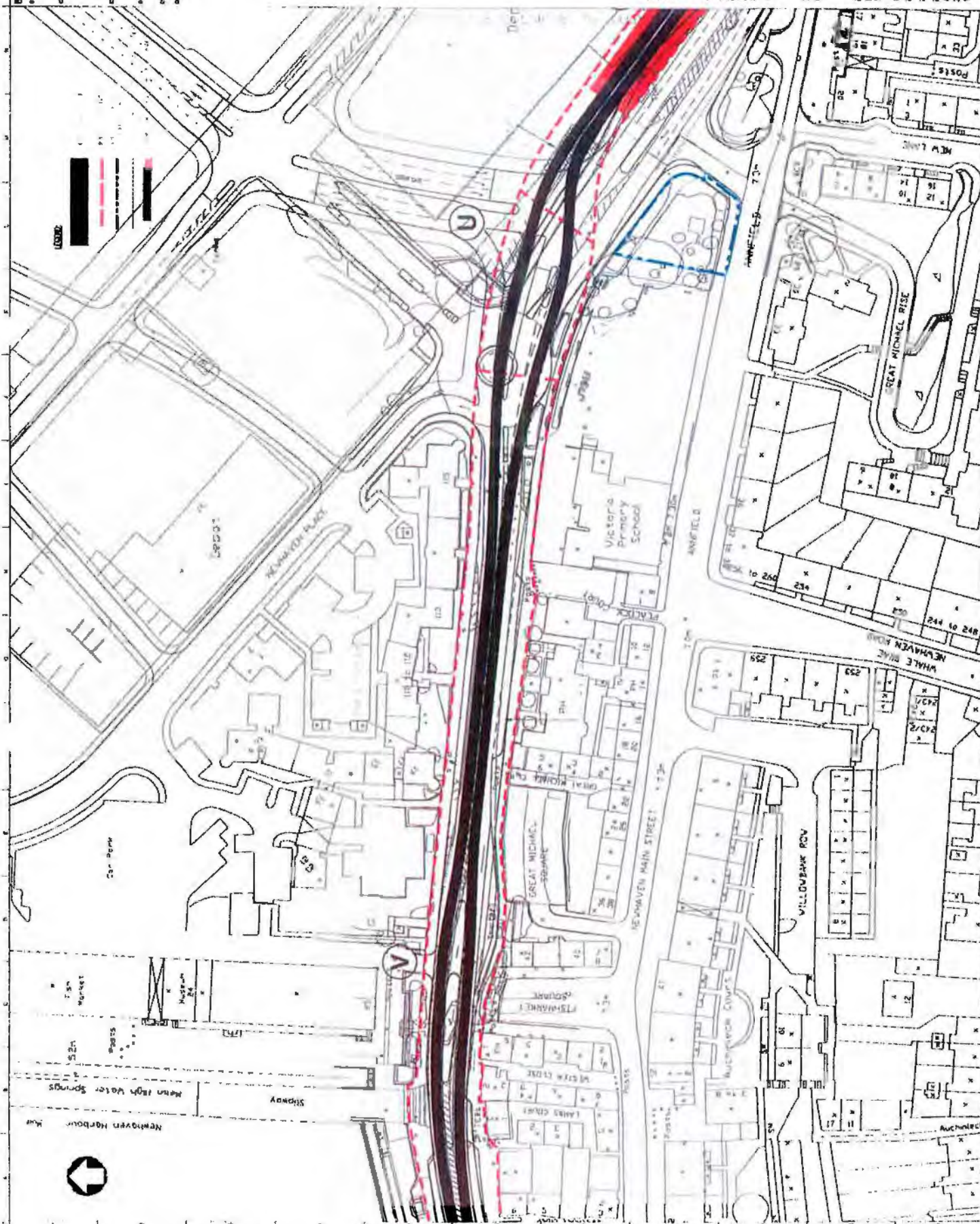
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Page 4

Very close

Associated Plug

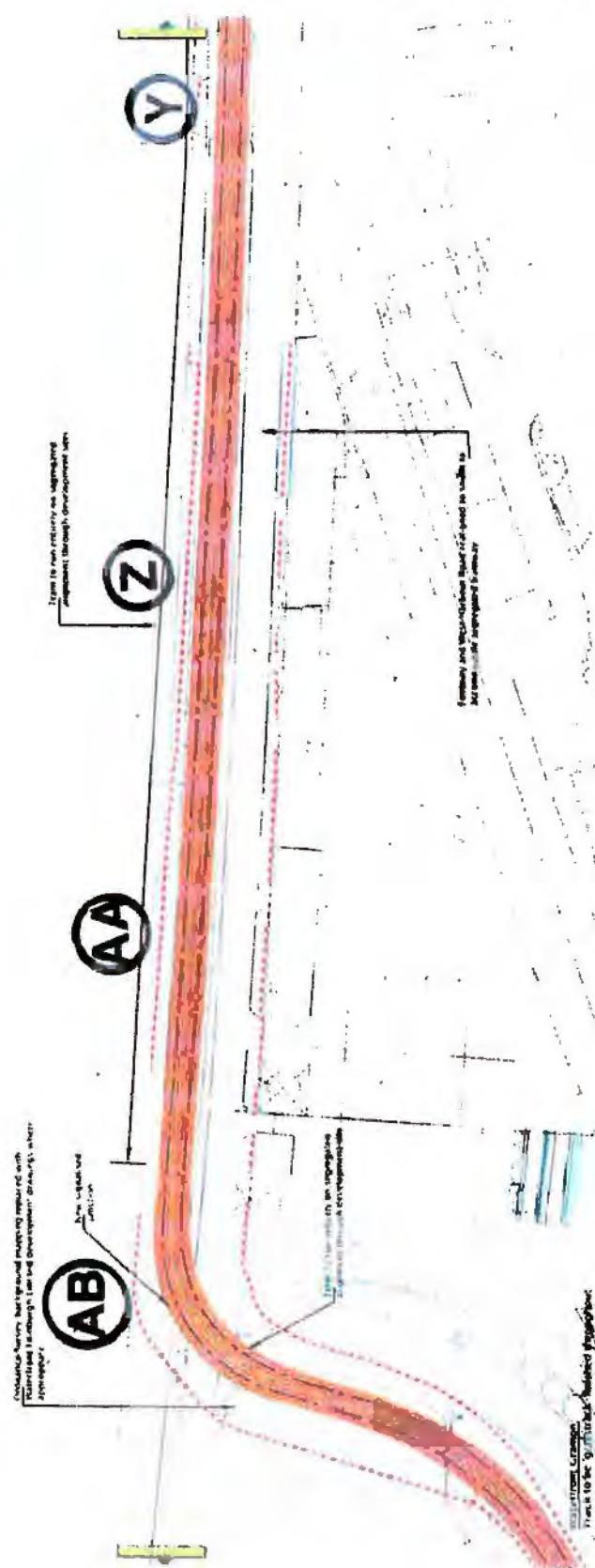
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These are the Site Specific Plans referred to in paragraph 1.1 of Section 1 of Schedule 13.



Proposed Edinburgh International Airport



ARUP

Transport Team

Edinburgh City Council

Site Specific Plan

Map 9

Agreement Plan

11/03/09-08 0522

These are the Site Specific Plans referred to in paragraph 1.1 of Section 1 of Schedule 13.

ARUP

Emergency Triage

From 11/15/15 to 1/15/16
\$400.00 to \$450.00

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Elaborado por el personal de la Oficina de Asesoría Jurídica.

The following is a summary of the information on the subject of the report.

POSSIBLE STOP

2007

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Lower Crater Road
Track to have "spacewalk" finish.

Water from Gravel
Track to be gravelly finished asphalt.
with occasional concrete points of high
quality concrete along.

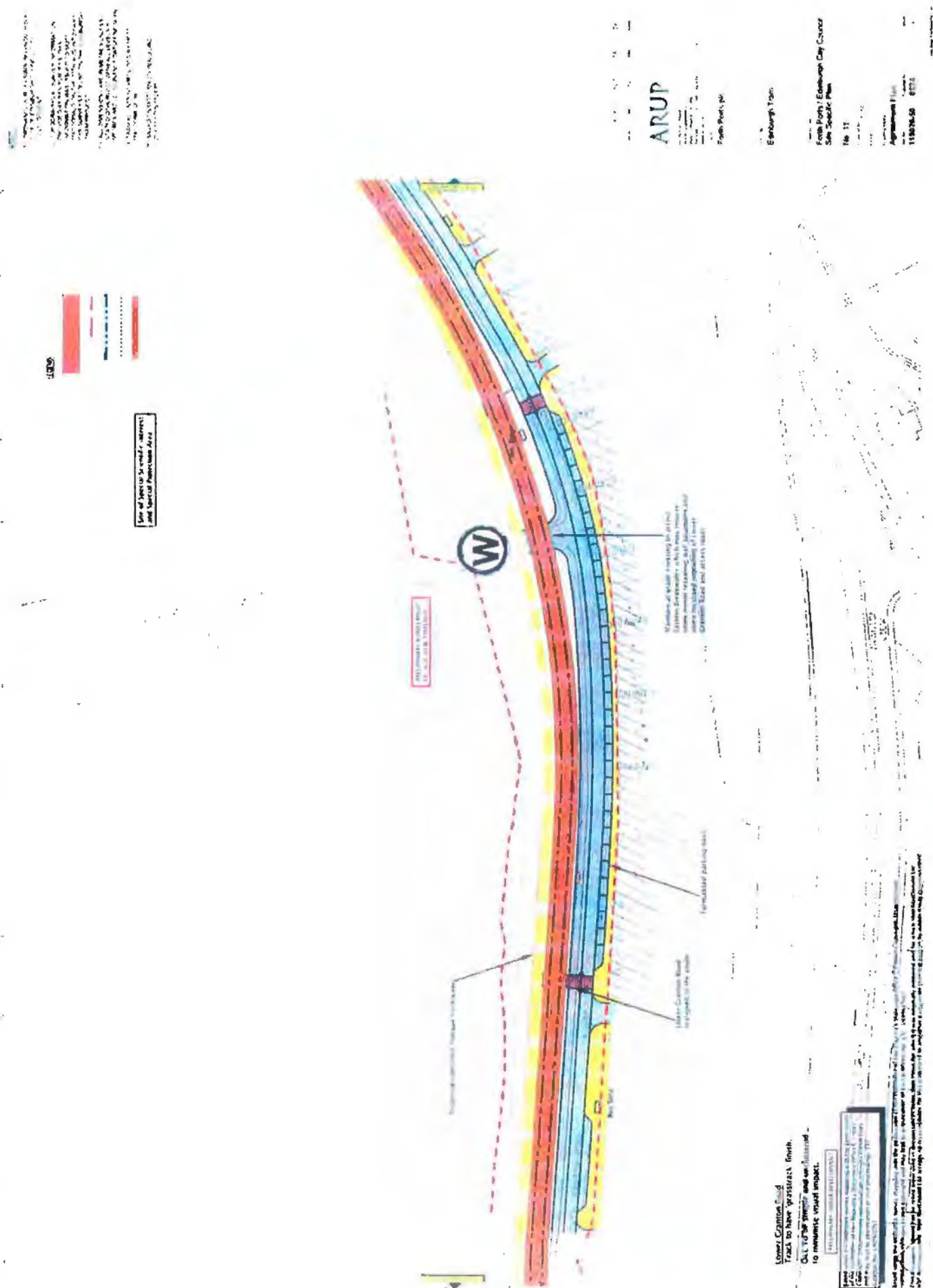
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1. I have been thinking of you a great deal lately.
 2. I have been thinking of you a great deal lately.
 3. I have been thinking of you a great deal lately.
 4. I have been thinking of you a great deal lately.
 5. I have been thinking of you a great deal lately.
 6. I have been thinking of you a great deal lately.
 7. I have been thinking of you a great deal lately.
 8. I have been thinking of you a great deal lately.
 9. I have been thinking of you a great deal lately.
 10. I have been thinking of you a great deal lately.

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These are the Site Specific Plans referred to in paragraph 1.1 of Section 1 of Schedule 13.



Leith Docks Tram Integration - 115026-10/DA

16 June 2005

Page 1 of 2

This schedule sets out the access and junction requirements associated with the development of Forth Ports PLC's land. The Council as promoter of Edinburgh Tram Line One shall ensure that the design of Tram Line One will accommodate such access and junction requirements. This clause does not negate the need for appropriate consents. This schedule should be read in conjunction with the amended consultation drawings prepared by Arup for Forth in respect of the 'Tram, reference ***** which drawings are referred to in the Agreement between Forth and the City of Edinburgh Council. This schedule and the drawings referred to are annexed to and form part of such Agreement.

| Reference | Drawing Ref | Requirement |
|------------------|-------------|--|
| A | 0660 | Space for construction of traffic signal controlled junction to the east of Stanley Casino. Modification of the LOD for Works Nos. 4 and 4B. Non-acquisition of land marked 39, 41 on Sheet no 6. Forth will transfer land to allow solution with Stanley Casino as shown in this drawing 0660 on request and free from consideration. The solution demonstrated is proposed to cover the intent of both the Council and Forth that there should be created in the future in this location a road suitable for accommodating four lanes and associated footpath and other works to an adoptable standard to provide full vehicular access to the area generally to the East to be developed pursuant to the Leith Docks Development Framework SPG. |
| B | 0661 | Provision of a signal controlled cross roads at the junction of Tower Place and Ocean Drive,. All turning movements are to be allowed within the junction, and provision made for pedestrian crossings on all arms of the junction. |
| C D not used. | 0661 | Provision of a pedestrian crossing of Ocean Drive to the east of Victoria Bridge. |
| E | 0661 | Removal of LLAU adjacent to Victoria Bridge, an non-acquisition of land marked 59a, 60a and 64a on Sheet no 6. Provision required in this area to enable continuing vehicular and pedestrian access to land at North East of bridge for party carrying out clearance of debris from Water of Leith. Extent of bridge to transfer to be limited to ensure that Forth continue to be able to exercise rights of passage under bridge spans which areas should remain in Forth ownership. |
| F | 0661 | Maintain existing road junction to Rennie's Isle allowing all turning movements. |
| G | 0661 | Provision of a junction to land to the north of Ocean Drive allowing all turning movements such land being allocated for future potential development. |
| H | 0662 | Provision of a junction to land on the northern side of Ocean Drive, allowing left in/left out turning movements. Modification of LOD for Works Nos 5 and 6 |
| I | 0662 | Provision of a traffic signal controlled junction allowing access to land to the north and south of Ocean Drive north including pedestrian crossing facilities of Ocean Drive |
| J | 0662 | Provision of a junction to land on the southern side of Ocean Drive, allowing |

| | | |
|----|------|--|
| | | left in/ left out turning movements |
| K | 0663 | Deletion of Works Nos 8A and 8B and modification of LOD for Work No 8. Non acquisition of land marked 69 on Sheet no 7. |
| L | 0663 | Pedestrian crossing facility outside Ocean Terminal Main Entrance. |
| M | 0663 | Installation of traffic signals on the car park entrance to advise of the approach of trams. |
| N | 0663 | Provision of traffic signal controlled junction on Ocean Drive in place of existing roundabout to the south east of Ocean Terminal. |
| O | 0664 | Maintain existing junction allowing all traffic movements and modification of LOD for Work No 8 |
| P | 0664 | Maintain existing access link at North Leith Sands allowing all traffic movements. Non-acquisition of land marked 71, 73 and 74a on Sheet no 7 |
| Q | 0665 | Provide signal controlled traffic junction allowing all traffic movements and provision of pedestrian/ cycle facilities. Proposal noted of alternative Tram alignment. |
| R | 0666 | Provide a junction between Lindsay Road and Ocean Drive .. |
| S | 0666 | Non-acquisition of LLAU and land marked 88a and |
| T | | 89a on Sheet no 8 |
| U | 0666 | Provision of traffic signal controlled junction for Western Harbour including modifications to Works Nos 8 and 9 and non-acquisition of land marked 92 on Sheet no 8. For these purposes it is acknowledged and assumed that the road junction will be reconfigured and designed generally as shown on this drawing. |
| V | 0667 | Maintain existing junction at Newhaven Fish Market |
| W | 0524 | Maintain existing access to Granton Harbour breakwater per Agreement allowing all traffic movements and classes of vehicles without particular weight restriction. |
| X | 0523 | Maintain existing access to Granton Harbour, through provision of traffic signals allowing all turning movements consistent with the revised layout and operation of Granton Square. Location of Equipment Room to be considered further. |
| Y | 0522 | Provision of access to Granton Harbour |
| Z | 0522 | Provision of priority junction allowing all turning movements to land to the north of West Harbour Road |
| aa | 0522 | Provision of access to Granton Harbour |
| bb | 0522 | Provision of traffic signal controlled junction at the junction of West Harbour Road and Chestnut Street allowing all turning movements and incorporating pedestrian/cycle facilities. |

1. DRAINAGE BURNET MAPS PROVIDED BY CITY OF CAMBERIDGE, CITY ENGINEER

2. TOPOGRAHY, SURVEY INFORMATION, AND EXISTING UTILITIES INFORMATION WAS OBTAINED FROM THE CITY OF CAMBERIDGE, CITY ENGINEER

3. ALL INFORMATION IS BASED ON THE DATA PROVIDED BY THE CITY OF CAMBERIDGE, CITY ENGINEER

4. THE DESIGNER HAS NOT CONDUCTED A FIELD SURVEY OF THE PROJECT AREA

5. THE DESIGNER HAS NOT CONDUCTED A FIELD SURVEY OF THE PROJECT AREA

6. THE DESIGNER HAS NOT CONDUCTED A FIELD SURVEY OF THE PROJECT AREA

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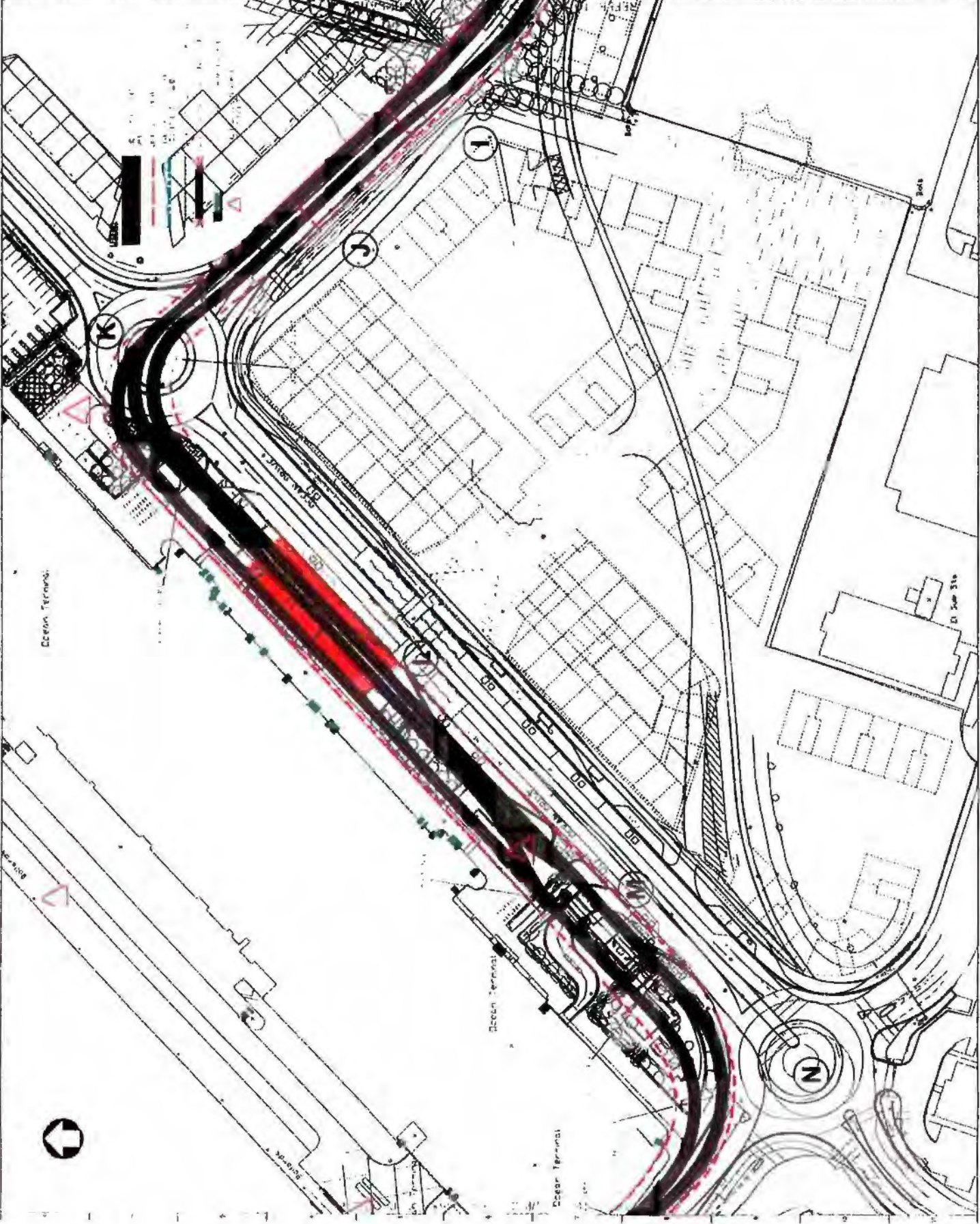
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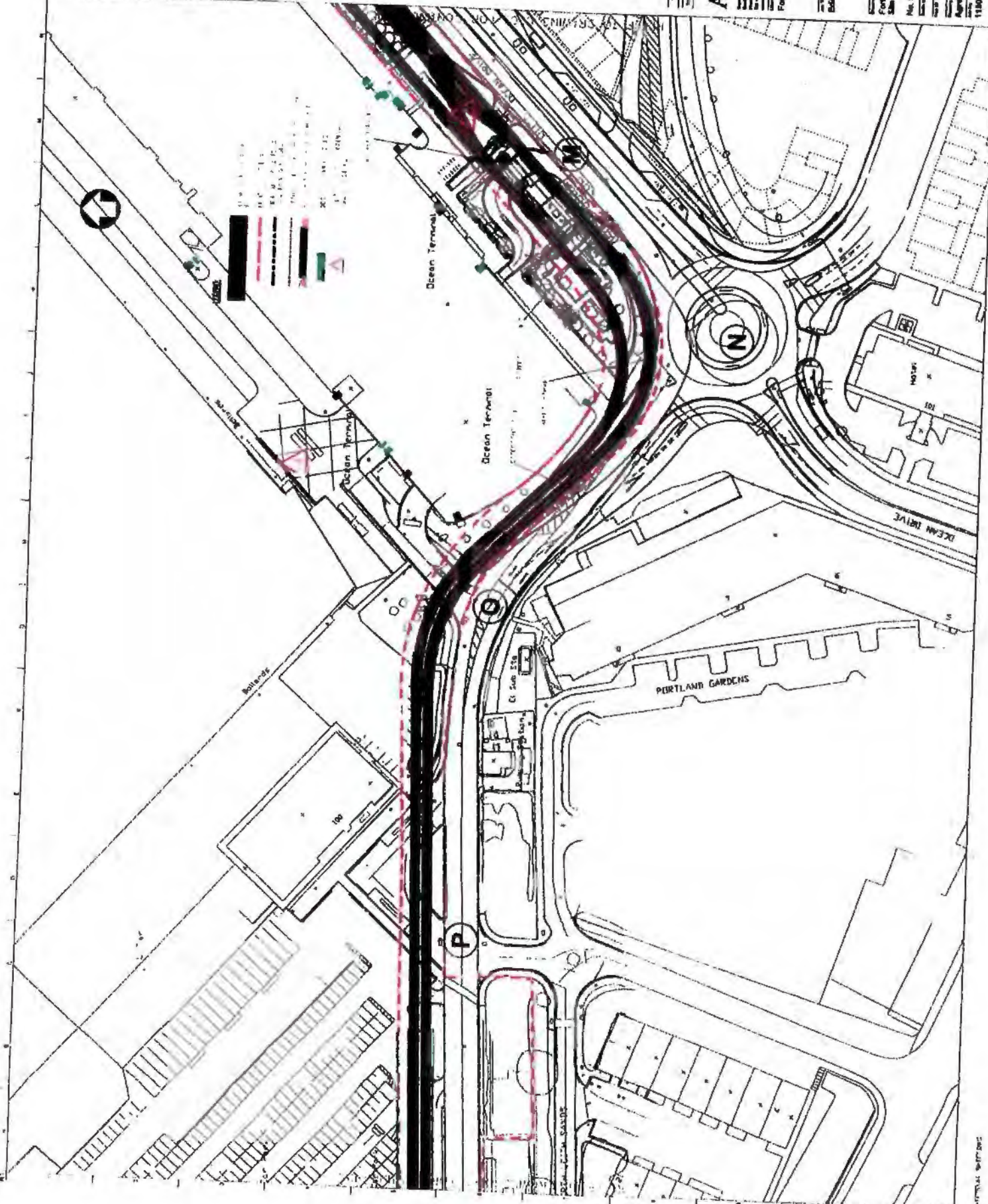
| | | | |
|---------|-------------------------|----|------|
| DATE | 11/07/04 | BY | ARUP |
| PROJECT | Edinburgh Train Station | | |
| CLIENT | Edinburgh City Council | | |
| NO. 1 | 11/07/04 | | |
| NO. 2 | 11/07/04 | | |
| NO. 3 | 11/07/04 | | |
| NO. 4 | 11/07/04 | | |
| NO. 5 | 11/07/04 | | |
| NO. 6 | 11/07/04 | | |
| NO. 7 | 11/07/04 | | |
| NO. 8 | 11/07/04 | | |
| NO. 9 | 11/07/04 | | |
| NO. 10 | 11/07/04 | | |

ARUP
Edinburgh Train Station
Edinburgh City Council
11/07/04



- NOTES
01. OVERLAP SURVEY LAPPING PROVIDED BY CITY OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 02. TOPOGRAPHICAL SURVEY INFORMATION PROVIDED BY CITY OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 03. INFORMATION HAS BEEN OBTAINED FROM THE CITY OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 04. ALL OVERLAP AREAS HAVE BEEN LAPPED
 05. STATED COORDINATES WITH ALL LAPPING
 06. SETTING - AS SHOWN ON THE CITY OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 07. WHEN ALIGNED PROVIDED BY CITY OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 08. MARKED LINES OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 09. BASED ON CITY OF EDINBURGH COUNCIL, CITY OF EDINBURGH
 10. NOT TO SCALE

| | |
|--------------|------------------------|
| ARUP | |
| Project Name | Edinburgh Train |
| Client | Edinburgh City Council |
| Location | Edinburgh, Scotland |
| Scale | 1:1000 |
| Drawn by | ARUP |
| Checked by | ARUP |
| Agreed by | ARUP |
| Date | 11/03/05 |
| Version | 0001 |





Appendix 2

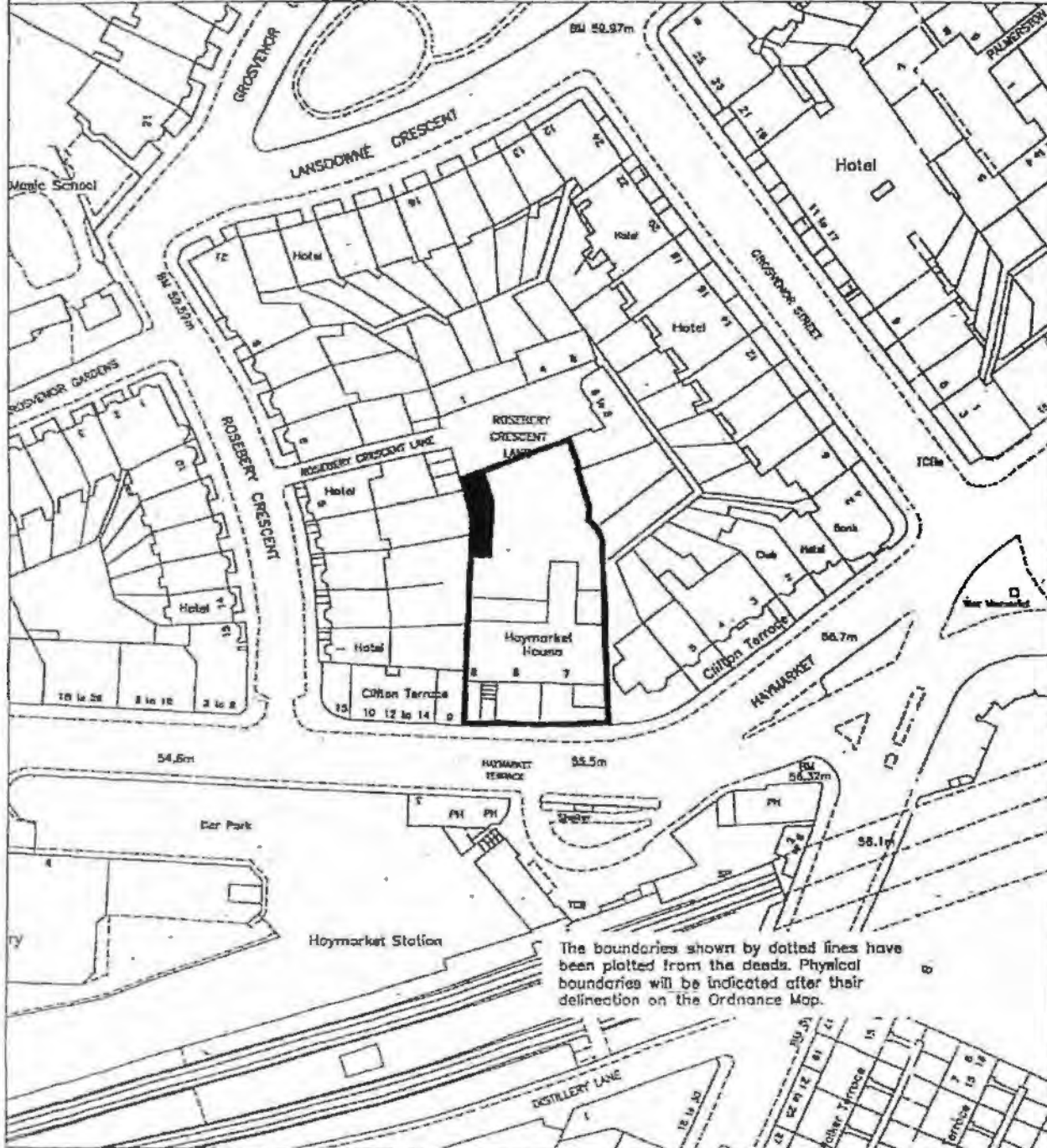
Trillium (Prime) Property GP Limited and Land Securities Trillium Limited

Part 1 (Plan)

Part 2 (Route Plan)

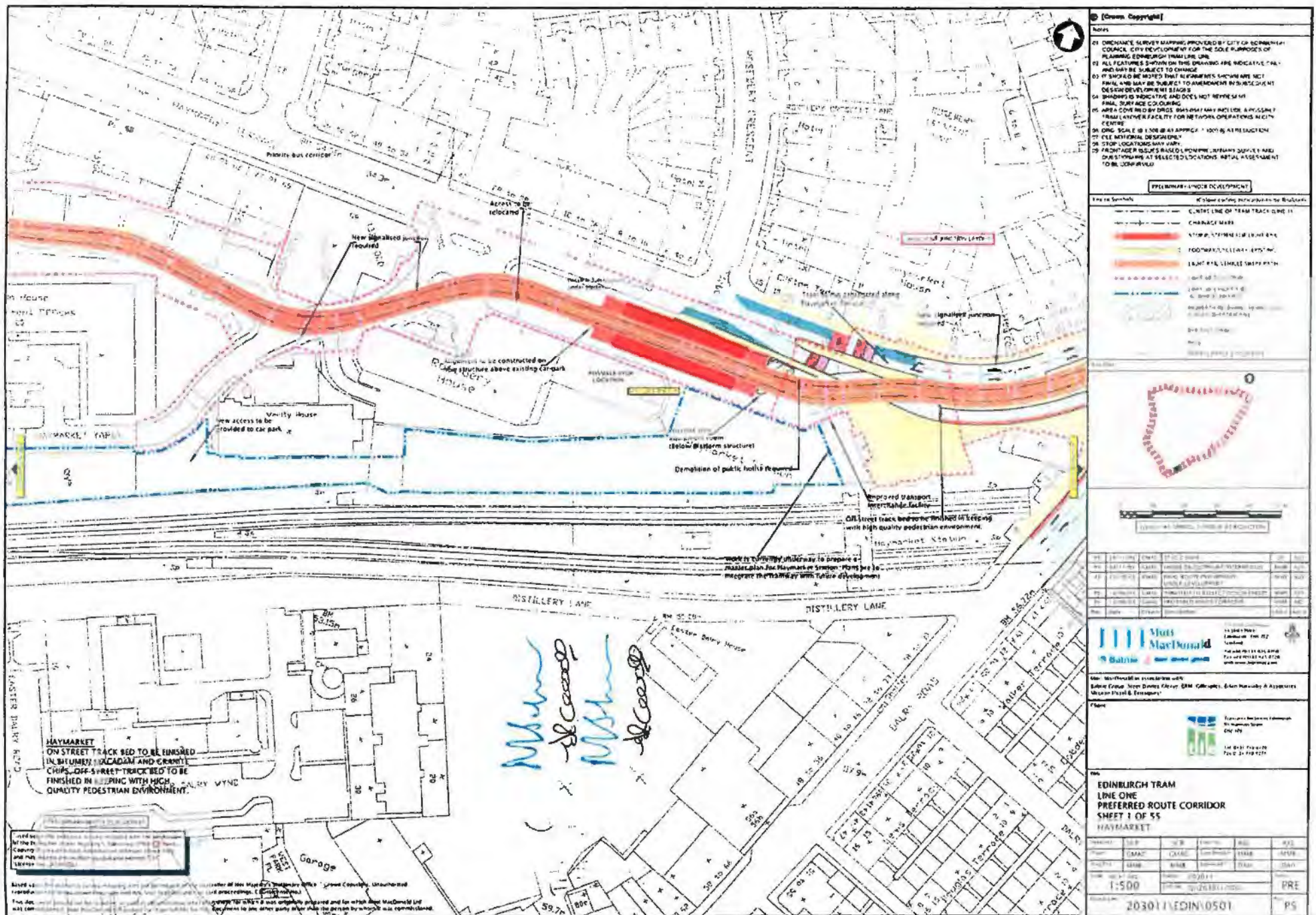
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|---|----------------------------|---------------------|
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|  ORDNANCE SURVEY NATIONAL GRID REFERENCE | Scale | |
| | 1/1250 | |
| NT2373SE NT2473SW | Survey Scale | |
| | 1/1250 | |

ORDNANCE SURVEY: This copy has been produced from the OS Digital Mapping System on 18/08/2004 and was made with the authority of Ordnance Survey pursuant to Section 47 of the Copyright, Designs and Patents Act 1988. Unless that act provides a relevant exception to copyright, the copy must not be copied without the prior permission of the copyright owner.



This is the Plan referred to in the foregoing Agreement between the City of Edinburgh Council, Trillium (Prime) Property GP Limited and Land Securities Trillium Limited

[Signature]



Appendix 3

City Point Unit Trust

Part 1 (Plan 1)

Part 2 (Plan 2)

This is Plan 1 forming part 1 of Appendix 3 as referred to in paragraph 4.1 of Section 4 of Schedule 13

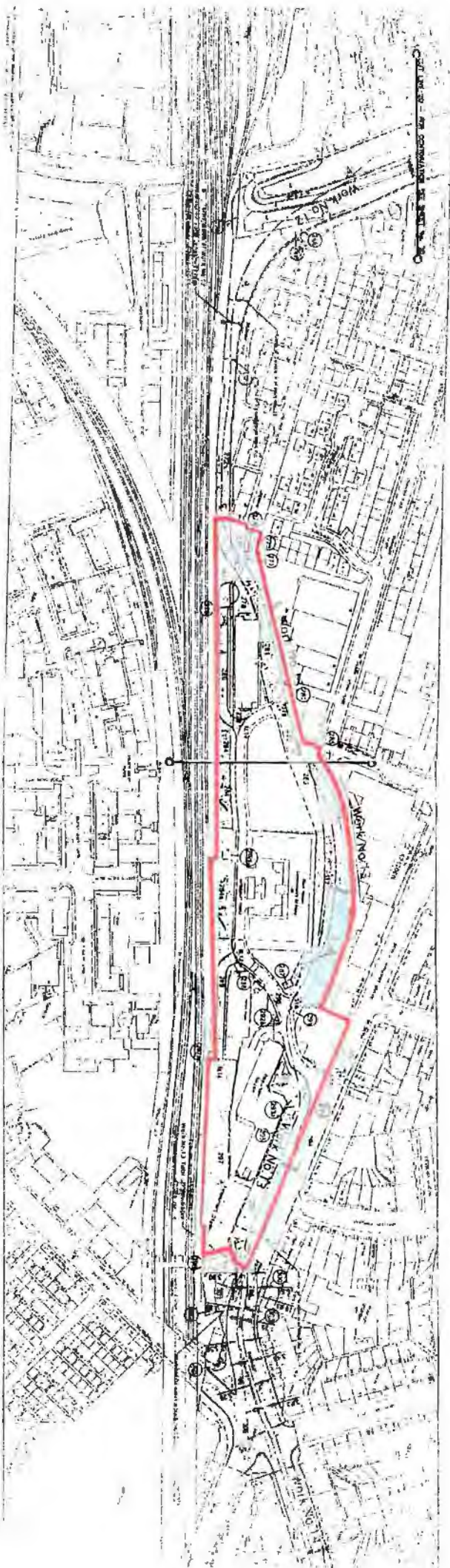
CITY OF EDINBURGH EDINBURGH TRAM (LINE ONE)

PLAN

CITY OF EDINBURGH EDINBURGH TRAM (LINE ONE)

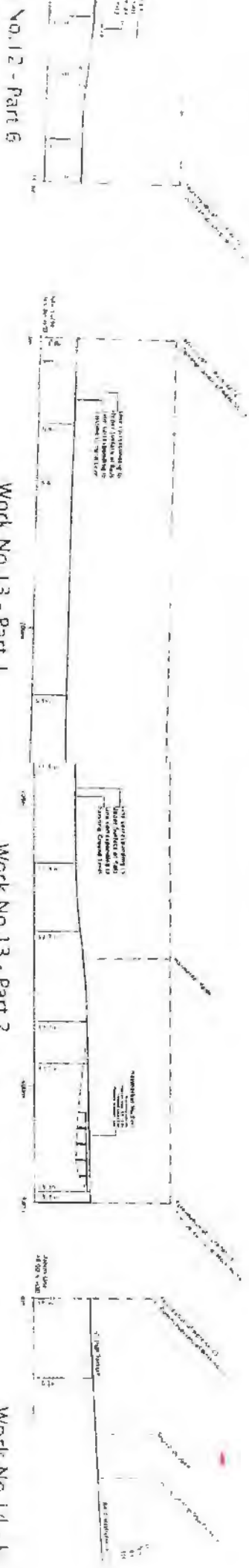
PLAN

PLAN 31



SECTIONS

SECTIONS

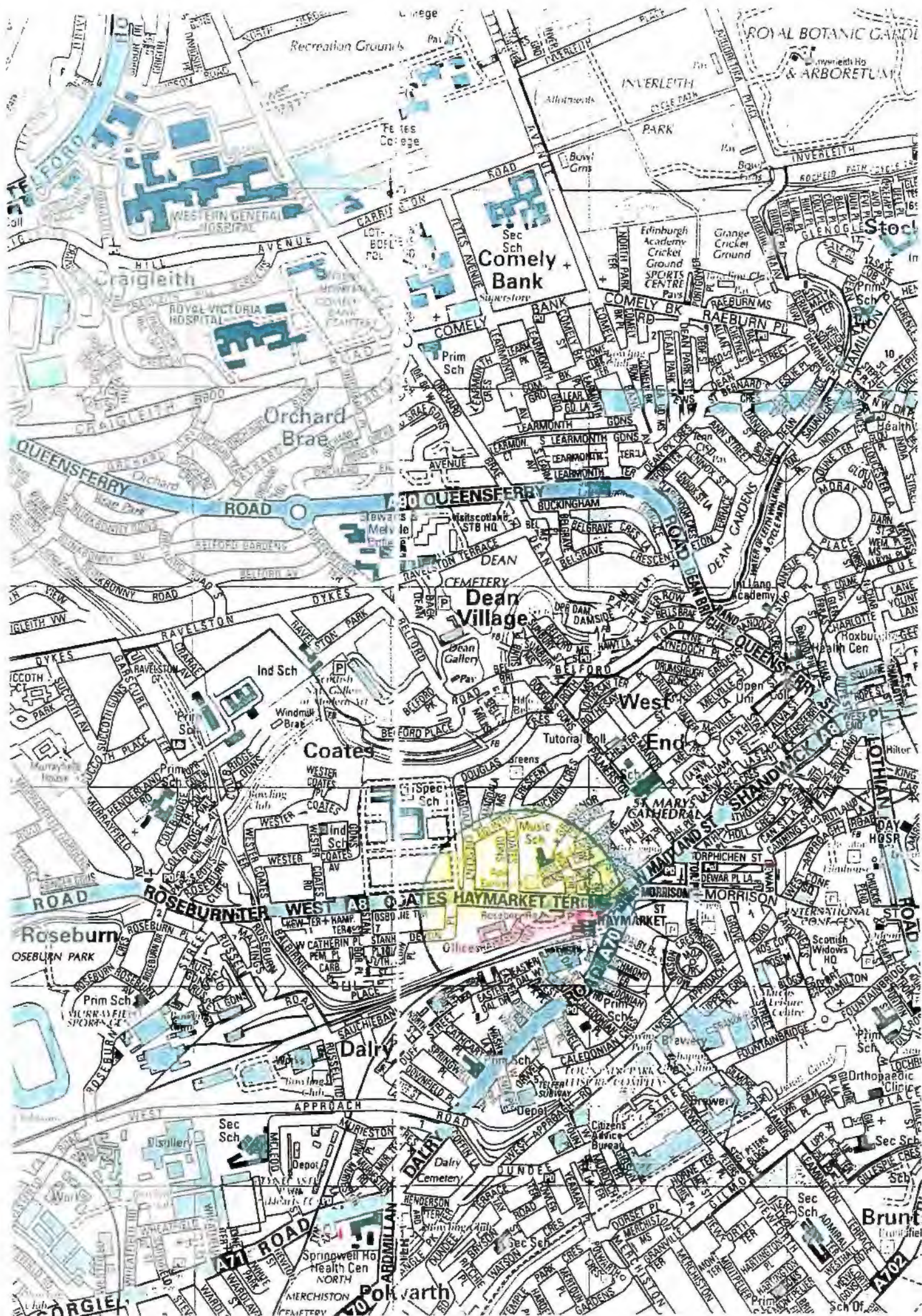


No. 12 - Part 6

Work No. 13 - Part 1

Work No. 13 - Part 2

Work No. 14 - Part 1



Appendix 4

Ocean Terminal Limited

Part 1 (Site Specific Plans)

Part 2 (Table headed Ocean Terminal Tram Integration)

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the situation.

