

David Crawley – Areas for Discussion

This note identifies the broad subject areas which we would like to discuss with you during the interview. We have tried to include all documents that may assist you in answering the Inquiry's questions. However, not all documents will be referred to when taking your statement. It would be helpful if in advance of the interview you considered the documents that are provided.

The note is structured as follows:

- Introduction
- General Issues
- The SDS Contract
- The Requirements Definition stage (Sep to Dec 2005)
- The Preliminary Design Phase (Jan to June 2006)
- The Detailed Design Phase
 - January to June 2007
 - July 2007 to May 2008
 - May 2008 onwards (i.e. post Infracore close and novation)
- Changes to the SDS contract
- Project Management, Governance and final observations

Introduction

Personal details

Full name: David Crawley

Age: 60

Employment details: currently Managing Director Xantarail (copy CV attached)

Qualifications: MSc, DIC, Applied Mechanics

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David Crawley

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Please supply details of your engagement with the Edinburgh Tram Project

I received a telephone call from Andie Harper in early January 2007. I had known Andie from our time when we were both working at London Underground. Andie explained to me that he was working on the Edinburgh Tram Project with TIE. His colleague, Steven Bell wanted someone to undertake a quick review of the project as there were concerns at that time about the rate of progress. The proposal for a review was being taken forward by Steven Bell. I was told at that time that the Project was in trouble and it was felt that a “quick review” might help identify the issues that were causing the difficulties and possible solutions.

I agreed to take this task on, based on expenses only and on the basis that it would take 3 days. I conducted the review by meeting with those members of staff who appeared to me to have the most significant involvement in the project at that time. I interviewed 12 people in total. The results of these interviews are recorded on slides reproduced in Appendix 1, Attachment 1 of document WED00000027. I did not interview the most senior people at TIE such as the Chief Executive and the Project Director since in my experience it is better to start with more junior members of staff and work up. The truth is always apparent on the front line. On this occasion it appeared to me that the issues that were preventing progress were clear from my discussion with those interviewed. There was no need to interview senior people like the Chief Executive. The picture presented to me was that no-one interviewed felt that the Project could be delivered to programme and on budget.

1. In general:

- (1) In an e-mail dated 15 January 2007 to Steven Bell [doc CEC01811221] you noted that you were interested in becoming involved in two distinct areas, (a) supporting the managerial and leadership process and (b) supporting the SDS design review process. In the event, were you equally involved in both of these areas or were you more involved in one area than the other?

Following that presentation I had a discussion with Steven Bell and was invited to help resolve the issues that I had identified. I remember Steven telling me when I first met him that the utility diversion work would be the major issue in this project. It appeared to me that I could either work on steps to resolve the management problems that I had identified or could take on a functional role within TIE. Steven advised me that he had plans to resolve the management problems but thought that I could assist by taking on a functional role within TIE.

Andie Harper left TIE and I was interviewed by Steven and Matthew Crosse for that role. Following interview I was offered the role of Engineering Director. I was not keen on working in Edinburgh full time and suggested that Tony Glazebrook and I could jointly undertake the role on what would be a “job

share” basis, each of us working 3 days per week with a one day overlap. This arrangement was adopted and worked well.

I have no idea what discussion took place within TIE before the decision was taken to offer me the role of Engineering Director and for Tony Glazebrook and I to work together in the way that I have described.

In this role I was acting as a consultant rather than an employee.

My involvement in the Edinburgh Tram Project reduced from late 2008 or early 2009. My role had been to help understand what could be done to rescue the project that was obviously failing. I helped unhook the blockage in delivery of design. By this time that had been achieved so my involvement reduced. Although I was still around from time to time it was for less time as there was less for me to do. Tony Glazebrook continued to have greater involvement than me.

- (2) It would be helpful if you could explain who was your predecessor as TIE’s Engineering Director for the Edinburgh tram project (or, if there was no Engineering Director, who within TIE was responsible for design for the tram project) and why you were appointed?

I do not know who my predecessor in the role of Engineering Director was. Indeed I have no recollection of seeing anything to suggest that before my appointment there was anyone at TIE filling that specific role. If there was they did not report to Andie Harper. There was no handover from someone else to me when I started.

- (3) What were your duties and responsibilities as Engineering Director for the Edinburgh tram project?

- To provide leadership and resolution of the engineering issues emerging from the Tram Project.
- To report on and manage the SDS contract deliverables against programme.
- To support the required project approvals to programme
- To support delivery of Value Engineering savings by the Commercial functions.

My only involvement was with the SDS design review process.

- (4) We understand that you were appointed as Engineering Director to work three days a week, with the other two days being covered by Tony Glazebrook, also with the title Engineering Director (see e.g. Steve Reynolds’ internal PB Weekly Report dated 23 February 2007, PBH00021529; see also, however, Mr Reynolds’ Weekly Report dated 15 June 2007, PBH00025673, para 5, which noted that you were averaging two days a week in Edinburgh). Is that correct i.e. did you essentially “job-share” the role of Engineering Director with Mr Glazebrook? If so, how did that work in practice? Did that cause any difficulties?

In general I was present in TIE’s offices in Haymarket on Tuesday, Thursday and Friday of each week. Tony Glazebrook was present Monday, Wednesday

and Thursday providing a one day overlap. I was also dealing with emails and taking calls remotely. I am unaware of any difficulties with the arrangement because none were drawn to my attention.

My role was not to supervise delivery of the design services by SDS. It was to find a way to resolve the disputes that had arisen between TIE and SDS that were preventing delivery of the design services required from SDS.

- (5) What were the duties and responsibilities of Steven Bell, TIE's Engineering and Procurement Director?

I have no knowledge of any of these items.

- (6) What were the duties and responsibilities of TIE's Deputy Engineering Director/SDS Project Manager? Who held that post while you were with TIE?

I have no knowledge of any of these items.

- (7) Approximately how many individuals were part of the TIE design team when you joined TIE? **About 5** Did that number change? **No** In general, what were their qualifications and experience? **Degree level engineering qualified with several years' prior relevant experience on other projects** Approximately how many had engineering qualifications and experience? **See above** To what extent did you, and other members of TIE's design team, have prior experience of producing/reviewing designs for tram or light rail networks? **Several members of the team had this experience over many years. However as noted below TIE did not have a role in providing design services. The role of the "design team" in TIE was to co-ordinate the work undertaken by others and to receive designs.**

- (8) What were your views on whether TIE had a sufficient number of employees in its design team, with sufficient engineering and project management qualifications and experience, both before you became Engineering Director and while you were Engineering Director? **They were adequate for the role that tie was supposed to perform. It should be noted that responsibility for design rested with SDS, not TIE. TIE was in effect the client and SDS the supplier to it of design services. Scott Wilson had the role of providing Technical Support Services (TSS) to TIE. They were the expert advisers to TIE on design matters. They would provide such assistance as TIE required on design matters. However TSS had to provide a proactive supporting role to TIE and not just a reactive one. TSS should not wait to be asked to assist TIE since TIE might not know what questions to ask. It was relying on TSS to identify any issues. TSS appointed Andy Steel to lead on their contribution on this work.**

General Issues

2. By way of overview:

- (1) It would be helpful if you could explain the main design challenges that arose in the Edinburgh tram project? **The ETN was unexceptional in many respects when compared with other tram systems, but all rail systems of any type are always bespoke, utilising industry-standard sub-systems which are interfaced**

appropriately to be able to cope with local conditions. Ground conditions in Edinburgh are known to be challenging in terms of voids and variability and these had an effect on utilities work and on ground electrical conditions affecting protection for earth current leakage. These conditions are not unique and were not unexpected but they did make the project more challenging. The specification for the ETN (Employers Requirements) certainly required very high availability (a minimum of between 99.99% and 99.99925% for most subsystems) and “For all components and subsystems, assume a Mean Time to Repair (MTTR) of 4 hours.” These requirements combined to drive the design to be particularly robust to avoid failure. This adds to cost to achieve this outcome.

- (2) “Availability” is determined by the level of service required. It tells you very little about the reliability of the material or equipment provided. The service can achieve a high rating for “availability” either by providing equipment or material that is reliable and does not require replacement or by providing a substantial amount of replacement material or equipment to be used in the event of failure. So 99.99% availability is not necessarily an unrealistic target.
- (3) To what extent were these challenges usual for a tram project?

See (1)

3. As regards “systems” design and “infrastructure” design:

- (1) It would be helpful if you could explain the difference between systems design and infrastructure design? **Infrastructure = Civil engineering, systems = everything else.**
- (2) Was SDS responsible for producing both systems design and infrastructure design? **Schedule 1 of document CEC00839054 defines the scope of supply by SDS.**
- (3) To what extent was it envisaged that each type of design would be further developed, and by whom, after the award of the Infraco contract? **The SDS design work was novated to the Infraco to complete while the Infraco engaged in construction. The original concept was that the Infraco would construct the detailed design produced by SDS. While it is likely that the design would require adjustment as the construction work is undertaken it would have been expected that the design would have been largely complete before the Infraco contract was concluded.**

4. In relation to utilities design, by way of overview:

- (1) To what extent was SDS responsible for producing utilities design and to what extent, if at all, was utilities design produced by the utility companies? **Schedule 1 of document CEC00839054 defines the scope of supply by SDS. The MUDFA project was expected to clear the path for the tram project of utilities which were diverted to one side before the Infraco contract was concluded.**
- (2) To what extent was utilities design “self-contained” and to what extent did utilities design interrelate to other design (i.e. to what extent did utilities design impact upon other design and vice versa)? **All design is part of a wider system and none is completely self-contained. The core design activity is self-contained but must acknowledge the need to interface at its boundaries; MUDFA needed to know what the route design was from SDS (at preliminary design stage at least) in order that they could be sure that the diversions were adequate (no utilities inaccessible beneath track slab), and SDS needed to know that their design was confirmed as acceptable based on what practical diversions were possible. So the SDS work and utility diversion are interlinked. Many of the utilities diversions were designed by SDS on the basis of survey information. They were implemented by MUDFA. Publically**

available records from CEC indicate that 190 underground chambers were expected and 295 discovered, and that 27.188 km of pipes and ducts were expected and 46.575 km were discovered.

5. In producing the design, the wishes and requirements of a number of different stakeholders required to be addressed (e.g. TIE, CEC, the statutory utility companies (SUCs), Network Rail, Forth Ports and BAA etc). In general:

(1) Which party do you consider was primarily responsible for obtaining the views and agreement of the various stakeholders? **TIE was responsible for engaging with stakeholders given that it was responsible for co-ordinating construction. However when dealing with individual stakeholders it was not always clear whether CEC should be involved. There were in any event monthly meetings of stakeholders:**

- **Tram Design Working Group, attended by tie, CEC, TEL, Transdev, SDS, Historic Scotland and Edinburgh World heritage Trust; its purpose being to discuss and resolve pre-application planning issues likely to be of particular interest to Historic Scotland and the Edinburgh World Heritage Trust;**
- **Roads Design Working Group, attended by tie, CEC, TEL, Transdev, SDS; its purpose being to discuss and resolve detailed roads design issues where requirements conflicts exist.**
- **The individual issues raised by stakeholders were not in themselves that problematic or difficult to resolve. The real challenge with stakeholder engagement arose as a consequence of the number of issues. As I recall there were no individual issues that were “show stoppers” or pivotal to the successful completion of the project.**

(2) What was your understanding as to the extent to which, if at all, that matter was addressed in the SDS contract? **SDS took the view that they would be free to design within the Limits of Deviation (LOD) but that anything outside the LOD was something to be handled by TIE; this would require stakeholder consultation, agreements and permission as required. The LOD was already the subject of parliamentary approval and so could be considered as available for use without further consultation. There was a requirement on SDS to cooperate implied by their duty of care specified in section 3 of document CEC00839054.**

(3) What was your understanding in relation to whether TIE/CEC had power to unilaterally impose a design solution even if the agreement of other stakeholders could not be obtained? **That could not happen if the other stakeholders had lawful powers to prevent it. Reliance was made on consultation as defined in 5 (1) as the preferred route.**

(4) What was usual industry practice, if any, in relation to which party would usually be responsible for obtaining the views and agreement of the different stakeholders in a major infrastructure project? **The responsibility would default to the client (TIE) unless expressly defined elsewhere although all parties involved in design and construction would be expected to cooperate.**

6. In respect of site investigations (for both infrastructure and utility works), by way of overview:

- (1) Which organisation was responsible for instructing site investigations?
- (2) Were any difficulties or delays experienced in undertaking site investigation?
- (3) Did any such difficulties or delays cause or materially contribute to any delay in producing infrastructure or utility design?

SDS carried out these investigations. Many such investigations were complete at the preliminary design phase before I arrived.

The challenge was the lack of accurate records regarding the location of utility pipes and cables. When the ground was opened up it was common to find that the pipes and cables in place were not what had been expected. This impacted on the amount of utility diversion required because one would not want to build the tram line over pipes and cables that might need to be repaired or replaced. One would want to have the track slab laid on solid ground.

It is necessary to locate utilities before starting the detailed design phase and a programme for diversion of utilities needs to be fixed before the design is finalised.

There were no particular issues that caused problems that could not be resolved. The real problem was the number of changes that were required

7. In respect of Value Engineering ("VE"), by way of overview:

- (1) What VE proposals were proposed? **All asset types were affected although initial focus was on single high cost assets such as bridges and viaducts. See document CEC01579617 for typical examples.**
- (2) What was your understanding of the purpose of the VE proposals, including their importance to the affordability of the tram project? **The primary reason was to reduce construction costs. It is always desirable in any project to consider if a reduction in cost can be achieved through VE. It is preferable to undertake the VE exercise at an early stage of a project, whether it is necessary to do so to keep the project within budget or simply to consider if general savings can be achieved.**
- (3) What were your views on whether the VE proposals were likely to be achieved? **It is always more difficult to modify an extant design than to design something from first principles to achieve a given outcome. There are always unintended consequences. For example, if a bridge is narrowed to use less material, and even if the construction method is still viable, that still leaves the issue of needing to address the maintenance strategy; if live maintenance was assumed while traffic is using the bridge by providing a walkway adjacent to the track, and the new design does not allow that, then the entire strategy is put at risk, possibly requiring a larger workforce and greater cost. All of this militates against the probability of achieving the desired savings. VE should be something which is done before the interdisciplinary design process is applied as there is still time to address system impacts of VE activity. That was not always possible in this case as VE was applied late in the process. VE should be done on any project as a means of identifying opportunities to reduce costs, and not only to ensure that a project is delivered within budget. My impression is that VE principles were only applied in this project as a means of trying to reduce costs to stay within budget. It should have been**

considered at an earlier stage in the project, at preliminary design stage. At that stage TIE should have had enough information available to it to identify where VE might be applied to reduce costs irrespective of any budget requirements.

- (4) In general, to what extent were VE savings actually achieved (including the approximate total value of such savings)?

I have no information on the final outcome.

8. TIE appointed Scott Wilson Railways Ltd as Technical Support Services (“TSS”) provider. In general:

- (1) What was your understanding as to the role TSS had played in relation to design before you joined the project? **Independent technical appraisal of SDS output typified by document CEC01660602. TSS was intended to provide technical advice and support to TIE.**

- (2) Did the role of TSS change at any time and if so, in what way and why? **Not obviously but see also document TIE00693362.**

9. In respect of the EARL project :

- (1) What inter-relationship was there between the design for the EARL project and the design for the tram project (i.e. to what extent did the design for one project impact on the design for the other)?
- (2) To what extent, if at all, did the decision in summer 2007 to cancel the EARL project (and built a new Gogar rail station//tram stop interchange) cause or contribute to delay or additional cost in producing the design for the tram project?

I have no direct knowledge of this as I was not involved in the EARL project.