2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what is to be achieved and provides a clear direction for the work.

3. The third step is to develop a plan or strategy to address the problem. This involves identifying the resources needed, the tasks to be completed, and the timeline for the project.

4. The fourth step is to implement the plan. This involves putting the strategy into action and monitoring progress to ensure that the project is on track.

5. The final step is to evaluate the results of the project. This involves assessing the outcomes against the objectives and goals, and identifying any lessons learned for future projects.

| Source | ED | DA | SA |
|--------|------|------|------|
| 100% | 100% | 100% | 100% |

ARUP

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

Fortis Portz plc

University of Tennessee

North Portland / Edgemoor City Council
City Specific Plan

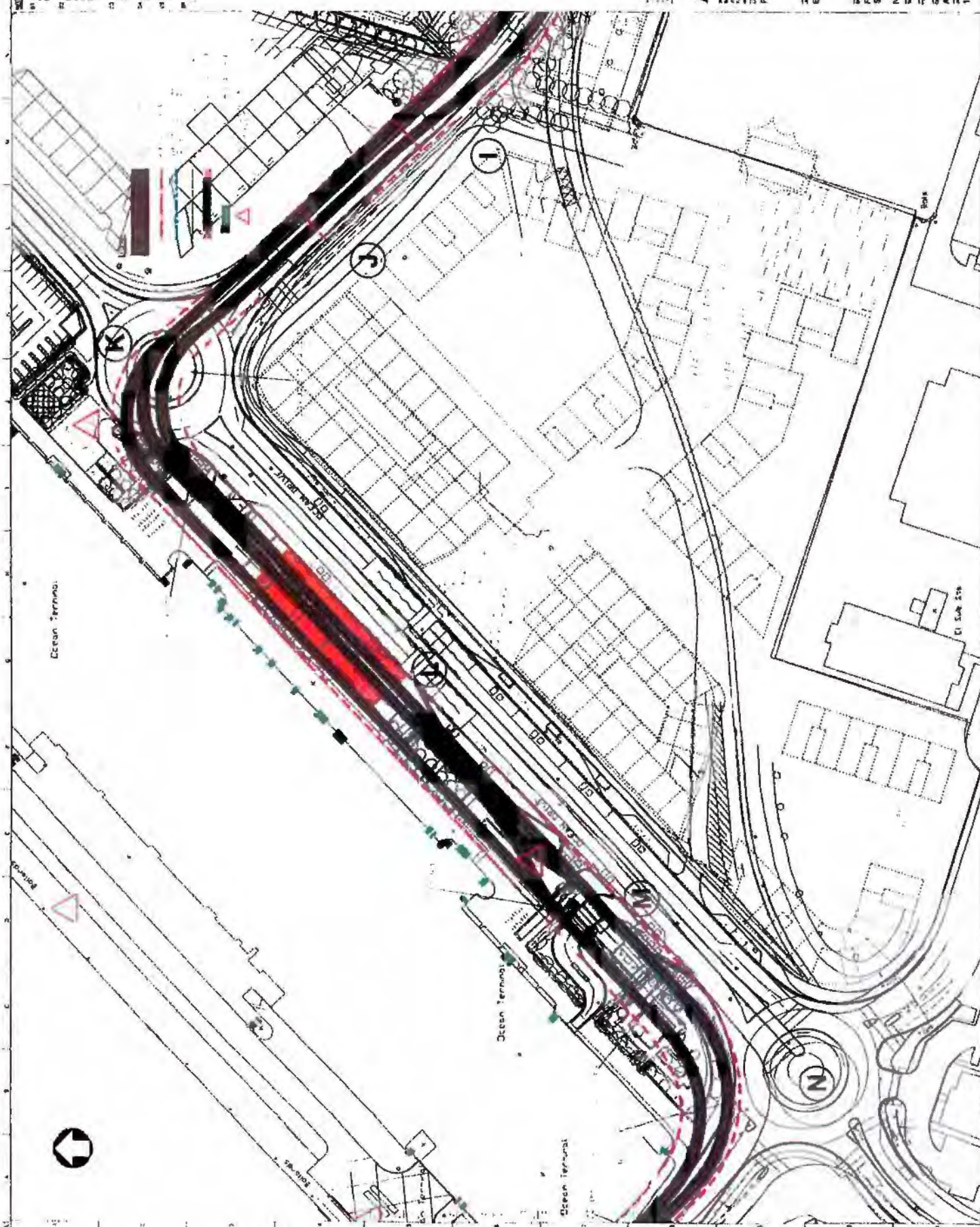
No. 4

10 p.m.

1994

[illegible]

THE POLYMER



© 2000 Blackwell Science Ltd

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| 2 | 2 | 2 | 2 |

ARUP

Form P-999-91C

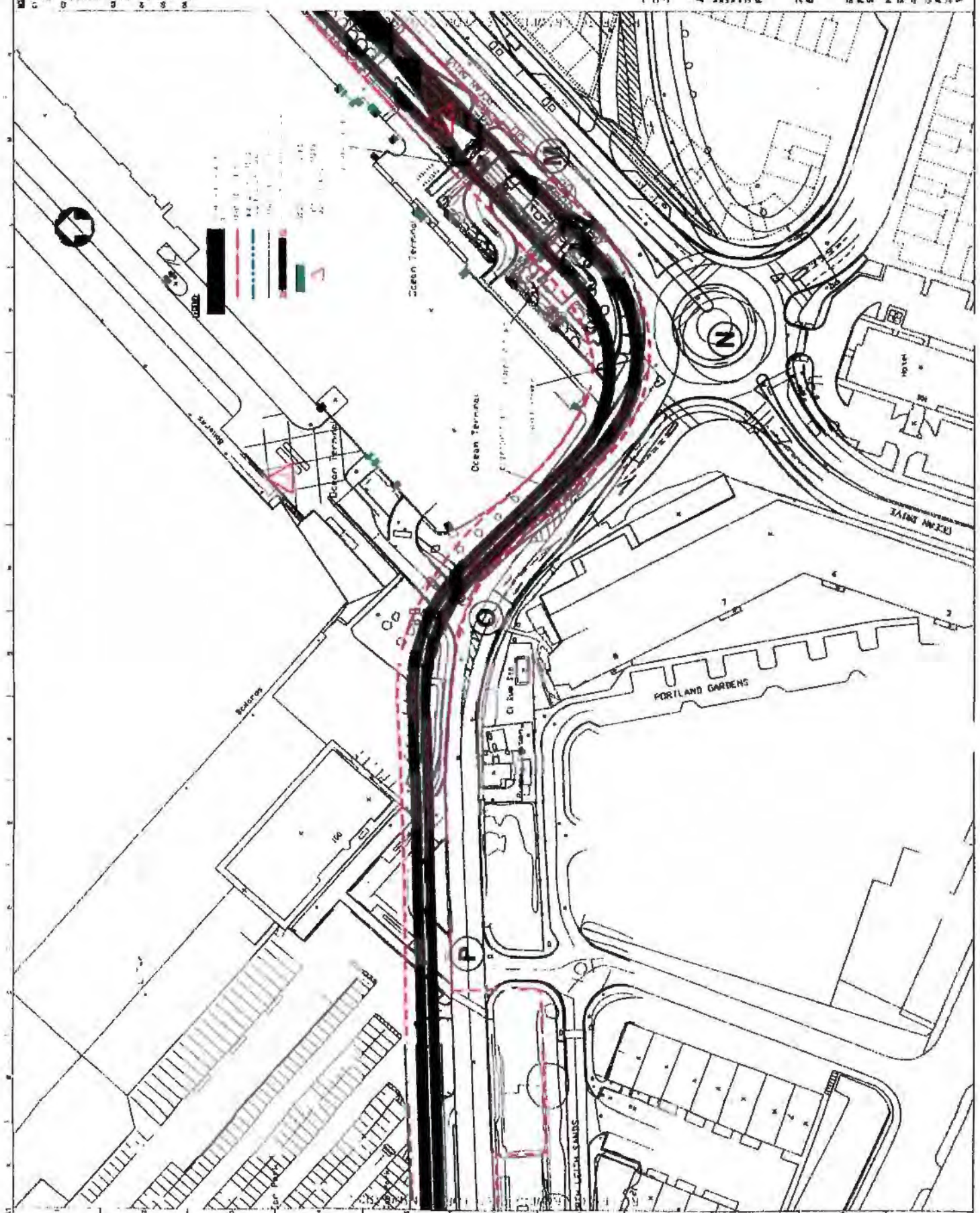
Electronics Team

Forth Ports / Edinburgh City Council
The Scottish Plan

405

11-11-11

1-800-4-A-DRUGS



2000-2001: 175,000; 2001-2002: 200,000

PART 4 THE TABLE

This schedule sets out the access and junction requirements associated with the development of land belonging to Ocean Terminal Limited. The Council as promoter of Edinburgh Tram Line One shall ensure that the design of Tram Line One will accommodate such access and junction requirements. This clause does not negate the need for appropriate consents. This schedule should be read in conjunction with the amended consultation drawings prepared by Arup for Ocean Terminal Limited in respect of the Tram, reference ***** which drawings are referred to in the Agreement between Ocean Terminal Limited and the City of Edinburgh Council. This schedule and the drawings referred to are annexed to and form part of such Agreement.

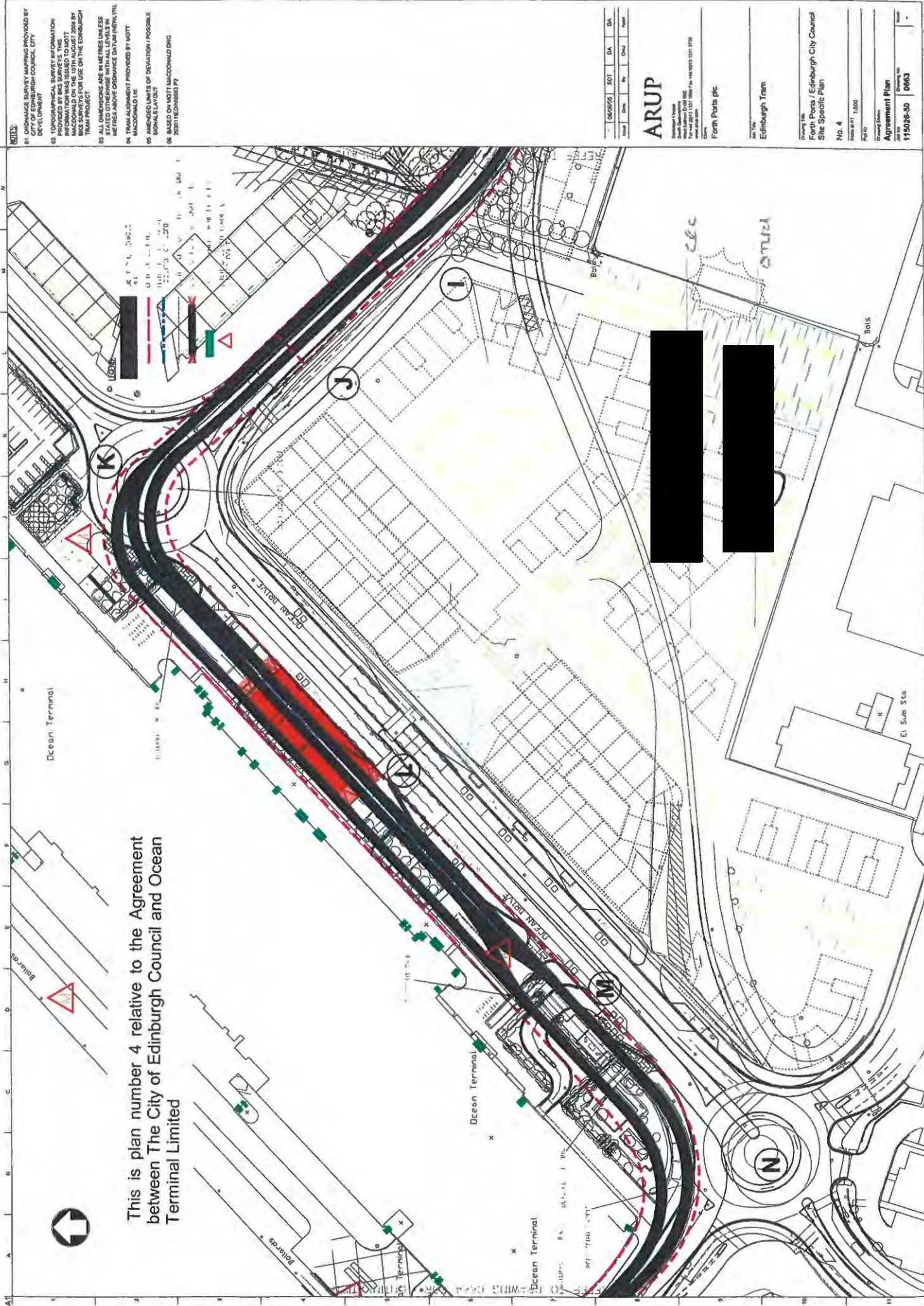
| | | |
|---|------|---|
| K | 0663 | Deletion of Works Nos 8A and 8B and modification of LOD for Work No 8. Non acquisition of land marked 69 on Sheet no 7. |
| L | 0663 | Pedestrian crossing facility outside Ocean Terminal Main Entrance. |
| M | 0663 | Installation of traffic signals on the car park entrance to advise of the approach of trams. |
| N | 0663 | Provision of traffic signal controlled junction on Ocean Drive in place of existing roundabout to the south east of Ocean Terminal. |
| O | 0664 | Maintain existing junction allowing all traffic movements and modification of LOD for Work No 8 |

Appendix 5

The Royal Yacht Britannia Trust

Part 1 (Site Specific Plans)

Part 2 (Table)



This is plan number 4 relative to the Agreement between The City of Edinburgh Council and Ocean Terminal Limited

- NOTES**
- 01 ORDNANCE SURVEY MAPS PROVIDED BY CITY OF EDINBURGH COUNCIL CITY OF EDINBURGH
 - 02 TOPOGRAHY SURVEY INFORMATION PROVIDED BY MOTT MACDONALD
 - 03 INFORMATION WAS ISSUED TO MOTT MACDONALD ON THE 10TH AUGUST 2008 BY MOTT MACDONALD FOR USE ON THE COMPANY TRAM PROJECT
 - 04 ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE WITH ALL LEVELS IN METRES ABOVE ORDNANCE DATUM (NEW 1950)
 - 05 AMENDED LIMITS OF DEVIATION / POSSIBLE SIGNALS LAYOUT
 - 06 BASED ON MOTT MACDONALD DRC 2001 TECHNICAL P2

ARUP

Edinburgh Office
 100 George Street
 Edinburgh, Scotland
 EH2 9BQ
 Tel: +44 (0)131 523 1271
 Fax: +44 (0)131 523 1272
 Email: arup@arup.com

Client:
 Forth Ports plc

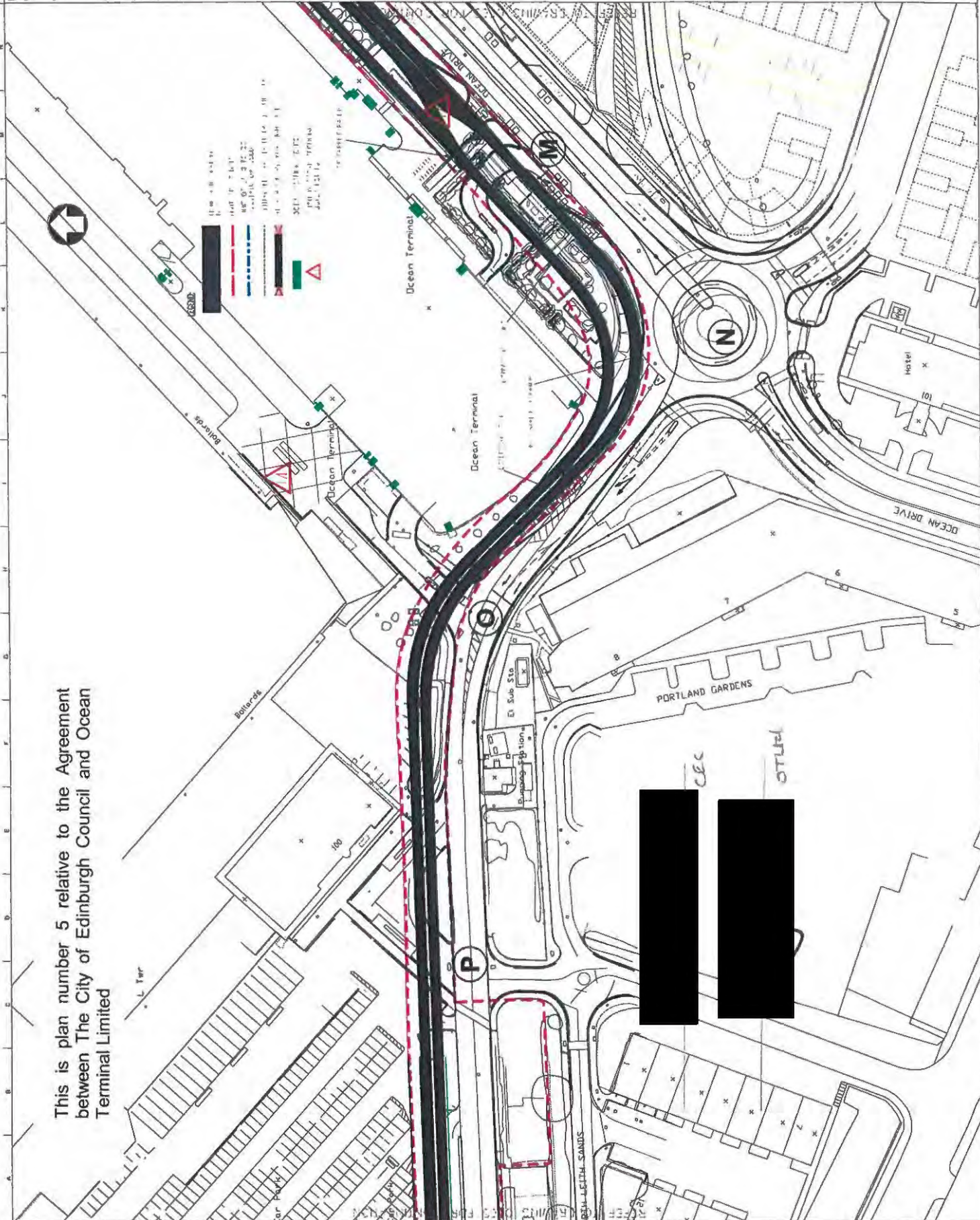
22/02/08
 Edinburgh Tram

Project No:
 Forth Ports / Edinburgh City Council
 Site Specific Plan

No. 4

Scale at A1: 1:500
 File No:
 Drawing Name:
 Agreement Plan
 Job No:
 Drawing No:
 115036-50 0063

This is plan number 5 relative to the Agreement between The City of Edinburgh Council and Ocean Terminal Limited



- NOTES:
01. ORIGINATE SURVEY MAPS PROVIDED BY THE CITY OF EDINBURGH COUNCIL, CITY DEVELOPMENT
 02. TOPOGRAPHICAL SURVEY INFORMATION PROVIDED BY BIG SURVEYS. THIS INFORMATION WAS ISSUED TO NOTT MACDONALD LIMITED BY THE CITY OF EDINBURGH COUNCIL BY BIG SURVEYS FOR USE ON THE COMBINATION TEAM PROJECT
 03. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE WITH ALL LEVELS IN METRES ABOVE ORIGIN DATUM (NEW 1984)
 04. TEAM ALIGNMENT PROVIDED BY NOTT MACDONALD LTD
 05. AMENDED LIMITS OF DEVIATION / POSSIBLE SIGNALS LAYOUT
 06. BASED ON NOTT MACDONALD DRG 200311EDH0004 P2

| DATE | DESCRIPTION | BY | CHECKED | DATE |
|------|-------------|----|---------|------|
| | | | | |

ARUP

Edinburgh Head Office
 100 George Street
 Edinburgh EH2 9BN
 Tel: +44 (0)131 521 9997 Fax: +44 (0)131 521 9729
 Email: arup@arup.com

Client: Forth Ports plc

Project: Edinburgh Tram

Site Specific Plan

No. 5

Scale: 1:200

Drawing Status: Agreement Plan

Drawn by: 115028-50

Checked by: 0664

Project No: 115028-50

Sheet No: 0664

© 2003 Arup Associates Ltd

THE TABLE

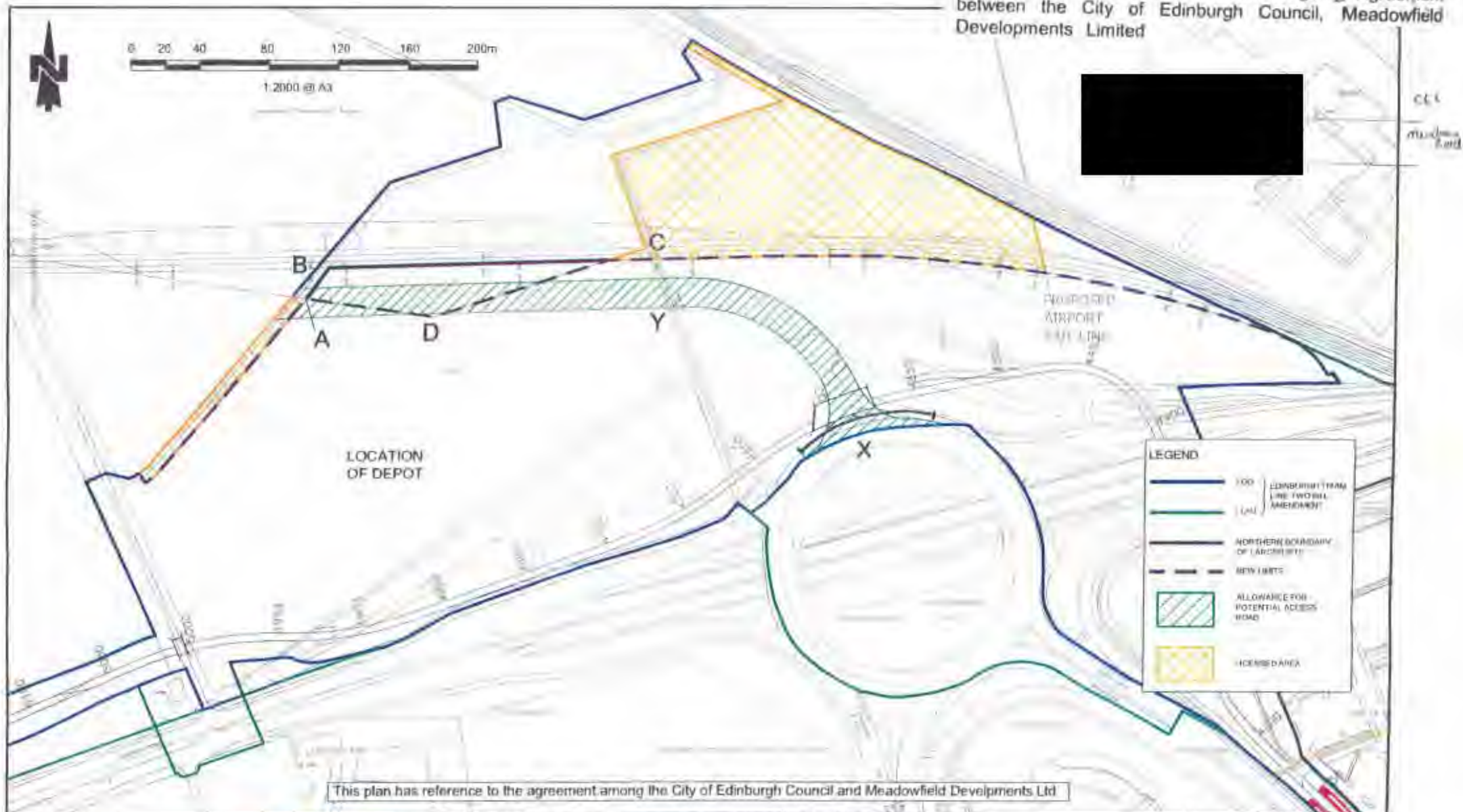
| | | |
|---|------|---|
| K | 0663 | Deletion of Works Nos 8A and 8B and modification of LOD for Work No 8. Non acquisition of land marked 69 on Sheet no 7. |
| L | 0663 | Pedestrian crossing facility outside Ocean Terminal Main Entrance. |
| M | 0663 | Installation of traffic signals on the car park entrance to advise of the approach of trams. |
| N | 0663 | Provision of traffic signal controlled junction on Ocean Drive in place of existing roundabout to the south east of Ocean Terminal. |
| O | 0664 | Maintain existing junction allowing all traffic movements and modification of LOD for Work No 8 |

Appendix 6

Meadowfield Developments Limited

Plan

This is the Plan referred to in the foregoing Agreement between the City of Edinburgh Council, Meadowfield Developments Limited



FABER MAUNSELL



transport
infrastructure
engineering
Voddy House
10 Haymarket East
Edinburgh
EH12 5SH
Tel: 0131 602 5300
Fax: 0131 633 6301
www.fabermaunsell.com

| | | | | | |
|---|--------------------------------------|-----|-----|-----|----------|
| K | NORTHERN BOUNDARY ADDED. NEW LETTERS | AIC | AS | AS | 20/11/05 |
| J | COLORS ADJUSTED, DEPOT NOTE ADDED | AIC | AS | AS | 24/11/05 |
| H | LICENSED AREA ADDED | PM | AIC | AS | 18/11/05 |
| G | ACCESS RD AND NEW LIMITS ADDED | PM | AIC | AS | 17/11/05 |
| F | LAYOUT FOR SIDE AGREEMENT | NSM | AIC | AS | 14/09/05 |
| E | REQUIRED LAND AREAS AMENDED | NSM | AIC | AS | 13/09/05 |
| D | LAND REQUIRED AREAS MODIFIED | AIC | AS | GRM | 31/08/05 |

| Rev | Description of revision | Drawn | Check | App | Date |
|-----|-------------------------|-------|-------|-----|------|
|-----|-------------------------|-------|-------|-----|------|

Drawn Title
EDINBURGH TRAM
LINE TWO
PLAN A

Drawing No. 30894 / C306

| | |
|----------|-------------|
| Designed | SJP |
| Drawn | AIC |
| Approved | GRM |
| Scale | 1:2000 @ A3 |

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|---------|-------|
| Revised | K |
| Status | DRAFT |

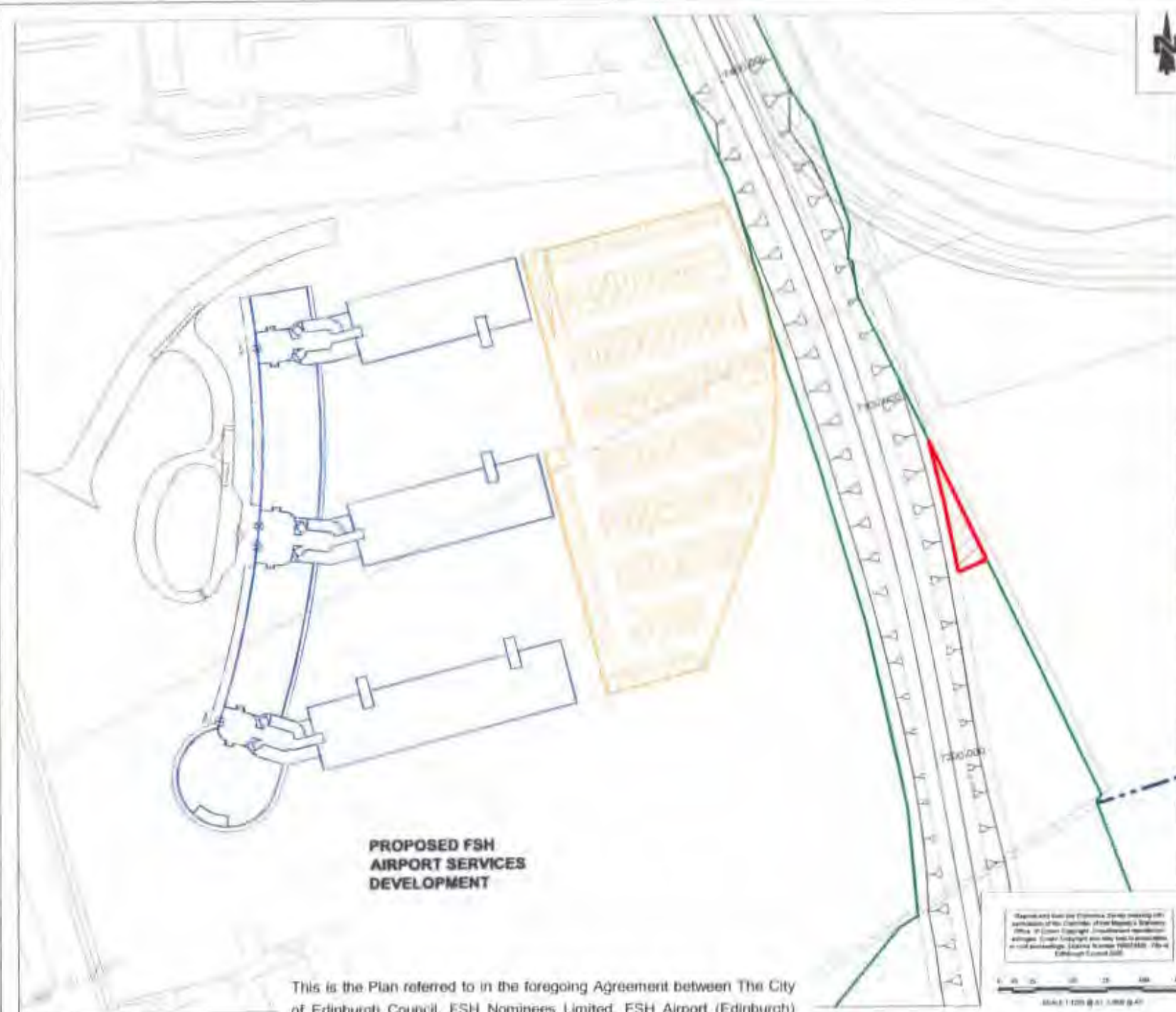
USB00000078_0036

Appendix 7

FSH Nominees Limited

Plan

30894 / C319

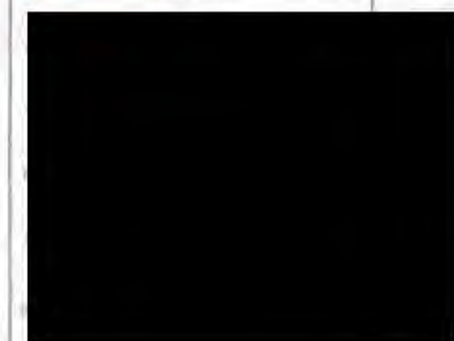


This is the Plan referred to in the foregoing Agreement between The City of Edinburgh Council, FSH Nominees Limited, FSH Airport (Edinburgh) Services Limited, Frogmore Developments Limited and Salmon Harvester Properties Limited



NOTES

- REVISED ALIGNMENT
- REVISED L.O.D.
- LAND
- TEMPORARY HOLDING DURING CONSTRUCTION, LAND NOT PERMANENTLY REQUIRED.



| | | | | | |
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| 1135 | 1136 | 1137 | 1138 | 1139 | 1140 |
| 1141 | 1142 | 1143 | 1144 | 1145 | 1146 |
| 1147 | 1148 | 1149 | 1150 | 1151 | |

Appendix 8
First Scotrail Limited

Plan



| | | |
|---|---------------|------------|
| EDINBURGH TRAM LINES 1 & 2 HAYMARKET DEPOT | Scale: 1:1250 | DEPOT PLAN |
|---|---------------|------------|

Appendix 9
Stakis Limited

Part 1 (Plan 1)

Part 2 (Plan 2)

Revision
G
Drawing No.
30894 / C283

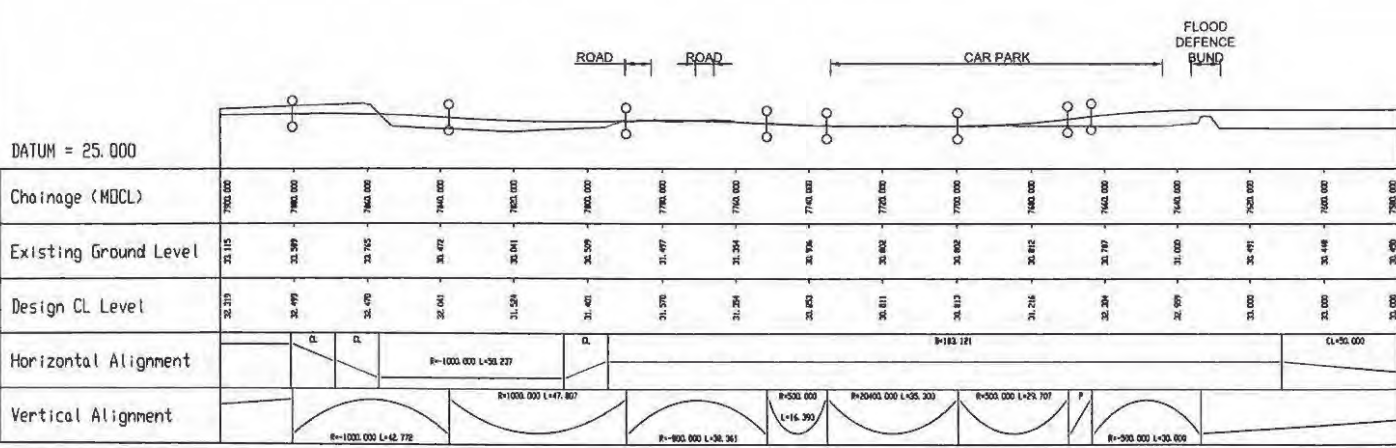


PLAN SCALE N.T.S.

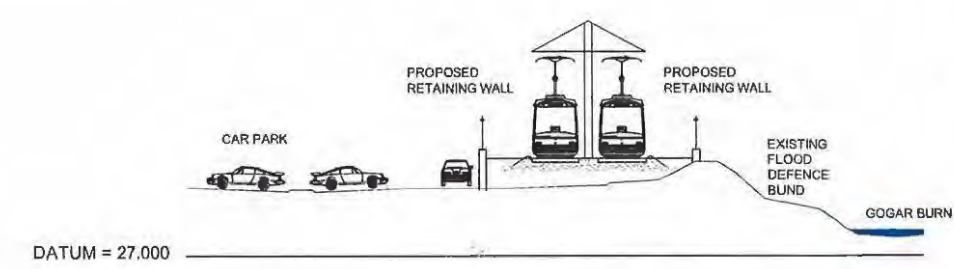
KEY:

- EXISTING SPACES LOST 35No.
- SPACES WHICH WILL BE TEMPORARILY LOST DURING CONSTRUCTION. 33No.
- NEW SPACES CREATED 35No.
- LAND REQUIRED FOR PERMANENT ACQUISITION (1930m² WITHIN THE STAKIS BOUNDARY)
- LAND REQUIRED FOR TEMPORARY ACQUISITION (1293m² WITHIN THE STAKIS BOUNDARY)
- LOD
- LLAU
- STAKIS HOTEL BOUNDARY

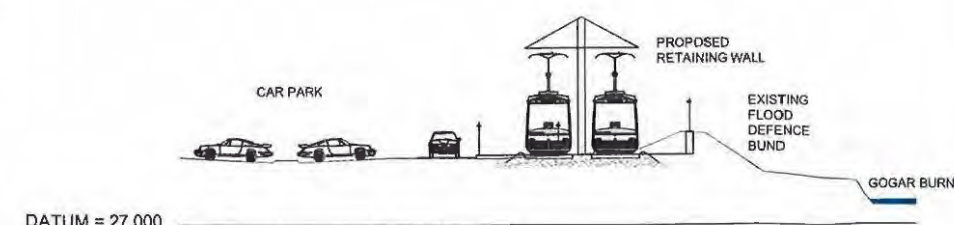
1. THIS ALIGNMENT IS A REFINEMENT OF THE PARLIAMENTARY ROUTE IN ORDER TO MINIMISE IMPACT ON THE CAR PARK. VERTICALLY IT IS BASED ON THE FSH OBJECTOR'S ALIGNMENT.



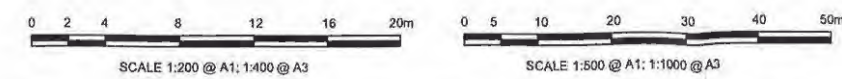
LONG SECTION - SCALE H = 1:1000, V = 1:500 @ A1



CROSS SECTION A-A SCALE 1:200 @ A1



CROSS SECTION B-B SCALE 1:200 @ A1



| Rev | Description of revision | Draw | Chkd | App | Date |
|-----|---|------|------|-----|----------|
| G | TEMP & EXISTING PARKING BAYS MERGED | NSM | AJC | AS | Sept '05 |
| F | LAND REQUIRED & PARKING BAYS WITHIN STAKIS BOUNDARY AMENDED | NSM | MKG | AS | Sept '05 |
| E | STAKIS BOUNDARY AMENDED | NSM | MKG | AS | Sept '05 |
| D | AREAS OF STAKIS HOTEL CAR PARK TO BE TAKEN UP BY TEMPORARY & PERMANENT ACQUISITION NOTED ON DRAWING | AA | MKG | AS | Aug '05 |
| C | AREAS OF TEMPORARY & PERMANENT ACQUISITION ADDED. LOD AMENDED. | AA | MKG | AS | Aug '05 |
| B | AREAS OF TEMPORARY & PERMANENT ACQUISITION ADDED. LOD ADDED. | AA | MKG | AS | Aug '05 |
| A | FIRST ISSUE | JB | AC | AS | June '05 |

Client



transport initiatives edinburgh

Project

EDINBURGH TRAM LINE TWO

Designed **TMF**

Drawn **SJP**

Checked **MKG**

Reviewed **AS**

FABER MAUNSELL AECOM

Dunedin House
25 Rutland Terrace
Edinburgh, EH4 3TP

T - 0131 311 4000
F - 0131 311 4090
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CAD filename: F:\30894\autocad\output\chvls\C282.dwg

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Title

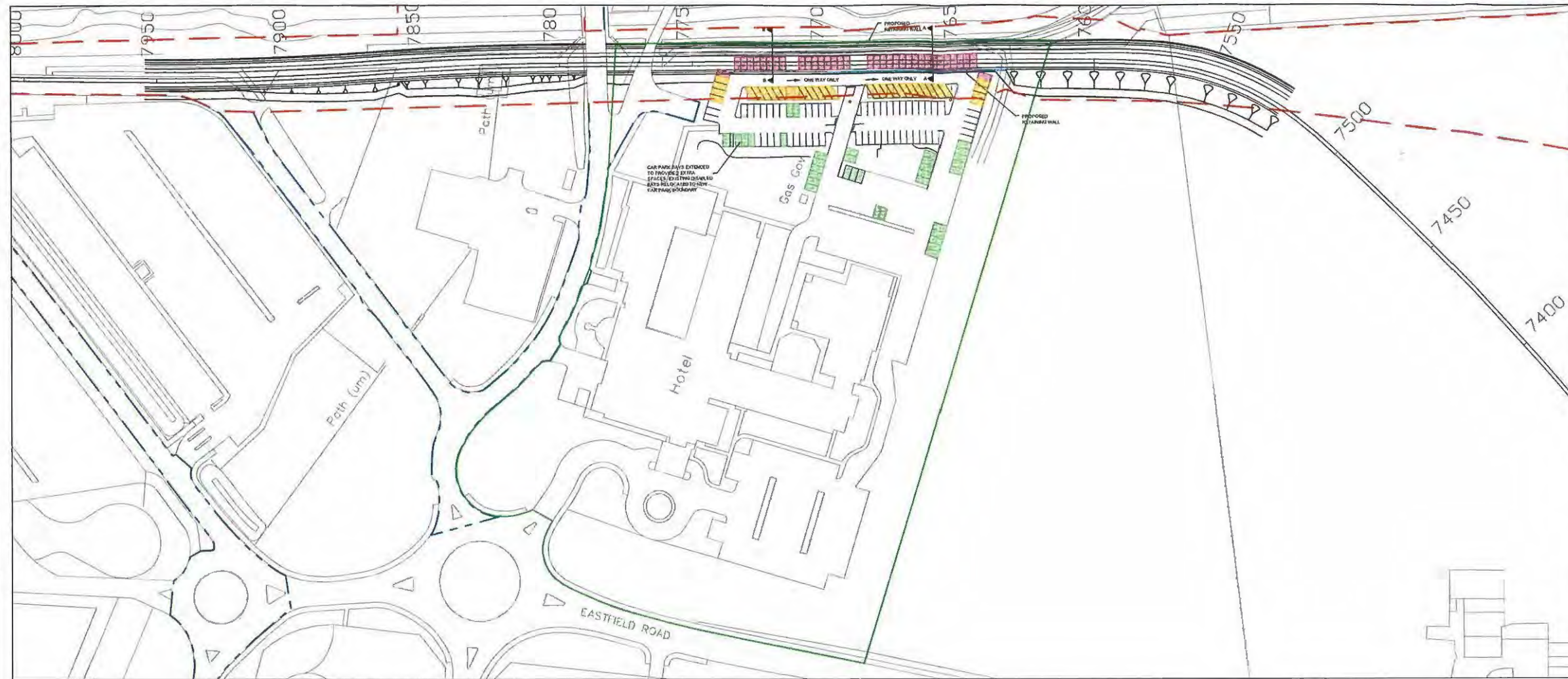
STAKIS HOTEL CAR PARK ALIGNMENT ALTERNATIVE RETAINING WALL OPTION

Size A1 Scale AS SHOWN Date 28.06.05

Status PRELIMINARY

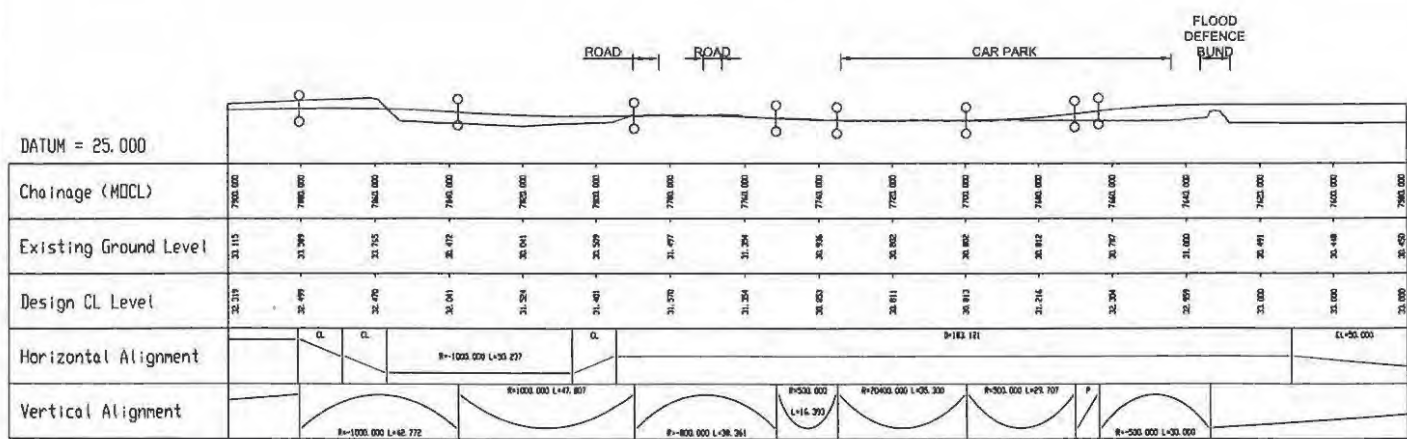
Drawing No. 30894 / C283 Revision

Revision
C
Drawing No.
30894 / C298

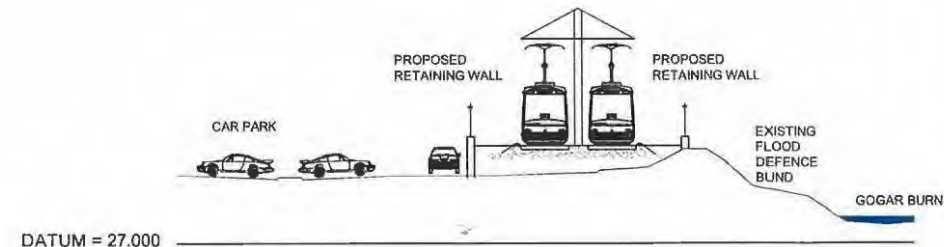


PLAN N.T.S.

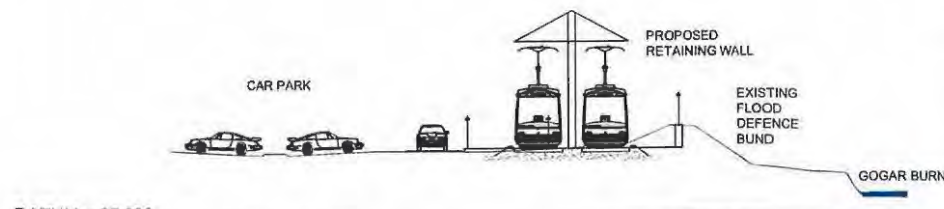
- KEY:
- EXISTING SPACES LOST PERMANENTLY 35No.
 - SPACES WHICH WILL BE TEMPORARILY LOST DURING CONSTRUCTION. 33No.
 - NEW SPACES CREATED 35No.
 - LOD
 - LLAU
 - STAKIS HOTEL BOUNDARY
1. THIS ALIGNMENT IS A REFINEMENT OF THE PARLIAMENTARY ROUTE IN ORDER TO MINIMISE IMPACT ON THE CAR PARK. VERTICALLY IT IS BASED ON THE FSH OBJECTOR'S ALIGNMENT.



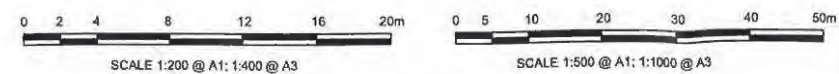
LONG SECTION - SCALE H = 1:1000, V = 1:500 @ A1



CROSS SECTION A-A SCALE 1:200 @ A1



CROSS SECTION B-B SCALE 1:200 @ A1



| Rev | Description of revision | Draw | Chkd | App | Date |
|-----|---|------|------|-----|----------|
| C | TEMPORARY & EXISTING SPACES MERGED | NSM | AS | AS | 13/09/05 |
| B | PARKING BAYS IN STAKIS BOUNDARY AMENDED | NSM | AS | AS | 13/09/05 |
| A | FIRST ISSUE | AIC | AS | AS | 12/09/05 |



Project
EDINBURGH TRAM
LINE TWO

| | | |
|----------|-----|--|
| Designed | TMF | FABER MAUNSELL AECOM Dunedin House 25 Ravelston Terrace Edinburgh, EH4 3TP T - 0131 311 4000 F - 0131 311 4000 www.fabermaunsell.com |
| Drawn | AIC | |
| Checked | AS | |
| Reviewed | AS | |

CAD filename: F:\30894\autocad\output\civils\C282.dwg

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Title
STAKIS HOTEL CAR PARK
ALIGNMENT ALTERNATIVE
RETAINING WALL OPTION - PARKING

Size A1 Scale AS SHOWN Date 12.09.05

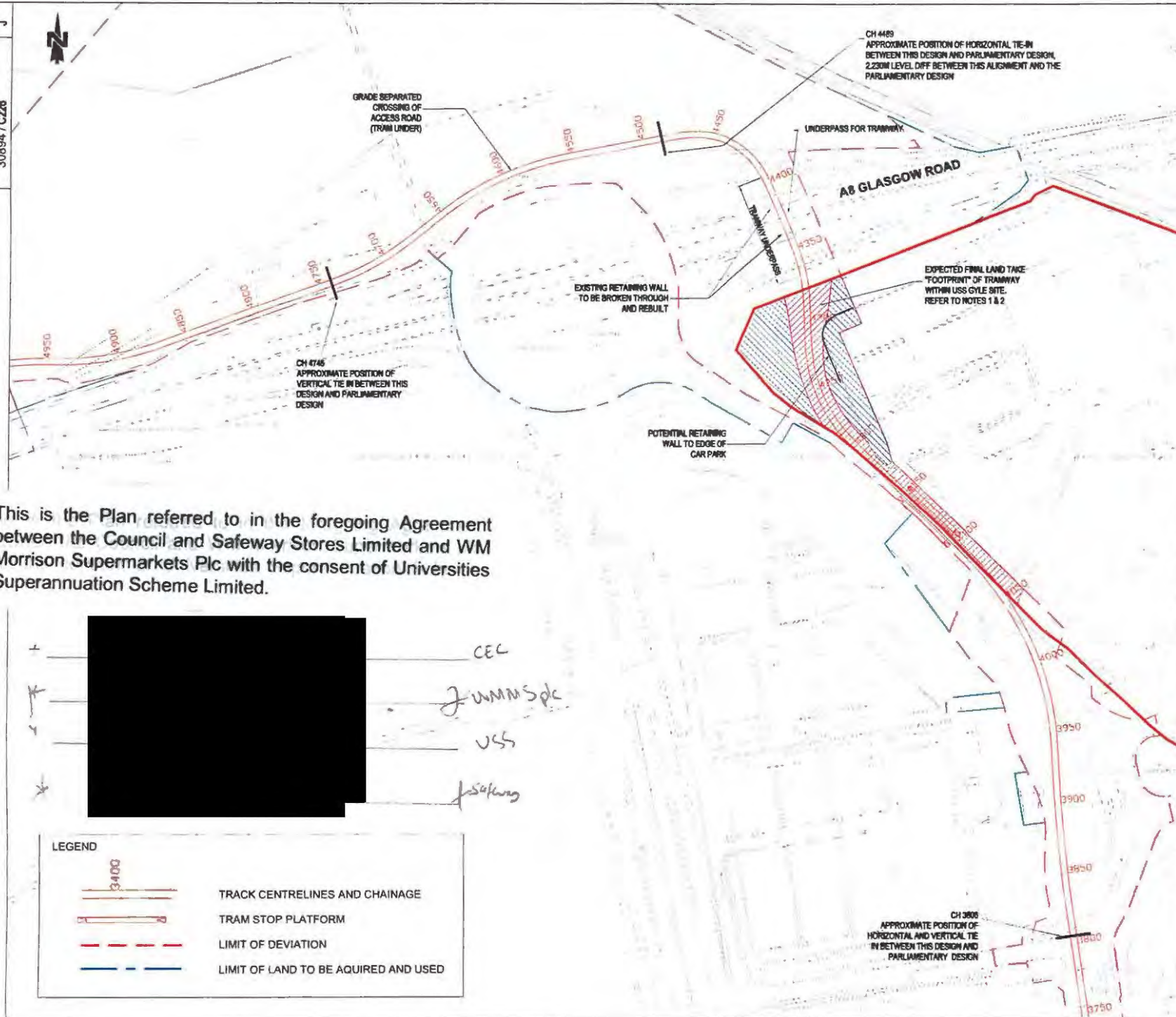
Status PRELIMINARY

Drawing No. 30894 / C298 Revision

Appendix 10

Universities Superannuation Scheme Limited

Plan



This is the Plan referred to in the foregoing Agreement between the Council and Safeway Stores Limited and WM Morrison Supermarkets Plc with the consent of Universities Superannuation Scheme Limited.

CEC
Jumms plc
USS
Safeway



- NOTES:**
1. THE EXPECTED FINAL LAND TAKE "FOOTPRINT" WILL PROVIDE FOR A BASIC CORRIDOR OF 10m WIDTH WITH ADDITIONAL WIDTH FOR CUT AND EMBANKMENT SLOPES WHERE THESE ARE REQUIRED.
 2. NOTWITHSTANDING NOTE 1 ABOVE, THE ACTUAL ALIGNMENT OF THE TRAMWAY IS SUBJECT TO ALTERATION WITHIN THE LOD, HOWEVER SUCH ALTERATION WOULD BE MINIMISED AND UNDERTAKEN IN KEEPING WITH THE UNDERSTANDING THAT THE FINAL SCHEME WILL BE SYMPATHETIC TO THE NEEDS OF USS AND THEIR TENANTS.

- LEGEND:**
- POSSIBLE EXTENT OF LAND REQUIRED PERMANENTLY
 - POSSIBLE EXTENT OF LAND REQUIRED DURING CONSTRUCTION
 - THE GYLE BOUNDARY

| Rev | Description of revision | Drawn | Checkd | App | Date |
|-----|--|-------|--------|-----|----------|
| J | THE GYLE BOUNDARY ADDED | PMH | AMS | AMS | 08/05/05 |
| H | LAND TAKE FOOTPRINT ADDED, DEPOT REMOVED | AMS | AMS | AMS | 08/05/05 |
| G | DETAIL CORRECTIONS TO LOD LIAI | SJP | AMS | AMS | 08/05/05 |
| F | LOD & LIAI MODIFIED | PMH | AMS | AMS | 08/05/05 |
| E | LOD MODIFIED | PMH | AMS | AMS | 08/05/05 |
| D | ANNOTATION CHANGED | JMS | AMS | AMS | 08/05/05 |
| C | DEPOT LAYOUT ADDED & LOD REVISED, FIGURE REF CHANGED TO 3.4, OPTION REF CHANGED TO 3 | PMH | AMS | AMS | 08/05/05 |
| B | VERTICAL TIE IN POSITION MOVED TO CHAINAGE 4745 | SJP | AMS | AMS | 08/05/05 |
| A | FIRST ISSUE | SJP | AMS | AMS | 08/05/05 |



Project
EDINBURGH TRAM
LINE TWO

| | | |
|----------|-----|---|
| Designed | THW | FABER MAUNSELL <small>Edinburgh Office</small> 25 Parliament Square Edinburgh, EH1 1ST T: 0131 241 4888 F: 0131 241 4889 www.fabermaunsell.com |
| Drawn | MT | |
| Checked | SJP | |
| Reviewed | GM | |

CAD filename:

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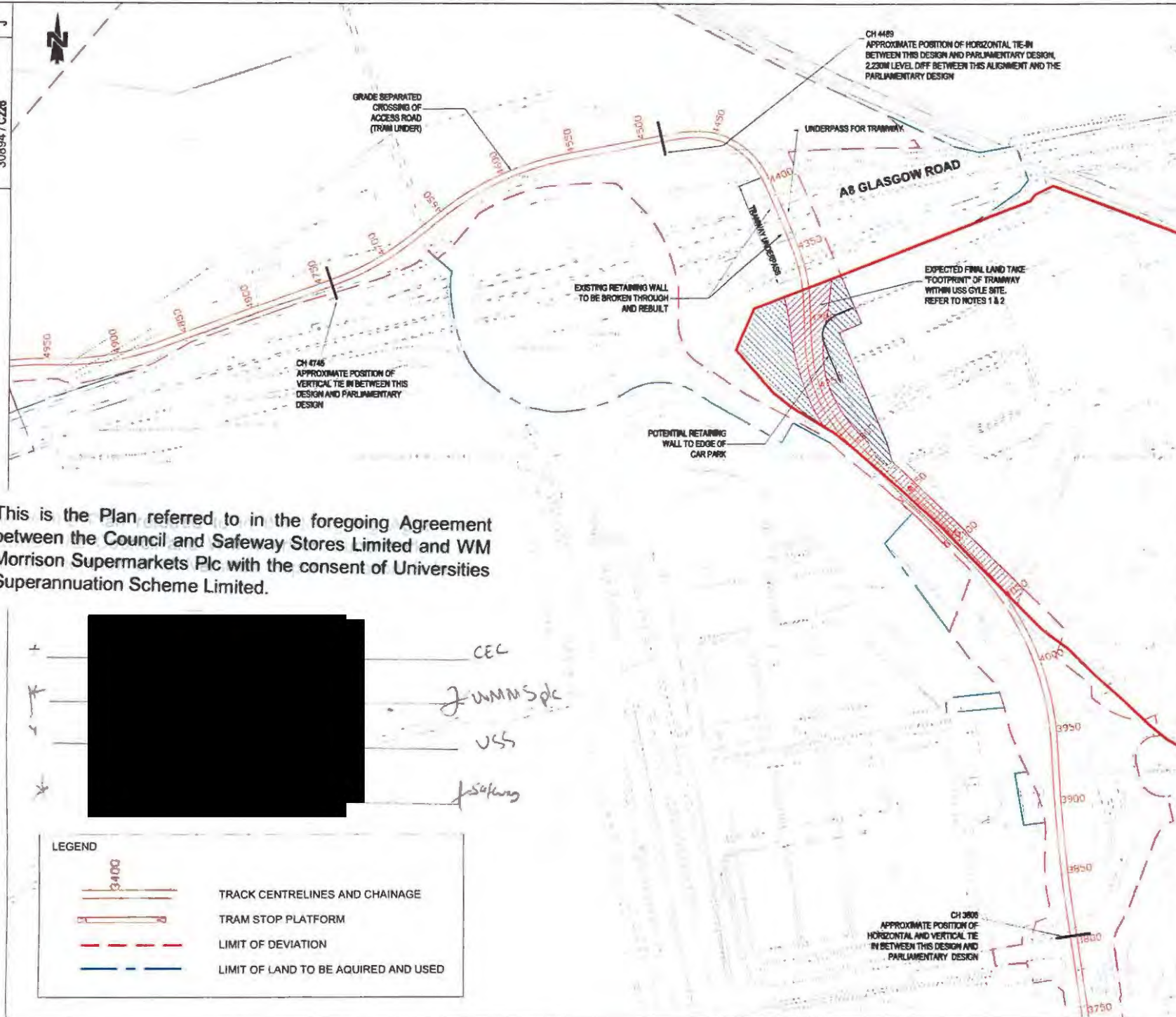
Title
FIGURE 3.4
OPTION 3

| | | | | | |
|-------------|--------------|-------|-------------|------|----------|
| Size | A1 | Scale | 1:1250 @ A1 | Date | 08/05/05 |
| Status | DRAFT | | | | |
| Drawing No. | 30894 / C228 | | | | Revision |

Appendix 11

Safeway Stores Limited and WM Morrisons Supermarket plc

Plan



This is the Plan referred to in the foregoing Agreement between the Council and Safeway Stores Limited and WM Morrison Supermarkets Plc with the consent of Universities Superannuation Scheme Limited.



CEC
Jumms plc
USS
Safeway




NOTES:

- THE EXPECTED FINAL LAND TAKE "FOOTPRINT" WILL PROVIDE FOR A BASIC CORRIDOR OF 10m WIDTH WITH ADDITIONAL WIDTH FOR CUT AND EMBANKMENT SLOPES WHERE THESE ARE REQUIRED.
- NOTWITHSTANDING NOTE 1 ABOVE, THE ACTUAL ALIGNMENT OF THE TRAMWAY IS SUBJECT TO ALTERATION WITHIN THE LOD, HOWEVER SUCH ALTERATION WOULD BE MINIMISED AND UNDERTAKEN IN KEEPING WITH THE UNDERSTANDING THAT THE FINAL SCHEME WILL BE SYMPATHETIC TO THE NEEDS OF USS AND THEIR TENANTS.

LEGEND:

- POSSIBLE EXTENT OF LAND REQUIRED PERMANENTLY
- POSSIBLE EXTENT OF LAND REQUIRED DURING CONSTRUCTION
- THE GYLE BOUNDARY

| Rev | Description of revision | Drawn | Chkd | App | Date |
|-----|--|-------|------|-----|----------|
| J | THE GYLE BOUNDARY ADDED | PM | AS | AS | 08/05/05 |
| H | LAND TAKE FOOTPRINT ADDED, DEPOT REMOVED | AS | AS | AS | 08/05/05 |
| G | DETAIL CORRECTIONS TO LOD LIAI | SJP | AS | AS | 08/05/05 |
| F | LOD & LIAI MODIFIED | AS | AS | AS | 08/05/05 |
| E | LOD MODIFIED | PM | AS | AS | 08/05/05 |
| D | ANNOTATION CHANGED | JMS | AS | AS | 08/05/05 |
| C | DEPOT LAYOUT ADDED & LOD REVISED, FIGURE REF CHANGED TO 3.4, OPTION REF CHANGED TO 3 | PM | AS | AS | 08/05/05 |
| B | VERTICAL TIE IN POSITION MOVED TO CHAINAGE 4745 | SJP | AS | AS | 08/05/05 |
| A | FIRST ISSUE | SJP | AS | AS | 08/05/05 |

Client:  transport initiatives edinburgh

Project: **EDINBURGH TRAM LINE TWO**

| | |
|---------------|--|
| Designed: THW | FABER MAUNSELL <small>Edinburgh Office: T: 0131 291 4880 25 Reid Street, Edinburgh, EH1 1JF P: 0131 291 4880 www.fabermaunsell.com</small> |
| Drawn: MT | |
| Checked: SJP | |
| Reviewed: GJM | |

CAD filename:

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Title: **FIGURE 3.4 OPTION 3**

Size: A1 Scale: 1:1250 @ A1 Date: 08/05/05

Status: **DRAFT**

Drawing No. 30894 / C228

Revision:

Appendix 12

New Ingliston Limited and Highland Properties (Scotland) Limited

Part 1 (Plan 1)

Part 2 (Plan 2)

Part 3 (Plan 3)

This is Plan 1 referred to in the foregoing Agreement among The City of Edinburgh Council, New Ingliston Limited and Highland Properties (Scotland) Limited.



NOTES:
1. THIS IS THE DRAWING RELATING TO THE
ADDENDUM NO. 122, 123 AND 124
LTD AND HIGH AND LOWLANDS (SCOTLAND)
LTD.

Legend:
— single line
— double line
— railway line
— private road



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|



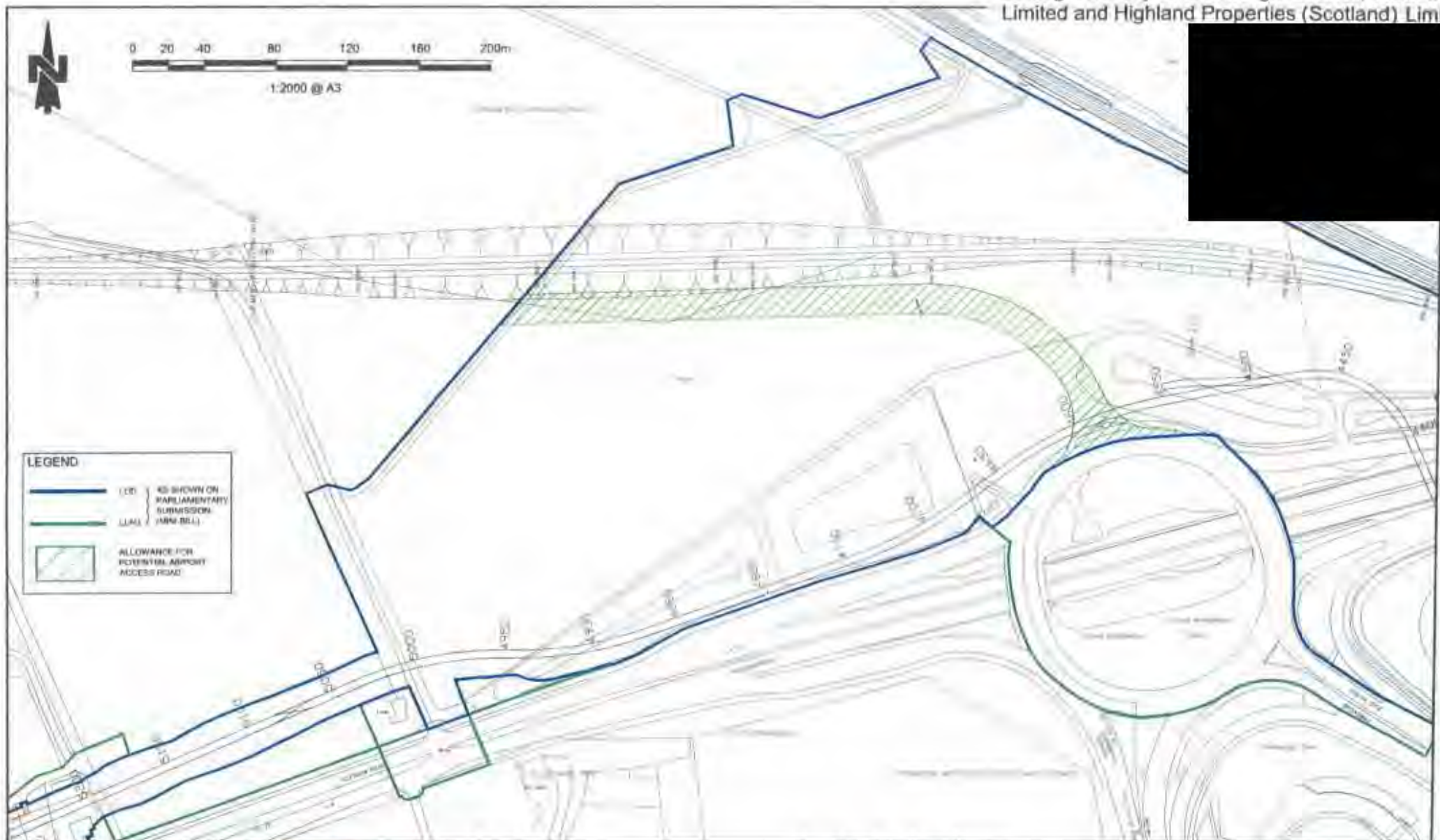
EDINBURGH TRAM
LINE TWO

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|

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|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|



This is Plan 2 referred to in the foregoing Agreement among The City of Edinburgh Council, New Ingliston Limited and Highland Properties (Scotland) Limited.



| | | | | | | | | |
|---|---|---------------------------------------|-----|--|-------|-----------------------|--|--------|
| FABER MAUNSELL Dundee House 25 Rensington Terrace Edinburgh, EH10 5ET T - 0131 311 4000 F - 0131 311 4000 www.fabermaunsell.com |  | | | Drawing Title EDINBURGH TRAM LINE TWO PLAN 2 | | | Designed SJP Drawn AIC Approved GRM Scale 1 : 2000 @ A3 | |
| | E | DRAWING RENAMED | AIC | AS | GM | 04/1/05 | Drawing No 30894 / C305 | |
| | D | LAYOUT FOR SITE AGREEMENT | NSM | AIC | AS | 13/0/05 | | |
| | C | OPTION RENAMED & SERVICES MODIFIED | NSM | REM | GRM | 16/0/05 | | |
| | B | REVISED LAYOUT | NSM | REM | GRM | 17/0/05 | | |
| Copyright © 2005 All rights reserved. The information contained herein is confidential and its use is restricted to the project for which it was prepared. | A | FIRST ISSUE | AIC | REM | GRM | 03/0/05 | | |
| | Rev | (This space is reserved for revision) | | | Drawn | C140 | App | Date |
| | | | | | | | Revision | Status |
| | | | | | | E DRAFT | | |

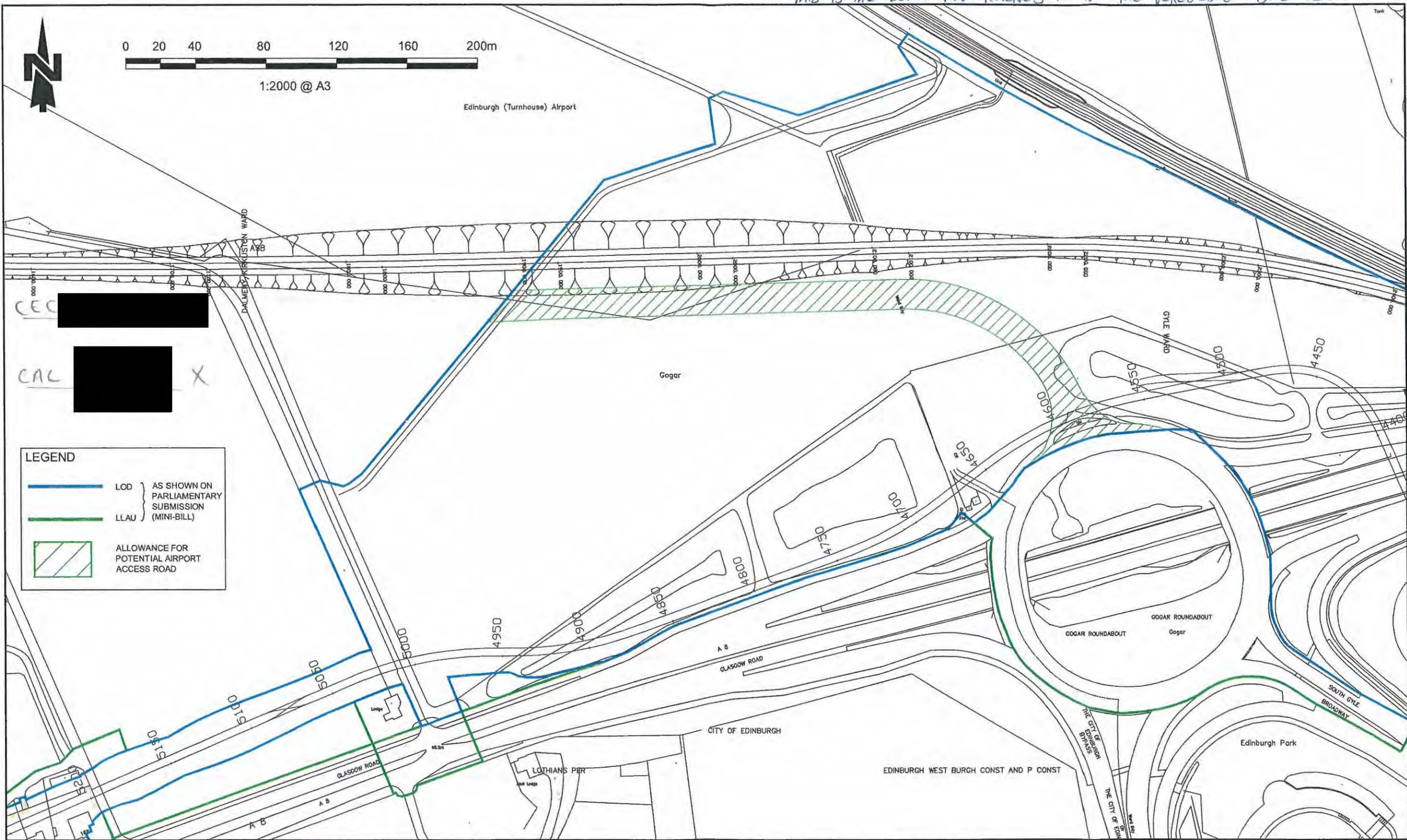
Appendix 13


Edinburgh Airport Limited

Part 1 (Plan)

Part 2 (Depot Plan)

THIS IS THE DEPOT PLAN REFERRED TO IN THE FOREGOING DOCUMENT



| | | | | | | | | | |
|---|-------------------------|-------|------------------------------------|-----|------|--------------------------|---|--------------|---------------------|
| <div>FABER MAUNSELL</div> <div><div><div>Dunedin House 25 Ravelston Terrace Edinburgh, EH10 5BT</div><div>T - 0131 311 4000 F - 0131 311 4090 www.fabermaunsell.com</div></div><div><div><div>transport initiatives edinburgh</div><div>Verity House 19 Haymarket Yards Edinburgh EH12 5BH Tel 0131 622 8300 Fax 0131 633 8301</div></div></div></div> | | | | | | | Drawing Title EDINBURGH TRAM LINE TWO DEPOT LAYOUT OPTION B GENERAL ARRANGEMENT | Designed SJP | |
| | | D | LAYOUT FOR SITE AGREEMENT | NSM | AIC | AS | | 13/09/05 | Drawn AIC |
| | | C | OPTION RENAMED & SERVICES MODIFIED | NSM | REM | GRM | | 18/08/05 | Approved GRM |
| | | B | REVISED LAYOUT | NSM | REM | GRM | | 17/08/05 | Scale 1 : 2000 @ A3 |
| | | A | FIRST ISSUE | AIC | REM | GRM | | 03/08/05 | |
| Rev | Description of revision | Drawn | Chkd | App | Date | Drawing No. 30894 / C305 | Revision D | Status DRAFT | |

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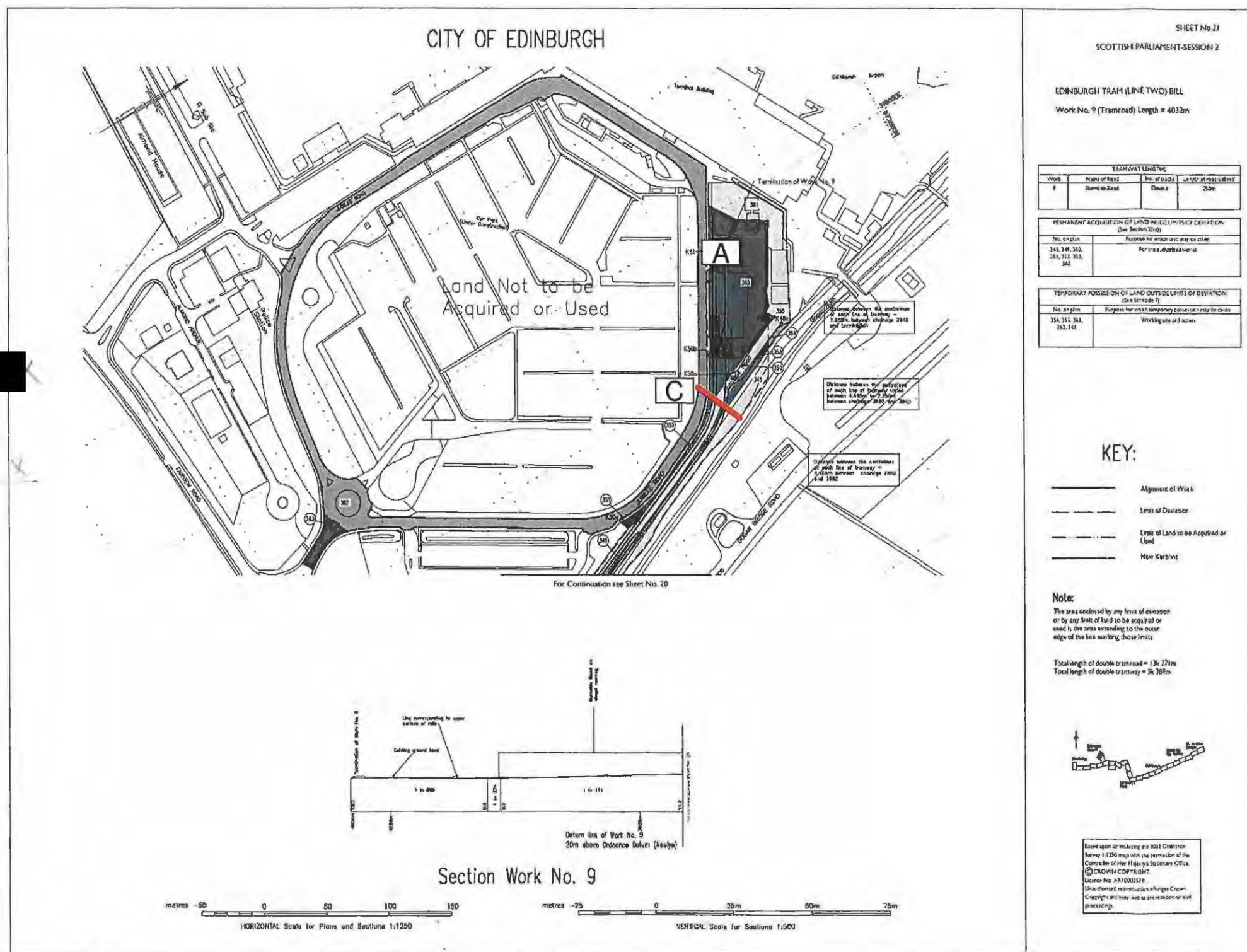
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THIS IS THE PLAN REFERRED TO IN THE FOREGOING AGREEMENT

CEC

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Edinburgh
EH12 5BH
Tel 0131 622 8300
Fax 0131 633 8301

| | | | | | |
|-----|-------------------------|-------|------|-----|----------|
| A | FIRST ISSUE | NSM | AIC | AS | 13/09/05 |
| Rev | Description of revision | Drawn | Chkd | App | Date |

Drawing Title
EDINBURGH TRAM
LINE TWO
EDINBURGH AIRPORT
POTENTIAL TRAM
STOP LOCATIONS

Drawing No.
30894 / C316

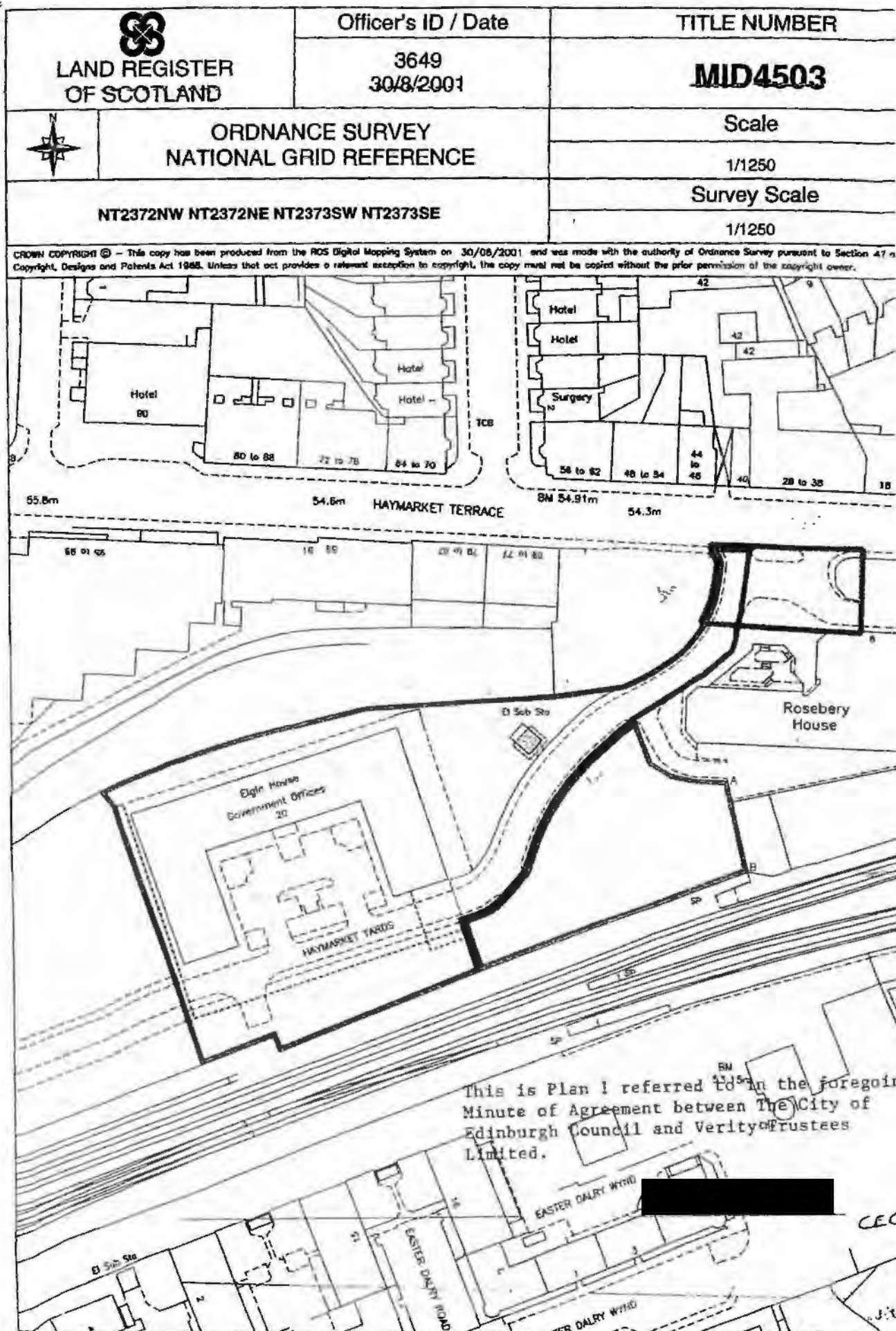
| | |
|----------|--------------|
| Designed | REM |
| Drawn | NSM |
| Approved | AS |
| Scale | NOT TO SCALE |
| Revision | A |
| Status | DRAFT |

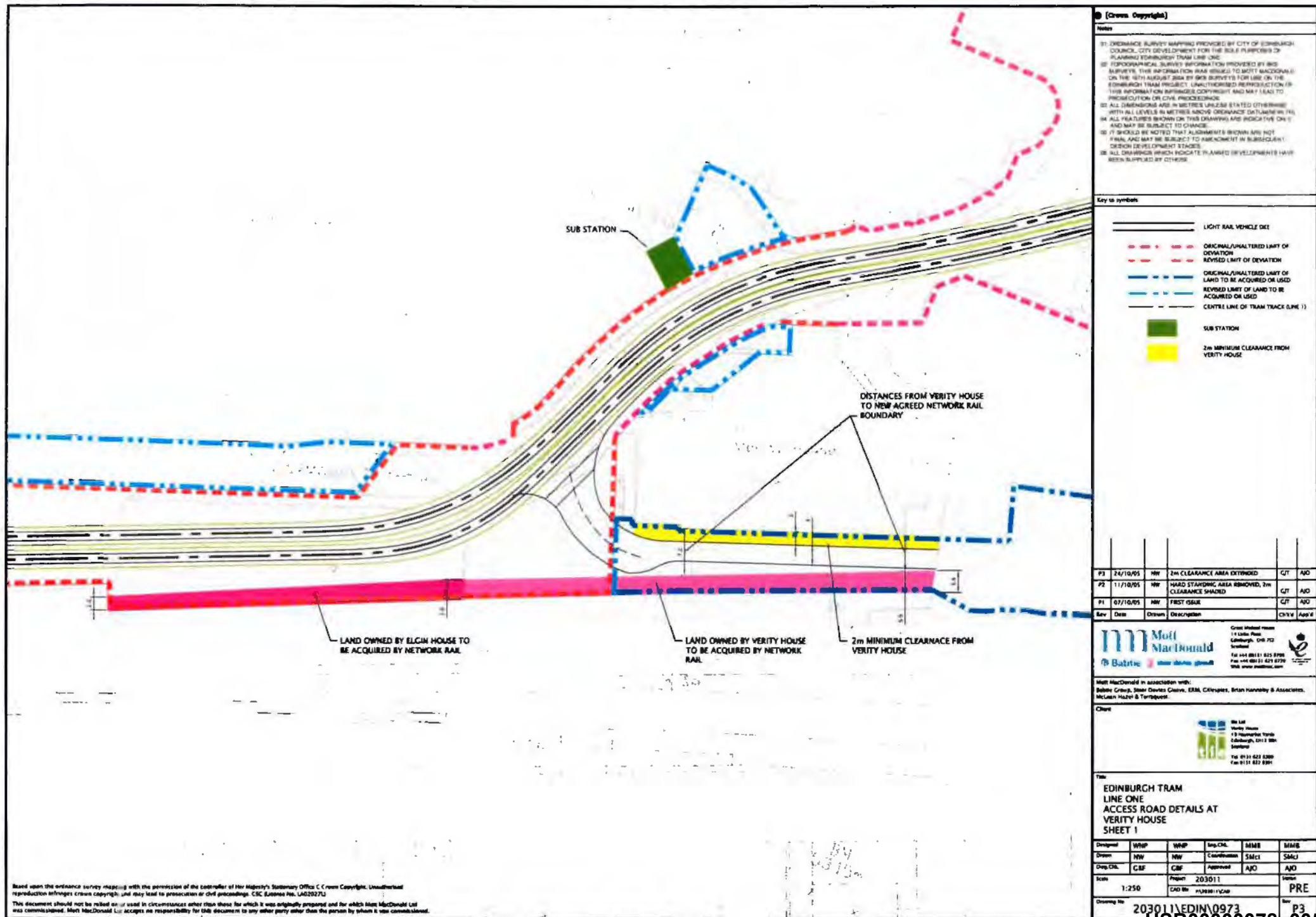
Appendix 14

Verity Trustees Limited

Part 1 (Plan 1)

Part 2 (Plan 3)





Appendix 15
ADM Milling Limited

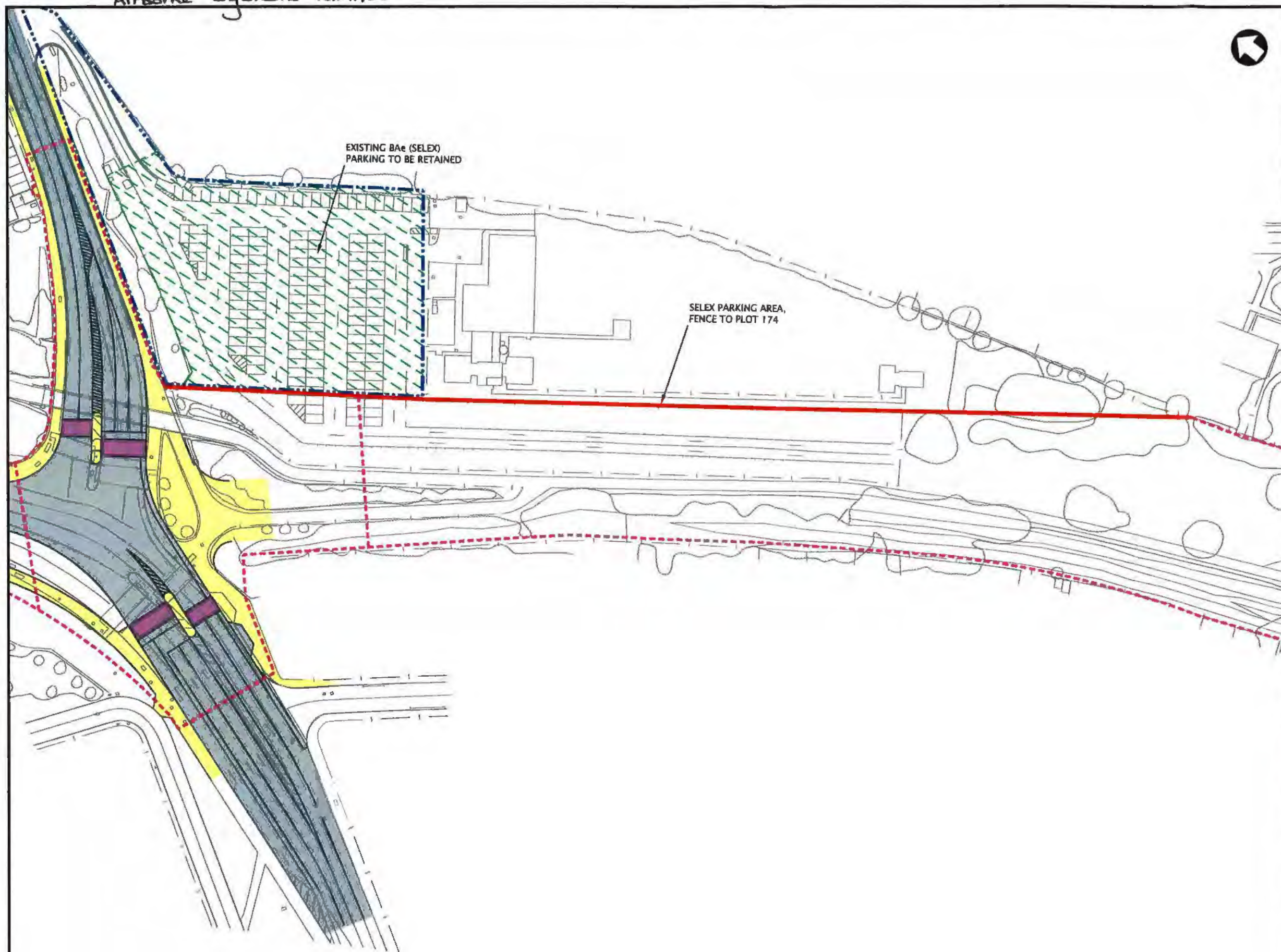
Plan

Appendix 16

Selex Sensors and Airborne Systems Limited

Plan

This is the Plan referred to in the paraing Minute of Agreement between the City of Edinburgh Council and Selex Sensors and Airborne Systems Limited



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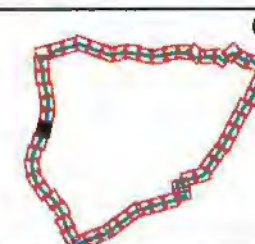
Notes:

01. ORDNANCE SURVEY MAPPING PROVIDED BY CITY OF EDINBURGH COUNCIL, CITY DEVELOPMENT FOR THE SOLE PURPOSES OF PLANNING EDINBURGH TRAM LINE ONE.
02. ALL FEATURES SHOWN ON THIS DRAWING ARE INDICATIVE ONLY AND MAY BE SUBJECT TO CHANGE.
03. IT SHOULD BE NOTED THAT ALIGNMENTS SHOWN ARE NOT FINAL AND MAY BE SUBJECT TO AMENDMENT IN SUBSEQUENT DESIGN DEVELOPMENT STAGES.
04. SHADING IS INDICATIVE AND DOES NOT REPRESENT FINAL SURFACE COLOURING.
05. DRG. SCALE IS 1:500 AT A1 APPROX. 1:1000 AT A3 REDUCTION.
06. STOP LOCATIONS MAY VARY.
07. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH 203011/EDIN/0963, 0964, 0966 AND 0967.
08. ADJACENT TO THE TRAMWAY THE BOUNDARY IS SHOWN TO ACCOUNT FOR THE ELECTRICAL HAZARD ZONE OF 2m FROM THE NEAREST RAIL. AN ADDITIONAL DISTANCE SHOULD BE ALLOWED FOR DURING CONSTRUCTION AND BUILDING MAINTENANCE. AN ADDITIONAL ALLOWANCE OF 3m IS SUGGESTED. TOTAL DEVELOPABLE AREA = APPROX. 1 Ha.