10. While the SDS contract required design for lines 1 and 2 to be complete (i.e. the northern loop and the western line), in January 2006 CEC decided, in light of available funding, to build the tram network in phases, comprising phase 1a (the Airport to Newhaven) and phase 1b (Haymarket to Granton).

A TIE monthly progress report for February 2007 (CEC01790790 at p16), noted “*The TPB [Tram Project Board] agreed that following feedback from TS [Transport Scotland] on project funding, the project should reprioritise work on phase 1a only*”.

- (1) When you first joined the tram project, to what extent had design been produced for phase 1b?
- (2) Around February 2007, was design work re-prioritised to phase 1a only? After February 2007, did any design work continue in respect of phase 1b and, if so, why?

I have no access to any documentation which allows knowledge of this.

The SDS Contract

11. In September 2005 TIE and Parsons Brinckerhoff (PB) entered into the System Design Services (SDS) contract [CEC00839054] for the Edinburgh Tram Project. While we appreciate that that was before you joined TIE, it would be helpful if you could provide an overview of your understanding of the following matters while you were Engineering Director:

Services

- (1) What design services in relation to utilities were to be provided by SDS? (see e.g. paragraph 3.2 of Schedule 1 of the SDS contract (p91)? That paragraph (third bullet point) refers to the SDS provider “*undertaking critical design and developing a strategy for all utilities diversions to minimise diversion requirements and out-turn*”

costs". Was it envisaged that all utilities design would be undertaken by PB? To what extent, if at all, was it envisaged that utilities design would be undertaken by other parties? What was your understanding in relation to whether the SDS contract contain SDS was engaged by TIE to provide the design services.

- (2) What management services were to be (and were) provided by SDS (see e.g. paragraph 4 of Schedule 1, p95)?

All the services are as defined in Schedule 1 of document CEC00839054 Programme

- (3) To what extent was there an agreed programme for carrying out the SDS services, including the Requirements Definition, Preliminary Design and Detailed Design phases? (see e.g. (i) clause 7 (pp30-31), (ii) Schedule 1, Appendix 2, "Programme Phasing Structure" (pp111-112) and (iii) Schedule 4, "Programme" (at p248 onwards) **I have no knowledge of anything before the detailed design phase, and that programme was constantly changed according to prevailing forces; it is not possible to say that it was 'agreed' as it was difficult to challenge meaningfully. All the detail which gave rise to any version was held by SDS who had the task of producing it. The programme was complex with many interdependencies and slippage on any one for any reason would affect many others.**

- (4) We understand that the contract provided that TIE would review/approve preliminary design within 20 days. Do you consider that timescale was realistic? Was that timescale usual in the industry? **The 20 day period for review is reasonable if sufficient resources are made available. Appendix 1, Attachment 3 to Doc WED00000027 provides more detail about the work that needs to be undertaken under the review process. Appendix1, Attachment 4 to doc WED00000027 describes what needed to be done as part of the prior approval process. There is no reason why everything could not be achieved within that timescale provided the resources are made available to do so. The design would be delivered to TIE by SDS. TIE would need to be satisfied that (a) the design meets the specification set and (b) the designer is confident with what has been produced. It is necessary to show that approval has been obtained for each section of the design. It is then necessary to review the design for the whole. That process may well identify issues when the parts of the project are put together.**

- (5) How realistic do you consider the agreed design programme to have been? (see e.g. (i) Schedule 4, "Programme" (at p248 onwards), where the start date for a number of sectors was 1 July 2007 (i.e. prior to the signing of the contract) and (ii) Schedule 1, Appendix 2, "Programme Phasing Structure" (pp111-112), which provided that preliminary design for the sectors comprising phase 1a would be approved by dates ranging from 30 November 2005 and 28 February 2006, with detailed design for these sectors to be approved by dates ranging between 30 March 2006 and 30 September 2006).

These dates allow little flexibility for the plethora of things, each with interdependencies, which may need to be subject to change.

- (6) What was the "Master Project Programme" referred to in clause 7.1.1 (p30)? Was such a Master Project Programme agreed and in place when you joined the project? **Not known**

- (7) What was your understanding of the procedure in place for updating or amending the programme, dealing with delays and seeking an extension of time (see e.g. clauses 7.1.2 (p30), 7.4 (p36) and clause 7.5 (as substituted by Appendix 1, "Schedule of Amendments to the SDS Agreement" (pp286-287)))?

It is as written; in practice if a delay not caused by SDS affected their programme they could claim an acceptable delay.

Approvals and consents

- (8) What was your understanding as to which party was responsible under the contract for obtaining necessary statutory approvals and consents (see e.g. clause 5 (p29) of the SDS contract and paras 2.6.1.2 and 2.6.2.4 of Schedule 1 (p87)? **As written in the contract; SDS supported by the Client (tie).**

Price and payment

- (9) What were the main payment milestones? **Not known, but defined in the contract**
- (10) Were there incentives for meeting the milestones early or on time? **Not known, but defined in the contract**
- (11) Were there penalties for not meeting the milestones on time and/or for late delivery of design? **Yes**

Other

- (12) What was your understanding of the purpose of the proposed novation of the SDS contract to the Infraco contractor? (see e.g. recital F (p5), clause 29 (p70) and Schedule 8, "Novation Agreement" (pp280-285)? What was your understanding in relation to the extent to which (i) detailed design would be complete and (ii) all statutory approvals and consents would be obtained) before novation and Infraco close? **I understand that the original intention had been that detailed design and consents would be complete before construction began** Recital E of the SDS contract (p5) stated that *"TIE intends to appoint an infrastructure provider (the 'Infraco') to complete the design, and carry out the construction, installation, commissioning and maintenance planning in respect of the Edinburgh Tram Network"*. What was your understanding of the work that would be undertaken by the Infraco contractor to *"complete the design"* i.e. once the detailed design had been completed by SDS, and all necessary approvals and consents had been obtained, what further design work would remain to be completed? **Completion of detailed design caused designs to be "Issued For Construction"(IFC), a self-explanatory phase – see sheet 7 of the Design Management Plan, document PBH00018150. At the construction phase it is possible that changes could still be required contingent on physical conditions encountered, material supply problems or any other external impact which could be addressed by design change. In practice, because the design was incomplete when the Infraco was appointed, it was the Infraco which took design risk via the novated SDS contract to complete designs to IFC. This led to a significant amount of design re-work at the Infraco's behest; there was no incentive for the Infraco not to revisit design of which it had little knowledge and for which it was now responsible.**

Requirements Definition Phase (Sep to Dec 2005)

12. We understand that work in relation to the Requirements Definition ("RD") phase was carried out between September and December 2005.

- (1) Although before your time, what were your views when you became Engineering Director of the work carried out during the Requirements Definition phase (including the quality and completeness of the deliverables produced and whether TIE, CEC and other stakeholders had been sufficiently involved during this phase)?

No direct knowledge of this but the Employers Requirements is a fairly unwieldy document for which a critique is provided in document CEC01601660 by TSS. It was found to be in urgent need of improvement for all the reasons stated in the critique. It was improved from that point but not markedly. No final copy available to me.

Preliminary Design Phase (Jan to June 2006)

13. We understand that PB submitted a Preliminary Design package to TIE at the end of June 2006.

On 6 December 2006 Scott Wilson produced a Preliminary Design Review Validation Report [PBH00026782]. There was a one page Executive Summary, which stated "*Our overall conclusion is that the bulk of the Preliminary Design submission is now either acceptable or acceptable given the responses from SDS*".

- (1) What were your views, when you became Engineering Director, of the quality and completeness of the Preliminary Design?
(2) What were your views on the conclusions in Scott Wilson's report?
(3) Were there any aspects of the Preliminary Design which you considered were not acceptable (and, if so, which aspects and why)?

I am in agreement with the TSS report as written which drew attention in particular to some aspects of the structures design which still needed attention.

Detailed Design Phase (January to June 2007)

14. Before you joined the Edinburgh tram project, a number of concerns had been raised in relation to PB, TIE and stakeholders. See, for example:

- Ailsa McGregor's (TIE's SDS Project Manager) draft monthly report for September 2006 (TIE00073022) (which noted various concerns relating to TIE)
- The minutes of the Tram Project Board (TPB) on 23 October 2006 (TIE00059601) which noted, "*SDS performance was highlighted as a major concern with both resource and quality of work being questioned*" (p3). The monthly progress report provided to the meeting (CEC01355258) noted, "*We [i.e. TIE] recognise that we have to control and manage the contract more effectively*" (p4).
- Ailsa McGregor's monthly report for November 2006 (TIE00074137 at para 2.0 c) noted that a review of the preliminary design Inter Disciplinary Check had identified "*some major deviation from the SDS procedures. It would appear that rather than achieving appropriate inter disciplinary solutions issues have been rolled forward to the DD phase of the project*".
- The monthly progress report for the TPB on 11 December 2006 (CEC01360998 at p10) noted that the first two tranches of Detailed Design for utilities were delivered late.
- The minutes of the Design, Procurement and Delivery (DPD) sub-Committee on 14 December 2006 (CEC01764819) noted "*[Willie Gallagher] requested review of the adequacy of internal expertise in current TIE personnel to manage SDS deliverables*".
- The minutes of the DPD sub-committee on 16 January 2007 (CEC01766256 at p2) noted "*SDS progress – Concerns were raised about the practicalities of expectations and the changing priorities by different stakeholders on the delivery of SDS milestones. Late inputs from TIE and CEC into the design process further aggravated the situation and MC [Matthew Crosse] raised concerns on the complexity of the SDS internal set up where information takes significant time to be updated ... MC is to provide a 'Get Well' plan for SDS, taking into account above concerns, for discussion at Feb DPD*".

We also note that before becoming TIE's Engineering Director, you conducted a review of the project in January 2007, which involved interviewing a number of key personnel (see your slides, CEC01811257).

- (1) What were your general impressions when you became Engineering Director in February 2007 of the Edinburgh tram project, the parties and the state of design?
- (2) What were your views on the main problems that existed and the cause(s) of these problems?

Any answer I give could only reiterate what I had already said in document CEC01811257 and as summarised on pages 20 and 21. The project was in disarray because everyone I spoke to said that it was and nobody believed the programme could be met.

- (3) To what extent, if at all, did you agree with Matthew Crosse's assessment of design as set out in paragraphs 3.1.1 to 3.1.5 of the minutes of the Tram Project Board on 23 January 2007 (CEC00689788), at pp5-6? (Mr Crosse having recently been appointed as TIE's Tram Project Director) **Mostly these statements address symptoms and not the underlying problems in document CEC01811257 and as summarised on pages 20 and 21**
- (4) What were your suggestions for addressing the problems that existed? See **document CEC01811257 pages 22 and 23**

(5) Your slides (CEC01811257 at p8) noted Trudi Craggs as having suggested, as a proposed solution, *“re-think the project and ‘re-start’”*. What did you understand Ms Craggs to mean by that (and why she was of that view)? What were your views on Ms Craggs’ suggestion? **At the time I had no view other than to record accurately what everyone said, but what she said appeared unexceptional against what everyone else said, so I took her statement literally. This was predicated on the “hiatus of the political process in May [2007]” which would have allowed an extended period of little activity, regrouping and restarting but without any direct announcement of what had happened.**

15. The minutes of the DPD on 13 February 2007 (CEC01790790 at p5) note a presentation (PBH00021285) by Steve Reynolds (PB’s recently appointed Project Director) and Matthew Crosse on *“plans for improving design matters and the changed approach to engineering”*.

Similarly, the PB progress report for February 2007 (CEC01684866 at p6) noted that *“SDS has proposed a way forward to help mitigate risk to the designers and expedite movement into Detailed Design under letter of 8 December”*.

See also, the minutes of the DPD on 13 March 2007 (CEC01361501 at p6) which refers to a presentation by Steve Reynolds and Tony Glazebrook, TIE, in relation to proposed key changes to the design approval process.

- (1) What changes were proposed around this time in relation to the production, review and approval of design? **Earlier stakeholder engagement to head off later problems. Represented later in the Design Management Plan**
- (2) To what extent were you involved in drafting and implementing these changes? **Principles and in drafting of the Design Management Plan**
- (3) Were the proposed changes implemented and, if so, when? **July 2007**
- (4) In general, were these changes effective? **They were effective, but were one improvement delivered amongst many required.**

16. We understand that the changes included SDS producing self assured design packages with TIE (through TSS) only reviewing a relatively small percentage of the design packages.

Your e-mail dated 26 April 2007 (PBH00010843) noted, *“In order to demonstrate successful implementation it is likely that we will subject each design package to significant scrutiny in the first instance. There will also be audits of both process and product to confirm that confidence is well placed. When confidence has been established there will be the presumption of self-assurance with effort focussed only on issues where there is no claim for an item being assured or on high risk items”*.

- (1) It would be helpful if you could explain how the review process worked in practice?
- (2) To what extent was the proposal to only review some of the detailed design discussed with CEC?
- (3) In the event, approximately what percentage of the total detailed design produced by SDS was reviewed by TIE/TSS?
- (4) In the event, was the “unreviewed” design found to be of sufficient quality and detail? To what extent, if at all, did the “unreviewed” design require to be reworked or re-visited at a later date?

The principal issue with any of the design review process elements was the near impossibility of receiving an entire package to review as desired and requested. The last few details depended on the existence of consents (usually from CEC) which were not available for a variety of reasons so the entire package was held up. While it would have been possible to review what had been produced in the absence of the consents from CEC there could be no certainty which could result in wasted effort. Item 5 in my email of 26 April 2007 is important; we could not change the contract payment schedule but could allow some payment on production of evidence that most elements of the design were complete (via the assurance checklist and then the Design Verification Statement). In practice things defaulted to the rigid arrangement in the contract.

17. On 15 February 2007 a meeting took place in relation to Review and Integration of Design, Procurement and programme TIE00067302).

The minutes noted, *“[David Crawley] points out importance of political sensitivity surrounding programme dates which are achievable”; “Jason Chandler states milestones need achieved. This will be a driver surrounding these and any impact on SDS plan. Trudi Craggs doesn’t believe the [sic] TIE are aware of the dates and the milestones are unachievable”*.

- (1) What was the purpose of that meeting? **Create a common understanding**
- (2) It would be helpful if you could explain your statement noted above? **A forthcoming political process (the 2007 Scottish Parliament election) in which the SNP had vowed to scrap the tram project if they could. Evidence of systematic programme failure would support that view.**
- (3) What was your understanding of the point made by Trudi Craggs noted above? What were your views? **Her views were still as recorded in document CEC01811257. She was correct (at that time in belief, and subsequently, in fact)**

18. An e-mail dated 21 February 2007 by Jim Harries, Transdev (TIE00205633) included a reference to *“TIE’s new thrust to recognise the importance of the engineering issues associated with the project”*.

An e-mail dated 26 February 2007 from David Powell (CEC01784526) noted Mr Powell’s Top 20 Engineering Issues, further to the recent formation of a Project Engineering Steering Group. The final item listed by Mr Powell was *“Decision making – all parties have been generally indecisive about technical issues. TIE’s ongoing changing of personnel and shifting emphasis of what is expected of the various parties has probably been at the root of this”*.

(1) What was your understanding of, and views on, these matters? **The changing of personnel was more a symptom than a cause, but was a cause of problems in itself; new people take time to integrate. The use of TSS was probably less effective than it could have been justifying the comment on addressing technical issues.**

19. We understand that on 22 February 2007 you chaired a day-long meeting to define an achievable and aligned programme for the tram project (see e.g. (i) Matthew Crosse’s e-mail dated 27 February 2007 (CEC01793690) listing the actions from the meeting and (ii) Mr Crosse’s e-mail dated 28 February 2007, CEC01826931).