Key to symbols

- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
- BAe CARPARK FENCELINE

Key Plan



| | | | | | |
|------|----------|-------|--------------------|-------|-------|
| P2 | 23/11/05 | MW | FENCELINE EXTENDED | GJT | GJT |
| P1 | 10/11/05 | NW | FIRST ISSUE | GJT | AJO |
| Rev. | Date | Drawn | Description | CHK'd | App'd |

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Babtie steer davis gleave

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Edinburgh, EH6 7EZ
Scotland
Tel +44 (0)131 625 8700
Fax +44 (0)131 625 8720
Web www.mottmac.com

Mott MacDonald in association with:
Babtie Group, Steer Davies Gleave, ERM, Gillespies, Brian Hannaby & Associates, McLean Hazel & Terraquest.

Client

tie Ltd
Verity House
19 Haymarket Yards
Edinburgh, EH12 5BH
Scotland
Tel 0131 622 8300
Fax 0131 622 8301

Title

**EDINBURGH TRAM
LINE ONE
SELEX BOUNDARY FENCE TO PLOT 174**

| | | | | | |
|------------|------------------|----------|---------------|------|------|
| Designed | WNP | WNP | Eng. Cbk. | GJT | GJT |
| Drawn | NW | NW | Coordination | SCM | SMCI |
| Eng. Chk. | GJT | GJT | Approved | AJO | AJO |
| Scale | 1:500 | Project | 203011 | Subs | PRE |
| Drawing No | 203011\EDIN\1004 | CAD file | P:\203011\CAD | Rev | P2 |

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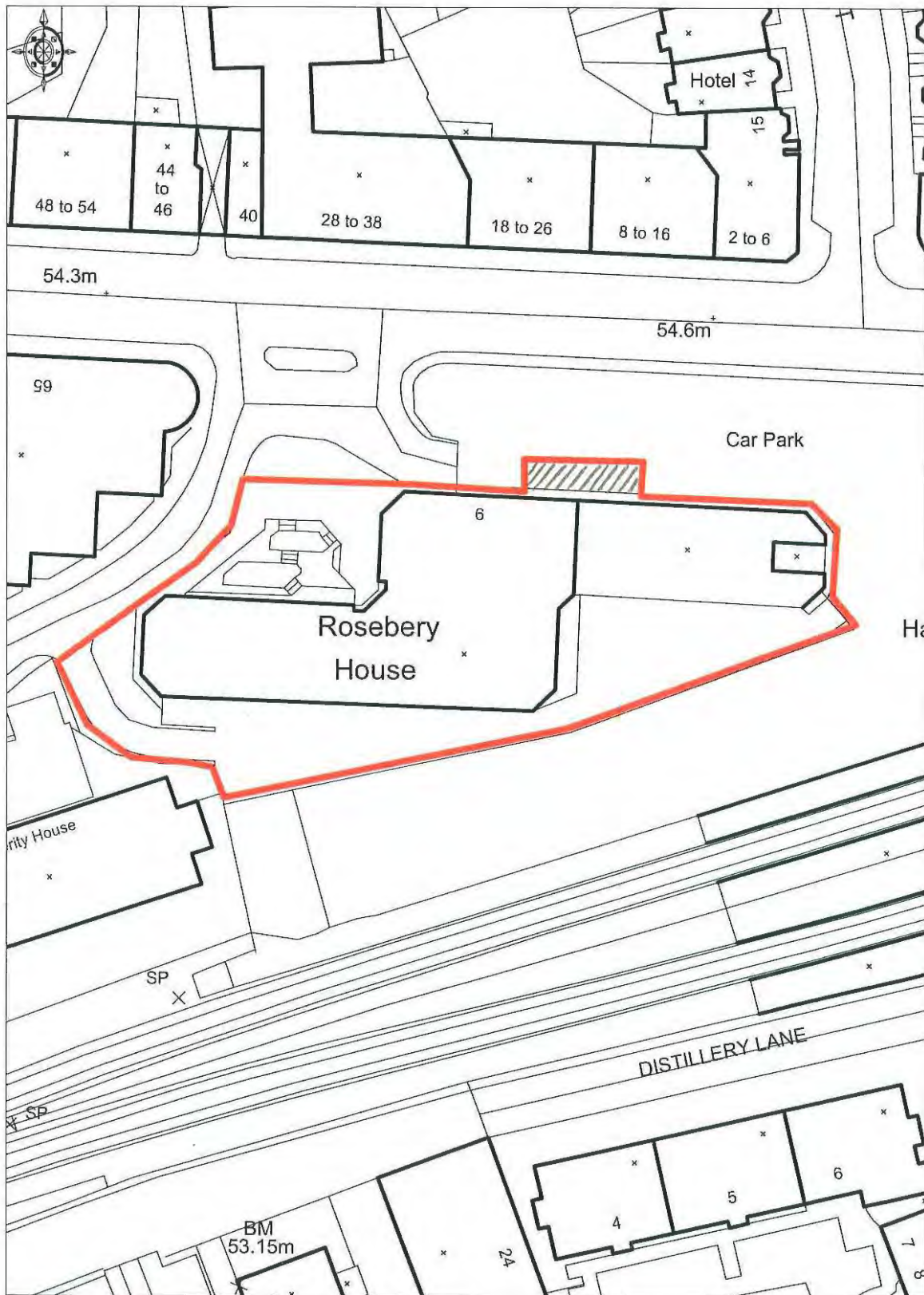
USB00000078_0061

Appendix 17

Norwich Union Life and Pensions Limited

Plan

Norwich Union Life and Pensions Ltd.
Rosebery House
Haymarket Terrace Edinburgh EH12 5YA



Ordnance Survey

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For guidance only. Full extent of curtilage to be verified by reference to deeds.

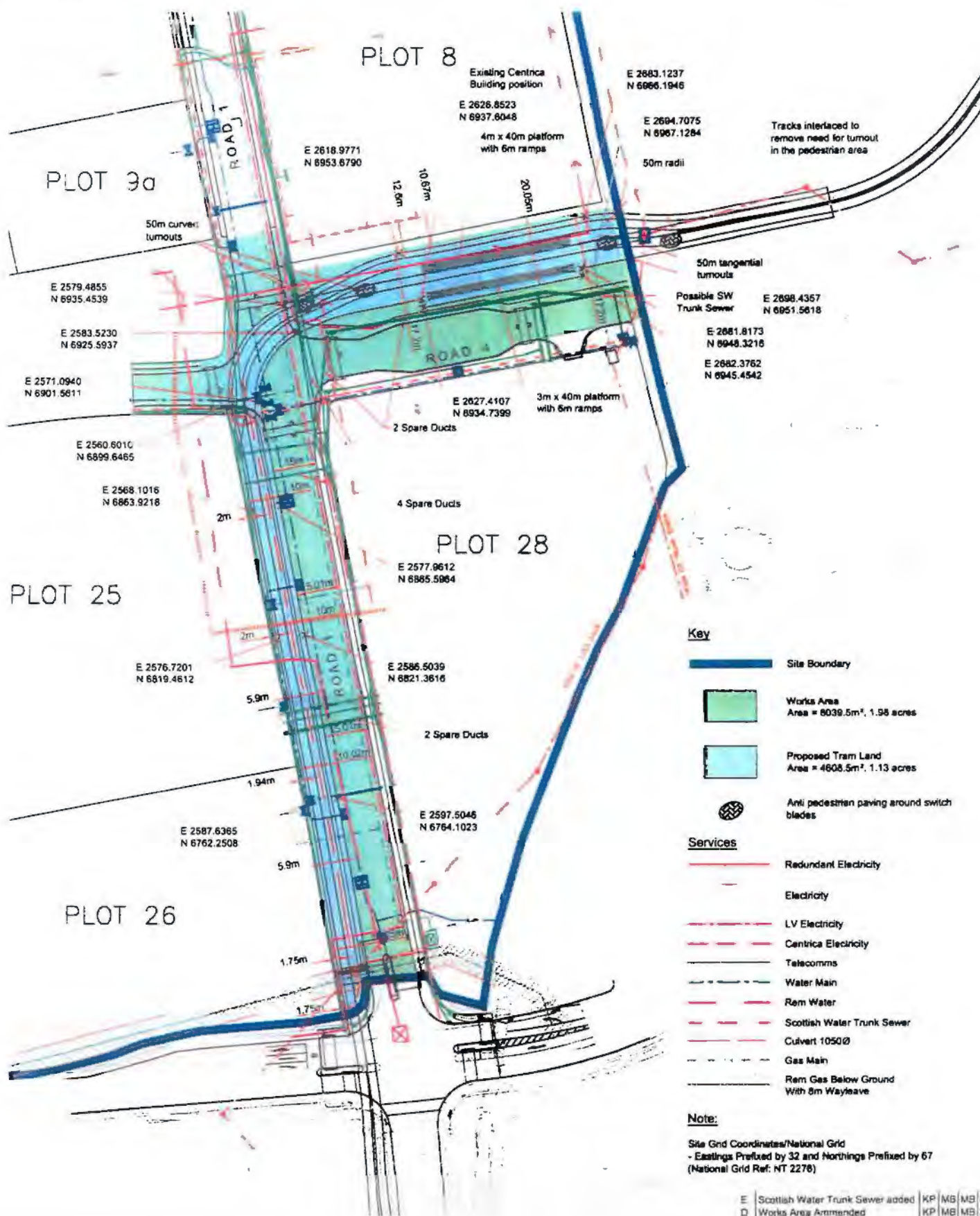
USB00000078_0063

Appendix 18

National Grid Property Holdings Limited, Port Greenwich Limited and WM Morrison Supermarkets plc

Part 1 (Plan)

Part 2 (Supermarket Plan)



Creigleaves House
77 Craigmount Bree
Edinburgh
EH12 8XF

Tel: 0131 330 5494
Fax: 0131 317 7248
e-mail: edinburgh@wyp.com

White
Young
Green

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project
GRANTON WORKS
EDINBURGH

Client
SecondSite Property

Drawing Title
PROPOSED TRAM ROUTE

| Rev | Description | By | Chk | App | Date |
|-----|----------------------------------|----|-----|-----|----------|
| 1 | Scottish Water Trunk Sewer added | KP | MB | MB | 07.12.05 |
| 2 | Works Area Amended | KP | MB | MB | 29.11.05 |
| 3 | Works Area Amended | KP | MB | MB | 23.11.05 |
| 4 | Services added | KP | MB | MB | 04.11.05 |
| 5 | Shading and Areas Added | KP | MB | MB | 18.08.05 |

APPROVAL ☐ INFORMATION ☒ DESIGN ☐ CONTRACT ☐ CONSTRUCTION ☐

USB00000078_0065

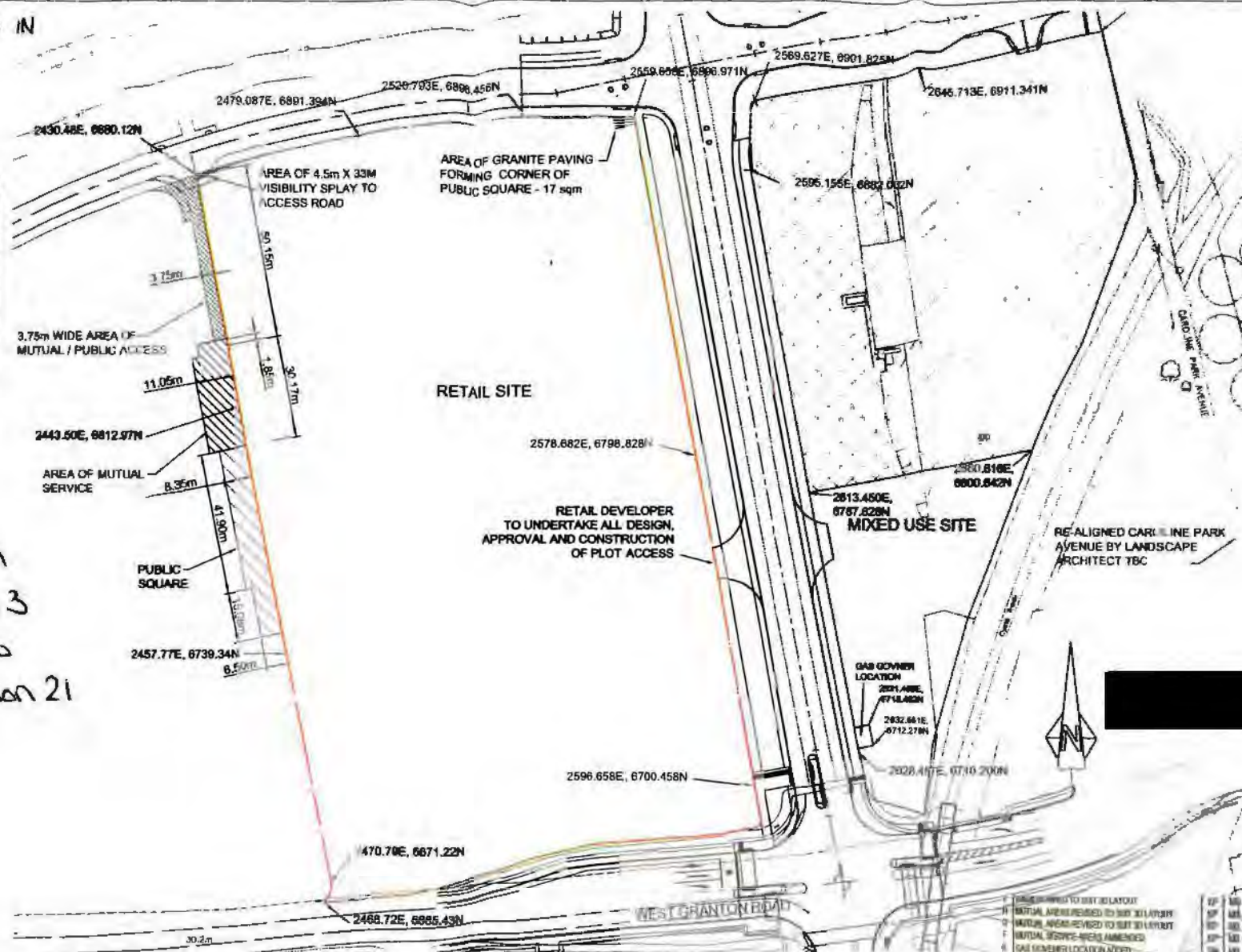
THIS IS "PLANC 1" REFERRED TO IN
THE FOREGOING MINUTE OF
VARIATION OF LOCAL BURDEN

AREA SUMMARY (acres / hectares)

| | |
|-------------------|-------------------------------------|
| 1. RETAIL SITE | 7.01 acres / 2.84 ha or thereby |
| 2. MIXED USE SITE | 3.90 acres / 1.54 ha or thereby |
| TOTAL : | 10.81 acres / 4.38 ha or thereby |

Note: Site Grid Coordinates/National Grid
- Eastings Prefixed by 32 and Northings Prefixed by 67
(National Grid Ref: NT 2276)
The drawing has been prepared utilising information
obtained from OS Drawing of the site and other
topographical information of the existing site

This is the supermarket plan
forming Part 2 of Appendix 13
to Schedule 13 referred to
at paragraph 21.1 of Section 21
of Schedule 13.



Craigleover House
77 Craigmount Brae
Edinburgh
EH12 8XF

Tel: 0131 339 5494
Fax: 0131 317 7248
e-mail: admin@whiteyounggreen.co.uk

White
Young
Green

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project
GRANTON DEVELOPMENT

Client
SECONDSITE PROPERTY

| Rev | Description | By | Date | App | Date |
|-----|------------------------------|-----|----------|-----|------|
| 1 | ISSUED FOR PERMIT TO DEVELOP | ASU | 17-08-05 | | |
| 2 | ISSUED FOR PERMIT TO DEVELOP | ASU | 12-08-05 | | |
| 3 | ISSUED FOR PERMIT TO DEVELOP | ASU | 24-08-05 | | |
| 4 | ISSUED FOR PERMIT TO DEVELOP | ASU | 12-05-05 | | |
| 5 | ISSUED FOR PERMIT TO DEVELOP | ASU | 04-07-05 | | |
| 6 | ISSUED FOR PERMIT TO DEVELOP | ASU | 16-08-05 | | |
| 7 | ISSUED FOR PERMIT TO DEVELOP | ASU | 04-05-05 | | |
| 8 | ISSUED FOR PERMIT TO DEVELOP | ASU | 10-04-05 | | |
| 9 | ISSUED FOR PERMIT TO DEVELOP | ASU | 10-04-05 | | |
| 10 | ISSUED FOR PERMIT TO DEVELOP | ASU | 10-04-05 | | |

RETAIL PLOT 25/25 AND
MIXED USE PLOT 28
TITLE PLAN

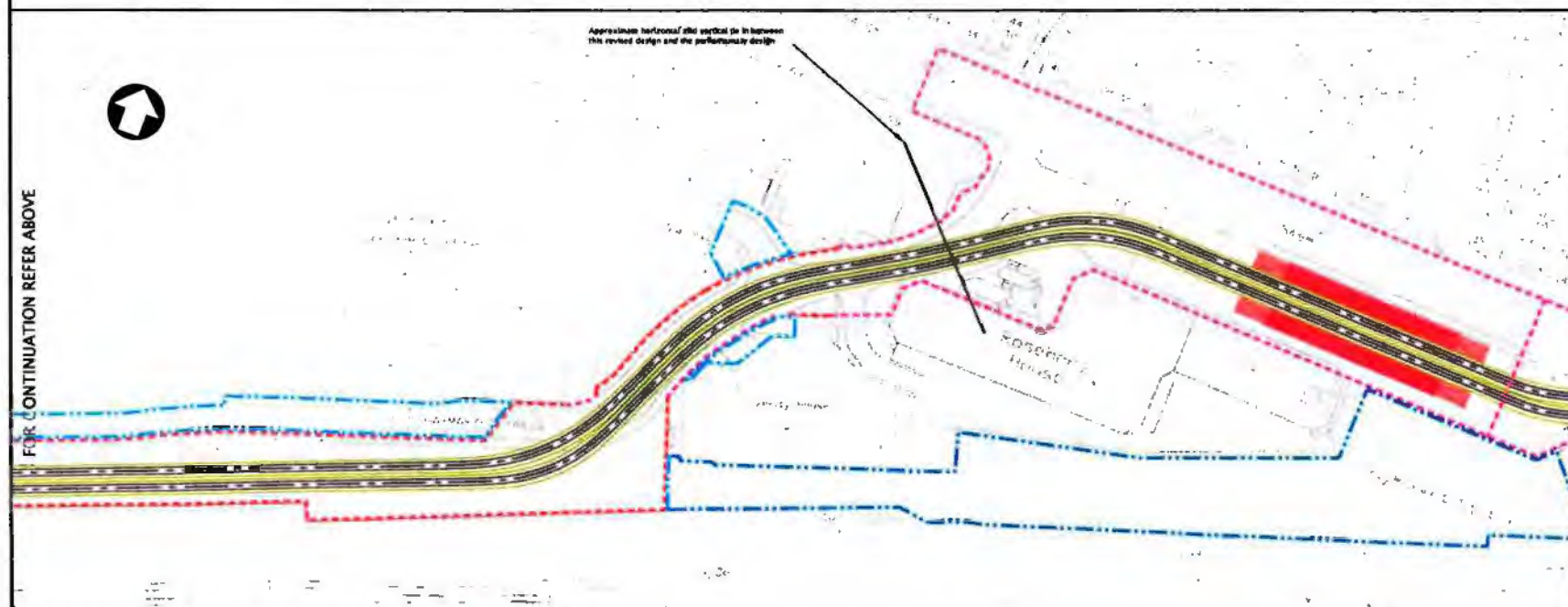
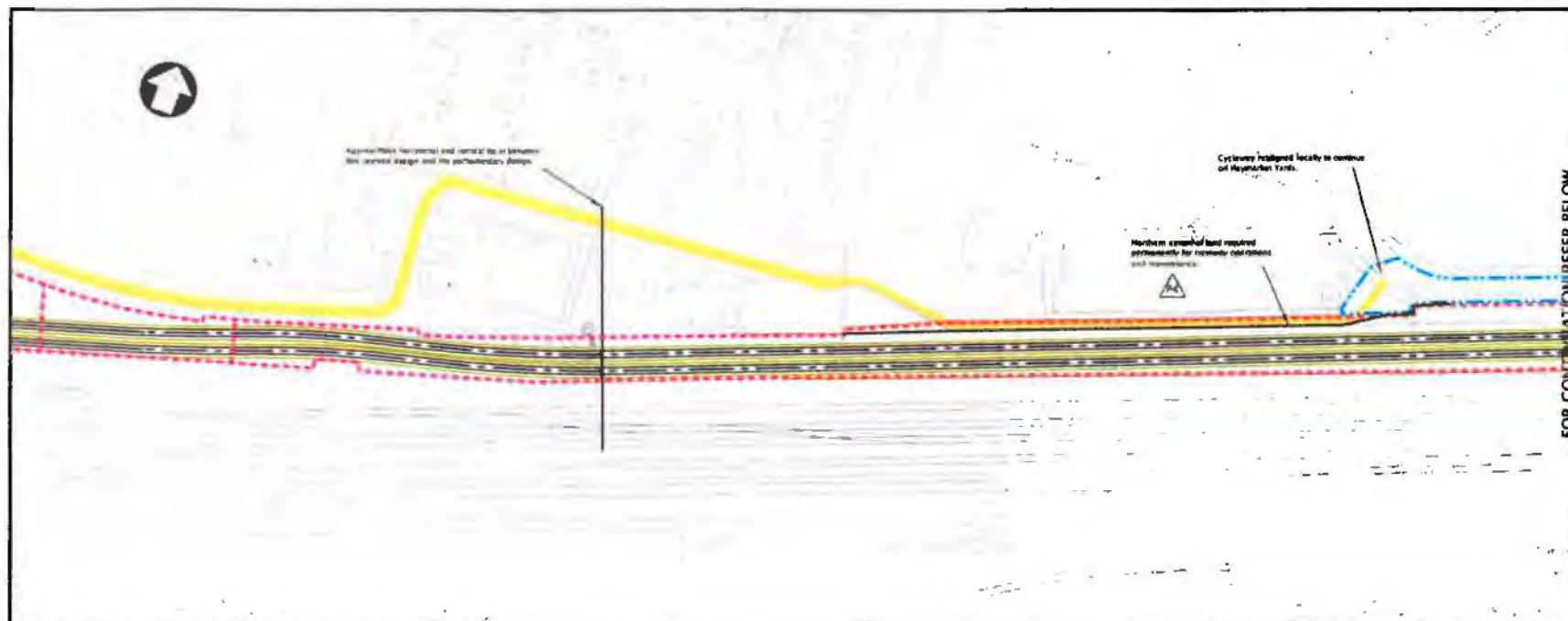
| Scale | Drawn By | Date | Checked By | Date | Approved By | Date |
|------------|-------------|----------|-------------|--------------|-------------|----------|
| 1:1250 | ASU | 10-02-05 | ASU | 11-02-05 | ASU | 11-02-05 |
| Project No | Office | Type | Drawing No. | Rev | For | For |
| A007183 | 3103 | CP | 115 | | | |
| APPROVAL | INFORMATION | ISSUED | CONTRACT | CONSTRUCTION | | |

USB00000078 0066

Appendix 19

Institute of Chartered Accountants

Plan



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Figure 1

01. DRAINAGE SURVEY MAPSING PROVIDED BY CITY OF KENOSHA COUNTY, CITY DEVELOPMENT FOR THE BOLE AMUSEMENT CO. PLANNING EXHIBITION TRAN. AND ONE

02. PHYSICAL SURVEY MAPSING PROVIDED BY CITY OF KENOSHA COUNTY. THIS INFORMATION WAS REQUESTED BY MAJOR (2) ON THE 15TH AUGUST 2008 BY BOLE AMUSEMENT CO. FOR THE EXHIBITION TRAN PROJECT. UNLAWFUL REPRODUCTION OF THIS SURVEY FOR PURPOSES OF COPYRIGHT AND MAY LEAD TO PROSECUTION ON ONE.

03. ALL INFORMATION ARE IN METERS AND IS STATED OTHERWISE WITH ALL. IT IS IN METERS ACTIVE DRAINAGE DATES ARE IN METERS AND IS STATED OTHERWISE WITH ALL. ALL FEATURES SHOWN ON THIS DRAWING ARE INDICATIVE ONLY AND ARE SUBJECT TO CHANGE.

04. IT SHOULD BE NOTED THAT ALL INFORMATION IS NOT FINAL AND MAY BE SUBJECT TO REVISION IN SUBSEQUENT DESIGN DEVELOPMENT STAGES.

05. ALL CHANGES OR REVISIONS IN PLANNED DEVELOPMENT HAVE BEEN INDICATED BY OTHERS.

Easy to terminate

FOR DISCUSSION
PURPOSES ONLY

LORRY LANE VEHICLE SIZE
 ORIGINAL/ALTERED LIMIT OF DEVIATION
 REVISED LIMIT OF DEVIATION
 ORIGINAL/ALTERED LIMIT OF LANE TO BE ACQUIRED OR USED
 REVISED LIMIT OF LANE TO BE ACQUIRED OR USED
 NORTHERN EXTENT OF LAND AT ICAS REQUIRED PROBABLY FOR TRAMWAY OPERATIONS AND MAINTENANCE
 CENTRE LINE OF TRAIN TRACKS
 STOP PLATFORM FOR LIGHT RAIL

| | | | | | |
|-----|-----------|-------|--|---------|----------|
| P4 | 3/5/08/05 | CBF | EXTENT OF LAND PERMANENTLY REQUIRED ADDED | MMR | AJO |
| P3 | 23/08/05 | MMR | MINOR REVISIONS AND AMENDMENT TO REFLECT FINAL LOD AS SHOWN | MMR | AJO |
| P2 | 16/04/05 | CBF | AMENDMENTS MADE TO LODS TO REFLECT FINAL MMR BILL SUBMISSION | MMR | CJT |
| P1 | 17/05/05 | JPS | ISSUED IN SUPPORT OF PARLIAMENTARY MMR BILL SUBMISSION | MMR | CJT |
| Rev | Date | Drawn | Description | Checked | Approved |

1111 Mott
 MacDonnell
 2 Bette

Cross Michael House
 14 Lister Place
 Edinburgh, EH6 7JZ
 Scotland
 Tel: +44 (0)131 225 8700
 Fax: +44 (0)131 225 8720

Matt MacDonald in association with:
Babette Group, Star Davies Osawa, ERM, Gillespie, Brian Hannaby & Associates,
McLean Hazel & Tennant.

Other

See List
Worship Places
19 Raspberry Circle
Edinburgh, HI 112 520
Seaside
Tel: 0431 622 8300
Fax: 0131 433 0201

**EDINBURGH TRAM
LINE ONE
PROPOSED INFRASTRUCTURE LAYOUT AND
CHANGES TO LIMITS OF DEVIATION
AT HAYMARKET FOR PARLIAMENTARY MINI**

| | | | | | |
|------------------|----------------------------------|-----|--------------|------|-------|
| Developed | GBF | GBF | Imp.Ch. | MMB | MMB |
| Design | JPS | JPS | Coordination | SMCI | SMCI |
| Dwg.Chk. | GBF | GBF | Approved | GJT | GJT |
| Scale | Project 203011 | | | | Sheet |
| 1:500 AT AT SIZE | CADD File #VILLAGE11.MK SCAD0000 | | | | PRE |

2030 ISBN 000000078

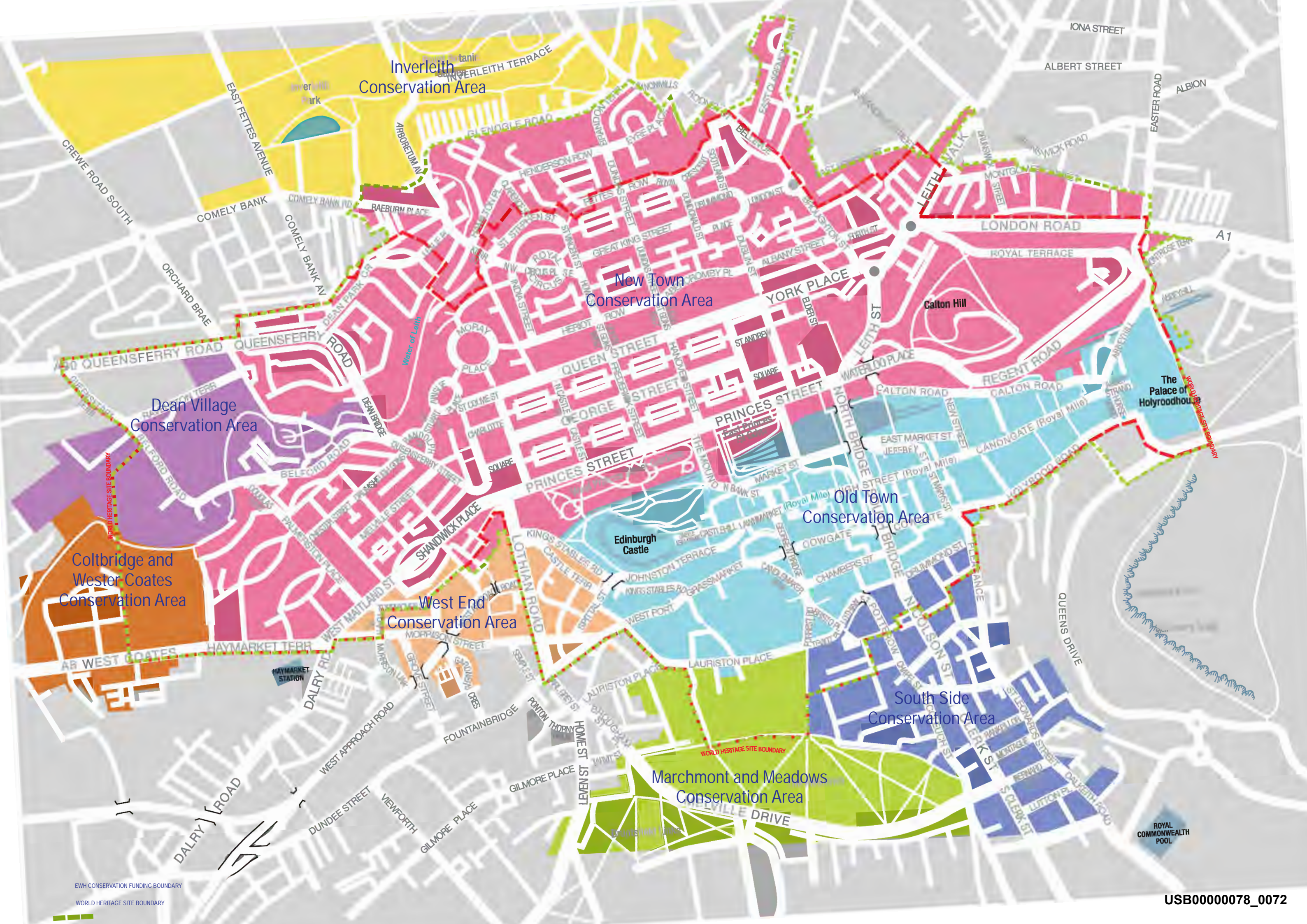
Appendix 20

Holyrood Services Limited

Plan

Appendix 21
Historic Scotland

Plan



Inverleith Conservation Area

New Town Conservation Area

Dean Village Conservation Area

Colinton and Wester Coates Conservation Area

West End Conservation Area

Old Town Conservation Area

South Side Conservation Area

Marchmont and Meadows Conservation Area

The Palace of Holyroodhouse

Edinburgh Castle

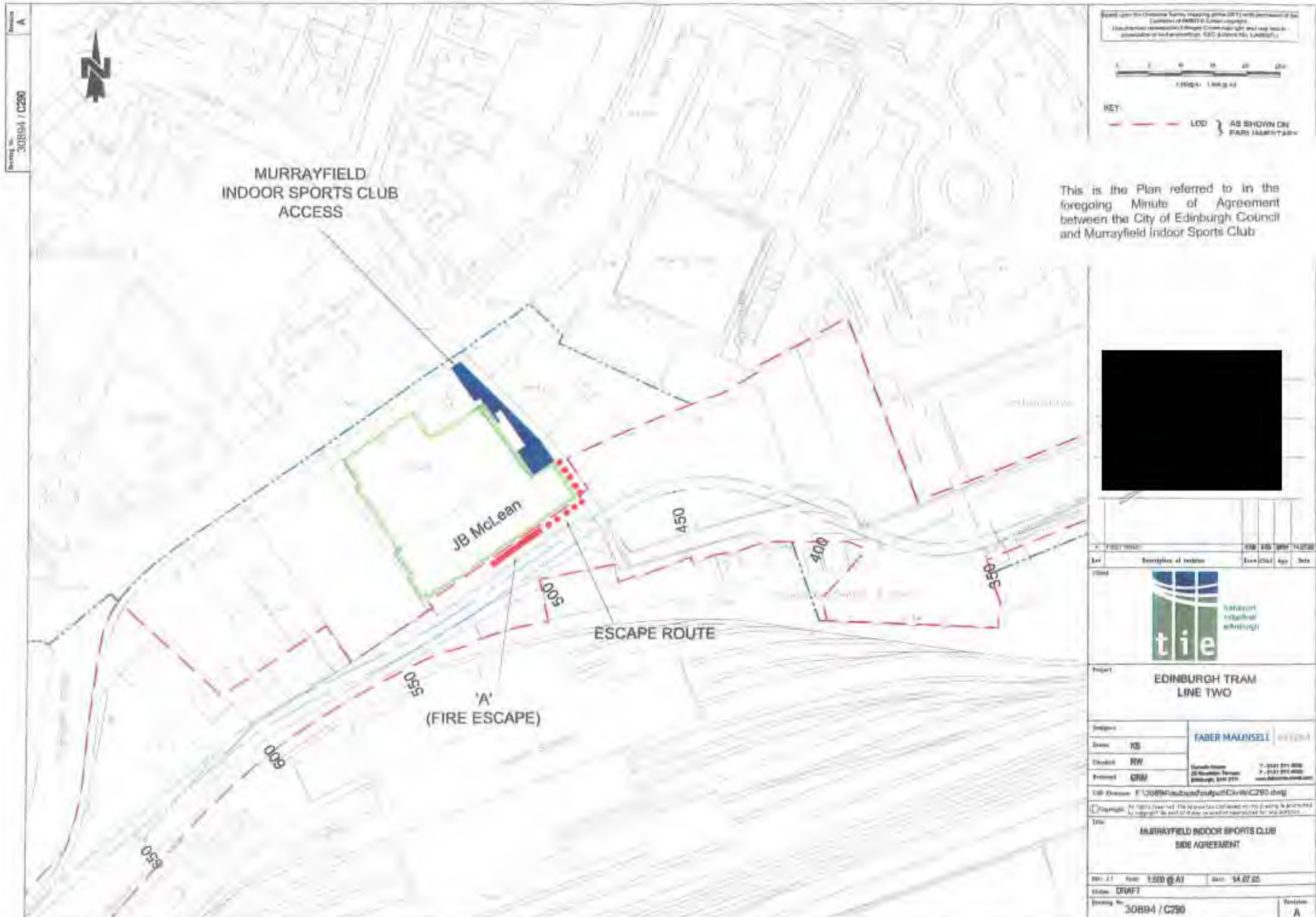
Calton Hill

EWH CONSERVATION FUNDING BOUNDARY
WORLD HERITAGE SITE BOUNDARY

Appendix 22

Murrayfield Indoor Sports Club

Plan



Appendix 23

UGC Properties Limited and Uniport Automotive Limited

Plan

Black and white diagram showing the layout of the proposed tram line and the proposed car parking area. The diagram includes a scale bar (0 to 100 feet) and a north arrow. The tram line is shown as a dashed line, and the car parking area is shown as a hatched area. The diagram is labeled 'PROPOSED CAR PARKING AREA' and 'DOOR LOADING BAY'.

RECT. 1:1000 1:2000 1:4000 1:8000 1:16000 1:32000 1:64000 1:128000 1:256000 1:512000 1:1024000 1:2048000 1:4096000 1:8192000 1:16384000 1:32768000 1:65536000 1:131072000 1:262144000 1:524288000 1:1048576000 1:2097152000 1:4194304000 1:8388608000 1:16777216000 1:33554432000 1:67108864000 1:134217728000 1:268435456000 1:536870912000 1:1073741824000 1:2147483648000 1:4294967296000 1:8589934592000 1:17179869184000 1:34359738368000 1:68719476736000 1:137438953472000 1:274877906944000 1:549755813888000 1:1099511627776000 1:2199023255552000 1:4398046511104000 1:8796093022208000 1:17592186044416000 1:35184372088832000 1:70368744177664000 1:140737488355328000 1:281474976710656000 1:562949953421312000 1:1125899906842624000 1:2251799813685248000 1:4503599627370496000 1:9007199254740992000 1:18014398509481984000 1:36028797018963968000 1:72057594037927936000 1:144115188075855872000 1:288230376151711744000 1:576460752303423488000 1:1152921504606846976000 1:2305843009213693952000 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Appendix 24

JPSE Limited

Plan

| | |
|------------------------------------|----------------------|
| Drawing No. 30894 / C266 | Revision B |
|------------------------------------|----------------------|

Appendix 25

New Edinburgh Limited and New Edinburgh Park (Management) Limited

Part 1 (Plan 1)

Part 2 (Plan 2)

Part 3 (Plan 3)

Part 4 (Plan 4)

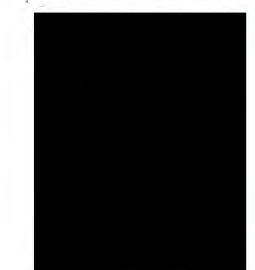
Part 5 (Plan PT)

Part 6 (Maintenance Schedule)



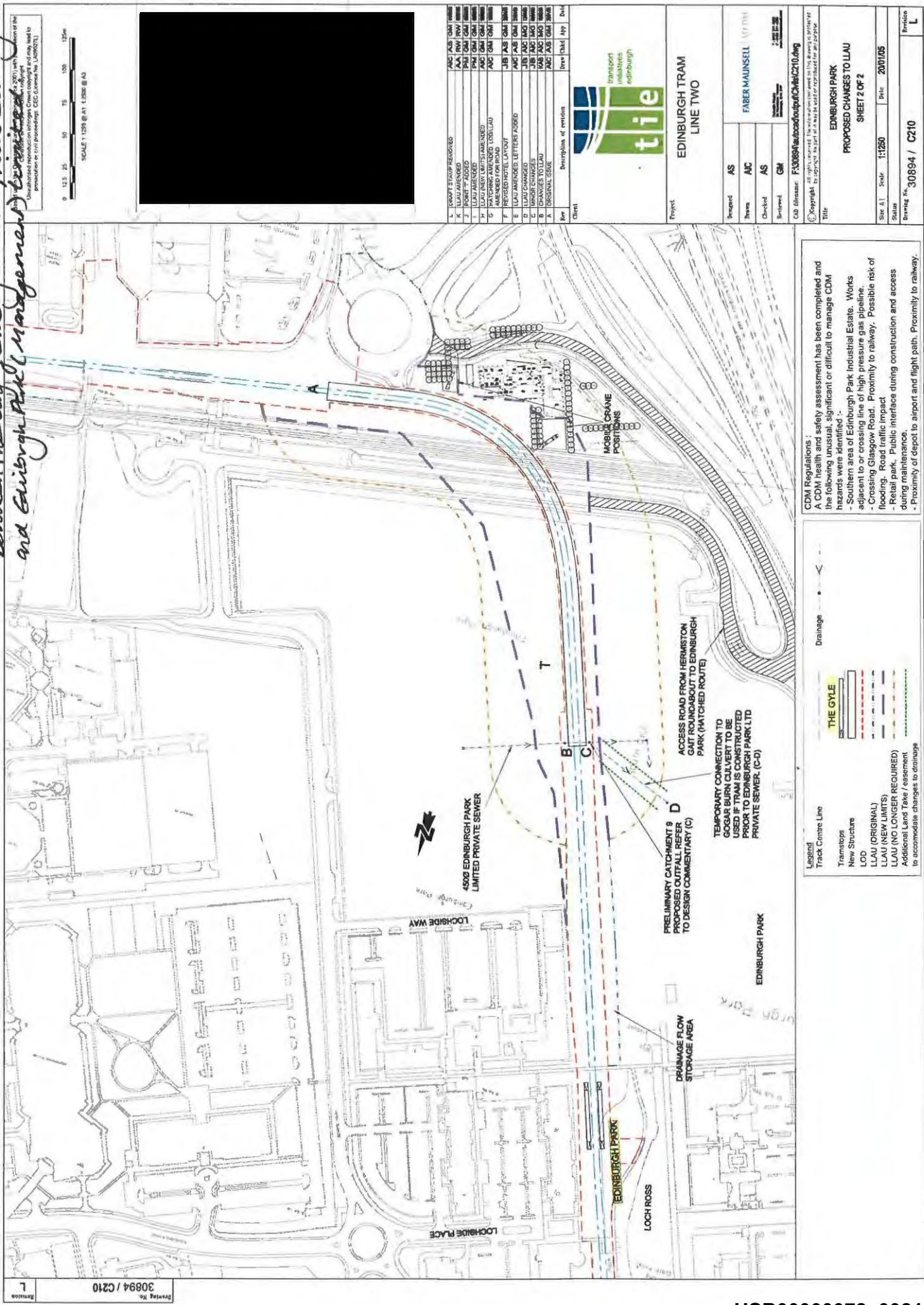
————— Edinburgh Park
 ————— Hotel Site
 ————— Hermiston Gait

This is Plan 1 referred to in the foregoing
 Agreement between The City of Edinburgh
 Council, New Edinburgh Limited and Edinburgh
 Park (Management) Limited.



FOR CONSULTATION

This is Plan 2 referred to in the pre-agreement between The City of Edinburgh Council, New Edinburgh Limited and Edinburgh Park (Management) Limited



30894 / C210

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| Rev | Description of revision | Date | Drawn | Checked | Approved |
|-----|-------------------------|----------|-------|---------|----------|
| 1 | ISSUE FOR TENDER | 11/01/05 | AA | AA | AA |
| 2 | ISSUE FOR TENDER | 11/01/05 | AA | AA | AA |
| 3 | ISSUE FOR TENDER | 11/01/05 | AA | AA | AA |
| 4 | ISSUE FOR TENDER | 11/01/05 | AA | AA | AA |
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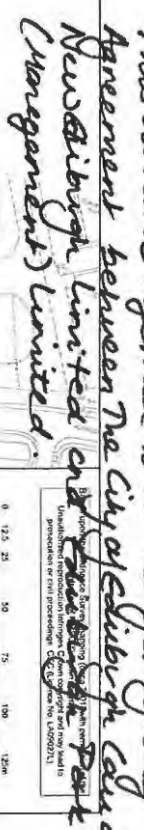
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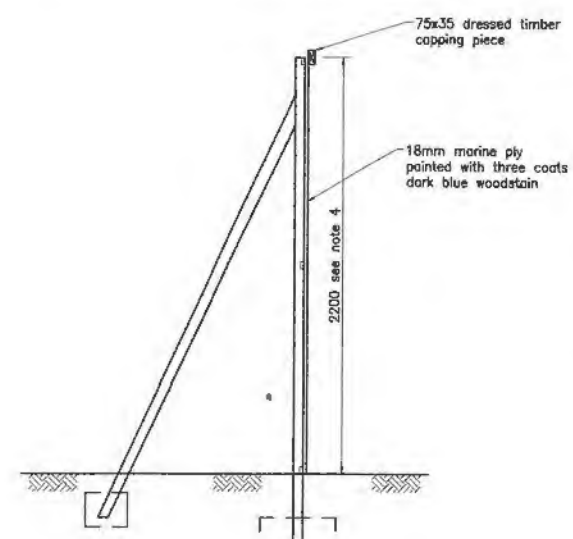
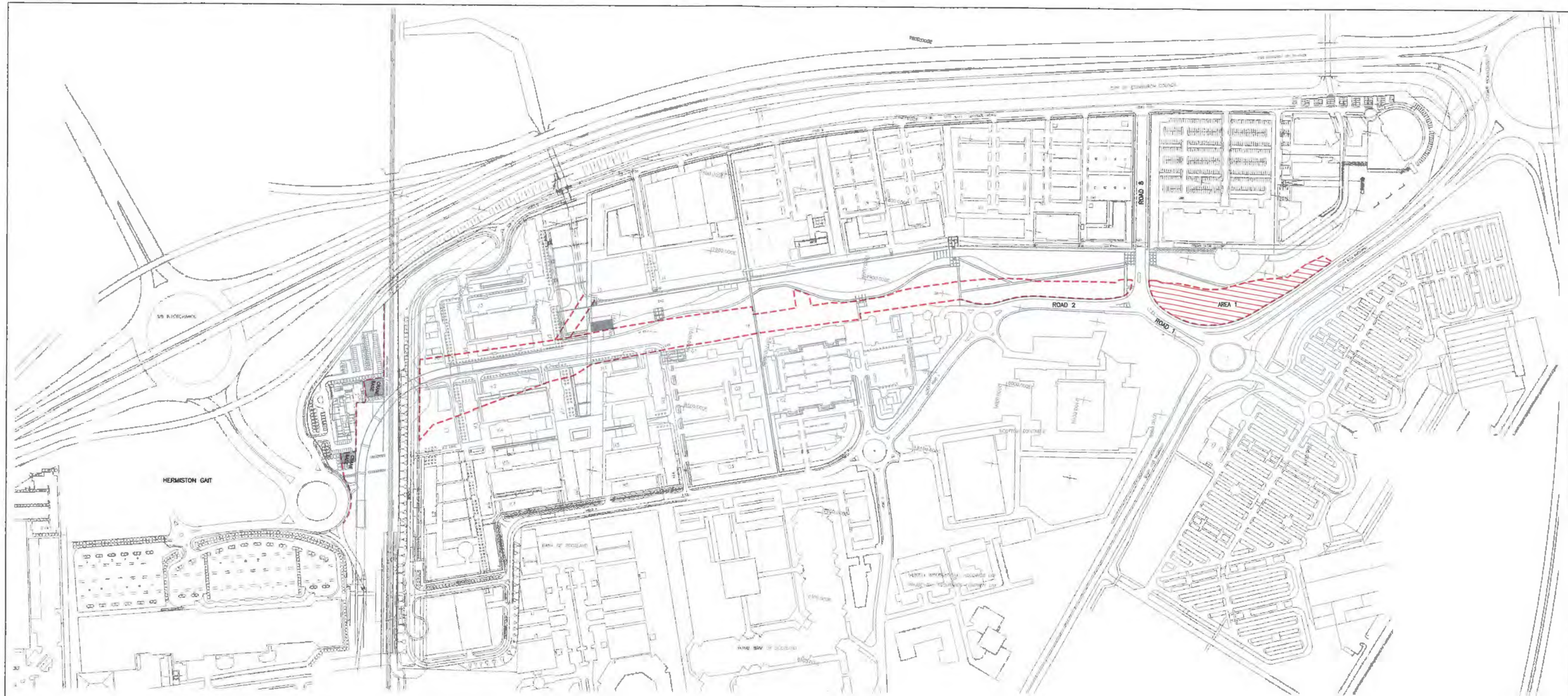
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[illegible]



HOARDING DETAIL (1:20)

- Hoarding notes**
1. Posts, raking supports and framing to be developer designed.
 2. Vertical support to be provided at joints as required to prevent bowing and distortion.
 3. All posts to be concreted and depth etc to be developer designed.
 4. Hoarding height may be varied if required to meet safety standards.
 5. Gables in the hoarding to be the same height as the rest of the hoarding (subject to point 4 above) and pointed in conformity with the rest of the hoarding as far as is reasonably practicable.
 6. All dimensions are in millimetres unless otherwise stated.

This is Plan 4 referred to in the foregoing Agreement among the City of Edinburgh Council, New Edinburgh Limited and Edinburgh Park (Management) Limited.



FOR CONSULTATION

Halcrow Group Limited
16 Abercromby Place, Edinburgh, EH3 6LJ
Tel: +44 (0)131 272 3300 Fax: +44 (0)131 272 3301
www.halcrow.com



NEW EDINBURGH LTD

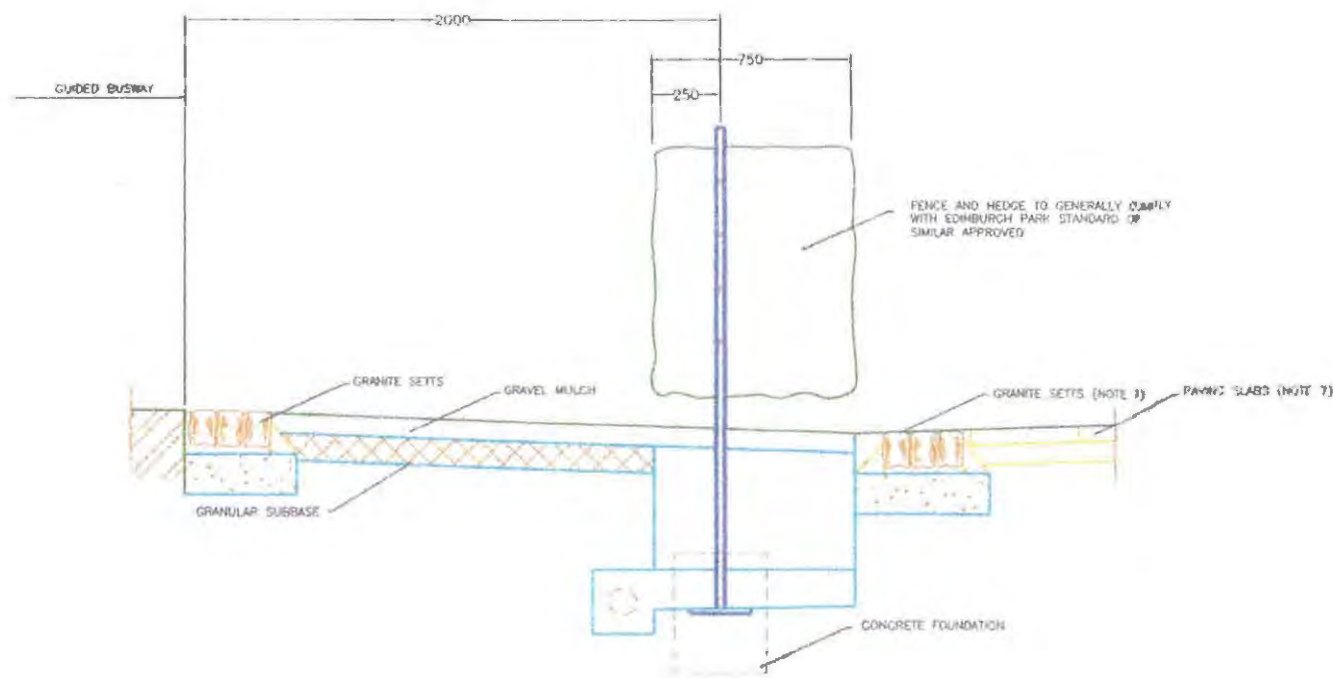
EDINBURGH PARK/HERMISTON GAIT - TRAM 2

- Notes**
1. Hoardings will not be erected outwith the line of the dashed red lines.
 2. Access and egress from area 1 to be taken via South Gyle Broadway.

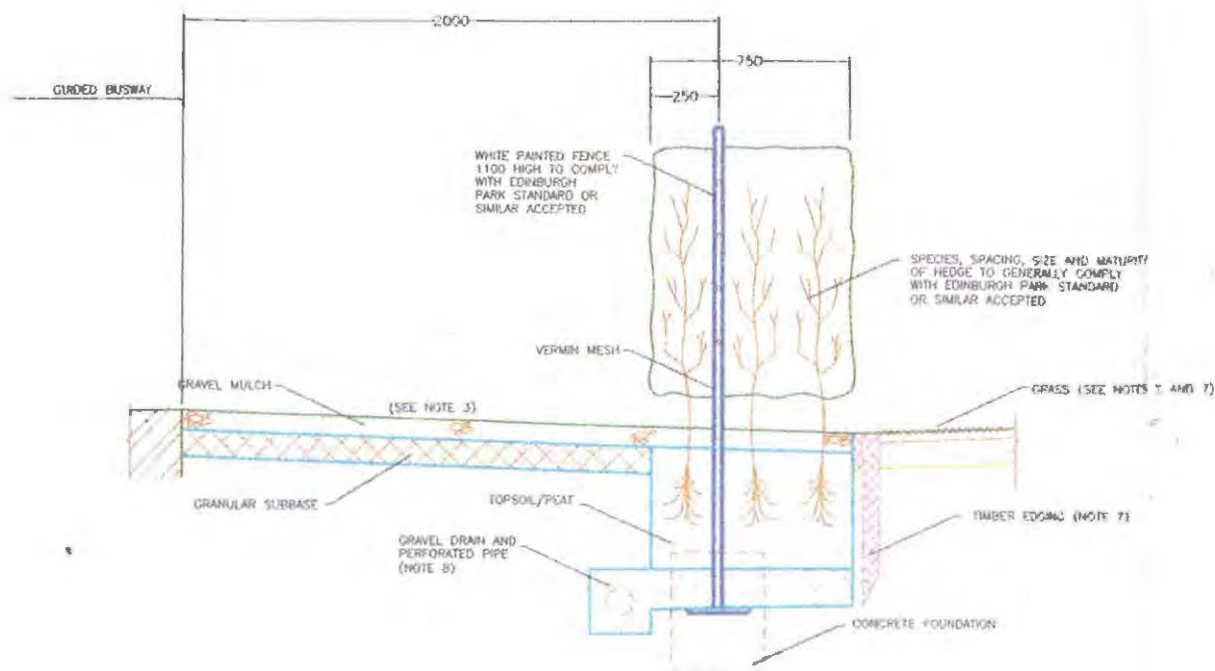
| Rev | By | Chk'd | Appr'd | Date | Description |
|-----|----|-------|--------|----------|--|
| C | BM | BM | BM | 01/05/05 | Hoarding line amended at Hermiston Gait Roundabout |
| B | BM | BM | BM | 01/05/05 | Hoarding line added |
| A | BM | BM | BM | 01/05/05 | Line of hoarding added |

**LINE OF HOARDING
TRAM LINE 2**

| | |
|-------------------------------------|----------------|
| Drawn by: JMJ | Date: 19.05.05 |
| Checked by: DCL | Date: 19.05.05 |
| Approved by: DCL | Date: 19.05.05 |
| Drawing No: 04-4582-PODEPL-102-9010 | Revision: C |
| Drawing Scale: USB00000078_0083 | |



EDGE TREATMENT ADJACENT TO FOOTWAY



EDGE TREATMENT ADJACENT TO GRASSED AREA

This is Plan PT/1/01/001/2/293F referred to in the faergaig Agreement between the City of Edinburgh Council, New Edinburgh Limited and Edinburgh Park (Management) Limited.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. EXISTENT AND SLOPE OF GRASS RESTATEMENT VARIES ALONG THE ROUTE
3. GRAVEL MULCH TO FALL AWAY FROM GUIDED BUSWAY AT GRADE OF 1:50
4. EDGE OF GUIDED BUSWAY IS TAKEN AS EDGE OF RUNNING TRACK OR BACK OF FOOTWAY WITHIN HALTS
5. CONCRETE USED IN THE CONSTRUCTION OF GUIDED BUSWAY TRACK WHERE VISIBLE SHALL BE COLOURED TO COMPLEMENT PAVING SLABS IN EDINBURGH PARK, OR SIMILAR. FILL MATERIAL BETWEEN THE RAILS WILL BE WATER WORN GRAVEL. THE GAP BETWEEN THE TRACKS WILL BE GRANITE SETTS
6. ALL GRAVEL TO BE WATER WORN AGGREGATES, CONSISTENT WITH GRAVEL IN EDINBURGH PARK, OR SIMILAR
7. LANDSCAPE DETAILS AND MATERIALS OUTWITH FENCELINE SHALL BE TO ACCEPTED EDINBURGH PARK STANDARDS
8. DRAINAGE TO HEDGE TRENCH SHALL BE LOCATED OUTSIDE FENCELINE WHERE GUIDED BUSWAY IS LOWER THAN SURROUNDING GROUND LEVEL
9. SUSTAINABLE PROPOSALS FOR EDGE TREATMENT AND SOIL PREPARATION TO BS 3882 SHALL BE INCORPORATED
10. DRAWING NOT TO BE SCALED, STATED DIMENSIONS ONLY TO BE USED

| REVISION | DETAILS | BY | DATE |
|----------|---|----|----------|
| F | AMEND NOTES 5, 6 & 7 | DM | 27/08/97 |
| E | ADD FENCE DESCRIPTION. AMEND NOTE 9 | LL | 07/04/97 |
| D | AMEND NOTE 5, AND VERMIN MESH AND HEDGE NOTE | DM | 14/03/97 |
| C | REDRAFT DRAWING. AMEND EXTENT OF CROSS SECTION. ADD NOTES | DM | 11/02/97 |
| B | BUSWAY PROFILE REMOVED. BUSWAY DIMENSIONS AND MINOR NOTES ADDED | DM | 10/01/97 |
| A | BUSWAY PROFILE REMOVED. BUSWAY DIMENSIONS AND MINOR NOTES ADDED | CH | 18/12/96 |

EDINBURGH
THE CITY OF EDINBURGH COUNCIL

TRANSPORT & COMMUNICATIONS
c/o 10/19 MARKET STREET
EDINBURGH EH1 1RL
TEL No 031 200 2000

PUBLIC TRANSPORT
SUSTAINABLE TRANSPORT AND PROJECTS
STRATEGIC PROJECTS

CITY OF EDINBURGH RAPID TRANSIT
INDICATIVE EDGE TREATMENT
IN EDINBURGH PARK

Date 05/12/96
Scale 1:20
Drawn By D MILLAR
Checked By C HUFF

DRG. NO. PT/1/01/001/2/293F

Maintenance Schedule

TRAM – Edinburgh Park

New Edinburgh Limited

Maintenance Schedule for Tram Route and Associated Landscape Edge Strip (No. of visits per 12 month period).

Hedging

6 hand weedings, 2 firm ups, 1 fertiliser (70g/m²), beef up for plant deaths/losses (if necessary replacement of previously replaced material will be required to ensure a fully established hedgeline after a 36 month period); 1 prune as directed, 1 residual herbicide, insecticide as required to maintain pest-free. Water as directed.

Fencing

4 check and re-strain (including replacement of burst tie-wires/mesh/clips and radiseurs).

Grass

16 cuts, 2 fertiliser (35g/m²), 1 selective weedkill, 2 aerations, 1 manual edge with edging iron.

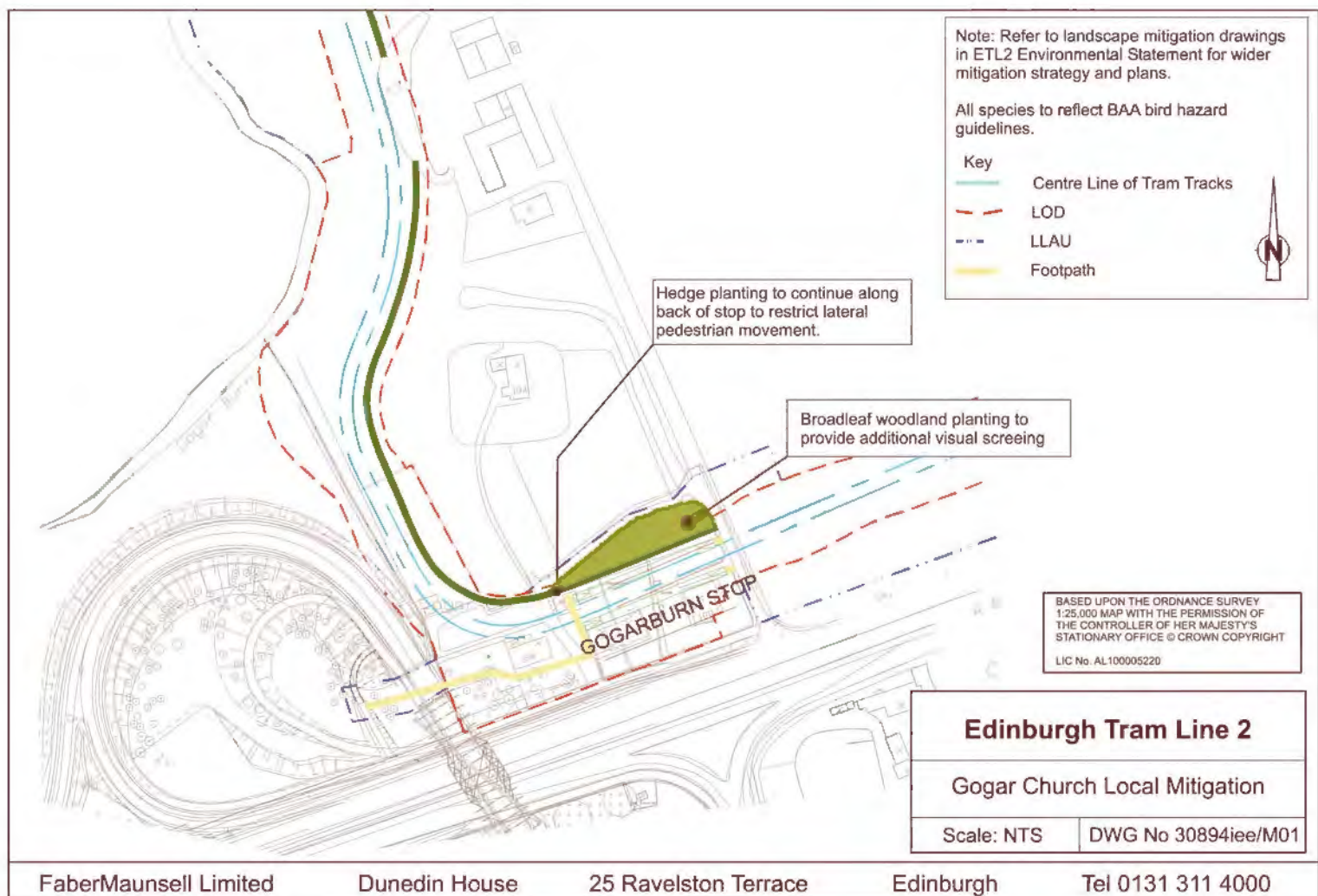
General

24 litter pick, 1 top up gravel mulch, 1 chemical weedkill to hard surfaces, 12 brush hard surfaces.

Appendix 26

Chris Holmes Cabinet Makers

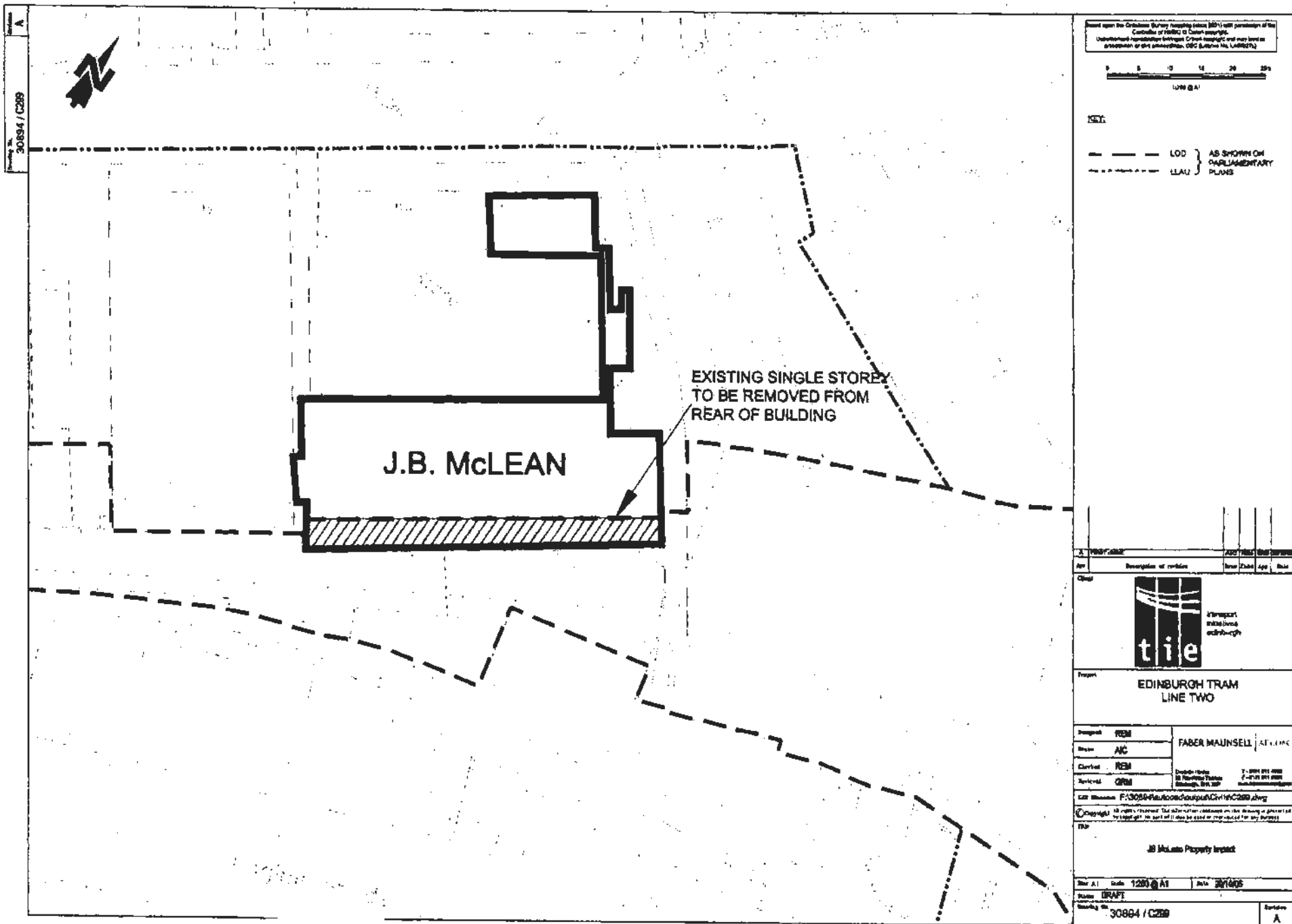
Planting Plan



Appendix 27

Roderick James McLean

Plan



Edinburgh [date] This is the plan updated to in the foregoing offer by Dundas & Bateson for to Landcorp

Appendix 28

Scottish Rugby Union

Part 1 (Plan)

Part 2 (Local Construction Plan)

Part 3 (Pitches Specification)



1 REFER TO EDINBURGH TRAMLINE 2 LOCAL CONSTRUCTION PLAN
MURRAYFIELD FOR DEFINITION OF LLAU AND CONSTRUCTION
STRATEGY.

LLA

10

 'NORMAL' LLAU

② 'SHARED ACCESS' LLAU

③ 'OVER-SAILING' || ALL

 'TEMPORARY USE' || AU

(E) 'EXCLUDED' LIABILITY

 'RECONFIGURATION' LIAI

7 'EXCLUDED' FROM LLAU BUT CAN



'ADOPTED HIGHWAY' || ALL

 'SHARED ACCESS' LOD FLOOD WALL AND LOD

AREA OF SRU PITCH STRENGTHENING

| Rev | Description of revision | Draw | Chkd | App | Date |
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transport
initiatives
edinburgh

EDINBURGH TRAM LINE TWO

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Drawn AA/RB

Checked: **KP**

Reviewed GRM

CAD filename: F:\30894\Drawings\Consultation\SRU\SK-05-rev.d

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Title MURRAYFIELD TRAINING 2 INTERFACE
ACCESS AND CALL DEFINITION

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Drawing No. 30894 / SK05

Revised
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EDINBURGH TRAM LINE 2 LOCAL CONSTRUCTION PLAN MURRAYFIELD

Transport Initiatives Edinburgh

November 2005

DRAFT

TRANSPORT INITIATIVES EDINBURGH
EDINBURGH TRAM LINE 2
LOCAL CONSTRUCTION PLAN
MURRAYFIELD

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Executive Summary

This is a local Construction Plan for the area of Murrayfield Stadium. This plan describes some key features of the Edinburgh Tram Line 2 (ETL2) construction in the vicinity of Murrayfield Stadium and the need to complete the construction with the minimum of impact on the operation of Scottish Rugby Union (SRU) and others using the stadium or surrounding pitches. The plan details the land use requirements needed to complete the construction at Murrayfield, outlining revised requirements for Land to be Acquired or Used (LLAU) within the construction phase of ETL2.

The tram alignment is discussed in relation to its impact on access to the stadium showing how this has been considered in the outline design. An appreciation of the safe operational requirements of SRU on event days is outlined showing the need to comply with the terms and conditions set out in the General Safety Certificate issued by CEC. Also included in the plan is a statement, which shows the potential impact on the Wanderers Clubhouse detailing how a staircase and storage area will require to be relocated to facilitate the East-West Link. This report further details of the relocation required for the back pitches.

In a number of areas the report does not draw final conclusions on the optimum solution rather identifying a number of potential options leaving the final decision to the detailed design but clearly stating the commitment of the promoter to ensure that an appropriate level of consultation is carried out with the land owner. All of this shows how the promoter has undertaken to ensure the operation of this key venue can be maintained despite these major construction works in the immediate vicinity.

TABLE OF CONTENTS

| | |
|---|-----------|
| 1. Introduction..... | 4 |
| 2. Definition of LLAU at Murrayfield..... | 5 |
| 3. Construction Technique | 7 |
| 4. Code of Construction Practice | 10 |
| 4.1 Environmental Management System | 10 |
| 4.2 Liaison and Public Information | 10 |
| 4.3 Hours of Working | 10 |
| 4.4 Site Housekeeping | 10 |
| 4.5 Fencing and Hoardings | 11 |
| 4.6 Access and Loading | 11 |
| 4.7 Security | 12 |
| 4.8 Access for Emergency Vehicles | 12 |
| 4.9 Noise, Dust and Air Pollution | 12 |
| 5. Safe Operation on Event Days | 13 |
| 6.1 Major Events | 15 |
| 6.2 Minor Events | 15 |
| 6. Alignment Impact on Access to Stadium | 15 |
| 7. Impact on Wanderers Clubhouse..... | 17 |
| 8. Relocation of back pitches | 19 |
| Appendix A – Drawing 30894 / SK05..... | 21 |
| Appendix B – Drawing 30894 / SK008..... | 22 |
| Appendix C – Drawing 30894 / SK011..... | 23 |
| | |
| 1.0 Introduction | 3 |
| 2.0 Definition of LLAU at Murrayfield | 4 |
| 3.0 Description of Construction Technique | 6 |
| 3.1 Retained Fill | |
| 3.2 Full Structural Embankment | |
| 3.3 Construction Sequence | |
| 3.3.1 Reconfiguration | |
| 3.3.2 Site Establishment | |
| 3.3.3 Construction of the Retained Fill / Structural Embankment | |
| 3.4 Construction Technique | |
| 3.5 Construction Timetable | |
| 4.0 Code of Construction Practice | 9 |
| 4.1 Environmental Management System | 9 |
| 4.2 Liaison and Public Information | 9 |
| 4.3 Hours of Working | 9 |
| 4.4 Site Housekeeping | 9 |
| 4.5 Fencing and Hoardings | 10 |
| 4.6 Access and Loading | 11 |
| 4.7 Security | 11 |
| 4.8 Access for Emergency Vehicles | 11 |
| 4.9 Noise, Dust and Air Pollution | 11 |
| 5.0 Safe Operation on Event Days | 12 |
| 5.1 Major Events | 13 |
| 5.2 Minor Events | 13 |
| 6.0 Alignment Impact on Access to Stadium | 14 |
| 7.0 Impact on Wanderers Clubhouse | 15 |
| 8.0 Relocation of back pitches | 17 |
| | |
| Appendix A – Drawing 30894 / SK05..... | 19 |
| Appendix B –Drawing 30894 / SK008..... | 20 |
| Appendix C –Drawing 30894 / SK011..... | 21 |

LOCAL CONSTRUCTION PLAN MURRAYFIELD



1. Introduction

ETL2 is a proposed tramline development , which connects Edinburgh city centre with Edinburgh Airport and Newbridge and includes a stop adjacent to Murrayfield Stadium.

SRU have agreed that the proposed ETL2 will bring associated benefits to the Murrayfield area in terms of accessibility. SRU have however, voiced their concern with regards to the safety and operational impacts on the stadium of the tramway predominantly during construction, so discussions have been on going to alleviate this concern. It is the intention that construction of ETL2 go ahead with the minimum of disruption to the continued operation of Murrayfield Stadium. This document outlines the critical interfaces identified between ETL2 and SRU, which need to be developed to ensure that this is achieved.

The aim of this document is to identify key areas of concern to SRU, to outline what measures may be required to be investigated in detail such that they can be considered more thoroughly through the detailed design and be developed into a *local code of construction* to govern the Contractor's activities on this site.

At this stage of the project, the scheme is at Parliamentary Approval Stage. Designs have not been developed beyond typical concept and therefore the construction techniques and procedures cannot be confirmed. Following parliamentary approval detail design will progress and specific documentation and information will be confirmed and issued. The contractor will be required to take all measures necessary to ensure that the normal Land to be Acquired or Used (LLAU) is safe and secure and will have to demonstrate that the stadium can be released back to SRU for an agreed period covering each event to allow safe operation in accordance with approvals of the City of Edinburgh Council.

The proposed tramway will run between the railway corridor and the South Stand of the Stadium. The initial extents of the Limits Of Deviation (LOD) and LLAU developed for the Parliamentary Bill were not acceptable to SRU as they potentially took all control of this area away from SRU passing it to the Contractor. Following discussions with SRU the LLAU has been revised and the limits now shown on drawing 30894 / SK05 Rev [G](#) (included in Appendix A) are in accordance with the currently agreed requirements.



2. Definition of LLAU at Murrayfield

Drawing 30894 / SK05 identifies different areas of land within the LLAU at Murrayfield. The following commentary describes the definition of these areas.

2.1 'Normal' LLAU (Area No. 1)

This area provides construction access across the back pitches. In addition there is a compound area situated to the west of the Wanderers Clubhouse.(on practice pitch 1) This area will be fenced off and made secure for the duration of the construction. This area is available for the contractor at all times, though access may be restricted as noted below.

2.2 'Shared Access' LLAU (Area No. 2)

The shared access corridor enables access for all to SRU offices, **hospitality suites** and shop, Wanderers Clubhouse, the temporary use area and the construction compound on Pitch 1. The key site access should be considered to be along the existing SRU / Network Rail boundary however it is anticipated that that during the works this will not always be possible hence this shared access route has been agreed with the SRU. On event days contractor movement within the shared access corridor will be restricted for a time depending on prior agreement with SRU and CEC Safety Officer. It is anticipated that on the event day the contractor would be prevented from use of this area.

2.3 'Over-sailing' LLAU (Area No. 3)

The over-sailing area extends 15m from the fenced off construction area of the normal LLAU. This extends from the west side of pitch 1 to the boundary west of pitch 3. This area is not fenced off and is required as clearance for lifting activities. Contractor use of this area on event days will be restricted to that agreed with SRU. Whilst this provision may not be required in the final solution through the practice pitches it is maintained to ensure that works can be adequately constructed – for example should temporary or permanent piling be required over-sailing would still be necessary.

2.4 'Temporary Use' LLAU (Area No. 4)

The temporary use area is required by the SRU for televised events for broadcast vehicles and **for all major events** to provide an east west spectator link (extending the full width of the stadium and along the length of practice pitch 1 to ensure full access between Roseburn Street and parking provision on the back pitches). This area must be available to SRU 5 days before and 5 days after each televised event. A schedule for access to this area will be based on a programme of events provided by SRU to **tie** and ongoing liaison between SRU and the contractor.

2.5 'Excluded' from LLAU (Area No. 5)

The areas around the Wanderers Clubhouse (other than that outlined above), the area south of the stadium and adjacent to the over-sailing area are excluded from the LLAU and passed back to the SRU on the understanding that they agree to facilitate any essential work which may require to be undertaken within this area – for example should the SRU require their 'V' board advertising to be mounted on the stadium they will make working area available.

2.6 'Reconfiguration' LLAU (area No 6)

Covering the open space and turnstiles to the south of the stadium as well as the southern end of the Wanderers Clubhouse, this area is required at the start of the contract to facilitate reconfiguration works. Once these works are completed this area would revert to SRU and treated as Excluded from LLAU.

2.7 'Excluded' from LLAU but can be used with prior agreement (Area No. 7)

The area adjacent to Roseburn Street is excluded from LLAU but can be used as a lay down area with prior agreement from SRU.

2.8 'Adopted Highway' LLAU (Area No. 8)

This area is outside the boundary of Murrayfield and will be dealt with in consultation with CEC, however SRU will be informed of any changes, which may affect them. **Appropriate measures will be required to ensure appropriate access is provided to the SRU for normal day to day activities throughout the works except by prior consent of the SRU, noting particularly the Shared Access LLAU as outlined in 2.2 above.**

2.9 'Shared Access' LOD (Area No. 9)

The use of this area is to be discussed and agreed between SRU and the contractor. It is important that a continuous safe access be provided for the ongoing activities of the SRU (as outlined in 2.2 above) both for day to day and event operation.



3. Construction Technique

A range of construction options has been considered for this section of the Tram alignment. Whereas the indication within the Parliamentary Bill documentation would indicate that the track be placed on a viaduct structure, considerable additional evaluation and consultation has subsequently been undertaken. This has given rise to alternative proposals which utilise the whole of the LOD between the Stadium and the railway. Further details of construction proposals, outline methodologies and indicative construction durations are being worked up in further detail as the project is taken forward. This work will investigate and compare the options to ensure the best final solution. To facilitate SRU agreement, however, the following note on construction technique has been prepared to assist the SRU's understanding of likely impacts of the construction on their property and operations (both day to day and events).

Prior to construction commencing there will be a full dilapidation survey carried out jointly by the Contractor and the SRU Facility Manager.

In the initial stages of design it was considered likely that ETL2 would be supported on a continuous viaduct of either steel beam and composite concrete deck, or pre-cast concrete beam superstructure. Intermediate supports were assumed to be either column or pier type and of reinforced concrete construction.

Subsequently, alternatives involving an embankment or retained fill have been brought forward as **alternative** options, to reduce both the construction period and potential construction impacts on Network Rail operations, particularly reducing disruptive possessions. This option utilizes slightly more SRU land in the permanent situation than would the viaduct option as it extends to the edge of the LOD and no land beneath the structure can be handed back to the SRU. To achieve this requires a revision of the circulation area to the south of the stadium and this has been developed as a number of options resulting in that shown in 30894 / SK008 [Rev F](#) (as shown in Appendix B). **The** structure (viaduct or embankment) will extend some 400m in length rising to a maximum height of 7m across the southern boundary of the SRU ground.

In relation to the retained fill / embankment options, several alternatives have been considered and it must be stressed that these are generic and that the final detailed design will rest with SDS and INFRACO. The findings are summarized below.

- a) Retained fill
- b) Structural embankment

Considering each of the elements of the proposed embankment in turn the following sections identify some of the salient points to note.

3.1 Retained Fill.

This is a combination of a retaining structure, which could be a vertical wall, stepped reinforced earth wall, or a crib mass wall (the latter two being amenable to soft landscape planting) with structural fill benched into the existing railway embankment. This element would extend from the west end of the viaduct over Roseburn Street to 40m west of Wanderers pavilion. The structure would extend between 2 and 3 metres north of the tramway swept path whilst still remaining within the LOD.

It is noted that the existing Railway access underpass at ch1045 will be extended under the new tramway embankment.

3.2 Full Structural Embankment.

This is a structural embankment with 1-1.5 side slopes constructed with imported fill benched into the existing railway embankment. A further refinement could incorporate a masonry toe of batter wall with stone salvaged from the existing boundary wall. This would provide a similar environment to the existing. This construction form extends from the west end of the retained fill (described in 3.1 above) to the western boundary of **the** SRU ground adjacent to the Water of Leith. The embankment would extend between 9 to 10 metres north of the tramway swept path **remaining** within the LOD provided in the Parliamentary Plans to facilitate the stabling track.

The inclusion of the stabling track at this location has been reviewed and a decision taken to relocate it further west, however it is anticipated that the need to relocate the practice pitches will remain and it is proposed that this extra width in the LOD through the rear pitches may be utilised for the provision of a more environmentally friendly embankment solution as defined in drawing 30894/SK011 Rev B (shown in Appendix C). Within the detailed design it will be possible to refine this solution and review the exact

extent of pitch relocation to ensure it is optimised between the Tram embankment to the South and the boundary fence to the north.

Note: The above could be alternatively be constructed as the retained fill section to include for the flood protection wall. Similarly the flood protection wall could be used in lieu of the masonry wall if the CEC proposed flood protection scheme goes ahead.

A retained fill solution could be applied throughout the SRU property (a length of approximately 400m). A structural embankment would not be practicable at the eastern end of the site, however, where the site is most constrained. As a result, a combination of the two construction techniques is felt to be the most appropriate to take forward to facilitate a cheaper more easily constructed solution which provides scope for a softer end result (i.e. reducing the extent of retaining wall). This would involve retained fill between the stadium and railway line, changing to a structural embankment west of the Wanderers clubhouse, in the area previously proposed for stabling track, which has subsequently been relocated further west outwith the SRU property. It is anticipated that this relocation facilitates the introduction of a structural embankment within the LOD of the City Council's Flood Protection scheme. Thus if the Council proposals are taken forward the embankment could be designed to include flood protection capacity. These proposals would encroach on the SRU ground by either 4m or 15m (depending on the structure adopted) however would all be within the Parliamentary LOD.

3.3 Construction Sequence

It should be noted that the following are initial notes regarding the form of construction and do not represent detailed or final information on this subject. A key element in working up more detailed construction sequence information in this area will be a requirement for further consultation with the SRU. Detailed design will take note firstly of major sporting events already scheduled, followed by more minor events already scheduled, as well as mechanisms for ensuring capability to manage other events which may from time to time arise.