Steve Reynolds’ internal PB Weekly Report dated 23 February 2007 (PBH00021529 at p2) noted that the outcome of the meeting was a decision by Matthew Crosse to propose a five month delay to the programmed date for financial close of the Infracore contract, whilst maintaining a commitment to the “Trams for Christmas” (2010) deliverables, albeit that would mean trams running in trial by then rather than in revenue service. Mr Reynolds noted that you were not so comfortable with that approach but ultimately supported it.

(1) What was the purpose of that meeting? **To discover the programme disconnects – items on the critical path which should have been delivered but had not. Their discovery led directly to a cumulative position of 5 months delay.**

(2) What was discussed and agreed? **How to re-plan against what was clear would have to be an announced delay.**

(3) Do you recall whether you were “not so comfortable” with the agreed approach and, if so, why? **Maintaining a commitment to the “Trams for Christmas” position was relatively high risk at that point; we knew what the programme slippage was, but still didn’t know exactly why it had occurred nor how to fix it. We believed that having uncovered an agreed (if adverse) position, effectively for the first time, and in a single day by good cooperation of the parties setting aside their contractual drivers to achieve it, we could do more of the same to finish the job.**

20. We understand that between approximately March 2007 and the end of June 2007 progress was made in resolving most or all of the outstanding critical design issues.
- (1) It would be helpful if you could give an overview of the main outstanding critical design issues (see e.g. the revised critical issues log prepared on 27 February 2007, PBH00021607), why they had arisen and why they prevented detailed design from being progressed? **See document CEC01628234 for the issues. Many related to SDS perceiving that they were being asked to act in contravention of the limits of their contract and to design outside the established Limits of Deviation (LOD). Sometimes they perceived they were being asked to make decisions which they were not contracted to make and required an instruction.**
 - (2) It would be helpful if you could explain how these issues were resolved? **TIE effectively took the issues back and instructed SDS to proceed even if SDS could have been expected to proceed anyway – which was the previous TIE position. That meant that TIE were notionally taking the risk on those instructions but in practice the risk was minimal. For example, if the LOD was breached, as consent could be gained from CEC, which owned TIE, an instruction was issued which delivered the design outside the LOD and which TIE, through CEC, later corrected having first confirmed that the change was likely to be acceptable.**
 - (3) When the various critical design issues were resolved, did that result in the Preliminary Design for each of these items being re-visited or was the agreement reached in respect of these issues simply carried forward to, and reflected in, the Detailed Design for these items? **This was focused on the detailed design phase mostly.**
 - (4) With the benefit of hindsight, to what extent were the various critical issues truly resolved at this stage and to what extent did any of these issues re-appear at a late date (e.g. once detailed design became available)? **The issues were resolved at the time. If any reappeared it was for a disassociated reason.**

21. In an e-mail chain in early March 2007 (TIE00067553) Alex Joannides, TSS, noted that, contrary to the understanding of Ailsa McGregor, “no detailed design submissions whatsoever” had been sent by SDS to CEC for comment. Mr Joannides also noted that, in relation to roads design, there had been instances where TSS’s comments conflicted with those of CEC, there were cases where CEC Planning conflicted with CEC Transport and he was unsure of the whether TEL were being involved in the process.

In an e-mail dated 12 March 2007 in the same chain Tony Glazebrook noted that “our objective should be to get to SDS as early as possible the clearest possible view of requirements on design, be they from CEC or any other source”. Mr Glazebrook further noted, “Our new focus is not to do 100% design review, rather to look at carefully selected critical deliverables in packages, each being accompanied by a design assurance pack ... Currently I am unclear what CEC’s expectations are for review. If CEC is still thinking of 100% review then there is a great risk of every design being delayed or unreasonably reopened”.

An e-mail dated 16 March 2007 from Gavin Murray, TIE (TIE00041002) noted that a package of documents had been issued to Andy Conway, CEC, “following which Andy has asked what we expect him to do with them”.

- (1) What was your understanding of, and views on, the matters noted by Mr Joannides in his e-mails? **No view, not enough information**
- (2) The e-mails noted above indicate uncertainty as to CEC’s role in commenting on and reviewing design. What was your understanding of CEC’s role (as, respectively, promoter/client and statutory authority) in that regard? **CEC’s role related to the Prior approvals process – see the extract from the Design Management Plan [doc WED0000027 Appendix 1, attachment 4].** However CEC jealously guarded their powers. From their perspective I suppose that they were the ultimate client and so they were entitled to decide what was best in terms of design.
- (3) .Approximately what percentage of detailed design was it proposed at that stage would be sent to CEC to comment on and review? **Unknown – no information available to me.**

22. By e-mail dated 6 March 2007 (CEC01794453) Martin Donohoe, TSS, attached a draft paper on Procurement: Value Engineering (CEC01794454, para 2), which noted that “an advanced design strategy has been adopted using SDS ... to supply a significant portion of the final detailed design however leaving appropriate sections best suited to design by the Infraco in-house product designers in outline form only”(original emphasis).

- (1) What was your understanding of, and views on, that matter?
- (2) Was that strategy implemented (i.e. of SDS supplying a significant portion of the final detailed design but with other sections being provided in outline only, to be completed by the Infraco designers)?
- (3) To what extent did you consider that that strategy was consistent with the procurement strategy of completing all design, and obtaining all prior approvals and consents, before Infraco contract close to enable the Infraco bidder to produce a fixed price and to enable novation of the SDS contract to the Infraco bidder?

I have no direct knowledge of this, but in respect of (3) it appears inconsistent with SDS’s contracted position which was to deliver the detailed design. They may have taken the view that it was an acceptable approach to defer design until after novation to be done in parallel with construction as it may make no practical difference to the final delivered construction date.

23. By e-mail dated 23 March 2007 (CEC01628233) you attached a list (CEC01628234) of outstanding major critical issues to be discussed at a meeting on 29 March 2007.

Your e-mail noted that *“a decision, even if sub-optimal in the first instance, will allow faster progress to be made through subsequent change control than delay for a ‘better’ decision”*. The e-mail also noted that while a definitive and final decision on some issues would not always be within TIE’s gift, it would be possible for TIE to make an interim ‘decision’ to give direction.

- (1) Which organisations were represented at that meeting? **tie, SDS, CEC, Transdev, TSS**
- (2) Broadly, what was discussed and agreed? **The issues in the attachment and how to address them. I have no recollection of any detailed outcome.**

24. In an e-mail dated 29 March 2007 (CEC01622019) Gary Easton, Turner and Townsend, asked *“do we have a definition or common understanding of what the design deliverables or scope is post novation”*?

In an e-mail dated 29 March 2007 in the same chain, Geoff Gilbert noted *“The real risk is of Infraco refusing to take SDS or deciding that the quality of information is such that they will not take the full design responsibility. The risk of Infraco refusing is thereby largely mitigated by SDS producing a good standard of design and these being perceived by Infracos as being acceptable. This is fundamentally a project management and engineering issue. It needs to be discussed with David C and a plan developed/confirmed to ensure that we obtain this”*.

- (1) What was your understanding at that time of the design deliverables and scope that would be delivered post-novation?
- (2) Was a plan developed to seek to ensure that SDS produced a good standard of design which was perceived by Infracos as acceptable? If so what was the plan?

I had no understanding of these issues at the time having just arrived. I do not recollect having a discussion. It is in any event important to note that the SDS contract was novated to Infraco so the concern that it would not accept novation at that time did not materialise.

25. By e-mail dated 2 April 2007 [CEC01670358], Willie Gallagher forwarded an email from Matthew Crosse attaching a joint note agreed between TIE and SDS, “Summary of the actions agreed to address SDS commercial issues” [CEC01670359].

The joint note was followed by a meeting on 20 April 2007 between Steve Reynolds and Matthew Crosse [CEC01624377].

- (1) It would be helpful if you could explain your understanding of the need for, and purpose of, the note?
- (2) How were the issues in the note resolved?

I have no understanding of these issues and have no recollection of this being drawn to my attention at that time.

26. In an e-mail dated 4 April 2007 (TIE00042722), Alex Joannides, TSS produced a (non-exhaustive) list of 14 reasons why the current detailed design packages had been considered sub-standard.

- (1) What were your views, in general, on the matters in that e-mail? **They were typical of the technical issues which could arise and which could be complicated by programme slippage (one late issue prevents solution of others). However these are not necessarily untypical.**

(2) Did these matters cause you any concern in relation to (i) the quality of the detailed design packages being produced by SDS and (ii) the proposal whereby only a relatively small percentage of the designs would be reviewed by TIE/TSS? **Yes, but that was already the subject of corrective work**

27. On 4 April 2007, Tony Glazebrook sent an e-mail to David Hutchison, PB (PBH00010291), responding to Mr Hutchison's letter asking for a speedy resolution of many Requests for Information. Mr Glazebrook stated, "*It is patently unacceptable that these have been held up by TIE or its agents for so long*".

In an internal PB e-mail dated 10 April in the same chain, Steve Reynolds noted that Mr Glazebrook had recently commented to him that TIE were in "*confusion and disarray*".

(1) What were your views at that time on these matters? **It did take too long to respond to requests and the purpose of the email, given its copy list, was to apply pressure to those responsible.**

28. By internal e-mails dated 11 April 2007 (CEC01623296) you discussed with Matthew Crosse that Tony Glazebrook would take over the SDS Project Manager role from Ailsa McGregor (who would be redeployed to the Commercial team, with responsibility for Project Controls).

(1) Why was that change made? **The working relationship between Ailsa McGregor and SDS was extremely poor and a direct hindrance to progress. Action was taken to address that.**

29. A report to CEC's Internal Planning Group ("IPG") on 17 April 2007 (CEC01565482 at para 5.4) noted that meetings were continuing with TIE and SDS to bring forward Prior Approval submissions, albeit it was suggested that some of the prior approvals may slip into next year.

(1) Why was there discussion at that stage of bringing forward Prior Approval submissions? **To attempt to speed up the whole review process. Prior Approvals took a long time and were often rejected for perceived lack of enough information from SDS. SDS argued that CEC were non-specific in their requirements.**

(2) What was your view on whether it was realistic and achievable to bring forward Prior Approval submissions? **It was realistic and achievable but would have required the cooperation of CEC.**

30. The report to the IPG on 17 April 2007 noted above (CEC01565482 at para 2.1) also stated that SDS were having difficulty obtaining the necessary consents from the various utility companies with regard to the planned utility designs (and that AMIS had provided a revised programme to TIE that had the utility diversion works lasting until October 2008, which was 5 months beyond the original planned duration).

(1) To what extent, if at all, did delay in obtaining approval or consent from the utility companies cause or contribute to delay in progressing or approving the utility designs (and carrying out the utility works)? **There was a direct contribution to delay. However this is the sort of issue that would be expected as there is inevitably some delay in securing consent from Utility Companies in a project of this type.**

(2) We understand that TIE entered into agreements with various SUCs (see e.g. CEC01643283 in respect of BT). To what extent, if at all, did TIE use any powers they had under these agreements to seek earlier resolution of any issues with the SUCs? **Not known by me**

31. The minutes of the TPB on 19 April 2007 (CEC01015822 at para 4.3) noted that *“The Trial dig [which had commenced on 2 April 2007] did find a number of unexpected utilities. Questions were raised with the survey providers and resurveying of critical points would be undertaken”*.

An e-mail dated 20 April 2007 from Graeme Barclay (TIE00042894) noted that a meeting had been arranged with Adien senior management to discuss anomalies with their surveys and that *“the implications of their surveys being ambiguous are far reaching and have the potential to delay MUDFA/INFRACO significantly”*.

A later letter dated 7 August 2007 by Steve Reynolds (PBH00003596, p5) refers to PB acknowledging, for the purposes of the settlement dialogue, that there may be merit in TIE’s assertion that survey information had been provided late and the provision of ground investigation data had been particularly poor.

- (1) What were your views on these matters?
- (2) In general, what, if any, further surveys or trial pits were carried out?
- (3) To what extent, if at all, did the issue of unexpected utilities and/or issues with survey information and ground investigation data cause or contribute to delay in producing, reviewing or agreeing design?
- (4) To what extent, if at all, did the issue of unexpected utilities and/or issues with survey information and ground investigation data cause or contribute to delay in carrying out the utility or infrastructure works?

This is a well know syndrome. It would never be possible to survey well enough in the variable ground conditions in Edinburgh, which because it is also a well-established city, had a multiplicity of utility installations supported by records of variable quality. The utility diversion delays directly contributed to overall delay. This problem is well-known and the only way to resolve it would have been to undertake the surveys earlier so that the utilities could be identified earlier before construction started. There was no technology available at the time that could have identified the existence of pipes and cables that was not already used. Even if utility companies provide records that they claim to be completely accurate there could be no guarantee that everything under ground would be shown there.

There was nothing wrong with the way that the contracts were packaged. However if you are designing something that is dependent on ground conditions they needed to start the ground investigation work earlier.

32. In an e-mail dated 25 April 2007 (CEC01625611), Jim Harries, Transdev, noted a number of concerns in relation to TIE’s Infraco Evaluation process, including that you and Tony Glazebrook, as TIE’s Engineering Directorate, were not involved in the process and should be. (1) What were your views on that? **That was not our defined role and we had no wish to be involved in the Infraco bid evaluation process. However the problems that occurred were nothing to do with the competence of the Infraco. The problems were caused by the fact that Infraco was working on an incomplete design. Once the design had been novated to Infraco they had assumed responsibility for the risk and needed to understand the extent of these risks.**

- (2) Did you and Mr Glazebrook become involved in the Infraco evaluation process (and, if so, when)? **No**

33. A letter dated 1 May 2007 by Alan Dolan, PB (CEC01664017) noted TIE's concerns in relation to delay in the initiation of the utility diversion work programme in Section 1a (Newhaven Road to Foot of Leith Walk), where TIE had, apparently, placed the SDS infrastructure design on stop.

(1) It would be helpful if you could explain the issues raised in that letter (and how, and when, they were resolved)?

(2) Did the issues in that letter cause or contribute to a delay in producing the utility designs or in undertaking the utility works?

Not aware of the detail although it is one issue among many.

34. In an e-mail dated 4 May 2007 (PBH00010817) Steve Reynolds noted a key concern in relation to *"the lack of serious involvement with ... CEC to this point in the reprioritisation of the Master Programme"*, and further noted that he appreciated that that was for a very good reason.

(1) Why had CEC not been involved at that stage in the reprioritisation of the Master Programme? Did that cause you any concerns? **Not known to me**

(2) Were CEC later involved in the reprioritisation of the Master Programme (and, if so, when)? **It is always suboptimal when a key stakeholder is not involved,**

35. In an e-mail dated 4 May 2007 (CEC01625906), Ailsa McGregor noted her concerns that *"we have still not resolved the gaps between the SDS and Mudfa contract"*.

(1) What was your understanding of, and views on, the concerns expressed in that e-mail? **The detail is as elaborated in the email; there was a gap in accountability. MUDFA had to do things which SDS did not.**

(2) In the event, did any "gaps" between the SDS and MUDFA contracts cause delay or increased cost to the tram project? **The delays were caused more by MUDFA's difficulties in delivery – see ground conditions above as a contributing reason – rather than any lack of complete contractual compatibility.**

36. A letter dated 5 May 2007 by you (TIE00205889, final paragraph) referred to *"putting design work out to the Utility companies"* and that PB were *"coordinating the design"* at the same cost.

An internal PB e-mail dated 11 May 2007 by Brian Thompson (PBH00024190) noted that he assumed that there was a weakness in the MUDFA contract as he would have expected the appointed MUDFA contractor to have the responsibility to directly liaise with the affected utility companies on the specifics of the alterations to their plant and that unless PB had had the opportunity to excavate and expose plant at risk and put forward sufficiently detailed proposals to the Water Authority at an earlier stage, providing an adequate, acceptable and deliverable solution in each location would be impossible. Alternatively, Mr Thompson would have expected the Water Authority to take responsibility for the detailed design (as it was in their own interest that they maintain the quality and supply of their system).

By internal PB e-mail dated 28 June 2007 (PBH00026252) Greg Ayres noted concerns in relation to Halcrow's performance re utility design. The e-mail also noted, *"There seems (to me) that there is some ambiguity regarding the interface and responsibility matrix between SDS/Halcrow, the SUC's, MUDFA and TIE"*.

(1) What was your understanding of, and views on, these matters? **They are all as stated – the various contracts were not back to back**

37. By e-mail dated 10 May 2007 (CEC01626309), Tom Hickman, TSS Programme Manager, sent an update of the Master Programme to data date 1 May 2007 (CEC01626310).

In his e-mail Mr Hickman noted that the main updates included the following, namely, the completion of design in section 7 (Gogar to Edinburgh Airport) had moved from 12 November 2007 to 30 January 2008, the completion of design in section 2 (Haymarket to Roseburn Junction) had moved from 1 November 2007 to 13 February 2008 and the completion of design in section 1 (Newhaven Road to Haymarket) had moved from 12 December 2007 to 31 January 2008, while the award of the Infraco contract remained December 2007.

- (1) Did the completion dates noted above also include obtaining all necessary statutory approvals and consents by these dates? **Not known by me**
- (2) Was there any discussion within TIE around that time in relation to how Infraco bidders could undertake due diligence on design, and offer a fixed price, before all design had been completed and all approvals and consents had been obtained? **Not known by me**

38. You prepared an SDS Update – P1 report for the meeting of the DPD on 10 May 2007 (TIE00064787) which noted:

“Agreement has now been reached with SDS on the provision of designs accompanied by design assurance documentation. This will result in packages of designs being supplied, section by section in a form which is self-consistent, complete (or if not, with defined status) with interdependencies already reviewed and with associated approvals. The package will also contain associated TRO

information although until the full modelling exercise has been concluded this cannot be finally confirmed. In the event that changes are required in respect of TROs it is not thought that the design impact will be great.

The first design assured delivery will take place in respect of section 5C [Edinburgh Park to Gogarburn] in the week beginning 7 May 2007. This will be subjected to significant scrutiny as the first exemplar available in the new format and decisions will be made on the details of subsequent reviews once the results of this experience are available.

Overall there are likely to be about 40 such packages”.

The report also included a new graph showing the number of deliverables against the v14 design programme. There were 5,373 items of contracted milestone deliverables (which related to the 40 design assured packages). The report noted that the rate of delivery from “Now” must effectively double if the programme was to be met.

(See also the slides of a presentation by PB to TIE in May 2007 on PB’s quality management processes, PBH00013591).

- (1) It would be helpful if you could explain the reference to the design packages being supplied “with associated approvals” (i.e. was it envisaged that each design package would be sent to CEC to obtain all necessary approvals and consents before the design package was then issued to TIE? **Yes**
- (2) In the event, was the first package issued in the week commencing 7 May? What were the views of TIE, TSS and CEC on that package? **No information available to me to comment on.**
- (3) What were your views at that time in respect of how realistic it was that the rate of design delivery would double? **It was clear that it could not, but we had to do everything we could to increase it as much as we could.**
- (4) In the event, did the rate of design delivery double? **No**

39. An e-mail dated 30 May 2007 by Tom Hickman (PBH00011528) with attachments (PBH00011529, PBH00011530 and PBH00011531) noted further slippage in Detailed Design between versions 14 and 15 of the design programme. (see also, Mr Hickman's e-mail dated 18 June 2007 reporting further slippages between versions 15 and 16 of the design programme, CEC01659222).

(1) Did these slippages cause you concern? **Yes**

(2) What were your views around that time on whether the design slippages could be arrested and whether the design programme and procurement programme were realistic and achievable? The design slippages were reduced over time, but not eliminated against an overall programme which was too ambitious given all that was known by then. **It was not considered acceptable to do what was really required and issue a much extended programme which was re-scoped. Eventually of course, that is what happened anyway because that is what the applied forces dictated. It would have solved a lot of problems if the programme had been delayed to let the design catch up. Had Infraco not taken on the risk for design through novation it would have led to an entirely different relationship with Infraco.**

Even if the design was not novated to Infraco and the design had been completed before the Infraco contract was let as soon as construction starts it is almost certain that problems would have been encountered that require amendments to the design. At that point the Infraco and designer would need to work together to find a solution.

40. In his internal PB Weekly Report dated 1 June 2007 (PBH00025126) Steve Reynolds noted that you and Tony Glazebrook were "*developing misgivings about TIE's organisational capabilities*", that you were both concerned about TIE's "*failure effectively to manage the complexities of the Tram Project*" and that Mr Glazebrook had expressed frustration "*at the lack of clarity on TIE's SDS Project Management role*".

(1) Did you have concerns around that time? If so what were they? **It was clear by then that despite the 5 month delay announced previously, the rate of progress would always be much slower than the programme indicated and required; an accumulation of utilities issues, consents and sheer volume of detailed design issues required a different approach.**

(2) Were any such concerns ever satisfactorily resolved (and, if so, when and how)?
No

41. By e-mail dated 7 June 2007 (CEC01629343) Jim McEwen, TIE, sent a note of a meeting on 4 June 2007 (CEC01629344) reviewing Procurement, Value Engineering, Resources and Risk (the meeting was attended by Geoff Gilbert, Stephen Bell, Jim McEwan and Stewart McGarrity).

The discussion in relation to Procurement, included:

□ *“Take 2 months out of the programme through starting due diligence of the critical design items earlier, accepting that in doing this the design process will continue and specifications will therefore be subject to change. Underpinning this approach was a considered view from the Procurement team that the maturity of the design would have reached greater than pare to status by August and therefore that subsequent design changes would be modest and at any rate carry a < £10m aggregate impact ...”.*

□ *“The process for attaining the various approvals of the contract, once bidder selection was complete, shows over 3 months of elapsed time and has the net effect of taking the completion of the programme out to March 2008. The consensus was that this was too long and that we should aim to conclude by end of this Calendar year”.*

(1) Were these matters discussed with you? **No**

(2) In any event, what were your views on these matters? **I have no recollection of what my views were.**

42. The minutes of the DPD on 7 June 2007 (CEC01528966 at pp6-7) noted that Steve Reynolds presented a paper on progress and critical issues in relation to the design.

Willie Gallagher is noted as having expressed his displeasure about the lack of progress and that he enquired why a programme had been presented together with assurances that it was achievable when it was known that the critical issues would prevent meeting the delivery dates. He also stressed that the current reporting format did not lend itself to identifying the real criticality of certain items (Mr Reynolds and Matthew Crosse are noted as having agreed that the report format was not providing complete information).

(1) What was your understanding of, and views on, these matters? **Not aware regarding this specific matter although within TIE it would be known that there was general dissatisfaction with the lack of progress.**

(2) Were the concerns expressed by Mr Gallagher in respect of progress and reporting addressed (and, if so, how and when)? **Not aware what specific action taken in respect of this matter.**

43. A draft update report by you and Tony Glazebrook was presented to the meeting of the DPD on 7 June 2007 noted above (CEC01528966 at p52).

A table showed that the number of critical issues had decreased from a total of just under 80 on 19 February 2007 to approximately 15 on 21 May 2007.

The outstanding high impact critical issues were summarised in a table (at p53) and included: Section 1A (Forth Ports); Section 1C (Waverley Bridge junction); Section 1C (Picardy Place/London Road); Section 1D (Haymarket); Section 5A (SRU); Section 7A (Gogarburn Tramstop, Eastfield Avenue, Airport Tramstop and Burnside Road); Scottish Water and wider area traffic modelling (to ensure that road junction designs did not need to be revisited).

(see also e.g. (i) your e-mail dated 16 June 2007 to Willie Gallagher (CEC01640209) attaching a list of remaining critical issues and who was doing what to try and resolve what had proved "intractable" problems (CEC01640210) and (ii) an e-mail dated 19 September 2007 by Tony Glazebrook (TIE00040871) noting that "*Critical issues have now been eliminated. However, significant issues which arise are now being progressed and cleared at weekly meetings, before they become critical. Currently there are six significant issues being progressed to clearance*").

- (1) Was agreement reached on the outstanding critical issues noted above and, if so, when?
- (2) Again, with the benefit of hindsight, to what extent were the various critical issues truly resolved at that time and to what extent did any of these items re-emerge at a later stage?

As noted in reply to question 20 TIE effectively took back the responsibility for the critical issues by issuing an instruction to SDS. The issues were resolved at that time and if they re-emerged it was for a different reason.

44. An e-mail dated 21 June 2007 from Trudi Craggs (TIE00043716) noted a number of concerns in relation to version 16 of the design programme including that the programme was not easy to understand, it seemed there was very little logic or connection between these programmes which may add risk or delay to the programme and "*the time allocated to certain tasks is inconsistent, not in accordance with agreed protocols and does not in some cases reflect reality*". Another e-mail dated 21 June 2007 from Ms Craggs (TIE00043715) noted that "*The way the prior approval process is being handled at present is frankly unacceptable from TIE's perspective. At present TIE has no confidence that the submissions will be right first time, that comments are being taken on board or that SDS can carry out the informal consultation process and update drawings to reflect comments within the agreed 8 week period*".

- (1) What were your views on these matters? **Agreement generally with these comments. The programme was a SDS creation and so not in the control of tie. SDS had responsibility for devising the design programme and they had the detail required to deliver it.**

45. Steve Reynolds' internal PB Weekly Report dated 22 June 2007 (PBH00026043) (para 5) noted *"David and I had reached agreement over the past week on the strategy to be adopted to put pressure on the Stakeholders to confirm acceptance of preliminary designs so that detailed design could be completed. This resulted in CEC and TEL being told at the meeting that the previous approach based on waiting for the results from traffic modelling and bus operations analysis before moving to completed design would be discontinued. PB would now be working to complete the design on the basis of the as-submitted preliminary design material unless anyone at the meeting could demonstrate a reasonable case against such an approach. This resulted in most of the Critical issues being closed out, although seven remain"*.

See also, for example, an e-mail dated 22 June 2007 (CEC01640595) in which Matthew Crosse forwarded an e-mail you had sent noting significant improvement with the critical issues. Mr Crosse noted, *"It's good we (i.e. TIE and CEC) are now being far stronger in respect of decision making. Particularly, acceptance that some decisions need to be forced – sometimes prematurely – in order to allow the detailed design to get started. And yes, they do carry itinerant levels or risk and some locations might need reworking"*.

- (1) What did you consider to be the risks in such an approach? **A small risk that assumptions may not be confirmed by modelling.**
- (2) To what extent were these risks discussed with others in TIE and CEC? **They were aware and implemented as there was little other option to help remove delay from the programme.**
- (3) With the benefit of hindsight, to what extent did forcing decisions at this stage cause problems later i.e. to what extent did detailed design require to be reworked later? **Not often; issues tended to be of detail rather than require complete rework.**
- (4) Do you recall approximately when traffic modelling and bus operations analysis became available? **No** To what extent did detailed design require to be reworked once that information became available? **As (3)**

46. By e-mail dated 29 June 2007 (PBH00026295), Steve Reynolds advised you that he was *"remobilising those areas of design activity which have been held"* and recorded certain concerns about continued attempts to optimise the design. He also noted that, *"should it be decided subsequently to revisit the design ... then this is a risk that TIE is taking"*.

- (1) What were your views on the concerns noted by Mr Reynolds? **He was correct**
- (2) What did you mean in your e-mail of the same date in the same chain where you stated *"... and for the avoidance of any possible doubt, I agree with and accept your interpretation"*? **It was the only interpretation possible. Revisiting the design was a risk for tie and the price for removing delay from the programme.**

Detailed Design (July 2007 to May 2008)

47. We understand that by around July 2007 a sufficient number of the outstanding critical design issues had been resolved so as to enable Detailed Design to commence or continue.

We further understand that it was agreed that SDS were to provide just over 300 design packages to enable novation of the SDS contract and Infracore financial close by the end of January 2008.

- (1) As at July 2007, approximately what percentage of the total Detailed Design for, respectively, phases 1a and 1b was complete?
- (2) As at July 2007, approximately what percentage of the utility design for, respectively, phases 1a and 1b was complete?
- (3) What changes were made to the process for producing and reviewing Detailed Design around this time? (see e.g. (i) your e-mail dated 26 April 2007, PBH00010843, (ii) TIE's, Design Management Plan, version 4, dated 13 September 2007, CEC01511907 and (iii) style PB Design Assurance Statement, CEC01511908)
- (4) Were these the changes to the design process essentially those discussed around March 2007 or were these materially different further changes again?
- (5) Why were these changes made?
- (6) How many design packages were to be delivered by SDS by the end of January 2008?
- (7) Did these design packages comprise all of the phase 1a detailed design (and, if not, (i) approximately what percentage of the total phase 1a design did these design packages comprise and (ii) what items were not included in these design packages)?
- (8) Did these design packages include Issued for Construction (IFC) drawings or was it envisaged that IFC drawings would be produced at a later stage (and, if so, by whom and when)?

I have no access to information necessary to provide answers and most of these issues were initiated before my arrival.

48. The minutes of the DPD on 5 July 2007 (PBH00027525 at p7) noted that you and Steve Reynolds presented an SDS update. You are noted as having explained that almost all critical issues had been resolved and that progress could now accelerate. Willie Gallagher remained sceptical about how achievable the programme was in reality. Steven Bell also expressed concerns about the achievability of the design programme.

The papers included for the meeting of the DPD on 5 July 2007 included a progress report (CEC01528966 at p8) which noted that version 16 of the design schedule stated that the issue of design packages "for construction" for the different sections would take place between January and May 2008 (p20).

The papers for the meeting also included a paper by Geoff Gilbert for the TPB, "Revised procurement programme" (p85) which noted that a review of the procurement programme had taken place and that certain changes had been made to maintain the project completion date of the first quarter of 2011 (with contract award by 28 January 2008) including "*commence due diligence on designs earlier in the process than previously planned*" (p87) and "*Commence bidder due diligence on detailed designs at the end of August when the likely successful bidder is known*" (p88).

The report noted (p90) that “CEC, TEL, SDS and the Tram project core team are agreed that the revised programme is deliverable”.

- (1) What were your views at that time on whether the design programme and the procurement programme were realistic and achievable? Did your views change in any way (and, if so, when and why)? **It was deliverable if all parties contributed without putting management of their own contractual risk before achievement of progress. That did not happen as was apparent later.**
- (2) What was your understanding at that time of when the Infracore bidder would undertake due diligence of the design and how that would be achieved? **No knowledge of this**

49. An e-mail dated 6 July 2007 by Scott Ney of PB (TIE00044022), in relation to road design, noted “different opinions expressed on topics by each [of] the stakeholders (many times competing opinions)” had contributed to the problems and that there had been “several different variations for concept design in several areas provided to SDS ... we have been required to start over in many instances”.

Alex Joannides of Scott Wilson replied (in the same chain) that he agreed with the majority of Mr Ney’s statements.

- (1) What were your views on the opinions expressed by Mr Ney? **They correctly identify a lack of aligned priorities among the parties.**
- (2) Which party did you consider had responsibility for consulting with, and obtaining the agreement of, the different stakeholders in relation to roads design? **SDS as the design authority. No other party would be competent to do it.**

50. By e-mail dated 11 July 2007 (PBH00026671) Steve Reynolds sent Greg Ayers, PB, copies of letters he had sent Halcrow (PBH00026672) and TIE (PBH00026673) in relation to an apparent failure by Halcrow to deliver utility drawings for Section 1a (Newhaven Road to Foot of Leith Walk) in time and of sufficient quality.