3.3.1 Reconfiguration

A number of elements within the area between the south stand of the Stadium and the railway embankment require to be reconfigured to facilitate ongoing safe operation of the Stadium both during and after construction of the Tram. Notably the new proposals extend to the northern LOD of the Parliamentary Bill and thereby impact on the east-west spectator link which is vital to safe operation during events. Additionally there is a requirement to reconfigure the turnstiles to enable sufficient east-west movement space. Proposals to achieve this have been investigated and put to the SRU as outlined in drawing 30894/SK008.

To achieve the SRU requirements there will be a need to undertake some early work in remodelling the turnstiles, parking and paving in this area. In undertaking this, it is vital to ensure that the operational needs of the Stadium are understood both for events and on a day by day basis, and that these are facilitated in the working solutions implemented by the Contractor. For this reason final proposals will need to facilitate the requirements of SRU.

At this stage two possible scenarios have been developed:

- A. Rebuilding in a new location the turnstiles and all the necessary buildings to ensure the integral security of the SRU premises including day to day access for SRU employees. The Contractor would be required to liaise with the SRU to ensure this is achieved to meet the needs and requirements of SRU.
Note: Temporary hardstandings may be provided for parking for the exclusive use of SRU employees at a suitable location to be agreed.

The anticipated duration for this element of the work is between four and five (4-5) months. It should be noted that during this time, there would be impacts on public access from time to time and that the turnstiles would be out of operation for a period, potentially two to three (2 - 3) weeks, while the new turnstiles are built. The timing of this exercise is to be mutually agreed between SRU and the Contractor, to avoid planned events at the Stadium whilst meeting the requirements of the construction programme, and will be dependent upon delivery of the turnstiles.

- B. An alternative method could be used by constructing temporary turnstiles on Roseburn Street until such time as the permanent turnstiles can be located in their final position. This would give the advantage of total ground security and uninterrupted access to the stadium during the construction period. When the new turnstiles are constructed in the programmed sequence, the temporary turnstiles would then be removed and the boundary fence finalised (reinstated or left in place by mutual agreement between SRU and the Contractor).



This alternative would also make the construction of the west end of the Roseburn Street viaduct considerably easier. This option may impact on the overall duration of the work at Murrayfield, as it enables some elements of the reconfiguration to be carried out in parallel with the main tram works. Thus it may be possible to achieve some time savings overall. **That said however it would be the requirement of the Contractor to ensure that all requirements for Event Safety are realised** facilitated.

3.3.2 Site Establishment

Having facilitated the ongoing access to the SRU grounds in a manner acceptable to SRU, there would be a need to establish the extent of the Construction Site. This would include the erection of security fencing along the boundaries of Network Rail and the limits of construction within SRU's land. The exact nature of the fencing would be agreed with SRU, to ensure suitable hand back of appropriate elements of the LLAU in advance of major events as outlined elsewhere in this document.

Once the site had been secured there would be a requirement for site clearance of the area including all the existing structures. Where this includes advertising boards, these would be relocated to appropriate locations as agreed with SRU.

3.3.3 Construction of the Retained Fill/Structural

Embankment will follow and is expected to take between nine and twelve (9-12) months, depending on the type of construction adopted, and would be a linear form of construction working from east to west. During this period, the Contractor will ensure that SRU land and premises are secure at all times.

Once the Major works of Roseburn Street viaduct and the retained fill / structural embankment are completed, the finishing work will be applied to elements within the '*temporary use*' (and in the case of Option B above '*reconfiguration*') LLAU area, including the car park and the turnstiles and fencing will be carried out. As noted elsewhere it will be the Contractor's responsibility to ensure that the works are made safe and the area handed back to the SRU sufficiently ahead of any Major event.

3.4 Construction Technique Summary

Whilst the earlier work indicated a continuous viaduct through the stadium area, subsequent work has indicated significant savings to all parties by the use of earth embankments. The mechanism for achieving this is yet to be finalised however it is believed that a variety of methods may be applicable at different locations along the route through SRU land, with a retained solution to the eastern end giving way to a more open embankment along the south of the back pitches. These methods will also reduce the size and number of construction plant required and the number of disruptive possessions required.

The work to construct the embankment or viaduct to the south of the stadium is to be undertaken as a single continuous activity. Once the main Civil construction (retaining wall, earthworks etc.) is completed it is envisaged that the majority of the contractors activities would be completed within the LOD.

In undertaking the work it is anticipated that early preparation work may take four to five (4-5) months with the heavier embankment work taking a further nine to twelve (9-12). As this indicates it is anticipated that all the works in the SRU grounds will be completed within a period of eighteen (18) months, and that construction work will be continuous throughout the 18 month period. **As outlined above a viaduct option would require a considerably longer construction period.**

3.5 Construction Programme

DAVID Ramsay Input required

4. Code of Construction Practice

A Code of Construction Practice has been introduced by **tie** its purpose is to define standards of construction practice in so far as they affect the environment, amenity and safety of local residents, businesses, the public and the physical surroundings and the natural and cultural heritage in the vicinity of proposed works.

A local Code of Construction Practice will be generated out of the findings of work detailed in this document to control specific activities of the contractor within SRU vicinity.

tie will establish an appropriate person ['the Supervisor'] to ensure compliance with the Code by all contracting parties. Compliance with Applicable Legislation, Codes and Standards, etc.

Compliance with this Code will not absolve the Contractor from compliance with all legislation, Codes and Standards relating to construction. The Contractor shall be responsible for ensuring compliance with the current versions of all legislation, Codes and Standards. Wherever this Code refers to any Legislation, Standards or Codes it shall be the Contractor's responsibility to ensure that the current versions are used at all times.

4.1 Environmental Management System

The Contractor will implement an Environmental Management System in accordance with ISO 14001.

4.2 Liaison and Public Information

The Contractor shall appoint a liaison officer to manage all public relations, information and press related matters, who shall liaise with **tie**, The City of Edinburgh Council, SRU, other statutory bodies, members of the public, press and the media on all matters relating to the works. **tie** will establish a single point of contact to deal with all issues relating to SRU.

4.3 Hours of Working

Normal hours of working for construction of Edinburgh Tram shall be Monday to Saturday 07.00 – 19.00 hours. However it is anticipated that large amounts of the works will have to take place at night during Network Rail possessions. The contractor would require both normal and disruptive possessions to progress the construction and of particular importance are the disruptive possessions which last from approximately 12.00 midnight on Friday until 06.00 on Monday morning and have to be booked 80 weeks in advance.

4.4 Site Housekeeping

A 'good housekeeping' policy shall be applied at all times. This shall include, but not necessarily be limited to, the following requirements:

- (i) all working areas shall be kept in a clean and tidy condition;
- (ii) all working areas shall be a no-smoking area. Specific areas within the site shall be designated as smoking areas and shall be equipped with containers for smoking waste. These shall not be located at the boundary of the site adjacent to neighbouring land;
- (iii) open fires shall be prohibited at all times;
- (iv) all necessary measures shall be taken to minimise the risk of fire and the Contractor shall comply with the requirements of the local fire authority;
- (v) radios (other than two-way radios used for the purposes of communication related to the works) and other forms of audio equipment shall not be operated on any work site;
- (vi) any waste susceptible to spreading by wind or liable to cause litter shall be stored in enclosed containers;
- (vii) rubbish shall be removed at frequent intervals and the site kept clean and tidy;
- (viii) hoardings shall be frequently inspected, repaired and re-painted as necessary;
- (ix) adequate toilet facilities shall be provided for all site staff;

- (x) food waste shall be removed frequently;
- (xi) Wheel-washing areas shall be brushed clean frequently.

The Contractor shall inspect all working areas at least fortnightly and shall provide a written report on compliance with this section of the Code to **tie**. A nominated representative of **tie** may carry out inspections of the site at any time without prior notice of time and place of the inspections. Access to all areas of the works shall be available to visiting inspectors and the Contractor shall give inspectors all reasonable assistance during their site inspection.

4.5 Fencing and Hoardings

The Contractor shall ensure that all working areas are sufficiently and adequately fenced to prevent the public and animals from straying on to working area. In line with SRU's Operational Safety Policy fences and gates should be of appropriate height and strength and should not provide the opportunity for hand or footholds which might assist climbing. Hoardings shall be provided to suit the location but may be:

- (i) A wire mesh fence, where appropriate for minimum security needs, or
- (ii) A 2.4 m minimum height, plywood faced, timber framed boundary hoarding, of a surface density of not less than 7kg/m² or other hoarding providing equivalent security and noise attenuation, in the vicinity of noise sensitive neighbours, or
- (iii) Other designs where a particular appearance or acoustic rating is considered to be required and is agreed with The City of Edinburgh Council.
- (iv) Where appropriate hoarding and fencing will be required to withstand crowd loading.

At present the preferred fencing option is a Darfen Steelhoard Sitescreen that has several safety, installation and appearance benefits over other fencing options.

Hoardings that create poorly lit pedestrian routes shall have bulkhead lights fitted and these shall be illuminated at all times when the adjacent street lighting is lit.

The Contractor shall ensure that where hoardings are provided, they are painted on the side facing away from the working area in a colour and style to be approved by **tie**, The City of Edinburgh Council and SRU and that the public side of the hoarding carries signs that identify the project and give appropriate Contractor contact information.

All hoardings shall be maintained in a neat and tidy condition.

The Contractor is expressly prohibited from displaying or allowing to be displayed any advertisement, notice, etc including illicit bill or fly posting on the hoardings. The Contractor shall ensure that all graffiti, fly posting or defacement to the hoardings is removed and made good or obscured within 48 hours.

An information board shall be provided at each working area detailing information on the work programme and estimated duration of the works, together with the web address and a 24-hour telephone number for use by members of the public who wish to lodge complaints or comments.

All works fencing and hoarding shall be removed as soon as reasonably practicable after the completion of work. In relation to the permanent gates and fences it should be noted that these are to be agreed with the SRU ensuring the provision of adequate time for adequate consultation and review by the SRU in advance of the contractors programme to erect the fences or gates.

4.6 Access and Loading

Lorries shall enter and exit the site in a forward direction, except where space restriction does not permit this. If the reversing of vehicles into public spaces is required, then a responsible person observing the rear of the vehicle shall properly control the movement. The sounding of audible reversing alarms shall not be permitted outside normal working hours, except where this has been approved by The City of Edinburgh Council in connection with works permitted under Clause 3(c). Entry/exit conditions shall be subject to prior approval by The City of Edinburgh Council before implementation.

4.7 Security

Adequate security shall be exercised by the contractor to protect the public and prevent unauthorised entry to or exit from the site. Site gates shall be closed and locked when there is no site activity and site security measures shall be implemented. Event day security is discussed in the Safe Operation on Event Days section (1.5) later.

4.8 Access for Emergency Vehicles

Routes for emergency service vehicles and personnel to gain access to work sites, the construction corridor and neighbouring sites along the route shall be agreed with the emergency services, The City of Edinburgh Council and SRU prior to the start of construction.

4.9 Noise, Dust and Air Pollution

The Contractor shall have a general duty to take all practicable measures to minimise nuisance from noise. The noise limits specified in this section or which may be otherwise agreed with The City of Edinburgh Council shall not be regarded as a licence to make noise up to the stated limit.

The Contractor shall take all necessary measures to avoid creating a dust nuisance during construction and demolition works.

5. Safe Operation on Event Days

SRU is required to ensure compliance of the terms and conditions set out in the General Safety Certificate regarding operational safety, issued by the Local Authority under the definitions contained in the Safety of Sports Grounds Act 1975 as amended by the Fire Safety and Safety of Sports Act 1987.

In order to comply with the Act during construction, discussions have been held with SRU and their agents to identify general and specific requirements regarding provision of safe and workable access for the public, emergency services and stadium staff during events. It is SRU policy to take reasonable care to see that people entering their premises are not injured or suffer damage by dangers due to the state of the premises. The safe entry, movement and egress of spectators are of paramount importance to SRU, a view shared by the Promoter. Included in discussions with SRU are the requirements for a period to set up before and then take down after an event. It is hoped that through consultation a degree of flexibility will be achieved between SRU, CEC, **tie** and the Contractor to ensure that all parties operations are maximised whilst disruption is minimised.

The main concerns raised by SRU are the requirements to ensure safe access and egress to and from the stadium and to provide an adequate safety area should there be an incident during an event.

Within the LLAU there are areas identified that will be required to be fully released back to SRU for major events and also for agreed periods before and after major events to allow setting up and taking down. These areas will be required for emergency services, TV access and crowd access between the east and west of the stadium -and to turnstiles. There will need to be adequate fencing/hoarding between the remaining LLAU and the released access areas to ensure adequate safety. An adequate designated and agreed zone will also be required as a safety area in the event of an emergency incident.

For the purposes of this agreement a Major Event is to be defined in agreement between the SRU and the CEC safety officer. Unless agreed otherwise (on an event specific basis) it will be assumed that an event which invokes the requirement of the Section 50 agreement is a 'major' event which will require the clearance of the site and handback of appropriate LLAU areas to the SRU and their authorised agents. However at the sole discretion of the CEC safety officer and with the SRU agreement a lesser handback may be negotiated between the parties.

During events all LLAU areas inside the perimeter of the Stadium (Stadium boundaries as defined in SRU Operational Safety Policy 2) will be closed to the contractor, including the East-West Link, car park and access to rear pitches. The Contractor will ensure that all requirements of the Stadium Manager, Safety and Security officer and CEC are met to enable events at the Stadium to take place safely and with the minimum of disruption.

A set of protocols and procedures will be developed by **tie** and the Contractor in conjunction with SRU to deal with matters moving forward such as programme of works, safety management, interface with CEC and procedures during the period of any events. In coordination with SRU, **tie** and the contractor will programme all Stadium events into the construction programme. SRU produce a detailed programme for each event, and it is the key elements of this programme that will be incorporated into the construction programme. It is proposed that the construction programme be broken down into different periods, 'White' periods where there are no events at the Stadium and the Contractor has full access to the site, 'Blue' periods where there are minor events taking place and there will be some limitations but the Contractor will still have access to the site, and 'Red' periods where major events are scheduled and the contractor will not have access to the Stadium or the east-west link

There are approximately 8 major events in the Stadium each year plus other events such as Edinburgh Rugby matches which have much smaller crowds. At the major events, the back pitches are used for car parking, and there are approximately 5 other large events on the back pitches each year not including use by Murrayfield Wanderers and other teams training and playing. Although the turnstiles at the west stand are capable of dealing with the public accessing all areas of the stadium, if there is overcrowding at these turnstiles the public are diverted towards the east-west link to use other entrances. At present the east-west link is open for public passage both before and after all events.

For all events the Contractor and **tie** will coordinate with the Stadium Manager at the pre event planning meetings to establish the requirements to ensure that the Stadium is prepared for events. **tie** and the Contractor will also attend the post event de-brief meeting to get feedback on the event. **tie** and the Contractor will comply with the Safety and Security Officers inspection plan leading up to an event, and the CEC, Police and other agencies inspection which is normally undertaken the day before an event. Contact details will be provided to the Stadium Manager, Safety and Security Officer and to the Control Point of the **tie** and contractor Nominated Persons who will be available 'on call' for the duration of events. The Contractor will also provide a works team on stand-by leading up to an event, to deal with any issues arising from the preparations. The Contractor will, in all cases, adhere to the Transport Initiatives

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2\consultation\scottish rugby union (sru)\sru local construction plan\version 6\05-11-23 d6 sru local construction plan.doc

Edinburgh (**tie**) Edinburgh Tram Code of Construction Practice(Code of Construction Practice). The Code of Construction Practice gives guidance on, amongst other things, Security, Access for Emergency Vehicles and Site Housekeeping. (See section 4 above) The Contractor security requirements for event days will be discussed with SRU, Police, CEC and the Contractor to ensure that the security arrangements implemented are in line with the stadium security policy.



6. Alignment Impact on Access to Stadium

As stated earlier, during all events the Contractor will not have any access inside the Stadium perimeter.

During construction it is proposed that the fence between the east-west link and the access road within the Shared Access LOD (No. 9) would be removed to ease vehicular access to the site. This section of fence would be reinstated for events to segregate the east west link from the vehicular access to the Shared Access LLAU, Temporary Use LLAU and the areas excluded from the LLAU within the Stadium boundary.

In a similar manner the existing fence within the Temporary Use LLAU (separating the Television compound and the East West Spectator link) could be removed by the Contractor whilst he has control over the site, but would require to be reinstated as part of the site handback process in advance of a major event as outlined above. This would require to be completed in a manner which secures the east-west link in a safe manner for its intended purpose.

The area of 'Normal' LLAU to the west of the Wanderers clubhouse (located on pitch 1) will be surrounded by hoardings as described in 4.6 and secured back to the southern boundary. In the vicinity of exit gate E5 the hoarding will be aligned to maintain good egress characteristics from the stadium. There will be a solid gate for access to the compound at the corner of the east west link where it turns north round the clubhouse. This gate will form a controlled site access and be governed by a security hut. The compound gates will be locked and the agreed security regime implemented during events. Any signage requirements to be attached to the hoardings to direct the public towards turnstiles will be agreed and installed prior to any event. It is noted that the disabled parking facilities are at present located on pitch 1 and a contingency plan for disabled parking and access would have to be implemented.

6.1 Major Events

It is proposed that for major events ('Red' areas on the construction programme) the east west link is cleared and opened for pedestrian access. The Temporary Use LLAU (no. 4 on drawing SK05) would be cleared and the fenceline along the east west link reinstated to maintain segregation between vehicular access to the 'Stickyard' car park, the television compound and the pedestrian link.

6.2 Minor Events

At minor events with small crowds ('Blue' on the construction programme) it is proposed that the east west link remain closed to the public and access to the Stadium be from the north, west and east. Due to the smaller crowd numbers and the ticket allocation strategy for minor events it would be likely that the public would be located in the west and east stands and that they could access these areas from inside the stadium perimeter without the need to use the east west link. However as for major events the temporary fence at the east end of the east west link would be reinstated to maintain the vehicular access control over the 'Stickyard' car park.

As noted above, notwithstanding the indication within the parliamentary documentation the proposals for the tram alignment through land owned by SRU has been reconsidered and rather than a continuous viaduct as previously proposed it is now anticipated that a retained earth solution will be implemented.

The alignment layout of the tram is for the line to run along the southern boundary of the stadium site. By placing this on embankment it will be benched into the railway embankment however will also encroach into SRU land impacting on the east west spectator link for the stadium. As a result there is a need to reconfigure the area between the stadium and the rail embankment to ensure adequate provision for efficient and safe movement in this area both in day to day and event usage. This reconfiguration requires to be facilitated in accordance with the requirements of the 'Guide to Safety at Sports Grounds' and in agreement with both the SRU and the City of Edinburgh Council Safety representatives.

Headroom clearance to the overhanging deck of the Roseburn Street bridge is to be a minimum of 5.3m so there should be no restriction to normal road vehicles along this corridor. It must be noted that the viaduct layout and sections prepared to date are conceptual only and do not form part of the client's specification for the final design of the scheme. However, it will be a requirement on the designer to ensure the eventual layout does not restrict vehicle access or pedestrian access by restricting the east west spectator link.

At Roseburn Street the viaduct crosses the main vehicle and pedestrian access entrance. The principal issues at this site are the positioning of the support columns, which may restrict the clear width of the gate, and the headroom as the viaduct passes over.

To address these a possible structural layout has been prepared. This provides for one column to be positioned to the immediate south of the access and one within the existing dividing fence line. As the width between is greater than the normal overall deck width, the superstructure would be supported by a crossbeam extending full width between the piers to give clear vehicle and pedestrian access beneath.

[c:\documents and settings\dpedi\local settings\temporary internet files\olk18\05-12-13_sru local construction plan_v8.doc](#) [I:\projects\30894 edinburgh tram line 2\consultation\scottish rugby union \(sru\)\sru local construction plan version 6\05-11-23 d6 sru local construction plan.doc](#)

Outline vertical alignment of the tramway has been developed so that a minimum 5.3m clearance can be achieved beneath the crossbeam. All structural elements within the HA defined vehicle impact zones will be required to meet impact requirements or adequate protective barriers provided.

The SRU have expressed concern about existing issues regarding the access from Roseburn Street to their premises and are anxious to ensure that none of these lead to deficiencies in the amended design imposed by the introduction of the tram. Notably it will be important to ensure that adequate sight lines for vehicles entering or leaving the access are achieved. Parking provision is to be made so as to optimise the available space taking into consideration the occasional use by larger vehicles (for example the need for television lorries to have safe and efficient access and egress from their delegated area for match coverage). Additionally issues such as signage and lighting require careful attention in the detailed design. To ensure that the SRU concern is fully and properly understood it is proposed that the detailed design include consultation with the SRU seeking their input to the proposals.

7. Impact on Wanderers Clubhouse

In the final scheme there will be some impact on the Wanderers Clubhouse and its immediate surroundings. The existing two storey access stairway and the single storey storeroom structures currently sited on the south elevation protrude into the expected line of the reconfigured east west spectator link and it is anticipated that they will require to be relocated to provide necessary space and permit a replacement access ~~roadway~~ past the building. That said however other alternatives to adjust the tram embankment locally at the clubhouse could offer an alternative solution which should be considered in detailed design. The following text however is based on the assumption of achieving a straight uninterrupted walkway.

7.1 Access Stairway Structure.

Should the existing clubhouse access be revised it would be necessary for the promoter to provide upgraded access provision appropriate to modern disabled access standards. This would be facilitated within the scheme proposals.

The existing two storey access stairway structure is of fairly simple steel frame construction, clad with a combination of timber, glass, masonry and profiled steel sheeting. The structure protrudes approx 4m from the main building line and is some 3.2 m in width, with a simple purlin supported steel sheet and monopitch roof. A steel container box exists sited against the west elevation of the stair and would require ~~removal~~ / relocation.

Internally, most elements of the steel frame are exposed to view, RHS posts at outer corners and framing I- beams at first floor and to underside of roof. Access from ground to first floor level is provided by two flights of 1.3m wide precast concrete stairs with an integral half landing and steel ballustrading. After careful removal of existing satellite dishes and external floodlighting items, demolition of the cladding envelope and lifting away of the precast stairway elements would allow access to the structural steelwork, which could be unbolted and removed from the steel frame of the main section of the clubhouse. The ensuing opening created by stairway removal at both levels on the south elevation can then be closed-in with cavity blockwork / brickwork walling and blue coloured profiled cladding, to match existing external walls, albeit that some localised simple foundation works to provide necessary support for new walling may be required. The new wall leafs can be readily tied and toothed-in to the existing structure.

The existing roof of the clubhouse building features substantial eaves overhangs on all elevations carrying the rainwater gutter system. The section of roof at the existing stairway location would require remedial work locally, to replicate the existing eaves details and ensure continuity of gutter lines. Given the existence of structural steel framing members at roof level at this location, support for such new eaves construction would be readily available.

Replacement of the access stairway would of course be necessary. This could be achieved by construction of a similar replacement 'enclosed stair', sited externally on the east elevation of the building at the southeast corner, as there is believed to be sufficient space to permit this without undue effect on the current car parking area, though some minor groundworks alteration may be required with the potential loss of one or two spaces. The new stair would however require a breakthrough opening at first floor level into the existing offices, with some re-arrangement of internal block partition walling locally, to create a suitable top-landing area.

Alternatively, consideration could be given to creating a new 'internal' access stairway within the existing entrance foyer at the south-east corner of the clubhouse. This would involve relocation of existing, or new, glazed entrance doors and screens outwards onto the external building line, with the corner column stripped of its brick cladding and incorporated into the new entrance screen arrangement. Minor alterations to extend the foyer ground slab would be required.

Locating the new access stairway within the existing 2.6m wide ground floor foyer would require formation of a local opening in the existing insitu concrete composite Ribdeck of the first floor construction. Such opening could be easily formed and framed out with supplementary steelwork, to facilitate installation of a new straight access stairway as appropriate. Again, this approach would require some re-arrangement of internal block partition walling locally at first floor, to create suitable landing/circulation areas.

This clearly shows that various options are possible however it would be necessary to work with the SRU and the occupier of the property to identify the most appropriate solution. For this reason it is proposed that further consultation is required to ensure an appropriate solution, acceptable to the building owner and tenants. Such solution must also achieve the relevant planning approvals and building warrants, as well as developing an appropriate construction method and programme which will not have an undue effect on those utilising the building.

7.2 Single Storey Storeroom

This building is approx 4m wide by 3.9m long and some 3.5m high to roof parapet. There are no windows, but a double leaf access door exists on the west elevation. Two floodlights exist externally. The structure has clearly been constructed after the original gable wall of the clubhouse, the 2.5m high cavity blockwork walls being risband jointed and probably only simply tied to the original gable. The Roof parapet is formed in 1m high blue profiled sheet cladding and a flat roof construction is thought to exist. The roof is however wholly independent of the main clubhouse roof, with drainage likely connected into the original rainwater downpipe from the clubhouse, which remains essentially intact. It is considered that the demolition of the simple storeroom structure could be easily achieved without undue disturbance to the main building.

It is anticipated that through consultation with the SRU it would be viable to relocate this facility along the east or west wall of the clubhouse as agreed with the owner and tenant of the facility, where it would continue to operate in its current capacity.



8. Relocation of back pitches

SRU has raised the issue of maintained use of the open pitches to the immediate west of the stadium. There are currently 5 pitches marked out and provision is available for a 6th. These pitches are used extensively for club matches at weekends and for training purposes during the week. All are floodlit and there is a positive drainage and irrigation system for each pitch. Furthermore some of the pitches have been strengthened to accommodate parking on event days [\(as shown on the attached drawing 30894 / SK05\)](#).

To the south pitches 2 and 3 lie, in part, within the scheme LOD and LLAU and must therefore be relocated. In doing so pitches 4 and 5 will be affected and so must also be relocated. To the north the available area for pitches is bounded by a fence and an established hedge line. To the east the area is currently bounded by the stadium access and various buildings. The land between the existing pitch 1 and these buildings will change should the proposed floodwall, as identified to be necessary within the zonal flood protection scheme by CEC, be constructed.

Whilst the overall Flood scheme solution in this area is still unresolved, it is believed that should the CEC solution be taken forward, the position of this wall could be reviewed by CEC as the proposed line will impact on the eastern boundary of the existing pitch 1 and will also affect any future pitch 6. (Note that the wall also extends along the southern boundary of the pitch area but this is within the ETL2 LOD and so is not the critical issue on location of pitches.

Lengthy discussions have been held with SRU to try to arrive at a suitable arrangement for a revised pitch layout and it is believed agreement has been reached whereby pitches 2, 3, 4 and 5 are moved northwards from their current position to a location that meets the temporary access, LLAU, and permanent boundary LOD limits. Thereby there should be no requirement to relocate these pitches on completion of ETL2 works. It is also confirmed that these pitches will only be moved during the off season to minimise disruption.

It should be noted that in addition to the 'Normal' LLAU boundary, agreement has been reached whereby an additional strip of land immediately north of this is available to the contractor on non-match days as 'Over-sailing' LLAU for craning of materials. (LLAU area No. 3)

Relocation of pitch 1 and the possible location of pitch 6 cannot be determined until agreement has been reached between CEC and SRU over the line of the proposed floodwall. This currently awaits the final outcome of the local public enquiry into these proposals carried out earlier this year (whilst the enquiry report has been issued the eventual solution remains uncertain).

Associated facilities for the pitches, including drainage, floodlighting, sprinkler system and pitch reinforcement will need to be adjusted to cover the new locations. Once final agreement has been reached on the new pitch locations a revised drainage, lighting, sprinkler and pitch reinforcement arrangement will be designed. These facilities will be replaced to at least their current standard and condition at the time of construction.

If the relocated drainage or sprinkler elements of the system are found to be within the LLAU, any pipes and/or trenches within this zone will need to be protected, either permanently or temporarily, by appropriate load distribution mats or similar to reduce the risk of damage under construction vehicle loading. As a secondary precaution should damage occur, it will be a requirement for these areas to be isolated if necessary without affecting the remaining system (note particularly that the proposed location of Pitch 1 is covered by normal LLAU and is anticipated to be used as a construction compound).

As noted above it is not possible to ascertain the exact final requirements at this time, thus it is necessary to retain an element of flexibility in relation to the details of back pitch relocation. That said however it is important to note that this element of the work will require to be completed in detailed consultation with the SRU thus minimising the disruption to the pitch usage (the bulk of the reconfiguration being undertaken outwith the regular season of back pitch usage).

APPENDICES



Appendix A – Drawing 30894 / SK05



Appendix B – Drawing 30894 / SK008



[Appendix C – Drawing 30894 / SK011](#)



NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND THE ENGINEERS DRAWING INFORMATION AND SPECIFICATIONS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATION.
3. ALL CONTRACTORS PROPOSALS ARISING FROM THE SPECIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR ACCEPTANCE PRIOR TO COMMENCEMENT OF WORKS.
4. REFER TO THE MILLER PARTNERSHIP'S INFORMATION FOR SET OUT & LEVEL REQUIREMENTS TO NEW PITCHES.
5. REFER TO CARL BRO VENTURISTS'S INFORMATION FOR IRRIGATION SCHEME AND FLOODLIGHT ARRANGEMENT.
6. THE CONTRACTOR SHALL TAKE CARE WHEN EXCAVATING ADJACENT TO EXISTING SERVICES WITHIN THE EXISTING WATER MAIN TO WEST BOUNDARY OF SITE.
7. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS:
6957 / 3002 TABULATED RAINFALL INFORMATION
6957 / 3003 TABULATED WINDSPEED INFORMATION
6957 / 3004 TABULATED RAINFALL INFORMATION
6957 / 3005 TABULATED WINDSPEED INFORMATION
6957 / 3006 TYP. MANHOLE DETAILS
6957 / 3009 TYP. DRAINAGE DETAILS
8. LEVELS INDICATED ON THIS DRAWING ARE EXISTING SURVEYED LEVELS.
9. THE CONTRACTOR SHALL LOCATE AND RECORD ALL EXISTING SERVICES WITHIN THE SITE AREA. THIS INFORMATION WILL BE SHOWN ON THE CONTRACTORS AS BUILT DRAWING.

FOR CONSTRUCTION

CONSULTING ENGINEERS

THORBURN & COLQUHOUN

17 ALBANY STREET, EDINBURGH EH1 3PY
TEL 0131-556-8216 FAX 0131-557-5421

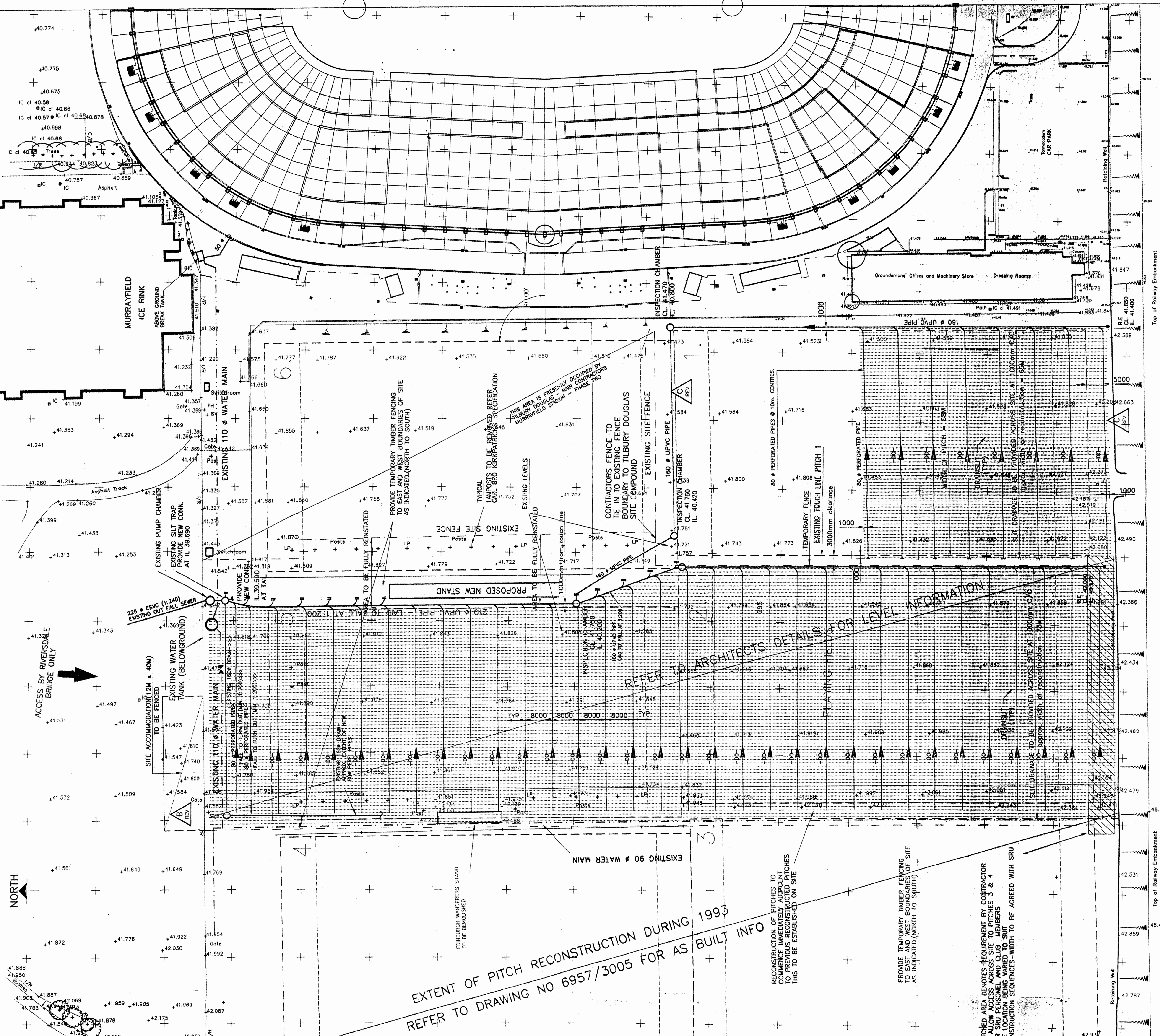
CLIENT
SCOTTISH RUGBY UNION

PROJECT
MURRAYFELD STADIUM - EDINBURGH
PHASE TWO.

DRAWING TITLE
LAYOUT PITCHES 2 & 5
RECONSTRUCTION.

| DATE | APPROVED | SCALE | DRAWN | CHECKED | DATE |
|---------|----------|-------|-------|---------|-----------|
| 31.1.94 | UT | 1:500 | UT | UT | 6957/3011 |

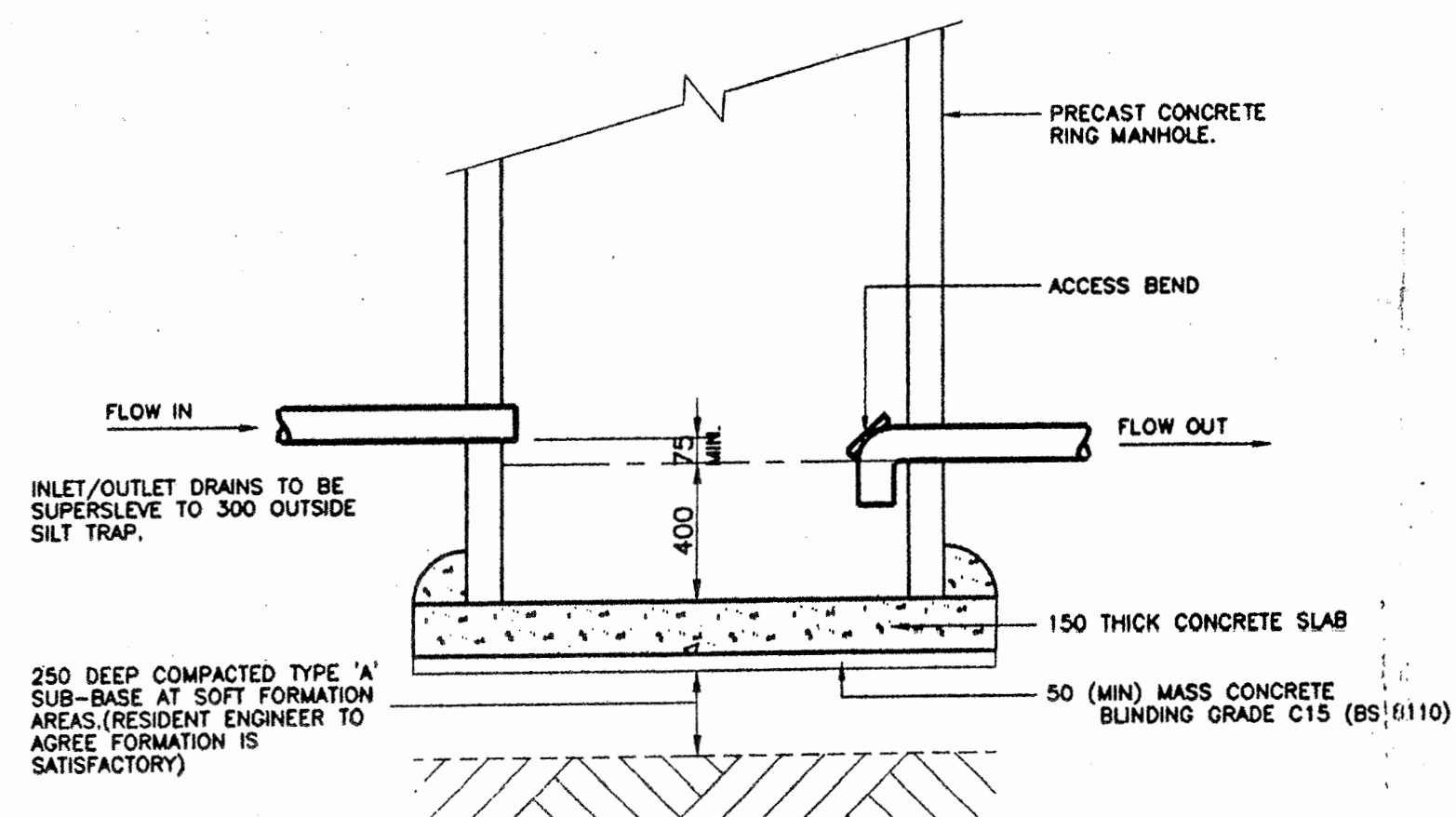
ORIGINAL DRAWING A0



EXTENT OF PITCH RECONSTRUCTION DURING 1993
REFER TO DRAWING NO 6957/3005 FOR AS BUILT INFO

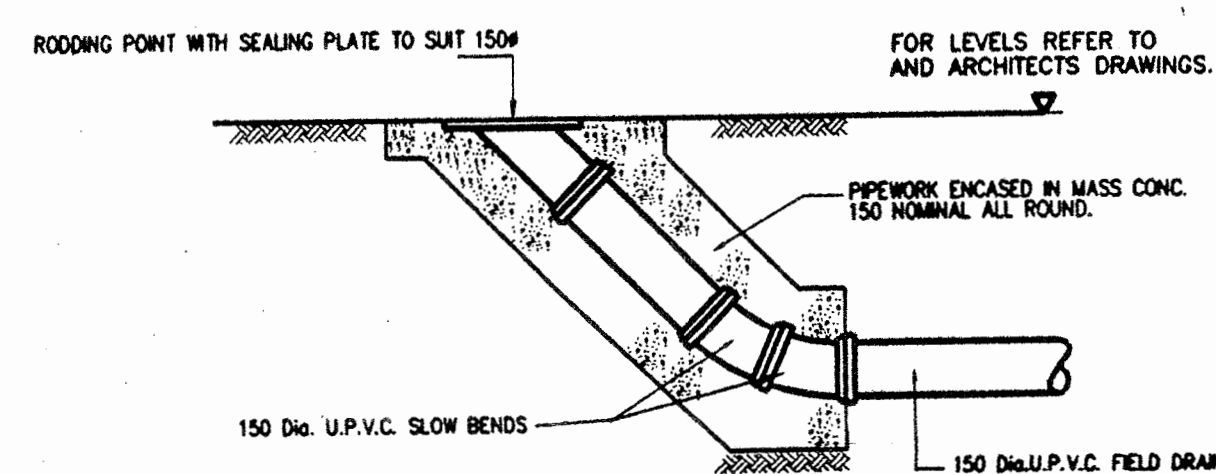
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DO NOT SCALE

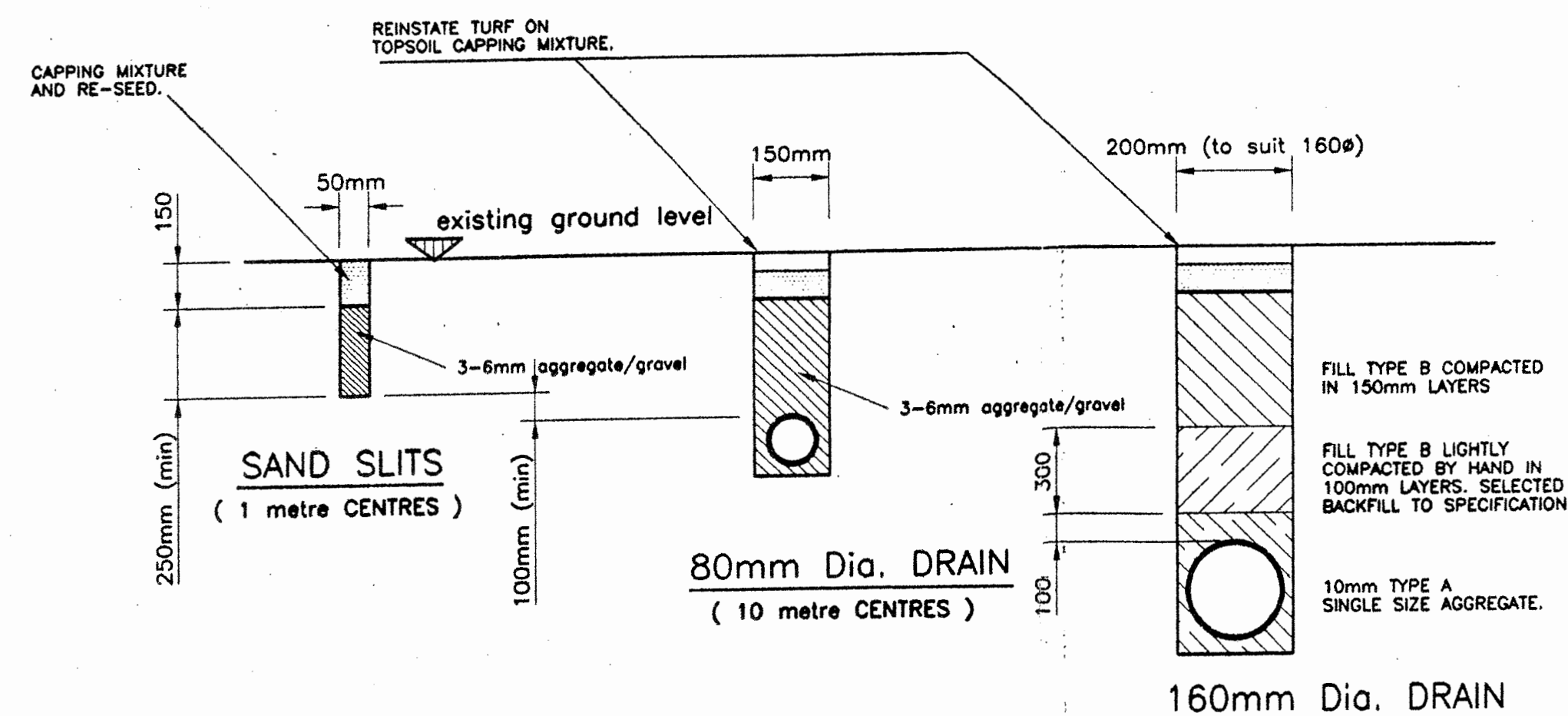


NOTE : GENERAL CONSTRUCTION
IDENTICAL TO MANHOLE DETAIL.