The Section 1b (Foot of the Walk to MacDonald Road) utility drawings due to be delivered on 20 July were, similarly, not delivered in time (see your e-mail dated 24 July 2007, PBH00012226 and the e-mail chain on 24 July 2007, PBH00012229).

- (1) Why was there a failure to deliver these drawings on time? (see e.g. in that regard, Steve Reynolds’ e-mail dated 26 July 2007 to Greg Ayres, PBH00027328 and the e-mail dated 2 August 2007 from Ian Clark, PB, CEC01678587)
- (2) How, and when, were these problems resolved?
- (3) To what extent, if at all, did these failures cause delay and/or additional expense in undertaking the utility diversion works?
- (4) Were there problems in relation to producing utility drawings in time and of a sufficient quality in relation to other sections (and, if so, which sections or subsections and what were the consequences of that)?

No information available to me on these issues.

51. By e-mail dated 12 July 2007 (CEC01626383) Geoff Gilbert attached a Tender Query Form from BBS (CEC01626384) which stated that “The marked up drawings issued to us do not contain sufficient information to enable us to accurately re-price and re-programme the Highway Works. We also note the comment that the drawings are in development and have still to receive formal approval from stakeholders including CEC”.

- (1) What was your understanding around that time in relation to BBS’s position on whether they had sufficient design information and detail to enable them to produce an accurate price and programme? **I had no involvement in this process**

52. In an e-mail dated 19 July 2007 (CEC01627050) you sought Mr Reynolds' views on whether the following actions would achieve a faster programme, namely, "1. Move all Section 3 [i.e. Haymarket to Granton Square/phase 1b] work to the back of the programme. 2. Remove some or all of the structures from each Section's design deliverables package and consider them separately (and subsequent to the design assurance packages). 3. Double the number of design staff available".

- (1) Was design work still being carried out on Section 3 (i.e. phase 1b) at that time and, if so why? **It must have been, but I cannot confirm.**
- (2) Were structures removed from the design deliverables packages? If so, did that "store up" problems for at a later date (e.g. when BBS were asked to price the available design and/or when prior and technical approvals were sought from CEC)? **No information available to me on that.**
- (3) Was the number of design staff increased around that time (and, if so, to what extent and whose staff)? **Not known – a SDS issue.**

53. An e-mail dated 19 July 2007 from Andy Conway, CEC, (CEC01627048) noted, in relation to the minutes of a Design Review Meeting, "we [i.e. CEC] were promised that the new design submission packages would include all relevant info ... in fact, the words used by SDS were that we would receive 'everything', plus a design assurance statement. This is not now the case, and I really don't see how CEC will be able to approve an incomplete design, particularly when you consider the impact of the stage 2 Road Safety Audit. I'm also unclear how SDS can assure the design, knowing that it is incomplete".

A later e-mail in the same chain, dated 20 July 2007, from you to Steve Reynolds noted "If we try and deal with this issue as described, even if we fix it, it will be the magnificent achievement of entirely the wrong thing as the resultant programme will kill the project".

Mr Conway noted in an e-mail dated 20 July 2007 to Jason Chandler (CEC01675827), "I appreciate that we're all doing our best, given some very difficult circumstances. I still believe that the design assurance proposal won't resolve as many issues as people first thought, particularly with regard to obtaining the technical approvals from CEC. This doesn't mean we don't progress that way, it just means we should do it with our eyes open with the risks identified and robustly costed with the projects business case".

- (1) What were your views on these matters? **SDS never fully engaged in the design assurance process as redefined and stuck more closely to the original section by section programme of seeking approvals when all was complete. My impression is that because SDS felt under attack they stuck closely to the terms of the contract and were reluctant to adopt this design assurance process.**

The redefined design assurance process involved completion of the pro forma statement in Appendix 1, Attachment 2 to Doc WED00000027 that would be completed by SDS and reviewed by TIE following receipt of the accompanying design submission from SDS. The aim was to ensure that the design had been completed properly. If there was evidence from SDS that the tasks specified there had been completed the "yes" box would be ticked. If a number of "no" boxes had been ticked it would be necessary to review the design process further but there was no need to do so if sufficient "yes" boxes had been ticked and there were no serious omissions.

Often that process could not work as the last few percent of design for any section took a disproportionately long time to complete. To stick with that approach guaranteed slow progress.

Although CEC were promoters of the Tram scheme they did not contribute in a supportive role to TIE's efforts to secure the designs. To my recollection they were only involved in the prior approval process.

54. An e-mail dated 20 July 2007 from Roger Jones, Transdev (CEC01627545) noted certain concerns arising from a recent meeting with the Infracore bidders, "Scoop", in relation to Value Engineering and Structures.

(1) What are your views on the concerns set out in that e-mail? Were these concerns indicative of more general problems at that time? **None, because as Roger Jones notes, until that moment I had had no involvement.**

55. By e-mail dated 30 July 2007 (TIE00044446) Gavin Murray, TIE, forwarded an e-mail from Roger Jones, Transdev, with certain concerns in relation to the design for Section 5c (Edinburgh Park to Gogarburn). Mr Murray commented that Mr Roger's concerns were likely to have an impact on the SDS self-assurance submissions in that *"If as Roger indicates elements of the Design team do not understand the requirements of a tramway I am not convinced that their self assurance will be worth much"*.

(1) Did you have any concerns around that time in relation to SDS self-certifying the majority of design? (see e.g. your e-mail dated 29 August 2007 to Jason Chandler noting concerns, TIE00041582) **SDS were contracted as a competent party as TIE notes in their contract. Even if some individuals showed any lack of understanding that was for SDS to manage. Even where consents were required for elements of the design, no party other than SDS had the competence to design the ETN.**

56. The minutes of the DPD on 2 August 2007 (CEC01530449 at p7) noted that you had explained the concept of “just in time” delivery and the fact “there is no margin for error”.

The progress report presented to the DPD (PBH00027525 at p10) noted that there was only one remaining high level critical issue (Lindsay Road/Forth Ports) and one low level critical issue.

Version 17 of the design programme was available and was “the first one that it has been possible to construct since the successful resolution of virtually all of the longoutstanding critical issues and RFIs”.

“Each of the 18 design packages will be large and, in some cases, will follow each other in a very short space of time. To avoid review overload, it has further been agreed that the 18 packages will be sub-divided into more digestible sub-packages which match the “Prior Approval” and “Technical Approval” milestones. Each of those sub-packages will be accompanied by as much associated design assurance information as is possible. This means that when the 18 final design assurance packs are submitted for review, the workload will be manageable”.

The dates for completion of design for different Sections ranged between 26 February and 24 June 2008 (p19).

A table (p21) showed due diligence of critical design items by 19 November 2007 and due diligence of non-critical design items by 17 December 2007, with financial close on 28 January 2008.

(1) Did the process for producing, reviewing and agreeing design change again around this time and, if so, in what way and why? **I am not aware of any change**

(2) It would be helpful if you could provide an overview of the work required by SDS to produce the 18 “self-assured” design packages (including, approximately, how many drawings, reports and other documents, would require to be produced)? **That detail is known only to SDS and no records are available to me. The process is defined in the Design Management Plan**

(3) Again, it would be helpful if you could give an overview of the work that would be required by TIE/TSS and CEC in reviewing and approving these design packages (including by reference to the approximate number of individual

(4) drawings, reports or other documents that would require to be reviewed)? **That detail is known only to SDS and no records are available to me. The process is defined in the Design Management Plan**

(5) What was your view at that time as to whether v17 of the design programme was realistic and achievable? **All versions of the programme were produced by SDS and were always considered to be realistic and achievable according to the information available at the time, and according to the judgments on risk available at the time.**

(6) What was your view at the time as to whether it was sensible and realistic to base the design (and procurement) programme on design being produced “just in time” with “no margin for error”? **It was the only approach left to recover some of the lost time.**

See the Design Management Plan for most of these items. I have no access to information on any of the detailed points.

57. The minutes of the DPD on 2 August 2007 (CEC01530449 at p10) noted that that V17 of the design programme would be slightly revised to give structural design elements a lower priority than other design elements (which was noted to facilitate their earlier completion, with consequent improvements in the overall review process).

(1) Why was it decided around this time to give structural design elements a lower priority than other elements? Was that related in any way to the need to speed up the programme (e.g. per your e-mail dated 19 July 2007, CEC01627050, noted above?) **I have no certain information on that but it was probably in consequence of the VE exercise which was focused on high value structures.** Was that related in any way to the decision taken around that time to carry out a Value Engineering exercise in relation to structures? **The VE exercise was focused on cost and not programme, but would have had a programme impact as extant designs would need to be changed.**

(2) A "TSS – Structures, Value Engineering, Weekly Progress Report" by Scott Wilson dated 28 July 2007 (CEC01681550) noted (at p3, Issue 1) that "*Preliminary design work on some of the structures has only recently recommenced as they were on hold for a number of reasons. The outcome of this may be the provision of more expensive structures than envisaged at present*". It would be helpful if you could indicate the structures in respect of which preliminary design work had only recommenced? What were your views on whether it was sensible to give structures a lower priority given that design work on at least some of the structures appears to have not been as advanced as some other items? Did that "store up" problems for later? **I have no programme information available to me**

(3) By e-mail dated 17 July 2007 (CEC01626783) Michael Terrance, Senior Cost Manager, Turner and Townsend, attached a spreadsheet (CEC01626785) showing that TIE's budget allowance for structures was £20.6m, Scoop's tender price for structures was £59.3m and Roley's tender price for structures was £41.7m. Can you explain the reason(s) for the discrepancies between these figures? Which figures do you consider were more realistic? More generally, to what extent did the estimates for the various Infraco works in TIE's budget correspond with the actual bid prices received? **I have no information on that and I was not involved in any of the commercial processes. I have no knowledge whether the budget figure was realistic although clearly some way short of the 2 tender figures received.**

58. An e-mail dated 2 August 2007 by Andy Steel, TSS (CEC01551796) noted certain high-level concerns in relation to the proposed Detailed Design Review process.

Mr Steel noted, *"We now know that the design will not be coming in packages but will be drip-fed as it becomes available. That brings its own problems ... this process will only work if SDS are made to produce a detailed flow of information which in terms of regular rate of delivery is acceptable to TIE and can be resourced. Any plan that I have seen in recent weeks has the apparent shelf life of a chocolate fireguard ... We discussed at the meeting the need to categorise the information flow into what is critical (itself to be defined but will mean different things to different stakeholders) and what can have a lower scrutiny level. That process needs to be done now and then incorporated into the detail review process at the very beginning. Take the above approach and we may have the possibility of staying within the cost aspirations of our Project Director. At the moment it is an open-ended cheque. TSS cannot commit to being a part of that"*.

By e-mail dated 9 August 2007 (CEC01660601) you sent Mr Steel a document setting out the design review services required from TSS (CEC01660602). The document noted that the current timetable for receipt of formal Design Assurance statements had slipped with the general slippage of SDS delivery, the slippage only

being halted on 28 June with the removal of the last critical issue.

The current timetable for Design Assured packages, based on version 17 of the design programme, was set out.

TIE were to agree with SDS interim deliverables which would enable faster conclusion of review of the Design Packages. You noted (p1), *"Taken together there will therefore be two programmes running in parallel – the Interim Design Deliverables and the Design Assurance Deliverables. This is clearly sub-optimal against the original concept but is now necessary as a result of SDS slippage"*.

You also noted (p2) that in order to price the work TSS should assume that only 25% of the documents would require review.

- (1) What were your views on the matters in Mr Steel's e-mail? **He is annoyed at the inconvenience at taking part in a sub optimal process but which process is necessary to make up for lost time. The fears he expresses are real but manageable.**
- (2) Were Mr Steel's concerns resolved and, if so, how? **His concerns were generic and ongoing. The difficulty was that each package could not be completed without the consents from CEC in place. Until everything was in place it was difficult to see the full picture and until you could do that you could not be satisfied that the design was complete.**
- (3) Did this represent another change in the process for producing, reviewing and agreeing design (and, if so, what were the main changes)? **No**
- (4) Did the Interim Design Deliverables and the Design Assurance Deliverables programmes run together? **Yes** If so, did that cause any problems? Why did you regard that as "sub optimal"? **Any integrated process which is disaggregated is defined to be sub optimal**
- (5) Are you aware, in the event, of approximately what percentage of detailed design was reviewed by TSS? (see e.g. Tony Glazebrook's e-mail dated 25 September 2007 (CEC01682898), which noted that *"design review is of nearer 10% than 100% of documents/design details"*) **I have no information available on this.**

25 September
should be 26
September

59. PB made a significant claim for changes to the SDS contract and additional work including, in particular, as a result of the prolongation of the period for reviewing and approving Preliminary Design.

In an internal PB e-mail dated 26 July 2007 (PBH00012299) Steve Reynolds set out what had been discussed at a meeting with Geoff Gilbert on 25 July in relation to PB's claim.

On 7 August 2007 Mr Reynolds sent Geoff Gilbert a letter (PBH00003596) setting out PB's response to the points made by TIE. A meeting was held on 16 August 2007.

On 14 August 2007 Mr Gilbert produced a report, "SDS Commercial Issues Resolution – Update on way forward" (CEC01632267) (at para 2.1, 1st bullet point), which noted that SDS had a valid claim in respect of "1. *Delays to the approval of Preliminary Design* and 2. *The failure to resolve the critical issues in a timely manner*".

On 16 August 2007 a meeting took place to discuss around 39 Changes (see e.g. the reference to such a meeting in TIE SDS's Project Manager's Progress Report for August 2007, [CEC01523936] at page 6, under Change control).

By e-mail dated 24 August 2007 Geoff Gilbert (CEC01630084) set out the principles of a draft agreement (whereby TIE would pay PB £2.5m in full and final settlement of the claims) (a letter was also sent that day, CEC01692910).

By e-mail dated 6 September 2007 (PBH00036744) Mr Reynolds noted that PB were in general agreement with the principles of settlement set out in Mr Gilbert's email.

(1) To what extent, if at all, were you involved in the matters noted above? **Not at all, so I have no views on all the items below.**

(2) What were your views on PB's claims?

(3) What were your views on Mr Gilbert's report of 14 August 2007, including the statement that SDS had a valid claim in respect of "1. *Delays to the approval of Preliminary Design* and 2. *The failure to resolve the critical issues in a timely manner*"?

(4) Incidentally, an internal PB e-mail dated 15 June 2007 by Greg Ayres (PBH00025674, para 5), noted, apparently in relation to PB's prolongation claim, "We were asked not to run the FINAL through doc control until after the Audit

Scotland report is submitted to Cabinet mid next week". What was your awareness and understanding of any such request?

60. A letter dated 7 August 2007 by Ailsa McGregor, TIE (CEC01628923) requested that PB confirm that there were sufficient resources available for provision of the SDS services in light of the recent withdrawal of certain key SDS staff.

(1) Are you aware why these staff withdraw?

(2) Did you have any concerns, at any time, as to whether there were sufficient key SDS staff working on the project? **The PB staff were transferred to Birmingham because the design work had stopped. Once we resolved the issues that had caused that progress could be made on design and the SDS staff returned. I had concerns about the rate of progress.**

61. An e-mail dated 8 August 2007 by Jim McEwan, TIE (CEC01632109) noted that Tony Glazebrook had recently expressed the view that the Value Engineering register "was not reflective or consistent with the true position on Structures" (and that Willie Gallagher had expressed his concern that the proposed savings in structures were "Not enough").

(1) What was your understanding of, and views on, these matters? **See my answers to Q7 and Q90 which are relevant to this question. The Value Engineering exercise was not driven by what was truly possible on structures but by what**

budget savings were required. Structures were single, large budget items, and so were obvious targets for such an exercise.

62. Your progress report for the TPB on 9 August 2007 (CEC01565001, p35, para 4.0) noted, *“The 18 fully self-consistent packages will be delivered rather late to meet procurement milestones for Infraco pricing purposes so it has been agreed that key elements of them will be supplied earlier to the Infracos to facilitate the best possible pricing certainty from them”*.

- (1) What were your views on whether that proposal (i.e. supplying key elements of the design to the Infraco bidders at an earlier stage) was realistic and achievable? **From the outset of the Infraco award much of the SDS design was questioned and in many cases reworked to reflect Infraco’s view of risk exposure as a result of Infraco taking on the risk associated with incomplete design. Infraco were reluctant to accept responsibility for incomplete design without adding to the price.** What were the key elements of the design that were to be supplied earlier? **No information available to me**
- (2) What was your understanding as to when the remaining design was to be supplied to the Infraco bidders? **There were 18 sections on the tram system. Each of the fully self-consistent packages would contain the “issued for construction” drawings and the necessary consents. Once these were available it would be possible in an engineering sense, and legally, for construction work to start. The problem was that until this material was available a price could not be fixed and work could not start.**
- (3) What was your understanding as to how Infraco bidders could produce a fixed price before all design had been completed and all statutory approvals and consents had been obtained? **If the design had not been completed the bidder would not be able to supply a fixed price for the work. Similarly if the consents have not been provided there could be no certainty for the bidder until design was finalised and consents obtained. If the design was incomplete or the consents were not available the bidder would price for the risk associated with that.**
- (4) Was the proposal noted above discussed, and agreed with, (i) the Infraco bidders and (ii) CEC? **No information available to me. I had no involvement in the assessment of the Infraco bids.**

63. On 20 August 2007 Steven Bell, TIE, sent an e-mail to David Watters, Halcrow, (PBH00028336) in relation to Halcrow’s alleged underperformance on utilities design.

- (1) What were your views on the matters in that e-mail? **I have no recollection of what my views were**
- (2) Did Halcrow’s performance on utilities design improve and, if so, when and how? **No information available to me**

64. By e-mail dated 28 August 2007 (CEC01632953) Miriam Thorne, TIE, listed certain concerns in relation to input from CEC.

By e-mail dated 4 September 2007 (in the same e-mail chain) Jim Grieve, CEC, expressed certain concerns in relation to CEC not being involved in the Value Engineering process.

- (1) What were your views on the concerns expressed in each of these e-mails? (see also (i) e-mail dated 1 October 2007 by Lindsay Murphy, TIE (TIE00492600) which noted that a meeting was to take place in relation to the structures and attached a schedule (TIE00492601) showing the VE opportunities in relation to the structures and (ii) an update of the schedule (CEC01579617) with comments by CEC Structures and CEC Planning) **I have no recollection of what my views were**

65. The DPD minutes for 30 August 2007 (CEC01644467) noted *“Decline in lack of progress has been arrested. DCR’s view is that it will continue to improve providing we stay on top of SDS and give them no excuse not to deliver.”* (see also Steve Reynolds’ response to this comment in his e-mail dated 11 September 2007 and your reply the same day, PBH00028758).

(1) It would be helpful if you could explain your comment noted in the minutes? **See my email PBH00028758 point (2) – the minutes refer to that sentiment.**

66. On 30 August 2007, a report to CEC’s IPG [CEC01566861] noted, under Detailed Design Technical Review Process, *“This will become a significant work stream for CEC and will be very labour intensive. It is anticipated that this will involve reviewing potentially as many as 16,000 drawings and 600 reports. It is critical that this will commence in early September, however TIE have still to confirm this”* (at para 2.3). It was further noted, under Planning Prior Approvals, *“A revised Prior Approvals programme has now been prepared by TIE/SDS. This would extend until June 2008 ...”* (para 6.3).

(1) Did the number of drawings and reports noted above that would require to be reviewed by CEC accord with your understanding at the time?

(2) Did the review by CEC commence in early September (and, if not, why not)?

(3) Was it your understanding that a revised Prior Approvals programme had been prepared by TIE/SDS which would extend until June 2008?

(4) What was your understanding of the risks that arose from an extended prior approvals programme (including, in particular, that design may require to be revisited in order to obtain approvals and consents)?

(5) What was your understanding of how the Infracore bidder could complete its design due diligence exercise, and provide a fixed price, until all design had been completed and all prior approvals and consents had been obtained?

No information available to me on these points. However I can say that extending the prior approvals programme carries a number of consequences. The lack of prior approvals means that not one of the 18 sections can be completed. The bidders would need this information and without it they would increase their bids to cover the risk that they would be taking in bidding without all consents being available.

67. By e-mail dated 4 September 2007 (TIE00041624) Gavin Murray, TIE, expressed concerns in relation to the design team *“being frustrated by other elements of TIE getting involved to the detriment to the progress of the design”*.

(1) What were your views on that matter? **Gavin Murray’s note is self-explanatory; these are examples of scope change which are typical and driven by commercial or planning processes.**

68. By e-mail dated 13 September 2007 (TIE00041688) Gavin Murray advised that *“I fear we are not just back where we were last December but back from where we started”*, before setting out concerns that had arisen following a conversation with Andy Conway, CEC to the effect that CEC, as statutory authority, were likely to require considerably more information than had been received. Mr Murray also expressed concerns that only 10% of design was to be reviewed and that design was not being provided as a complete assured package.

(1) What was your understanding of, and views on, these matters? **I understood what was written; similar issue to Q66 and an indicator that as part of the approvals process CEC wanted information unlikely to be available. SDS were contracted to design, but they received little help from those providing consents. It was not a collaborative process and should have been. CEC did**

not work effectively with SDS in order to identify what design might be acceptable to it if it was not satisfied with the original design.

69. By e-mail dated 13 September 2007 (TIE00042330) you noted that Tom Hickman, TIE's Programme Manager, did not have all of the data and was monitoring against a different version of the programme to you, which would result in two reports at variance based on apparently the same data (see also Matthew Crosse's e-mail dated 13 September 2007, CEC01630996).

- (1) How had that issue arisen?
- (2) What problems did it cause?
- (3) Was the issue resolved (and, if so, how and when)?

I have no recollection of what happened

70. A report to CEC's IPG on 27 September 2007 (CEC01561544) noted: Detailed Design Review Process, *"Initial meetings were held on the 7th and 13th September to discuss and agree the review process, which is being split into two separate areas; Planning and Policy related or Technical. A trial submission highlighted some serious gaps in the quality of information being brought forward at this stage. CEC have emphasised that this needs to be resolved as a matter of urgency ..."* (para 3.3).

Planning Prior Approvals, *"A revised Prior Approvals programme was tabled by TIE on 6th September. This differs to the previously agreed programme which extended until the end June (as outlined in the previous Report) in that a significant proportion of the Prior Approval determination dates have been brought forward to the end December/end January. This reflects the need to have Prior Approvals in place in advance of the letting of the INFRACO contract"* (para 7.6).

- (3) What were your views on the comment noted above in relation to *"serious gaps in the quality of information being brought forward"*? **I have no recollection of what my views were**

- (4) It appears that a revised Prior Approvals programme was tabled which brought forward a significant proportion of Prior Approval dates to the end of December/end January. What were your views at the time in relation to whether the revised Prior Approvals programme was realistic and achievable? **I have no recollection of what my views were**

These issues relate to the information CEC required for consents. There was little certainty available to designers and CEC often asked for more than had been provided without giving an indication as to what more would be required and the reasons for that.

71. By e-mail dated 3 October 2007 (CEC01621848) Matthew Crosse circulated a draft letter (CEC01621849) that Willie Gallagher intended to present to, and discuss with, Tom O'Neill, CEO, PB, at a meeting the following day.

- (5) (1) What were your views on the points in that letter? **I have no recollection of what my views were. It appears to represent a prevailing view but it masks the underlying problem; SDS were competent to design but they needed a responsive client and a responsive consents process if they were to create and maintain momentum. SDS did not have that support. The lack of these meant that they had to protect their commercial position to prevent loss to themselves.**

72. E-mails dated 10 October 2007 noted an increase in the number of design deliverables from 284 to 325 (TIE00038607).

- (1) It would be helpful if you could explain the reason(s) for that increase?
- (2) Did that place increased pressure on the design programme (and, if so, what steps were taken to address that)?

I have no information available

74. An e-mail dated 12 October 2007 from John Dolan, Interfleet Technology Ltd (TIE00036906) noted concerns in relation to design and concluded, *"If TIE's consultants persist in preparing designs for stakeholder approval that do not clearly address integration across team boundaries, or recognisably take account of potential Operations and Maintenance matters, we must understand that there is a risk that, once designs are properly integrated and due cognisance is taken of Operations and Maintenance, the original design may have been significantly revised, possibly involving the need to revisit stakeholder approval"*.

- (1) Who was Mr Dolan and what was his role? **ROGS ICP**
- (2) What were your views on the matters in Mr Dolan's e-mail? **He is correct, and because of his role was in a position to make the matter stick with regulators. See The Railways and Other Guided Transport Systems (Safety) Regulations 2006 5(4)(b)**
- (3) Were Mr Dolan's concerns addressed (and, if so, how and when)? **Through design reviews.**

75. By e-mail dated 12 October 2007 (TIE00038648) John Casserly, TIE, noted an issue with SDS design in relation to tram alignment plates 15 to 17.

- (1) What was the problem, how had it arisen and how was it addressed? **No information available on this. It is a minor detail amongst many such details which were regularly dealt with. It is unclear why this could be thought to be relevant at all.**
- (2) To what extent, if at all, was that problem indicative of more general problems around that time?

76. Steve Reynolds' internal PB Weekly Report dated 26 October 2007 (PBH00029992) noted that Bilfinger Berger Siemens (BBS) had been confirmed as the Infracore Preferred Bidder. Mr Reynolds noted that you had advised that the current price on the table was some £30m over the budget. A small group, headed by Willie Gallagher, had been formed, with Jim McEwen (responsible for value engineering), Duncan Fraser (CEC) and you to determine the strategy for conducting the negotiations with BBS.

It was noted that Willie Gallagher was now *“seriously considering delaying novation until June”*.

Mr Reynolds noted that he had *“helped to steer the discussion on Preferred Bidder negotiations to the point where risk allocation needs to be considered rather than detailed pricing”*.

It was further noted that Mr Gallagher had called a meeting with TIE senior management team off-site in Glasgow to review negotiation strategy and that you were to present a set of risks that TIE should consider treating differently by allocating responsibility more appropriately. **I had no such role, so I have no comment on any of the points. I cannot say why it is recorded there that I would have that role. It may be that someone thought that I should but I did not.**

- (1) It would be helpful if you could explain your role in the group noted above together with what was discussed and agreed at any meeting(s) of the group?
- (2) What was your understanding of, and views on, the suggestion that Preferred Bidder negotiations should focus on risk allocation rather than detailed pricing?
- (3) What was discussed and agreed at the off-site meeting in Glasgow noted above in relation to the negotiation strategy? (Incidentally, why was the meeting held off-site?)
- (4) What were the main points of your presentation in relation to the set of risks that TIE should consider treating differently?
- (5) What consideration was given around that time within TIE to delaying novation and what was decided and why?

77. By e-mail dated 29 October 2007 (CEC01454003) Susan Clark, TIE, listed a number of technical topics that BBS wished to discuss in relation to due diligence. By e-mail dated 31 October 2007 (PBH00003635) Steve Reynolds expressed concerns in relation to the meetings with BBS and the need for changes to the current process (see also his letter to Matthew Crosse dated 6 November, PBH00030679).

Bruce Ennion, PB, raised certain concerns in an e-mail of the same date (PBH00030235) in relation to the lack of a TIE formally approved documented procedure, the lack of an integrated approach by TIE and the lack of internal communication within TIE.

In his internal PB Weekly Report dated 9 November 2007 (PBH00030825 at p3), Mr Reynolds noted, *"In short, TIE has shown itself to be a disconnected set of individuals this week with no common understanding of the goals to be achieved from the BBS meetings and no properly structured plan"*.

Similar concerns were expressed by Mr Reynolds in his Weekly Report dated 9 November 2007 (PBH00030825) in which he stated *"I am not convinced that any significant value has been delivered over the last two weeks"* and that *"my suspicion that no-one in TIE had actually read the technical content of the Civils offer from BBS was confirmed"*.

I agree that there was a tendency on the part of TIE and CEC to hold SDS at arms length rather than work together in partnership.

- (1) What was your understanding of, and views on, the matters noted above?
- (2) Did you agree with these concerns? Were these concerns addressed (and, if so, when and how)?
- (3) It would be helpful if you could explain what the BBS Civils offer was?

78. Internal PB e-mails dated 1 and 2 November 2007 (PBH00013984) noted slippage on structures deliverables.

No information available to me on these items

- (1) What was your understanding of the reason(s) for that slippage?
- (2) Are you aware to what extent, if at all, PB resourcing issues contributed to that slippage?
- (3) What steps were taken (and when) to address the slippage? Were these steps successful?
- (4) In the event, were the structures deliverables issued within the agreed timescale?

79. By e-mails dated 5 November 2007 (TIE00038114) you noted problems in relation to TIE (and CEC's) access to design documents and drawings (see also an internal PB e-mail thread dated 8-16 November in relation to document control, PBH00031284 and your e-mail dated 16 November 2007, PBH00031265).

- (1) What was your understanding of these problems, why they had arisen and the difficulties they created?
- (2) What steps were taken (and when) to address these problems?
- (3) Were these steps successful?

The substantive issue is minor; getting access to documents on SDS's systems. The issue with CEC again relates to their unwillingness to give away any perceived rights to reject anything or to provide in advance absolute clarity on what is required for consent. While CEC might be entitled to adopt this approach in relation to applications for consents its unwillingness to work with SDS to identify an acceptable way forward had consequences in terms of making progress.

80. An e-mail dated 7 November 2007 from Jim McEwan (TIE00037085) noted that the BBS bid price was generally based on designs which were current in March 2007 and that the bid price could increase or decrease due to the evolution of designs since then.

No information available to me on these items as I had no involvement in assessment of the Infraco bids.

(1) Did you have any views as to whether, overall, the BBS bid price was likely to increase or decrease due to the evolution of design since March 2007?

(2) Do you recall any discussion within TIE during 2007 in relation to that matter?

81. BBS also appear to have reported concerns around this time in relation to not receiving sufficient design information to enable them to produce a firm price (see e.g. TIE/PB e-mails dated 28/29 November 2007, PBH00032057).

(1) What was your understanding of, and views on, that matter?

No information available to me on these items

82. The report to CEC's IPG on 15 November 2007 [CEC01398241] (para 3.3) noted: Detailed Design Review Process, *"Reviews of the individual disciplines of the detailed design continue. The packages have yet to be coordinated by the designers therefore the value of these reviews is limited and all packages will require resubmission when complete and fully coordinated by the designers and TIE. Further delays to the design programme are becoming apparent with all technical reviews programmed to complete after financial close. CEC have emphasised that this needs to be resolved as a matter of urgency ... The latest programme, V21 is still not approved by CEC and consultation is required between CEC, TIE, SDS and BBS before an approved programme can be produced"*.

I have no recollection or specific information available to me to answer these points. There was a tendency for SDS to produce designs that had been a substantial way through the design process but had not been dealt with through the Inter-Disciplinary Design Check. The purpose of this check was to ensure that all elements of the design for a particular section were integrated and would work effectively together. For example I am aware that on one occasion the design produced would have required water to flow uphill to effect good drainage.

(1) What was your understanding of, and views on, these matters at that time?

(2) What was the difficulty in producing co-ordinated packages of design? What difficulties, in turn, did that cause?

(3) Are you aware, in the event, of the extent to which design packages required to be re-submitted when "complete and fully coordinated"?