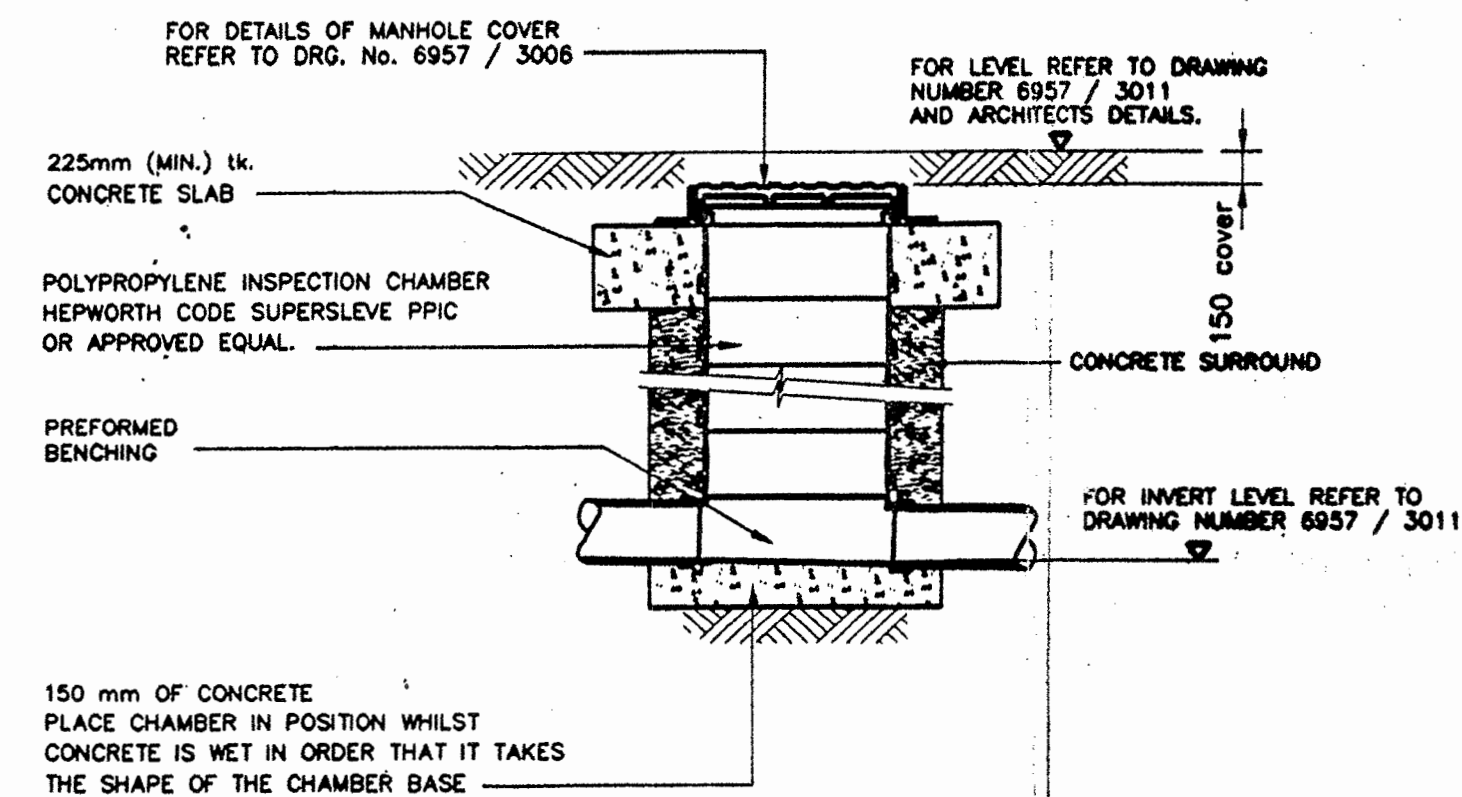
TYPICAL SILT TRAP DETAIL



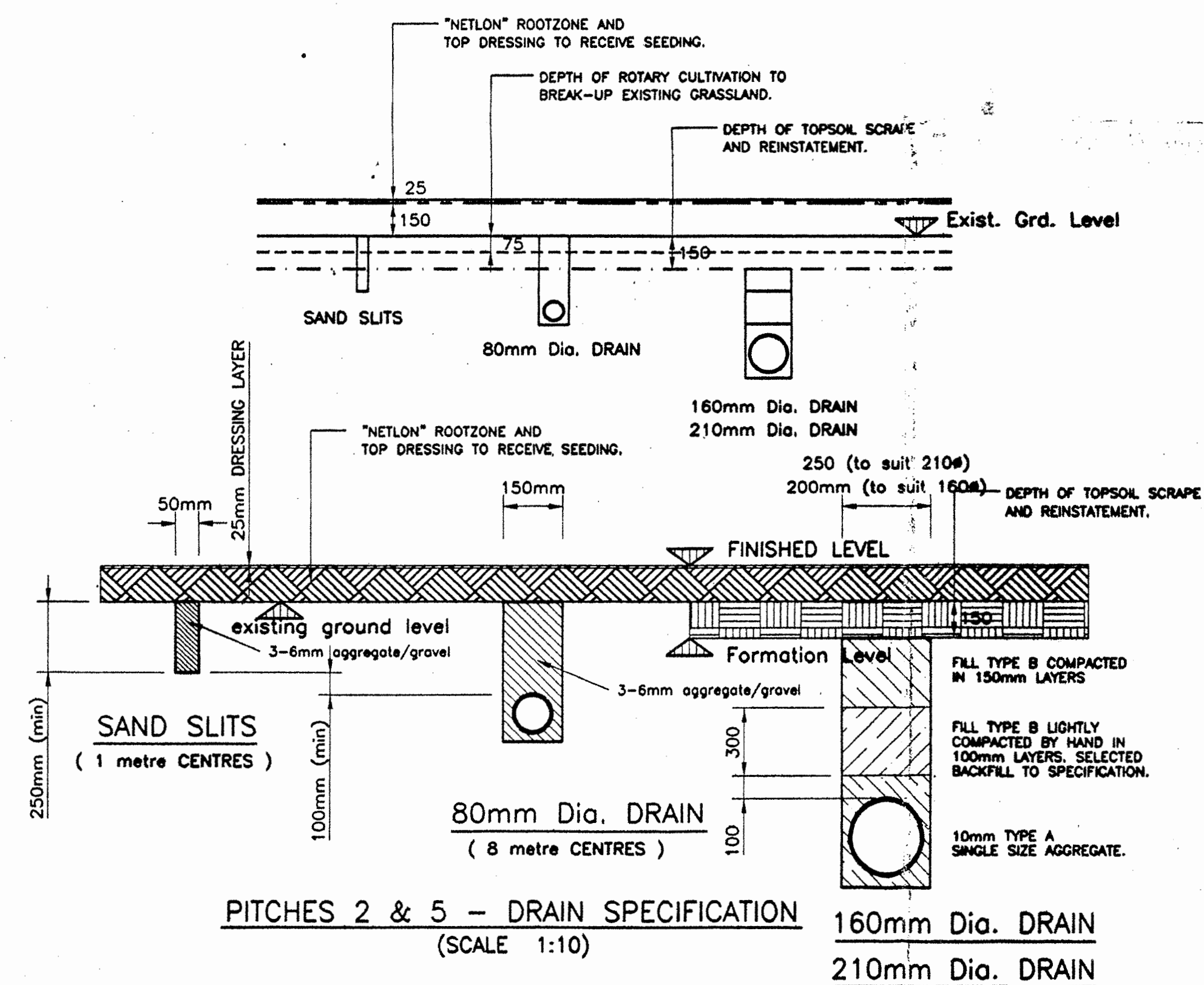
TYPICAL RODDING-EYE DETAIL



PITCH 1 - DRAIN SPECIFICATION
(SCALE 1:10)

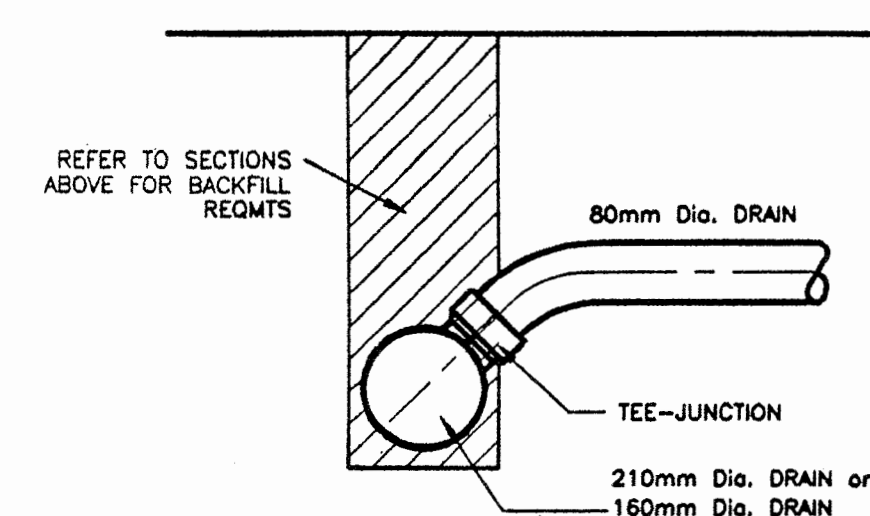


TYPICAL INSPECTION CHAMBER DETAIL



PITCHES 2 & 5 - DRAIN SPECIFICATION
(SCALE 1:10)

160mm Dia. DRAIN
210mm Dia. DRAIN



TYPICAL DRAIN DETAIL.

(SCALE 1:10)

NOTES

1. CONCRETE GRADE C30 IN ACCORDANCE WITH THE BS 8110
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS 6957/3011 & 3005 ,THE SPECIFICATIONS FOR THE WORKS AND ALL RELEVANT ARCH'T & M&E DRAWINGS

FOR CONSTRUCTION

| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| D | PITCH 1 - DRAIN SPECIFICATION ADDED | | | | | MM | 1005-9 | LI | 1005-9 |
| C | AIR VENT DETAIL DELETED;210 * TRENCH DETAIL BACK DROP DETAIL DELETED+MC PIPE REF. AMENDED TO LPMC | | | | | MM | FEB 9 | ST | FEB 9 |
| B | DETAILS DELETED,DRESSING DEPTH REVISED,JC SPEC REVISED,NOTES ADDED | | | | | MM | FEB 9 | ST | FEB 9 |
| A | DRAIN SPEC. DETAILS REVISED;TYP. PIPE BEDDING DETAILS REVISED | | | | | MM | JUNE 9 | ST | FEB 9 |
| REV | DESCRIPTION | | | | | SY | DATE | CHECK | DATE |

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- 11 SOMO SQUARE LONDON W1V 5DB TEL 071-734-8661 FAX 071-734-8664
- 17 ALBANY STREET EDINBURGH EH1 3PY TEL 031-556-8216 FAX 031-557-5421
- SEALOCK WAREHOUSE BURT STREET CARDIFF CF1 64Z TEL 0222-462426 FAX 0222-483320
- BROOK HOUSE NARBERTH BRIDGE BUSINESS PARK NARBERTH DT9D SA67 8BA
TEL 0834-861761 FAX 0834-861717

CLIENT

SCOTTISH RUGBY UNION

JOB
MURRAYFIELD STADIUM - EDINBURGH.

RECONSTRUCTION OF TWO PITCHES.

DRG TITLE

TYPICAL DRAINAGE DETAILS.

| | | | | |
|-------|-------------|---------|----------|-----------|
| DRAWN | TRACED | CHECKED | APPROVED | DATE |
| DMM | | JT | J.T. | April '93 |
| SCALE | DRC No. | | | REV |
| 1:20 | 6957 / 3009 | | | |

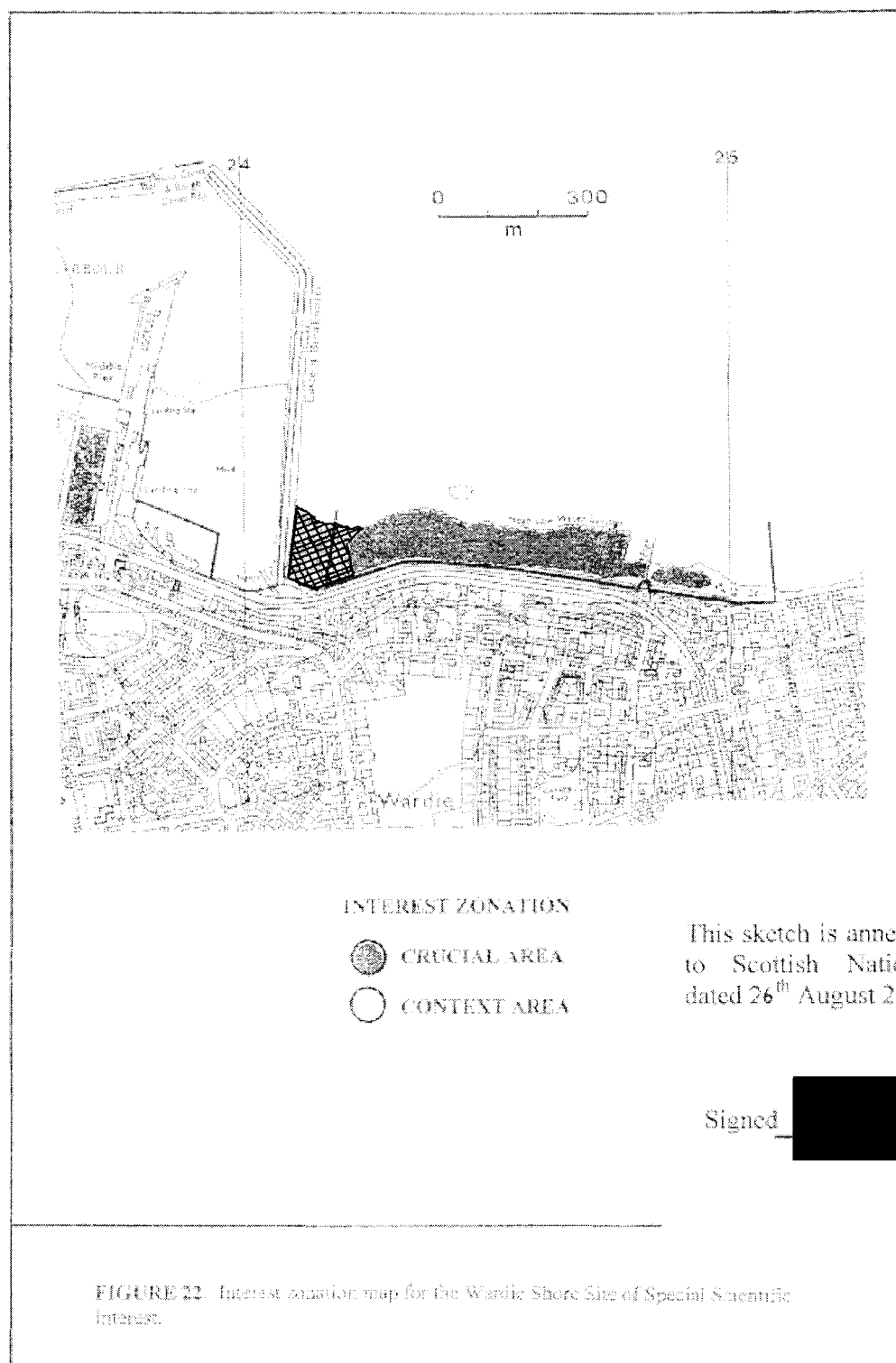
ORIGINAL DRAWING A1

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REV
05000000070 0100

Appendix 29
Scottish Natural Heritage

Plan



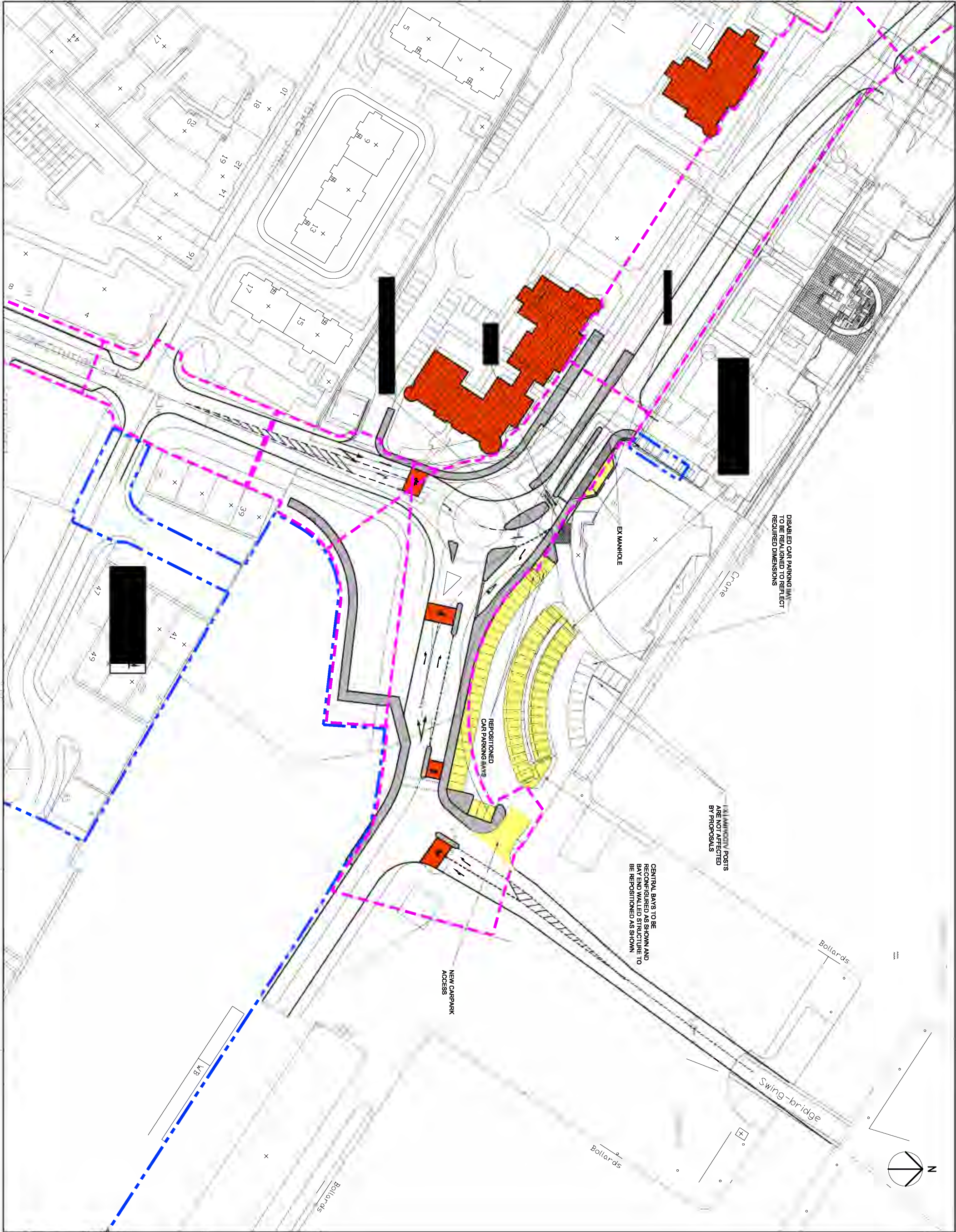
The Forth Bridge to Granton Shore and Wardie Shore Sites of Special Scientific Interest: Geological Conservation Review. Scottish Natural Heritage 1995.

Appendix 30

Stanley Casinos Limited

Part 1 (Plan 1)

Part 2 (Plan 2)



THIS DRAWING MAY BE USED ONLY FOR THE PURPOSES INTENDED AND ONLY IF WRITTEN DIMENSIONS SHALL BE USED

NOTES

- LIMIT OF DEVIATION (L.O.D.)
- LIMIT OF LAND TO BE ACQUIRED OR USED (L.L.A.U.)

Job Title

EDINBURGH TRAM

Client

Stanley Casinos

Project Name

NEW CAR PARK AND BAY PLAN 1

Drawing Scale

DRAFT A 02Jun 2006

Scale 1:1000

Scale 1:1000

Scale 1:1000

Scale 1:1000

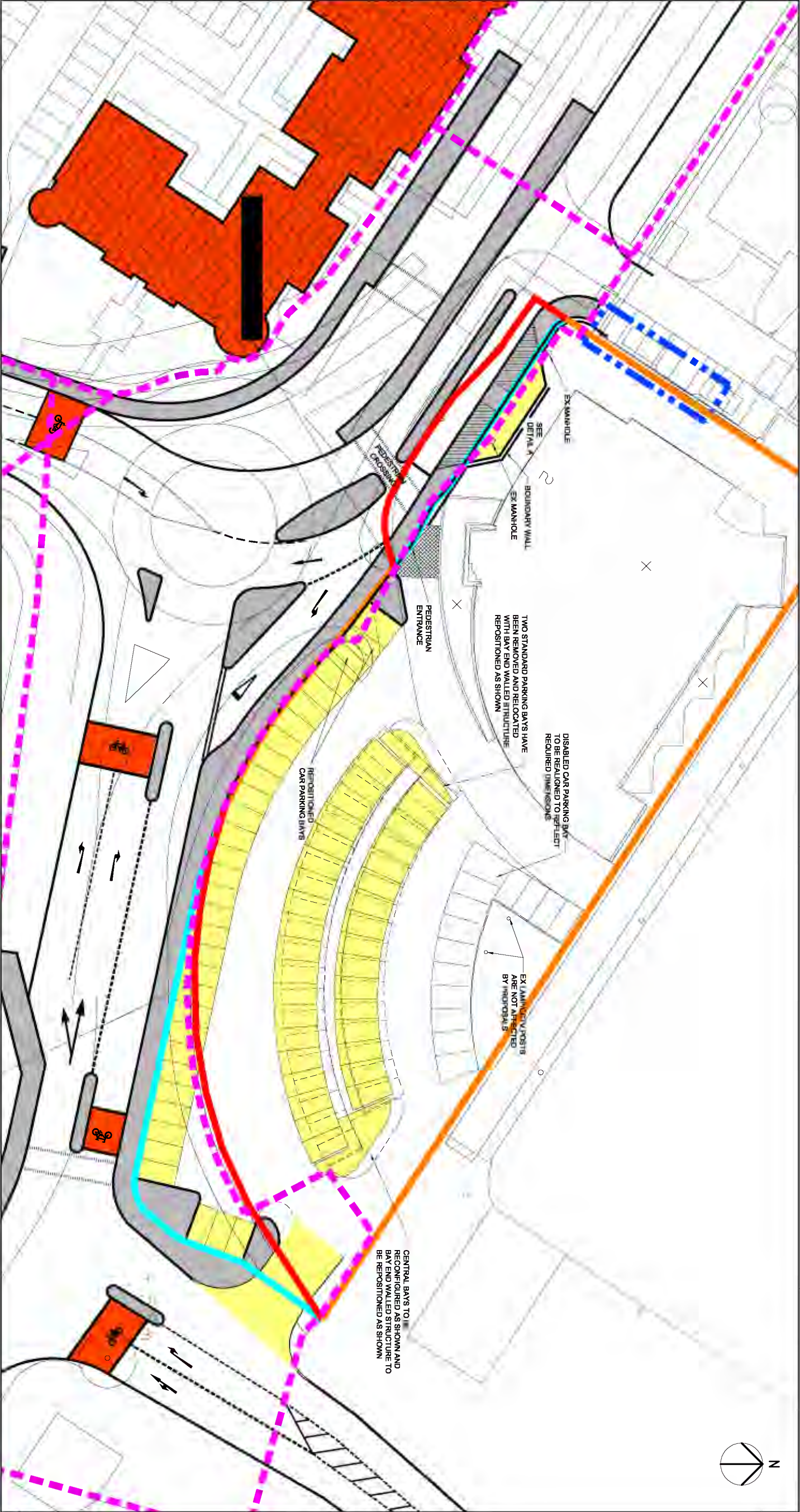
Scott Wilson Scotland Ltd

Scott Wilson

Scott Wilson

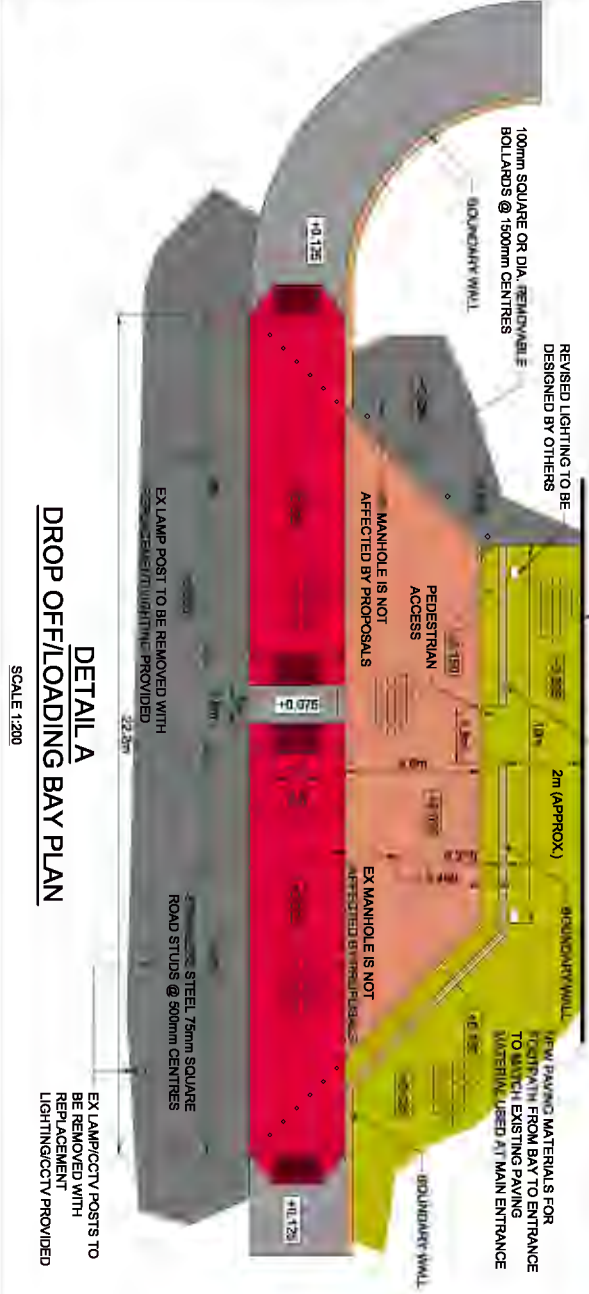
Scott Wilson

Scott Wilson



LOCATION PLAN

SCALE 1:500



DETAIL A

DROP OFF/LOADING BAY PLAN

SCALE 1:200

- THIS DRAWING MAY BE USED ONLY FOR THE PURPOSES INTENDED AND ONLY WHEN WRITTEN DIMENSIONS SHALL BE USED
- NOTES**
- LIMIT OF DEVIATION (L.O.D.)
 - LIMIT OF LAND TO BE ACQUIRED OR USED (L.L.A.U.)
 - EXISTING BOUNDARY
 - MUTUAL EXISTING AND PROPOSED BOUNDARY
 - PROPOSED BOUNDARY

Job Title
EDINBURGH TRAM

Drawing Title
STANLEY CASINOS NEW CAR PARK AND BAY PLAN 2

Client
Scott Wilson Scotland Ltd

Project
Edinburgh Tram

Location
Edinburgh

Scale
1:500

Author
Scott Wilson

Check
Scott Wilson

Drawn
Scott Wilson

Approved
Scott Wilson

Issue
1

Date
02 Jun 2006

Scale
1:500

Job Title
EDINBURGH TRAM

Drawing Title
STANLEY CASINOS NEW CAR PARK AND BAY PLAN 2

Client
Scott Wilson Scotland Ltd

Project
Edinburgh Tram

Location
Edinburgh

Scale
1:500

Author
Scott Wilson

Check
Scott Wilson

Drawn
Scott Wilson

Approved
Scott Wilson

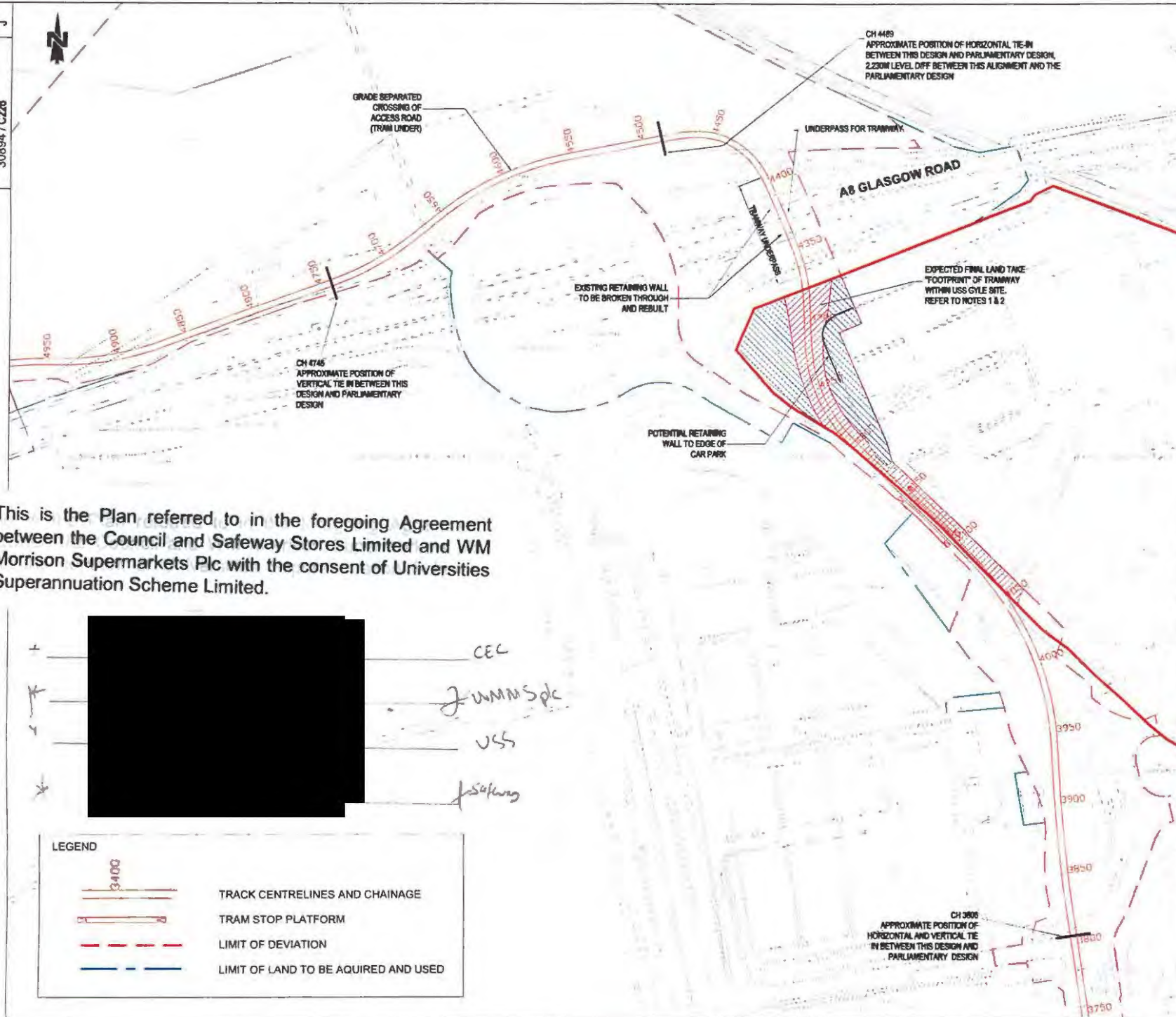
Issue
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Date
02 Jun 2006

Appendix 31

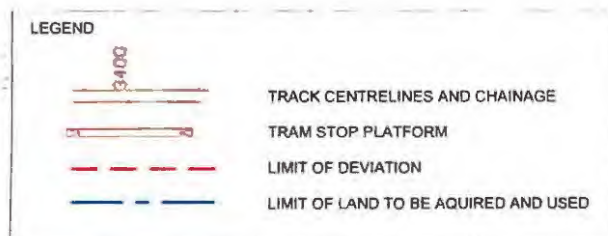
Marks & Spencer plc

Plan



This is the Plan referred to in the foregoing Agreement between the Council and Safeway Stores Limited and WM Morrison Supermarkets Plc with the consent of Universities Superannuation Scheme Limited.

CEC
Jumms plc
USS
Safeway



NOTES:

1. THE EXPECTED FINAL LAND TAKE "FOOTPRINT" WILL PROVIDE FOR A BASIC CORRIDOR OF 10m WIDTH WITH ADDITIONAL WIDTH FOR CUT AND EMBANKMENT SLOPES WHERE THESE ARE REQUIRED.
2. NOTWITHSTANDING NOTE 1 ABOVE, THE ACTUAL ALIGNMENT OF THE TRAMWAY IS SUBJECT TO ALTERATION WITHIN THE LOD, HOWEVER SUCH ALTERATION WOULD BE MINIMISED AND UNDERTAKEN IN KEEPING WITH THE UNDERSTANDING THAT THE FINAL SCHEME WILL BE SYMPATHETIC TO THE NEEDS OF USS AND THEIR TENANTS.

LEGEND

- POSSIBLE EXTENT OF LAND REQUIRED PERMANENTLY
- POSSIBLE EXTENT OF LAND REQUIRED DURING CONSTRUCTION
- THE GYLE BOUNDARY

| Rev | Description of revision | Drawn | Checkd | App | Date |
|-----|---|-------|--------|-----|----------|
| J | THE GYLE BOUNDARY ADDED. | PMH | AMS | AMS | 08/05/05 |
| H | LAND TAKE FOOTPRINT ADDED. DEPOT REMOVED. | AMS | AMS | AMS | 08/05/05 |
| G | DETAIL CORRECTIONS TO LOD LIAI | SJP | AMS | AMS | 08/05/05 |
| F | LOD & LIAI MODIFIED | PMH | AMS | AMS | 08/05/05 |
| E | LOD MODIFIED | PMH | AMS | AMS | 08/05/05 |
| D | ANNOTATION CHANGED | JMS | AMS | AMS | 08/05/05 |
| C | DEPOT LAYOUT ADDED & LOD REVISED. FIGURE REF CHANGED TO 3.4. OPTION REF CHANGED TO 3. | PMH | AMS | AMS | 08/05/05 |
| B | VERTICAL TIE IN POSITION MOVED TO CHAINAGE 4745 | SJP | YMF | AMS | 08/05/05 |
| A | FIRST ISSUE | SJP | YMF | AMS | 08/05/05 |

Client



transport initiatives
edinburgh

Project

EDINBURGH TRAM
LINE TWO

Designed

TWF

Drawn

MT

Checked

SJP

Reviewed

GM

FABER MAUNSELL

Design Office

25 Pavilion Terrace
Edinburgh, EH1 1ST

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www.fabermaunsell.com

CAD filename:

Copyright

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Title

FIGURE 3.4
OPTION 3

Size A1

Scale 1:1250 @ A1

Date 08/05/05

Status

DRAFT

Drawing No.

30894 / C228

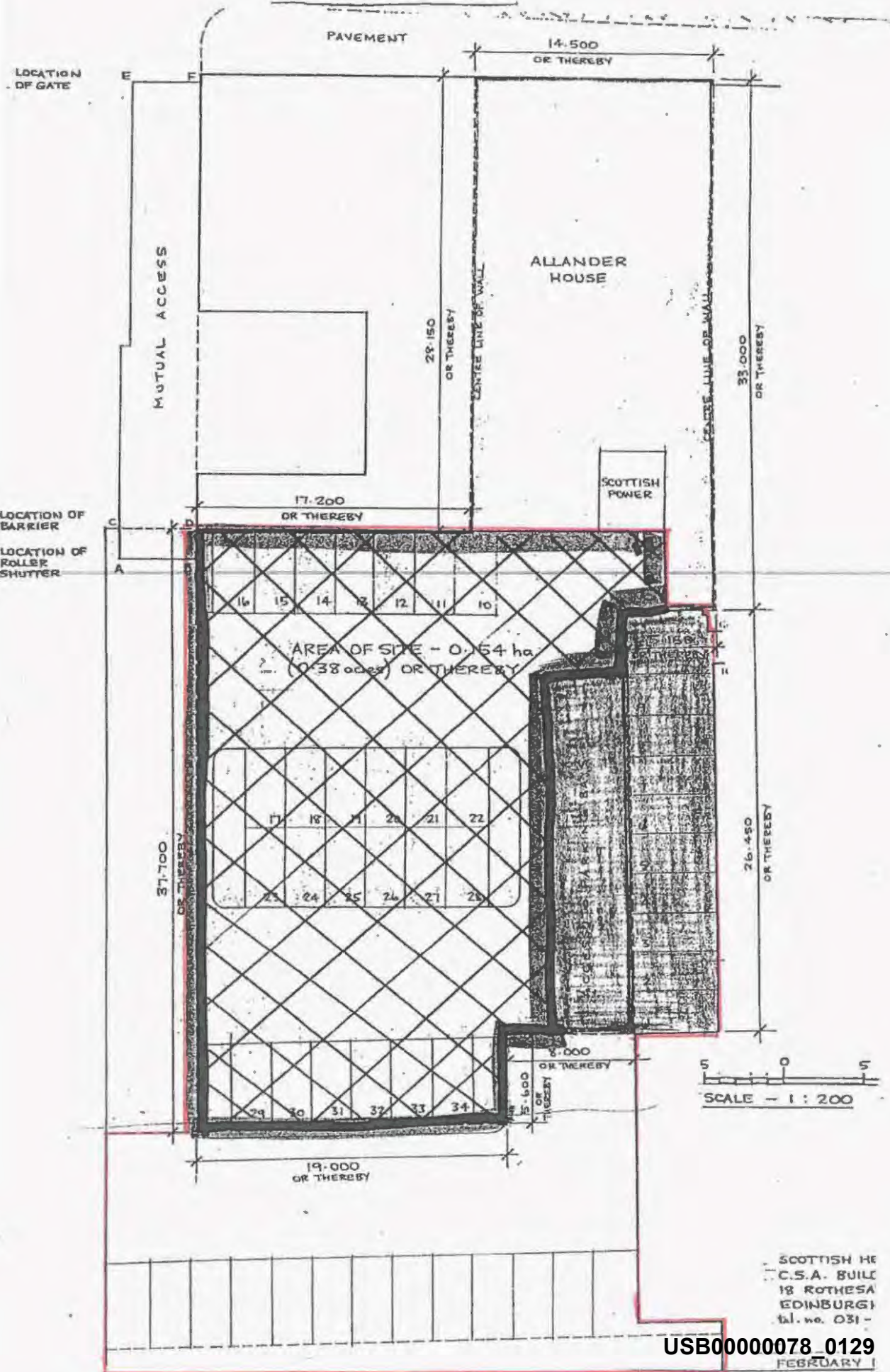
Revision

Appendix 32

Miscellaneous

Authorised Car Park

PLAN ONE





**THIS IS SCHEDULE PART 14 REFERRED TO IN THE
FOREGOING AGREEMENT BETWEEN TIE AND THE
INFRACO**

SCHEDULE PART 14

DESIGN REVIEW AND DESIGN MANAGEMENT PLAN

PART A - DESIGN REVIEW PROCEDURE

1. Introduction

- 1.1 Except where otherwise agreed in writing, the provisions of this Schedule Part 14 (*Review Procedure and Design Management Plan*) shall apply whenever any Deliverable or course of action is required to be reviewed, approved, agreed, consented to or otherwise processed in accordance with the Agreement.
- 1.2 Each submission by the Infraco to **tie's** Representative under the Review Procedure shall be accompanied by five hard copies and a soft copy (in agreed appropriate format) of the proposed Deliverable (in appropriate agreed format) to be reviewed or a statement of the proposed course of action (the entire contents of a submission being referred to as a "Submitted Item"). In relation to each Submitted Item, the provisions of this Schedule Part 14 A (*Review Procedure*) shall apply.

2. Method Statements

- 2.1 Method statements shall be reviewed using the procedure set out in the **tie** "Method Statement Review Policy" (as updated from time to time by **tie**, with the consent of the Infraco (not to be unreasonably withheld or delayed)). The current version of the "Method Statement Review Policy" is rev 0.0 and is included as Part B of this Schedule Part 14.
- 2.2 The Infraco shall submit a method statement and risk assessment for a package of work not less than 10 Business Days (or such other period as the Parties may agree in writing) before the work in question is due to be commenced.
- 2.3 No works shall commence until a method statement has been written, accepted in accordance with the **tie** "Method Statement Review Policy" and briefed to all related staff, for the works concerned.
- 2.4 Where a method statement is submitted to **tie** for acceptance, within 8 Business Days of the date of receipt of a submission (or re-submission, as the case may be) of the method statement to **tie's** Representative (or such other period as the Parties may agree), **tie's** Representative shall return one copy of the method statement to the

Infraco endorsed (subject to and in accordance with paragraph 6 (Grounds of Objection)) "Level A - no objection", "Level B - proceed subject to comments" or "Level C - resubmit".

- 2.5 If **tie's** Representative fails to return a copy of any method statement within 8 Business Days (or within such other period as the Parties may agree in writing) of the date of its submission to **tie's** Representative, then the Infraco shall re-submit the method statement stating that it is a re-submitted item. If **tie's** Representative fails to return a copy of any method statement within 5 Business Days of any re-submission, then the Infraco may, at its discretion refer the matter for determination in accordance with the Dispute Resolution Procedure.
- 2.6 If **tie's** Representative makes an objection to any method statement in accordance with paragraph 6 (Grounds of Objection), **tie's** Representative shall state the ground upon which such objection is based and the evidence or other information necessary to substantiate that ground.
- 2.7 For the avoidance of doubt, **tie's** Representative shall be entitled to make such comments on any method statement on any grounds as he sees fit but, to the extent that **tie's** Representative comments on a method statement other than on the grounds specified in paragraph 6 (Grounds of Objection), the Infraco shall not be obliged to take such comments into account.
- 2.8 Where any information that has been provided is updated, the new issues shall be provided promptly to **tie** as soon as reasonably possible.
- 2.9 The Infraco shall ensure that each method statement shall contain sufficient detail and shall be accompanied by sufficient information to enable **tie's** Representative to assess the method statement in accordance with this Schedule Part 14 (*Review Procedure and Design Management Plan*).
- 2.10 Where a revised method statement is submitted, the Infraco shall also ensure that such revision clearly identifies what revision to the method statement was made.