(4) What risks or difficulties did you foresee arising if all technical reviews were programmed to complete after financial close? To what extent were these risks discussed within TIE (and with CEC)?

83. Steve Reynolds' internal PB Weekly Report dated 16 November 2007 (PBH00031342) noted *"It is not entirely clear what would happen if the 20 December deadline for a revised offer from BBS which would maintain the overall £498m budget were not achieved. Matthew Crosse has suggested that certain refinements could slip into the New Year but I have also been told that failure to meet the deadline could introduce a year's delay with all the risks that would introduce to the long term future for the project"*.

(1) What was your understanding of these matters? **No information available to me on these items**

84. An e-mail dated 19 November 2007 from Matthew Crosse to Steve Reynolds (PBH00014454) raised the issue of an apparent hold up in BBS obtaining access to drawings (see also the "Frustration Central" e-mails by TIE and PB staff around that time, PBH00031360). **See Q79**

(1) What was the problem?

(2) Was it resolved and, if so, how and when?

85. In late 2007 discussions took place (i) between PB and the Infraco bidder, BBS, and (ii) between PB and TIE, in relation to design and novation of the SDS contract to BBS.

(1) To what extent were you involved in these discussions? **No involvement in assessment of the Infraco bid or these discussions.**

(2) It would be helpful if, by way of overview, you could outline the main issues discussed in relation to novation, the main concerns of the parties and how these concerns were resolved?

(3) In an internal PB e-mail dated 7 January 2008 (PBH00033339), Steve Reynolds

noted "*The sensible course of action which everyone except TIE understands is to delay novation to the point where the design is nearer 100% complete – to be fair even Gallagher sees this as a potential option*". What were your views in late 2007/early 2008 on delaying novation (and Infraco financial close) until design was nearer 100% complete? Was that option discussed within TIE?

86. In an e-mail dated 20 November 2007 to Matthew Crosse (PBH00031415), Steve Reynolds noted "*the potential change to Employer Requirements*".

In an e-mail dated 3 December 2007 (CEC01480075), Andy Steel, TSS, expressed the opinion that it was a "*practical impossibility*" that the Infraco Employer's Requirements, Infraco Proposals, Tram Vehicle Employer's Requirements, Tramco Proposals and SDS Design would align with each other at novation.

In an e-mail dated 24 December 2007 (TIE00039586), Jim Harries, Transdev, expressed the opinion that there was a need for proper direction from TIE on how to address SDS's design and that, without that direction, there was a risk of "*Generating confusion and the consequential potential for future "Changes" with both SDS and BBS*".

(1) We understand that concerns in relation to the Employer's Requirements were expressed on a number of occasions in 2007. When did you first appreciate that there was a misalignment between the SDS Design, the Employer's Requirements and BBS's offer? **I was not involved in evaluation of BBS's offer**

(2) It would be helpful if you could explain the problem, how it had arisen, the risks that arose and the steps taken during 2007 to try and address that misalignment? **It might be a slight exaggeration to say that alignment of the various proposals would be a "practical impossibility" unless alignment would violate the laws of physics. The Employer's Requirements was an enormous document and to align everything with the Employer's Requirements etc would have been really difficult, although not impossible.**

(3) To what extent were the risks arising from that misalignment discussed within TIE (and with CEC)? **Not aware**

87. An e-mail dated 21 November 2007 from Carla Jones, PB (PBH00014489) attached a weekly deliverables tracker (PBH00014490) and noted that there were a total of 344 design deliverables, 283 had been planned for delivery by that date, of which 227 had been delivered. Of the 52 late deliverables, 32 had been delayed for reasons such as Forth Ports (Lindsey Road alignment/ADM Milling etc), EARL related changes, SRU, Network Rail approval of Balgreen Road Bridge, Bernard Street, Casino Car Park, Leith Walk Substation, Cathedral Substation, St Andrew Square and Ocean Drive Bridges.

20 deliverables were late for reasons totally in SDS control.

Internal PB e-mails dated 21 November 2007 (PBH00014500) noted a recent assertion by you of “1000 days” of cumulative delay and a reference to ongoing issues in relation to Forth Ports, SRU, Picardy Place, Edinburgh Park Viaduct and St Andrew Square.

An e-mail dated 22 November 2007 from Damian Sharp (CEC01481844) noted a further 1314 days of delay between 9 and 16 November, on top of the 1299 days between 26 October and 2 November. He noted, *“Without the percentage complete column being updated it is impossible to draw any real conclusions about the health of the deliverables programme. It is certainly clear that on 2 November SDS did not bring out all their dead”* (Mr Sharp attached a version of PB’s weekly tracker with his own mark up, CEC01481845).

An e-mail dated 22 November 2007 from Damian Sharp (CEC01481849) noted that some prior approvals were due to start later than the construction programme required and the technical approvals programme still showed too much activity in February – May 2008, and was out of synch with the construction programme (see also internal TIE e-mail dated 6 December 2007, CEC01482817).

An e-mail dated 26 November 2007 from you (PBH00031752) set out a number of concerns in relation to the programme for prior approvals, the programme for technical approvals, the programme for consents, the design deliverables tracker

and progress reporting and management reporting. You attached an e-mail dated 26 November 2007 (PBH00031753) from Tom Hickman which attached a list of SDS Issue for Construction dates from version 22 of the design programme where the IFC date was either after the Infracore programmed construction start date or close to it (PBH00031754).

No information available to me on these items

- (1) What were your views at that stage on the state of design and prior approvals?
- (2) What were the reasons for any delays in progressing the design to programme and in obtaining statutory approvals and consents?
- (3) What were the main design items outstanding, why were they outstanding and what was the plan (and programme) for dealing with the outstanding matters?
- (4) Were the design, prior approval and construction programmes ever fully realigned (and, if so, when and how)?

88. It would be helpful if, as at 25 November 2007, you could give an indication of: The version of the design programme in existence? **No information available to me on these items**

(1)

(2) Approximately what percentage of the total detailed design for, respectively, phases 1a and 1b was complete?

(3) Approximately what percentage of the approvals and consents for, respectively, phases 1a and 1b had been obtained?

(4) Approximately what percentage of the utility design for, respectively, phases 1a and 1b was complete?

89. By e-mail dated 30 November 2007 (CEC01500320) Tony Glazebrook advised Steven Bell of certain critical issues, including:

"2. There is widespread unclarity as to who does what in tie. I have issued a list ... of who does what in my team to help bring clarity to others. I need the same from the other teams in tie. The unclarity is manifest in every issue being dabbled with, often to no conclusion, and always to confusion by multiple people who do not communicate with each other and further complicate what should be more simply solved by a focused discussion between the right people who make decisions and communicate the results.

3. It has come to light that tie's Procurement team has been receiving documents direct from SDS which are not lodged within tie's document control system. The result is that I and my team, and doubtless others, are working on duff gen and making duff decisions. This is incredible".

(1) What was your understanding of, and views on, these matters? **In my view this kind of comment can be applied in many organisations and in many industries. It is invariably true to a certain degree but while undesirable I do not think that it was pivotally important to the success of the project. While the issues were important, they were not critical.**

(2) What were the consequences, if any, of the problems noted by Mr Glazebrook?

90. An e-mail dated 4 December 2007 (CEC01466900) by Matthew Crosse noted that TIE had failed to achieve their Value Engineering targets in structures and, because of the impact that had on achievement of the £498 project budget, TIE were looking at the delta between BBS's bid price and TIE's original budget.

(1) Why had TIE been unable to meet the VE targets in relation to structures? **The targets were not based on a realistic understanding of what was physically possible. They were based on a desire to save money. If the designers have done a good job there should be little opportunity to achieve value engineering savings. In my view this was done because it was realised that there was a budget crisis and the VE exercise had not achieved the savings that were thought to be necessary.**

(2) What was your understanding of the problems that created? **A continuing inadequate budget**

91. By e-mail dated 5 December 2007 (CEC01480043) Damian Sharp circulated an e-mail dated 4 December from Susan Clark (CEC01480044) listing 16 SDS design issues that were constraining the construction programme. Ms Clark stated, "As you know, I think the IFC dates have float in them and we need to get to the bottom of this as this could provide us with a large programme opportunity that we need in our bag – not SDS's!".

(1) What was your understanding of, and views on, that matter? **No information available to me**

92. By e-mail dated 6 December 2007 (CEC01482817) Damian Sharp noted lateness in SDS deliverables in periods 8 and 9 .

The consequences included: *“some significant slippage for items due in Q1 and Q2 2008”, “particular slippage in structures, section 1A [Newhaven Road to Foot of*

Leith Walk] and tram stops”, significant extension of final delivery date” and “programme does not always reflect what SDS actually expect to happen”.

There were some specific structures where the programme now featured the worst case scenario of complete redesign and re-build (albeit SDS actually expected something rather less dramatic to be the case).

Out of an overall total of 344 planned design deliverables, 236 out of 298 planned to be delivered by 30 November had been delivered by that date.

Out of 66 total prior approvals due (45 for phase 1a and 21 for phase 1b), 16 out of 29 prior approvals due to be delivered by 8 November had been delivered (9 for phase 1a and 7 for phase 1b).

Five prior approvals had been granted, 20 prior approvals were in informal consultation and management forecast data from SDS expected the gap of 13 prior approvals to close to 4 or 5 at novation.

In relation to Technical approvals, five structures had been submitted (which was in line with version 22 of the programme) and there were 47 structures that required approval.

No information available to me on these items. See WED00000027, pages 3,4 and 5 about reasons for the delay in delivery of design. See also Q159 which effectively summarises WED00000027.

- (1) Did these matters cause you any concerns (including in relation to whether the design and procurement programmes were realistic and achievable)?
- (2) Was there any discussion within TIE (or with CEC) around that time in relation to how BBS could undertake design due diligence and give a fixed price before all design had been completed and all approvals and consents had been obtained?
- (3) Was there any discussion within TIE (or with CEC) in relation to putting the procurement process on hold until design had been completed and all prior and technical approvals had been obtained?

93. The minutes of the TPB on 7 December 2007 (CEC01526422 at para 3.2) noted Steven Bell as highlighting, *“Slow design delivery requires prioritisation within key streams to help BBS programme”.*

The progress report presented to the meeting (CEC01387400) noted: *“To 23rd November, of the 344 design deliverables, 236 have been delivered, representing 63% of the tram system design. 66% of Phase 1A detailed design is now complete and it is expected that about 75% will be complete by the date of placement of the construction contract in Jan 2008 ... SDS design process will be discussed with Tom O’Neill, the PB President, on the 5th December”* (para 1.2.3).

No information available to me on these items. See WED00000027 pages 3,4 and 5 about reasons for the delay in delivery of the design. See also Q159 which effectively summarises WED00000027.

- (1) Did the above passages accord with your general understanding at the time?
- (2) What was your understanding as to why the SDS design process was to be discussed with Mr O’Neill?

94. On 7 December 2007 PB produced a report on the consequences of a phase 1a/1b separation (CEC00309294). **No information available to me on these items**
(1) Are you aware why that report was produced at that time, rather than at an earlier stage, given that, for some time, funding had only been available for phase 1a (and, indeed, the TPB had instructed in February 2007 that “the project should reprioritise work on phase 1a only”)?

95. A report presented to CEC’s IPG on 11 December 2007 (CEC01398245) noted: Detailed Design, *“Further delays to the design programme are becoming apparent with all technical reviews programmed to complete after financial close. CEC have emphasised that this needs to be resolved as a matter of urgency”* (para 4.2).

Planning Prior Approvals: 1 planning permission and 5 prior approvals had been granted, 4 prior approvals were currently under consideration and 52 batches remained to be submitted for prior approval.

“Of the batches received, a number have been put on hold awaiting revised details from the designers. There is concern that prior approvals may have to be revisited if there are substantial changes in design coming from inter-disciplinary coordination, technical approvals or value engineering” (para 4.2).

(1) What was your understanding of, and views on, these matters? **No information available to me on these items. This is about CEC requiring more information and being unwilling to work with SDS in a collaborative fashion.**

96. By e-mail dated 14 December 2007 [CEC01397774] Duncan Fraser, CEC, referred to a presentation by TIE the previous day and asked certain questions about the Quantified Risk Allowance, including querying the provision made for the likely change in scope given the incomplete/outstanding design, approvals and consents.

Mr Fraser stated, *“The scope of the works is not clear to CEC and specifically the quality and quantity and status of designs on which BBS have based their price. Also none of the designs are approved (none technically and only 4 out of 61 prior approval packages) hence the scope is likely to change, hence provision should be made for this”*.

Geoff Gilbert replied, *“I have previously explained the interrelationship between emerging detail design, Employer’s Requirements and Infracore Proposals works and how price certainty is obtained out of this process and are in the process of delivering such certainty. Therefore, please advise what scope changes you anticipate arising out of the prior approvals and technical approvals. The overall scope of the scheme is surely now fixed, is it not?”*. **No information available to me on these items.**

(1) What was your view, at that time, on the above matters including, in particular, whether the “scope” was fixed or whether there was a material risk that the scope would change?

97. By e-mail dated 17 December 2007 (CEC01483284) Damian Sharp noted that there was an allowance of £7.5m in the Quantified Risk Allowance for phase 1 in relation to approval delay. That sum included general programme delay, specific allocation to SDS performance, specific allocation to MUDFA delay due to incomplete design and CEC not being able to turn round approvals within 8 weeks.

No involvement in this

- (1) To what extent, if at all, were you involved in arriving at that sum?
- (2) Who in TIE was responsible for arriving at that sum?
- (3) Did you have any views on the adequacy of that sum?
- (4) What was your understanding in relation to whether that sum included any allowance for risks arising from incomplete design, outstanding approvals and consents and the misalignment between the SDS Design, BBS Offer and the Employers Requirements?

98. By e-mail dated 18 December 2007 (CEC01483372) Clare Norman, PB attached a progress chart (CEC01483373) and deliverables tracker (CEC01483374) for period 9.

(see also Damian Sharp's e-mail dated 19 December 2007 (CEC01483413) following a meeting with Steve Reynolds and Jason Chandler of PB).

Of an overall total of 343 design deliverables, 251 out of 307 planned deliverables had been delivered by 14 December 2007. **No information available to me on these items. See WED00000027 pages 3,4 and 5 about reasons for the delay in delivery of design. See also Q159 which effectively summarises WED00000027.**

- (1) Did the progress chart and deliverables tracker cause you any concerns in relation to whether the design and procurement programmes were realistic and achievable?
- (2) Were any such concerns discussed in TIE around that time?

99. A number of concerns about PB's performance were reported during 2007 and early 2008. In particular:

- (i) The TIE SDS PM's monthly report for period 4, July 2007 (CEC01526606, p1) noted, "*Still concerns about missed delivery dates and quality of submissions*".
- (ii) The minutes of the TPB on 12 July 2007 (CEC01565001 at para 4.2) noted "*The MUDFA team remains concerned about the delivery of IFC drawings, but are progressing works to programme*"; the minutes of the DPD on 2 August 2007 (CEC01530449 at p6) noted that the key to progressing the MUDFA works was the

availability of IFC drawings from SDS and that *“Current performance is poor and action is being escalated with SDS and Halcrow directors”*; the progress report to the DPD on 2 August 2007 (PBH00027525 at p9) noted that *“Designs due from SDS in the period were not delivered to schedule”*; the DPD minutes for 30 August 2007 (CEC01644467), under MUDFA, noted *“Main utility works not advanced due to design release”*.

(iii) An e-mail dated 16 August 2007 by Geoff Gilbert [CEC01632266] circulated a paper, “SDS Commercial Issues Resolution – Update on way forward” [CEC01632267], which noted *“The contract was awarded to SDS based on a proffered capability that they had the ‘toolkit’ (experience, processes, strength and depth of management and design personnel) to deliver the scheme. This has not been evident in their delivery of the design services”*.