3. Design Deliverables

- 3.1 Design Deliverables shall be reviewed using the procedure set out in the Design Management Plan (as updated from time to time by **tie**). The current version of the Design Management Plan is version 5.3 and is included as Part C of this Schedule Part 14.

- 3.2 Within 10 Business Days of the date of receipt of a submission (or re-submission, as the case may be) of the Submitted Item to **tie's** Representative (or such other period as the Parties may agree), **tie's** Representative shall return one copy of the relevant Submitted Item to the Infraco and one copy to the SDS Provider endorsed (subject to and in accordance with paragraph 6 (Grounds of Objection)) "Level A - no objection", "Level B - proceed subject to comments" or "Level C - resubmit".
- 3.3 If **tie's** Representative fails to return a copy of any Submitted Item within 20 Business Days (or within such other period as the Parties may agree in writing) of the date of its submission to **tie's** Representative, then the Infraco shall re-submit the submitted items stating that it is a re-submitted item. If **tie's** Representative fails to return a copy of any Submitted Item within 5 Business Days of any re-submission, then **tie's** Representative shall be deemed to have returned the Submitted Item to the Infraco endorsed "Level A - no objection".
- 3.4 If **tie's** Representative makes an objection to any Submitted Item in accordance with paragraph 6 (Grounds of Objection), **tie's** Representative shall state the ground upon which such objection is based and the evidence or other information necessary to substantiate that ground.
- 3.5 For the avoidance of doubt, **tie's** Representative shall be entitled to make such comments on any Submitted Item on any grounds as he sees fit but, to the extent that **tie's** Representative comments on a Submitted Item other than on the grounds specified in paragraph 6 (Grounds of Objection), the Infraco shall not be obliged to take such comments into account.
- 3.6 Where any information that has been provided is updated, the new issues shall be provided promptly to **tie** as soon as reasonably possible.
- 3.7 **tie's** Representative shall be entitled to instruct the Infraco that a defined class of Deliverable or course of action may be submitted "for information" and not for review in accordance with this Schedule Part 14 (*Review Procedure and Design Management Plan*).
- 3.8 The Infraco shall ensure that each Submitted Item shall contain sufficient detail and shall be accompanied by sufficient information to enable **tie's** Representative to assess the Submitted Item in accordance with this Schedule Part 14 (*Review Procedure and Design Management Plan*).

- 3.9 Where a revised Submitted Item is submitted, the Infraco shall also ensure that such revision clearly identifies what revision to the Deliverable was made.

4. Not used

5. Further Information

- 5.1 The Infraco shall submit any further or other information, drawings, data and documents (including details of calculations) that **tie's** Representative reasonably requires to act in accordance with this Schedule Part 14 (*Review Procedure and Design Management Plan*). If the Infraco does not submit any such information, data and documents, **tie's** Representative shall be entitled to object to the Submitted Item:

5.1.1 on the basis of the information, data and documents which have been provided; or

5.1.2 on the grounds that insufficient information, data and documents have been provided to enable **tie's** Representative to act in accordance with this Schedule Part 14 (*Review Procedure and Design Management Plan*).

6. Grounds of Objection

- 6.1 **tie's** Representative may object to any Submitted Item on the grounds set out in paragraph 5 (*Further Information*) above but otherwise may make objections in relation to a Submitted Item if, on the balance of probabilities, implementation of that Submitted Item:

6.1.1 would not be in accordance with this Agreement; and/or

6.1.2 would result in an increase to **tie's** liabilities or potential or contingent liabilities under this Agreement; and/or

6.1.3 would be inefficient as to expenditure of resource/costs; and/or

6.1.4 would lead to a health and safety risk to any person or property; and/or

6.1.5 would lead to a breach of any Law or the terms of any Consent or Land Consent; and/or

6.1.6 would necessitate the obtaining of a new Law or the obtaining of a variation to an existing Law; and/or

- 6.1.7 would not be in accordance with any relevant environmental requirements; and/or
- 6.1.8 would not be in accordance with the Employer's Requirements; and/or
- 6.1.9 would adversely impact on the flexibility or ease of operation, run time, reliability, operating maintenance costs of revenues of the Edinburgh Tram Network; and/or
- 6.1.10 would materially adversely affect the Infraco's ability to perform its obligations under this Agreement; and/or
- 6.1.11 would materially adversely affect **tie's** ability to perform its obligations or enforce its rights under this Agreement; and/or
- 6.1.12 is not in accordance with the Infraco's quality plans; and/or
- 6.1.13 would not be in accordance with Good Industry Practice; and/or
- 6.1.14 would prevent efficient construction, completion and/or commissioning of or under the Infraco Contract; and/or
- 6.1.15 would prevent a Certificate of Service Commencement being achieved by any of the Planned Service Commencement Dates.

7. Effect of Review

- 7.1 Any Submitted Item which is returned or deemed pursuant to paragraph 3.3 to have been returned by **tie's** Representative endorsed "Level A - no objection" shall be complied with and implemented by the Infraco.
- 7.2 If **tie's** Representative returns the Submitted Item endorsed other than "Level A - no objection", the Infraco shall:
 - 7.2.1 where **tie's** Representative has endorsed the Submitted Item "Level B - proceed subject to comments", proceed with the performance of the Infraco Works in accordance with the Programme but acknowledge and take into account **tie's** Representative's comments;
 - 7.2.2 where **tie's** Representative has endorsed the Submitted Item "Level C - resubmit", not act upon the Submitted Item, amend the Submitted Item to respond to **tie's** Representative's objections and requirements in so far as they

are in accordance with paragraph 6 (Grounds of Objection), and re-submit the same to **tie's** Representative in accordance with paragraph 7.3 unless the Infraco disputes that any such objection or proposed requirement is on grounds permitted by this Agreement, in which case the Infraco or **tie's** Representative may refer the matter for determination in accordance with the Dispute Resolution Procedure, and the Infraco shall be entitled (at the Infraco's risk) to proceed to implement such Submitted Item subject to the outcome of the referral to the Dispute Resolution Procedure.

7.3 Where the Submitted Item has been endorsed "Level C", the Infraco shall within 10 Business Days (or as otherwise agreed between the Parties) of receiving the returned Submitted Item, resubmit the Submitted Item as amended to **tie's** Representative and the provisions of paragraphs 1.2 to 7 of this Schedule Part 14 (*Review Procedure and Design Management Plan*) shall apply (mutatis mutandis) to such re-submission.

7.4 The return or deemed return of any Submitted Item endorsed "Level A - no objection" or otherwise endorsed in accordance with paragraph 7.2.1 ("Level B" - proceed subject to comments) shall mean that the relevant Submitted Item may be used or implemented (subject to any comments made in accordance with paragraph 7.2.1) for the purposes for which it is intended. However, the return or deemed return of any Submitted Item howsoever endorsed shall not:

7.4.1 relieve the Infraco of its obligations under this Agreement; nor

7.4.2 constitute an acknowledgement, admission or acceptance by **tie** that the Infraco has complied with such obligations.

8. Disclaimer

8.1 No review, objection, comment or silence by **tie** shall operate to (i) exclude or limit the Infraco's obligations or liabilities under this Agreement (or **tie's** rights under this Agreement) or (ii) fix **tie** with any express or implied obligations, duties or liabilities with respect to the Submitted Item.

8.2 For the avoidance of doubt, this information is supplementary to information required to be produced by the Infraco in order to satisfy the approval requirements of and Consents from other third parties and Approval Bodies. These include those required for:

8.2.1 CEC in its capacity as planning authority;

8.2.2 CEC in its capacity as roads authority;

8.2.3 HMRI;

8.2.4 Network Rail;

8.2.5 the Utilities;

8.2.6 Transport Scotland;

8.2.7 Historic Scotland;

8.2.8 SEPA;

8.2.9 SNH; and

8.2.10 EAL.

8.3 The Infraco shall promptly provide copies of all such submissions to **tie** together with the responses to them as a matter of routine.

9. Documentation Format and Management

9.1 The Infraco shall issue five hard copies and a soft copy (in appropriate agreed format) of all Submitted Items to **tie** and compile and maintain a register of the date and contents of the submission for each Submitted Item.

9.2 The Infraco shall compile and maintain a register of the date of receipt and content of all Submitted Items that are returned or deemed to be returned by **tie's** Representative.

9.3 All drawings shall be presented as A3 sized paper copies and drawings shall be prepared at their original size in a manner that allows them to be readily legible when reduced to A3 size. Original drawings shall not be greater than A0 in size.

10. Variations

10.1 No review, objection or comment or any failure to make objection or comment under this Schedule Part 14 (*Review Procedure and Design Management Plan*) by **tie** shall constitute a **tie** Change.

10.2 If, having received comments from **tie's** Representative, the Infraco considers that compliance with those comments would amount to a **tie** Change, the Infraco shall within 10 Business Days (or such other period as **tie** may agree, acting reasonably) of

any comments being received, before complying with the comments, notify **tie** of the same and, if it is agreed by the Parties or determined pursuant to the Dispute Resolution Procedure that a **tie** Change would arise if the comments were complied with, **tie** may proceed with the matter in accordance with Clause 80 (**tie** Changes).

- 10.3 Any failure by the Infraco to notify **tie** within 10 Business Days (or such other period as **tie** has agreed) of comments being received that it considers compliance with such comments of **tie's** Representative would amount to a **tie** Change shall constitute an irrevocable acceptance by the Infraco that any compliance with **tie's** comments shall be without cost to **tie** and without any entitlement to any extension of time or other relief.
- 10.4 No alteration or modification to the scope, quality, quantity or nature of the Infraco Works arising from the development of the detailed Design or from the co-ordination or integration of the Design shall be construed or regarded as a **tie** Change or give rise to a Relief Event or a Compensation Event but for the avoidance of doubt this provision shall not effect Infraco's rights under Schedule Part 4 or pursuant to the terms of the SDS Novation Agreement.

PART B - tie METHOD STATEMENT REVIEW POLICY

1. PURPOSE

The purpose of this procedure is to ensure that we have a standard process for the preparation, contents, review and acceptance/ approval of all method statements whether created in-house or submitted by a contractor. This procedure is created to meet the requirements of the company Integrated Management System (IMS) which reflect the criteria specified in International Standards Organisation (ISO) BS EN ISO 9001, 14001 and Occupational Health and Safety Assessment Services (OHSAS) 18001.

2. SCOPE

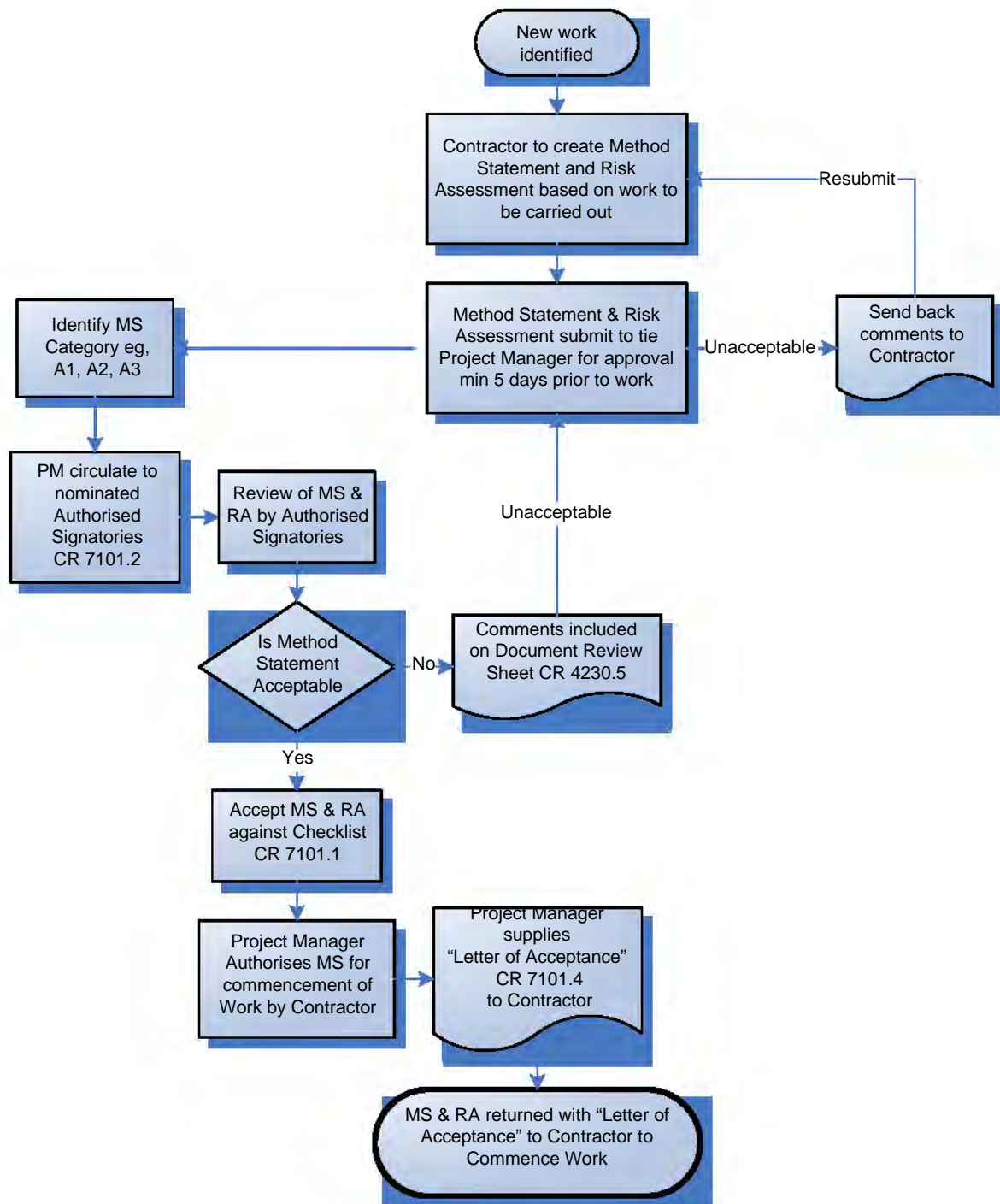
The scope of this procedure shall address all method statements which are produced for all elements of work and that any risks and impacts associated with the work element are assessed and appropriate control measures are put in place to allow the work to be undertaken safely and in an environmentally compliant manner and in accordance with contract requirements.

When writing the method statement the author/ contractor shall ensure that all necessary items are covered and the format and consistency of information is achieved in accordance with the work being carried out.

All contractors and sub contractors shall provide method statements with consistent content and the appropriate approvals, prior to commencing work. Method statements shall be specific to the work content and shall NOT BE OF A GENERIC NATURE ensuring that adequate coverage of all safety, quality and environmental aspects are addressed.

A formal system for acceptance of all Method Statements detailing the contractors proposed work activities within each work site shall be assured in accordance with this procedure, prior to site works commencing.

3. FLOWCHART



4. RESPONSIBILITIES

4.1 Company Responsibility

The company is responsible for ensuring that everyone works in a safe and environmentally friendly fashion, which includes not only employees but all associated 3rd party contractors whilst undertaking work at any **tie** worksite.

4.2 Management Responsibilities

4.2.1 Project Director

The Project Director is responsible for nominating the authorised signatories for the signing of method statements.

4.2.2 Project Managers

Project Managers are responsible for reviewing the procedure for suitability and implementation in operation including liaison with designated responsible persons and contractor personnel, as well as acting as the key contact person in liaison with the contractors over the accuracy and content of the method statement to meet the requirements of the contract. Project Managers shall record all related method statements, maintaining and updating the method statement tracker database, final acceptance/ sign-off of the method statement lies with the Project Manager.

4.2.3 Construction Manager

The Construction Manager is responsible for implementing the procedure and liaising with designated responsible persons and contractors in ensuring the supply of adequate method statements and risk assessments to address all related construction work on the project.

4.2.4 Project HSQE Manager

The Project Health, Safety, Quality and Environmental (HSQE) Manager is responsible for the monitoring of this procedure. Further responsibilities include liaising with the Project Manager and designated responsible persons and contractors over the accuracy and content of the method statement to meet the requirements of the contract.

4.2.5 Project Administrator

The Project Administrator is responsible for the registering, filing and retrieval of all records associated with this procedure.

4.2.6 Contractor

The contractor is responsible for the submission of all relevant method statements and relevant documentation associated with their aspects of the contract, in sufficient time for **tie** to review, accept and where discrepancies/ comments are identified, to resubmit prior to commencement of any associated work.

5. PROCEDURE

All work elements shall require a method statement to cover the methodology, safety, quality and environmental aspects of the work. Method statements must be contract, and site specific and relevant to the work being carried out.

All method statements shall be submitted through the document control process, to allow correct transmittal and tracking of these documents.

No works shall commence until a method statement has been written, accepted and briefed to all related staff, for the works concerned.

The Project Manager shall ensure that method statements are written and provided by contractors, and that they are correctly reviewed and accepted by the authorised signatories. Final acceptance/ sign-off of the method statement lies with the Project Manager. The Letter of Acceptance sign-off sheet must be completed and received by the contractor, before any work commences.

The following categories identified below can be used as guidance to assess the risk associated with the work addressed in any method statements and ensure that all relevant authorities address the review of the document prior to implementation on a project.

5.1 Categorisation of Method Statements

| CATEGORY | RISK | AUTHORISATION |
|-----------|--|--|
| A1 | Low risk. Minimum implications on human life or the Project E.g., Fixed parts protruding into passageways, excessive storage, sharp edges on equipment, low level fumes/ dust, non intrusive surveys. Subject to contractors review & approval process | Prepared by Contractor/ Sub Contractor Approved by Contractor/ Sub Contractor |
| A2 | Medium risk. Possibly implications on human life or the Project E.g., Electrical equipment which is electrically untested or worn un-inspected slings for lifting duties, intrusive surveys. Provided to tie for information | Prepared by Contractor/ Sub Contractor Approved by Contractor/ Sub Contractor For Information tie Ltd Project Manager |
| A3 | High risk. Major implications on human life or the Project. E.g., Equipment with inadequate guarding, or electrical equipment with damaged cabling, piling, earthworks. Due to high risk tie acceptance required. | Prepared & Approved by Contractor/ Sub Contractor Accepted by tie Ltd Project Manager |

A useful mnemonic to remember when addressing the Risk associated with equipment is “**GASP**” – **G**ood condition, **A**dequate strength, **S**ound condition & free from **P**atent defect.

Contractors shall be supplied with a copy of the **tie** Method Statement Requirements CR 7101.2 as guidance for the creation of method statements to suit the company requirements. This allows the checking and acceptance process to be simplified while giving the contractor the opportunity to provide the necessary information under the requisite headings.

Method statements must be submitted at least 5 working days prior to being required for operations, to avoid possible delays in revisions to content and the seeking of project acceptance signatories.

The method statement must be accepted at least 2 working days prior to the works commencing.

Any comments concerning the method statement and its content shall be recorded by the accepters using the Method Statement Review Checklist CR 7101.1 and issued to

the Project Manager for subsequent review. This shall ensure that there is no duplication of comments prior to submission to the contractor.

The flowchart which forms part of this procedure, explains the process of submission, review and re-submission.

All method statements and associated relevant information shall be briefed to the work force prior to starting work. This briefing is recorded by the contractor on their relevant briefing record attached to the method statement.

5.2 Method Statement Content

Method statements are to be compiled by the contractor or internally using the Method Statement Requirements CR 7101.2 as guidance. This procedure and the associated requirements indicate what items should be covered within the method statement, as a minimum requirement.

Method statements shall have a validity period from date of being prepared until completion of identified work. Method statements are required to be reviewed and amended, if necessary, when a work process changes ensuring that all details are still valid.

There are 17 Sections detailed within the “Method Statement Requirements” that must be addressed within a method statement, if applicable. Each heading has a guidance list as Bullet Points, detailed in the Method Statement Requirements and in the Method Statement Checklist CR 7101.1; this allows each heading to be completed using the italic notes as pointers. Other specific and pertinent information may be added if required.

Section 17 indicates what supporting information must be attached to the method statement. The list of supporting information is itemised in the table of contents and shall be ticked against each itemised aspect identifying the relevant information addressed accordingly.

The method statement must be signed by all **tie** authorised persons designated by the Project Director on the Authorised Signatories List CR 7101.3 in accordance with the “Categorisation of Method Statements” in Section 5.1 above. Prior to being copied to site; the “Letter of Acceptance” CR 7101.4 supplied by the Project Manager must accompany the method statement, this is confirmation that the method statement on site is the current issue.

The contractor shall ensure that the method statements are briefed to the operators who will be undertaking the identified work. Records of evidence of compliance showing that operators having been briefed, by a competent person must be available as proof that briefing have been carried out. Signed briefings are objective evidence, of staff understanding, of the application of the method statement relevant to the work that they have to carry out.

5.3 Further Supporting Information

Additional information such as risk assessments, Control of Substances Hazardous to Health (COSHH) assessments, environmental impacts, permits to work, drawings, design details, hazard directory/ log and sectional appendices including extracts may also be required to fully support the information in completing a method statement. If this information is required, it shall be annotated and attached to the method statement.

6. HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS

This procedure directly impacts on the health, safety and environmental requirements of the individuals and related project work.

7. REFERENCES

7.1 External Documents

The following external documents are referenced herein.

| Doc Type/ Number | Document Title |
|-------------------------|--|
| BS EN ISO 9001 | Quality Management Systems – Requirements |
| BS EN ISO 14001 | Environmental Management Systems – Specification with guidance for use |
| OHSAS 18001 | Occupational Health & Safety Management Systems – Specification |

7.2 Internal Company Documents

The following **tie** documents are referenced herein.

All identified records are deemed part of the company management system and shall be maintained in the live files for a period of one year and then in archive for a period of 5 years.

| Doc Reference Number | Document Title |
|----------------------|------------------------------------|
| CP 6220 | Learning and Development Procedure |
| CR 7101.1 | Method Statement Review Checklist |
| CR 7101.2 | Method Statement Requirements |
| CR 7101.3 | Authorised Signatories List |
| CR 7101.4 | Letter of Acceptance |

8.0 DEFINITIONS & ACRONYMS

The following definitions and acronyms apply to this document.

| Word or Acronym | Definition |
|-----------------|---|
| Acceptance | The process of reviewing and acknowledging the content of the method statement, as suitable to ensure that the identified risks have been mitigated and controlled. |
| COSHH | Control of Substances Hazardous to Health |
| GASP | Good condition, Adequate strength, Sound condition & free from Patent defect |
| Hazard | Anything that has the potential to cause harm. |
| HSQE | Health, Safety, Quality and Environment |
| High Risk | A condition or practice likely to cause:- loss of life/ plant/ equipment or property; or a dangerous occurrence reportable under RIDDOR. |
| IMS | Integrated Management System |
| ISO | International Standards Organisation |
| Low Risk | A condition or practice which may result in:- minor, non disabling injury or illness which results in little or no lost time; or minor non-disruptive damage to plant, equipment or property. |

| Word or Acronym | Definition |
|-----------------|---|
| Medium Risk | A condition of practice which is likely to:- cause serious injury or illness resulting in temporary disability to one or more persons; or damage to plant, equipment or property, which results in disruption to normal activities. |
| OHSAS | Occupational Health & Safety Assessment Services |
| Risk | The level of harm that will arise from a hazard with or without control measures in place. |

9.0 TRAINING

Education and Training associated with this procedure shall be carried out in accordance with Company Procedure for Learning and Development CP 6220.

All the employees, consultants and contractors are required to be made aware of the requirements of this procedure and the relevant legislation associated with its implementation. All operators shall be briefed on method statements relevant to their area of work.

10. DOCUMENTATION CHANGE CONTROL HISTORY

| Revision | Date | DCR No | Reason for Change |
|----------|------------|--------|--|
| 0.0 | 25/09/07 | 0017 | 1 st Issue |
| 1.0 | 18/12/2007 | | Re-define of use on comments from Project Managers |

PART C - DESIGN MANAGEMENT PLAN

CONTENTS

| | | |
|-------|--|----|
| 1. | Purpose..... | 20 |
| 1.1. | Plan Objectives | 20 |
| 1.2. | Documentation Structure | 20 |
| 2. | Overview | 21 |
| 2.1. | Detailed Design | 21 |
| 2.2. | Design Review Process..... | 21 |
| 2.3. | Revision of design..... | 22 |
| 2.4. | Submission of Designs..... | 23 |
| 2.5. | Technical Approvals | 23 |
| 2.6. | Prior Approvals | 24 |
| 2.7. | Design Review | 24 |
| 2.8. | Design Assurance Statement..... | 24 |
| 2.9. | Key Responsibilities | 25 |
| 2.10. | Definitions | 25 |
| 3. | Key Activities | 26 |
| 3.1. | Overview..... | 26 |
| 3.2. | Reporting | 27 |
| 3.3. | Monitoring, Reviewing and Auditing | 27 |

1. Purpose

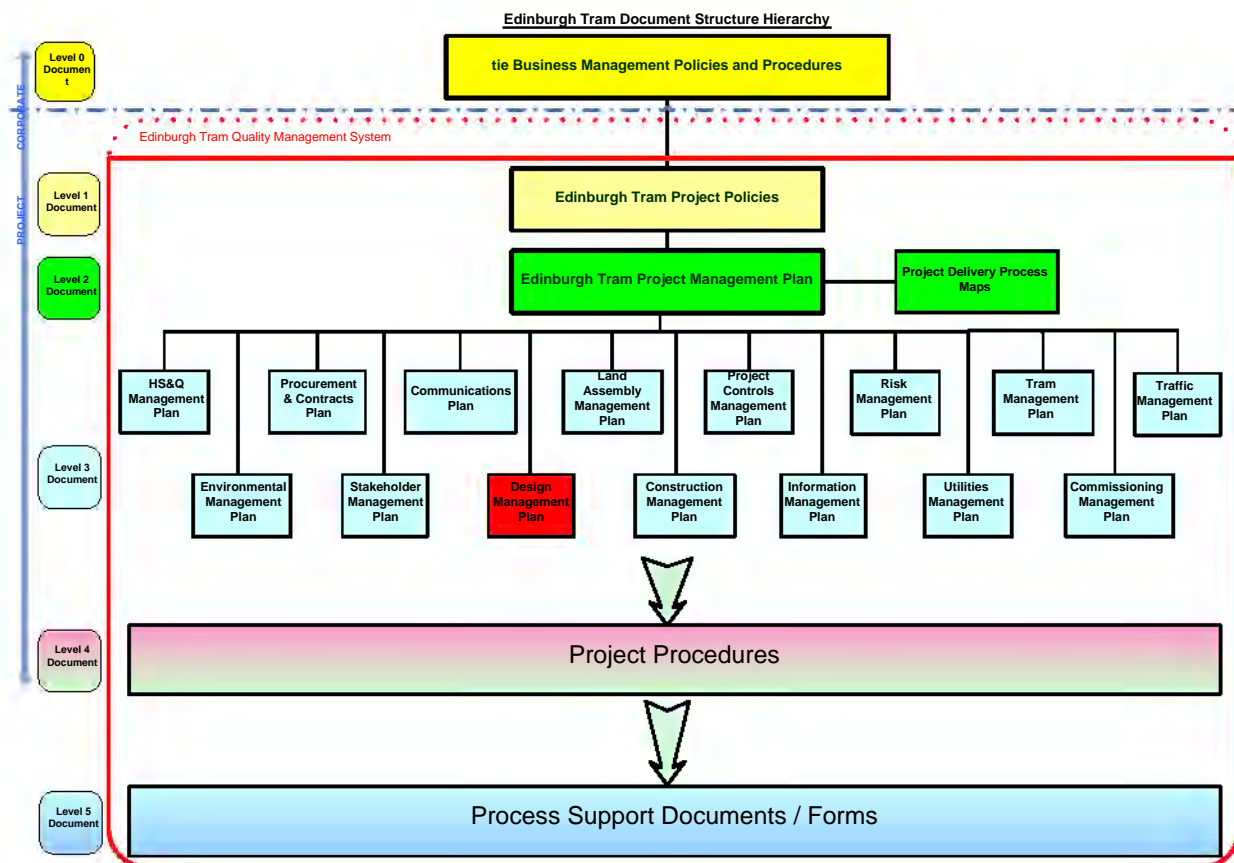
1.1. Plan Objectives

1.1.1. To provide the overall strategy for the detailed design of ETN and its subsequent review.

1.1.2. This plan will be reviewed regularly to ensure effectiveness.

1.2. Documentation Structure

1.2.1. The following chart highlights where the Design Management Plan sits in relation to the overarching Edinburgh Tram Project Management Plan and the various other work stream plans developed specifically for the Edinburgh Tram Project. The Design Management Plan is viewed as a Level 3 Document within the Hierarchy, whereby any associated procedures and support documents will be referenced within it.



2. Overview

2.1. Detailed Design

2.1.1. Post-novation of the SDS Agreement, and the Tramco Agreement respectively, the complete Tram system detailed design, which is relevant for the Infraco scope of works, will be delivered by Infraco.

2.1.2. Infraco is the principal party in respect of design, with the SDS and Tramco contracts for design and build novated to them. In the notes below, where the term 'SDS/Infraco/Tramco' is used, it is intended to refer to a process managed by Infraco in respect of these novated arrangements.

2.1.3. The effectiveness of detailed design is critical to the success of ETN. It:

- allows the Infraco to construct and maintain the works within the constraints of the Infraco Agreement;
- delivers a wide range of statutory and non-statutory approvals;
- achieves system safety to the requirements of safety legislation via the ICP; and
- provides a design which complies with the requirements of the Parliamentary Acts and within the constraints set out by Promoter.

2.1.4. Detailed design takes the preliminary design forward to achieve a series of deliverables, which are tailored to obtain consents and approvals and to provide all information required to allow the Infraco works to be constructed.

2.1.5. In addition to the design covered by SDS, certain design elements will be produced directly by Infraco. This also includes all necessary system integration activity, including integration of the tram vehicle into the system.

2.1.6. Through Infraco, Tramco will design the tram vehicle and any necessary activity to ensure that the vehicle can be integrated into the tram system, as defined by Infraco.

2.2. Design Review Process

2.2.1. As required, designs will each be reviewed, for, or under:

2.2.1.1. **'Prior Approvals'** - a CEC planning approvals process, which is in lieu of a full council Planning Committee application for matters of public interest which require such approvals (as defined in the relevant Acts). Documents submitted for Prior Approval generally present outline design information that will require further development to detailed design standard after Planning Permission has been granted. Note: the tram vehicle as well as any temporary works and temporary traffic management measures are not subject to Prior Approval (see para 2.6.1). **Prior Approvals** comprise:

- An Informal Consultation: a period of consultation of 8 weeks duration with CEC Case Officers to allow a good understanding of design content and basis.
- The Prior Approval itself: an administrative process of 8 weeks duration carried out with the delegated authority of the CEC Planning Committee which provides formal planning consent to designs which require it. **This element of the process causes designs to be made public following Informal**

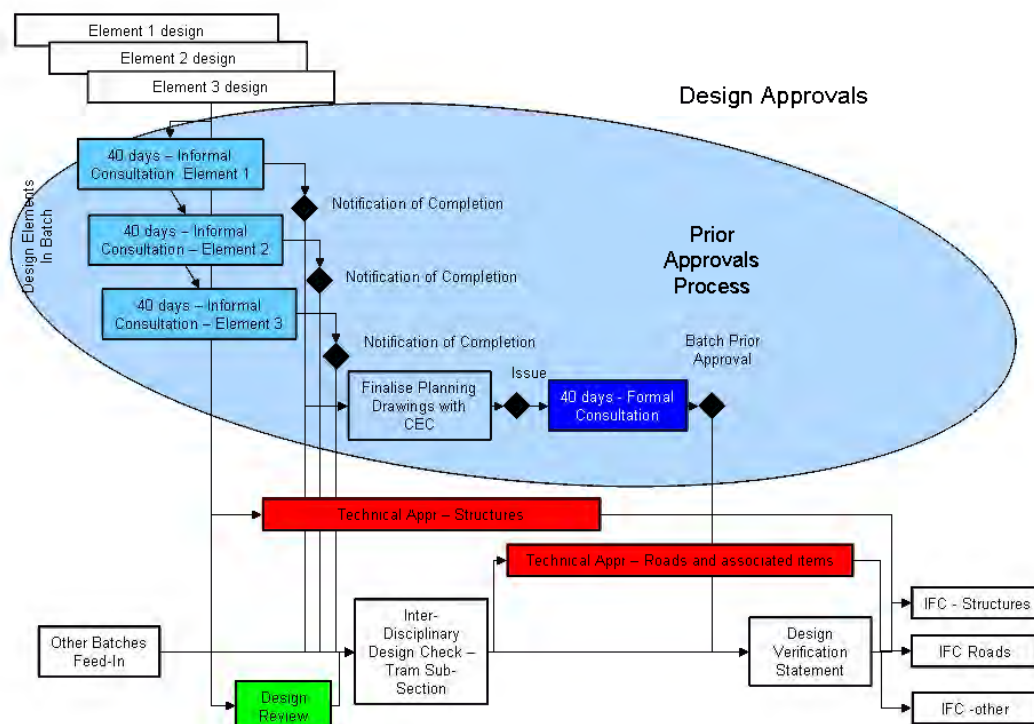
Consultation. A protocol exists to deal with exceptions to this process which requires a full application to the Planning Committee

2.2.1.2. **Technical Approvals** of the designs provide formal technical approvals for the various design elements by the relevant competent authority. Usually, these will be sought from CEC, in respect of their statutory authority role. However, others will also be needed from bodies such as the Scottish Environment Protection Agency, Scottish Natural Heritage and the Department for Transport. Unless otherwise agreed with CEC a review period of 8 weeks shall apply for all Technical Approvals associated with CEC. Technical Approvals may include, as appropriate:

- **Approvals in Principle (AIP)** for structures in accordance with the requirements of CEC or Network Rail in their role as Technical Approval Authority. Documents submitted for AIP generally present outline design information that will require further development to detailed design standard after AIP has been granted.

2.2.1.3. A **tie**-led 4-week **Design Review** process, which includes stakeholders and BBS, SDS, CAF and Transdev whose purpose is to review selected design packages for the effective integration of design elements to create an operationally acceptable tram system. The tram vehicle design will itself be subject to this design review process.

[Omit flow chart]



2.2.2. The management arrangements and associated accountabilities are defined in Section 2.9, below.

2.3. Revision of design

2.3.1. It is possible that revision of some completed design elements may be required from time to time. This may occur, for example, because a Value Engineering opportunity is identified, **tie** issues a Change Order, or SDS/Infracore/Tramco issue a Change Request.

For major changes, whatever the source of initiation of the change of design, the new design must undergo all necessary design processes to ensure IDC and overall compliance with requirements.

2.3.2. Minor design changes can be agreed between SDS/Infracore/Tramco and **tie** outside the formal design review process. Minor design changes are defined as those changes that do not affect the nature, scale and principal detailing of a design proposal.

2.3.3. Typical examples for minor design changes are:

- Alternative rebar arrangements required to suit construction methods
- Adjustments to pipe / duct runs to avoid potential underground features
- Local adjustments to the positions of highway features such as re-positioning of signs to avoid clashes with underground services
- Correction of errors by the designer
- Clarifications on drawings, such as adding dimensions

2.3.4. It should be noted that the list of minor design changes above is not exhaustive. Through an appropriate process, as part of their management system, it is for SDS/Infracore/Tramco to make the case for each such change to be designated as minor.

2.4. Submission of Designs

2.4.1. SDS/Infracore/Tramco will submit packages of design to **tie** electronically, to an agreed programme. Before this happens SDS/Infracore/Tramco will have been an integral part of a number of interfacing activities, whose purpose it is to inform detailed design such that it is most likely to be as expected at first submission and to ensure that all technical interfaces are co-ordinated.

2.5. Technical Approvals

2.5.1. Technical Approvals requirements will be defined by any or all of **tie**, CEC, Network Rail, Department for Transport. Matters which require Technical Approval by CEC are defined by the Council's duties under the Roads (Scotland) Act 1984. These are primarily concerned with the structural integrity of the completed design and with roads design. It is CEC's practice to handle as much as possible within the roads Technical Approval so that, for example, roads construction consent and overall roads design approval are dealt with in a single submission. The systems design and tram vehicle are not subject to CEC Technical Approval; they are subject to design review by **tie**.

2.6. Prior Approvals

- 2.6.1. 'Prior Approvals' requirements will be defined by CEC. Matters which require Prior Approvals are defined by Section 73 of the Edinburgh Tram Acts and Class 29 in Part 11 of Schedule 1 to the Town and Country Planning (General Permitted Development) (Scotland) Order 1992. These are mainly the structures, the overhead line equipment, lighting, tramstops and any buildings. The tram vehicle as well as any temporary works and temporary traffic management measures are not subject to Prior Approval.

2.7. Design Review

- 2.7.1. The purpose of the **tie**-led Design Review process is to take selected packages of submitted design and review them for the fit of the design with stated requirements. It is primarily concerned with providing assurance that **tie** can demonstrate to the Independent Competent Person that the requirements of ROGS are being met. It does so by addressing the design as an effective integration of design elements to create an operational tram system which meets the requirements. **The design review is not an approval process and does not dilute the accountability of SDS/Infracore/Tramco for good-quality, fit-for-purpose design and securing approval for that design.** In the event of a clash between offered design and stated requirements the review will include the taking of a decision as to the required outcome.
- 2.7.2. Issues which emerge comprise a Record of Review (RoR), co-ordinated by **tie** which then will be addressed by SDS/Infracore/Tramco and transferred into other similarly applicable designs.
- 2.7.3. The overall permanent works design comprises several hundred design elements. Generally, SDS/Infracore/Tramco shall prepare Design Assurance Statements (DAS) for the combination of all design elements relevant for each geographic sub-section and submit these together with the design data for **tie** review.

2.8. Design Assurance Statement

- 2.8.1. Packages of design will be submitted to **tie** by SDS/Infracore/Tramco with an associated Design Assurance Statement, which will detail how the design complies with statutory, stated and best-practice requirements.
- 2.8.2. When packages of design have been submitted for review, the review will comprise examination of how each package demonstrates:
- How it meets the Employers Requirements
 - How it meets stakeholder requirements
 - How it meets the Approvals and Consents requirements (including CEC and other 3rd Parties)
 - How it closes issues raised in previous Records of Review
 - How it complies with engineering standards – or how it handles non-compliances (SDS to specify following initial review period)
 - How it meets the Verification and Validation requirements
 - How it mitigates hazards from the Hazard Log
 - How it meets the Detailed Design Case for Safety
 - How it meets the CDM requirements

- How it is “Fit for Purpose”
- How it meets the CEC Street’s Design manual
- How it meets the CEC Tram Design Manual
- How it meets requirements, comments or ROR issues raised at PD, TDWG or RDWG and by CEC at PD1
- How it meets with run-time requirements
- How it meets with RAMS definitions

2.8.3. Where sub-packages of design are submitted for review, whilst a full DAS may not be available, a written statement of conformance with the maximum possible inclusion of the main points above is required.

2.9. Key Responsibilities

2.9.1. **tie’s** Engineering Services Director is responsible for the overall management of this Plan, chairing the **tie**-led design reviews; arbitrating where during design review a conflict arises over offered design and stakeholder requirements; and ensuring that this Plan is effective and is complied with. He shall also assist Infraco during the design approval and consultation process, noting that final accountability for gaining approvals rests with Infraco.

2.9.2. SDS/Infraco/Tramco is responsible for detailed design and for management of the external approvals process to ensure successful approval of the design, first time. Infraco is the principal party in respect of design with the SDS and Tramco contracts for design and build novated to them. Where the term ‘SDS/Infraco/Tramco’ is used it is intended to refer to a process managed by Infraco in respect of these novated arrangements.

2.9.3. **CEC** is responsible for ensuring their compliance with timescales within this plan and for attendance at necessary meetings required during the process.

2.9.4. Stakeholders are responsible for appropriately resourcing the requirements of this Plan such that their needs are covered.

2.10. Definitions

- **CEC**: City of Edinburgh Council. Promoter of the Edinburgh Tram Network (ETN).
- **Stakeholder**: a party who has a stated requirement to be complied with.
- **SDS**: The Systems Design Services contractor – i.e. Parsons Brinckerhoff and its sub-contractors.
- **Infraco**: The appointed Infraco - i.e. BBS
- **Tramco**: The appointed Tramco - i.e. CAF
- **TSS**: The Technical Services and Support contractor – i.e. Scott Wilson and its sub-contractors.
- **ICP**: The Independent Competent Person, as defined in the ROGS regulations; a person independent of the project appointed by **tie** to signify his non-objection to the overall tram system’s construction, operation and maintenance.

3. Key Activities

3.1. Overview

3.1.1. The “RACI” Chart below details key tasks and their associated functional roles:

| | Key Tasks | Functional Roles | | | | |
|--|---|-------------------------------|--------------------|-----|--------------------|--------------|
| | | Engineering Services Director | SDS/Infraco/Tramco | TSS | CEC. TEL, Transdev | HSQE Manager |
| Processes to inform detailed design | Set up meetings | A | R | CI | CI | CI |
| | Attend meetings and ensure appropriate people in attendance | A | R | C | C | C |
| | Prepare minutes of meetings | A | R | CI | CI | CI |
| | Raise RFIs and incorporate changes | A | R | CI | CI | C |
| | Respond to RFIs and raise changes | A R | C I | C I | C I | C |
| Detailed design | Raise issues for resolution | A | R | CI | CI | CI |
| | Incorporate all requirements | A | R | CI | CI | CI |
| | Verify design adequacy and quality | CI | AR | CI | CI | CI |
| | Prepare package delivery schedule | CI | AR | CI | CI | CI |
| | Prepare package verification detail | C | AR | C | C | C |
| Procedure Audit | Set up audit plan to cover this Design Management procedure | A | C | C | C | R |
| | Conduct audit and report results | A | CI | CI | CI | R |
| Design Review | Manage process | AR | CI | C | CI | CI |
| | Monitor programme | AR | CI | CI | CI | |
| | Compile management reports | A R | CI | CI | CI | CI |

RACI is an acronym for:

R = Responsible – owns the delivery of the Activity

A = to whom “R” is **Accountable** – must sign-off (approve) the output of the Activities

C = to be **Consulted** – has information or capability to contribute to the activity

I = to be **Informed** – must be notified of results

3.2. Reporting

3.2.1. The Engineering Services Director will report 4 weekly to the Project Director.

3.3. Monitoring, Reviewing and Auditing

3.3.1. The Engineering Services Director shall regularly monitor the effectiveness of this Plan and shall formally review it at least once every three months.

The HQSE Manager shall audit compliance with this procedure to a schedule commensurate with the perceived risk.