(iv) In an e-mail dated 26 September 2007 (CEC01667338) Willie Gallagher noted he was *“gutted ... over the SDS/SUC/TIE performance to deliver the dates for the IFC drawings”* and that the issue was *“rocking confidence of all stakeholders on the Tram project”* (see also Mr Gallagher’s letter of the same date on that matter, CEC01643235, an e-mail dated 28 September by Steve Reynolds, CEC01714281 and Greg Ayres’ letter of 4 October 2007, PBH00029050) .

Concerns were set out in Mr Gallagher’s letter to Mr O’Neill dated 4 October 2007 (PBH00029051 **See WED00000027, pages 3,4 and 5. See also Q159 which effectively summarises WED00000027.**

- (1) What were your views on the performance of SDS during 2007?
- (2) What were your views on the performance of TIE and CEC during 2007?
- (3) To what extent, if at all, did any failings or under-performance by any of these bodies during 2007 result in delay in producing, reviewing and approving design and in obtaining approvals and consents?
- (4) More generally, to what extent, if at all, do you consider that any failings or under-performance by any of these bodies during 2007 caused or materially contributed to delay or increased cost to the tram project?

2008

100. By e-mail dated 3 January 2008 (TIE00246113) Tom Hickman attached a spreadsheet (TIE00246114) analysing the programme data from V24 of the design programme received from SDS on 21 December 2007.

The spreadsheet showed the programmed dates at V17 (agreed baseline date clear of critical issues), V22 (the programme the BBS construction programme was based on), V23 (SDS status as at 19 November 2007) and the current V24 (SDS status at 10 December 2007).

The spreadsheet highlighted in red items which had a direct impact on the Infraco construction programme, which had been agreed in principle with all the major stakeholders.

The spreadsheet also highlighted items where the issue of design information was now within a few days of, or already after, the agreed construction start date.

There were other areas where there had been significant slippage from V22 to V24 but which were not yet impacting on the agreed in principle Infraco programme.

Mr Hickman noted that *"We cannot afford to continually delay the already agreed construction commencement dates as this causes major implications not only for the individual items but also for the full programme sequencing"*. **No information available to me on these items.**

V24 and V24 of the SDS design programme had not been issued to BBS.

- (1) What was your understanding of the reasons for the ongoing slippage in design?
- (2) What was your understanding of the problems that caused for the Infraco procurement?
- (3) What discussion was there within TIE (and with CEC) around that time in relation to how to address these matters?

101. The TIE SDS's project manager's report for January 2008 (CEC01529677 at p8) noted, under Key Issues and Concerns:

"1. Slippage between v22 of SDS programme on which construction programme based and v24 – causes clashes with construction programme (Programme meeting 9/1 to establish reasons, corrective action and residual problems).

2. Volume of work to conclude novation. Significant amount of detailed information still required from SDS and issues to be resolved by TIE & CEC (resolution of remaining engineering/scope issues)".

- (1) What was your understanding of, and views on, these matters at that time? **I have no recollection of my views at the time.**

102. An e-mail dated 10 January 2008 from Andy Conway (PBH00015670) showed a slippage of approximately one month in the programme for roads technical approvals.

- (1) What was your understanding of the reason for that slippage? **I have no recollection of my views at the time**

103. In an e-mail dated 10 January 2008 to Willie Gallagher (TIE00035246), Greg Ayres, PB, advised that novation *"may conflict the SDS team from effectively solving, on TIE's behalf, the inevitable questions arising from BBS's potentially commercial interpretation of what is completed design, versus their own work scope"*. **No involvement in these issues**

- (1) What did you understand Mr Ayres to mean by his comment in relation to *"BBS's potentially commercial interpretation of what is completed design, versus their own work scope"*?

(2) What were your views on that matter?

104. An e-mail dated 10 January 2008 from Eric Smith (TIE00693762) expressed scepticism about the Infraco procurement programme and noted, *"In any event, Tony Glazebrook hasn't even worked out what documentation is required yet, other than saying he thinks that the onus should be on BBS to confirm compliance"*. Mr Smith also referred to *"BBS's dismal record with me and their lack of ability to communicate"*. By e-mail dated 10 January 2008 (CEC01429689) Andy Steel, TSS noted similar concerns in relation to the Infraco proposals not arriving on 15 January. He stated, *"90% of the BBS proposal should not have changed and therefore should be available now (or at least a confirmation that we can run with what we have). All that should then be required is to ensure it complies with the TQ's and meeting minutes we have had with BBS. It may be that their reluctance to produce anything at the moment is just tactics but it may be that they have now got round to reviewing the information that we supplied them in the Data Room between September and now."*

In which case the review may not be quite as simple noting also that it is 'expanded'". **No involvement. However I don't think there was any lack of ability to communicate. In my view there was a lack of desire to communicate. In his e-mail dated 10 January 2008 Mr Steel suggests that the lack of communication was "just tactics" and I think that that is what it was. It was a commercial negotiating tactic.**

It would be helpful if you could explain your understanding of, and views on, the comments noted above, with reference to what was taking place around that time in the lead up to Infraco contract close?

105. In January 2008 Steve Reynolds sent a draft "Novation Planning" document (PBH00033608) which addressed the question of novation against the background that, contrary to the procurement strategy, design was not complete and not all prior approvals had been obtained. The document noted:

Incomplete ETN Detailed Design Scope, *"... PB considers that since much of the design has not yet been submitted for approval there is merit in delaying novation until more confidence has been gained that the Stakeholders will be content to sanction progress to construction. Experience through the course of the SDS Contract – especially experience from the Charrette exercise – would suggest that postponement of novation could be the best approach for tie from a risk management perspective. If novation does proceed as currently envisaged, then in PB's view there is a significant risk to further disruption to the contract programme"* (p8, para 2.2.1) **No involvement**

Incomplete MUDFA IFC Scope, *"... Given the detailed knowledge of the SDS team of the MUDFA requirements the option of delaying novation to allow SDS to complete this scope should be considered"* (p8, para 2.2.2)

(1) What were your views on the matters noted above?

(2) What discussion of these matters was there within TIE (and with CEC) around that time?

106. In his internal PB Weekly Report dated 11 January 2008 (PBH00033477, para 2.1.1) Mr Reynolds noted that Matthew Crosse had suggested that SDS should be prepared to warrant that the SDS Design conformed to the latest revised set of Employer's Requirements but that others within TIE, notably you, appreciated that that was a completely unreasonable proposal. Mr Reynolds' position was that the SDS Design conformed with version 1.2 of the Employer's Requirements, being the version upon which the preliminary and detailed design had been developed. (See also Mr Reynolds' internal PB Weekly Reports (i) dated 18 January 2008, PBH00033850, para 2.1.1, which noted that TIE had issued an updated version 3.2 of the Employer's Requirements and (ii) dated 25 January 2008, PBH00034156, para 2.1.1, which noted that you had intervened to support Mr Reynolds' stance, and that it had been agreed that PB would provide a clause-by-clause statement against v3.1 of the Employer's Requirements (albeit TIE was currently working on v3.3) with it being up to TIE to determine the status of the overall document and that issues arising in relation to the misalignment between the SDS Design, the BBS Offer and the Employer's Requirements would be issues for TIE to resolve). **No involvement**

(1) What were your views on these matters?

(2) How, and when, were these matters resolved?

107. By e-mail dated 18 January 2008 (TIE00038271) Tom Hickman noted that, unfortunately, TIE were in a position where *"we currently have a design programme that does not meet the requirements of the Infraco construction programme for the final deal"*. **No involvement**

In an e-mail dated 22 January 2008 (in the same chain) you noted that you had discussed matters with Duncan Fraser and Andy Conway of CEC.

(1) What was your understanding of the problem and the steps taken to try and address it?

108. On 21 January 2008 Steve Reynolds sent an e-mail to Jason Chandler (PBH00015934) setting out certain concerns in relation to the project, and noting that *"TIE is completely disorganised and a number of very key issues are just being allowed to float"*.

(1) What were your views? **I have no recollection of my views on these particular concerns at the time. However looking at it now the note appears to reflect accurately the degree of frustration of everyone at the time; novation to the Infraco was complicated significantly by the delayed design process which, from documents made available here, appears was being exploited by the Infraco bidder. The Infraco bidder would want to highlight the lack of design and the uncertainty that that created as a means of justifying a higher bid price due to the increased uncertainty. There was an intense focus on design delivery but that would not be completed in time for novation so requiring that activity to be carried across.**

109. The minutes of a joint meeting of the TPB/TIE Board and TEL Board on 23 January 2008 (CEC01246826 at para 5.5) noted:

"Willie Gallagher explained that obtaining consents were causing tension for the SDS novation, as BBS had differing expectations of the level of design completion prior to novation and are concerned about programme impacts arising from approvals delays. For this reason, it was essential to obtain a full approvals programme from CEC and WG stated that engagement was taking place with Andrew Holmes and Alan Henderson to this end". **No involvement**

(1) What was your understanding of, and views on, these matters at that time?

110. By e-mail dated 23 January 2008 (PBH00016254) TIE produced a table “IDC and Approvals Issues, Impacts and Actions” (PBH00016255).

(1) Do you agree that that table provided a reasonably accurate representation of outstanding interdisciplinary design check (IDC) and approvals issues at that

time? **I have no information available apart from the chart referenced.**

(2) Do you have any general comments on the table, including whether the proposed timescales for resolving these issues were realistic and achievable?

111. In relation to the design packages that required to be delivered by 28 January 2008: **I have no information available**

(1) As as 28 January 2008, how many design packages had been delivered compared to how many were supposed to have been delivered? (see e.g. Scott Ney’s e-mail to Steve Reynolds dated 25 February 2008 (PBH00035497) attaching a draft “SDS Contract Valuation” (PBH00035498) listing the design packages that had been delivered as at that date)

(2) How many design packages (and in relation to which items) had still to be delivered? (see e.g. Mr Reynolds’ e-mail dated 19 February 2008, PBH00016853, with a list of remaining design packages, PBH00016854)

(3) What was your understanding of the reason(s) for these packages not being delivered by 28 January 2008? When were these packages, in fact, delivered?

(4) Were any concerns raised by TIE and/or CEC in relation to the packages that had been delivered? (see e.g. Damian Sharp’s e-mail dated 29 January 2008, PBH00016312)

(5) In the event, to what extent did the design that was delivered as at the end of January 2008 require to be re-visited or re-worked (and for what reason(s))?

112. By letter dated 28 January 2008 (CEC01511117) Willie Gallagher sent Richard Walker of BBS a revised programme for Infracore financial close. **No involvement**

(1) To what extent, if at all, did you have any input into the revised programme?

(2) What were your views on whether the revised programme was realistic and achievable?

113. By e-mail dated 29 January 2008 (PBH00016312) Damian Sharp noted that there were only a small number of design deliverables behind the number forecast in V17 but there was a concern as to whether those deliverables had been, and were being, packaged up into the agreed batches for technical approval. **Although the critical issues had been resolved the SDS contract was not in my view able to deliver a completed design with the necessary assurance because of the complexity of securing CEC approval to all of the details.**

(1) Did you share these concerns?

(2) To what extent had the design deliverables been packaged up into agreed batches for technical approval? (see also, in that regard, the e-mail dated 19 February 2008 from Andy Steel, TSS, CEC01424691, which noted “*the repeated failure of SDS to deliver even one complete package*”)

(3) To the extent that the design deliverables had not been packaged up into agreed batches, what problems did that cause?

114. In his internal PB Weekly Report dated 1 February 2008 (PBH00034458), Steve Reynolds noted *“PB has now completed the review of the revised set of Employer’s Requirements produced by TIE as version 3.1. A significant number of differences between the ERs and the SDS Design has been identified”*.

(see also Mr Reynolds’ Weekly Report dated 15 February 2008, PBH00034982, para 2.1.1, which noted, *“I have expressed to Steven Bell serious concern that there is likely to be a significant disconnect between the scope of the BBS Offer and the current status of the SDS Design”*). **No involvement in assessment of the BBS offer and I did not know its terms.**

- (1) What were your views on these matters?
- (2) What discussion was there within TIE (and with CEC) around that time in relation to these matters?
- (3) How and when was that misalignment “cured” (i.e. before or after novation)?

115. The TIE SDS’s project manager’s report for February 2008 (CEC01521306 at p6) noted, under Key Issues and Concerns:

*“1. Slippage between v22 of SDS programme on which construction programme based and v25 – causes clash with construction programme (Programme meeting 1/2 to establish corrective action and residual problems).
2. Progress with blockers to design confirmation (Many lie with 3rd parties – continued emphasis on 3rd party resolution)”*. **No involvement**

- (1) What was your understanding of, and views on, these matters at that time?
- (2) The above report refers to a programme meeting on 1 February “to establish corrective action and residual problems”. Are you aware whether such a meeting took place? If so, did you attend and what was discussed and agreed?

116. An e-mail dated 6 February 2008 (CEC01486776) from Damian Sharp attached a spread sheet (CEC01486777) showing SDS and BBS’s views on the draft “design scope split”. **This relates to the need for BBS and SDS to agree on their respective involvement in outstanding detailed design. No involvement**

- (1) It would be helpful if, by way of overview, you could explain the purpose and outcome of the “design scope split”?

117. By e-mail dated 7 February 2008 (CEC01487234) Damian Sharp forwarded you a draft Close Report dated 5 February 2008 (CEC01487235) which, in paragraph 2.4, Novation Agreement and design delivery and approval process, Design expectations of the Infraco (pages 7-8) stated:

“The Infraco offer is based on design completed to date and a programme for future delivery of design. The offer is also based on those approvals achieved to date and a programme for achieving the remaining prior and technical approvals”.

“At the time of the original Infraco bid price in [insert date], X of the Y deliverables had been delivered to tie ltd; P prior approvals and Q technical approvals had been granted. Design has been released to BBS as it has been completed since then. The final Infraco proposal is based on the updated design at [2 February 2008] when A deliverables had been delivered to tie ltd; B prior approvals and C technical approvals had been granted”.

“The original Infraco construction programme was based on version 22 of the SDS design programme (dated X); the construction programme included in the final Infraco proposal has been updated to match up with version 26 of the SDS design programme (dated 4 February 2008)”.

“The substantial progress with completion of the SDS design has reduced the risk of late production impacting on the construction programme and has given Infraco greater certainty of the construction needed”.

There was a section on Managing Approvals Risk (page 8).

There was also a section, Lessons learned from earlier SDS claim (pp8-9), which noted that between June and August 2007 tie ltd and SDS agreed settlement of a claim for prolongation and additional design work due to changes in the requirements of CEC and third parties. The draft report went on, *“one of the main grounds for the SDS claim was that [CEC] and/or tie had changed the design expected from the original scope of the SDS contract and the STAG designs. As the project enters the main contract delivery phase project changes will become very expensive indeed and will impact of project programme. Therefore all parties must resist changes unless they are absolutely essential to project delivery”.*

It was also noted, *“Management of third parties: the original SDS programme was based on overly optimistic expectations of the time and effort it would take to secure the agreement of third parties to detailed design. Almost all of these issues are now finalised and tie ltd will be working with Infraco to ensure all outstanding issues are closed without delay”.*

There was a query (page 9), *“Design version. What design version was the BBS contract priced against and what changes has [sic] subsequently taken place”.* **The report was forwarded to me for information but I had no involvement. It related to commercial negotiations with Infraco with which I had no involvement. While the document may have been sent to me I would not have considered it.**

(1) What was your understanding of, and views on, these matters?

(2) Did you agree with the provisions of the draft report noted above?

118. The minutes of a joint meeting of the TPB and the TEL Board on 13 February 2008 (CEC01246825 at para 4.3) noted:

CEC Technical and Prior Approvals, "*Steven Bell ... confirmed that the final design packages are now expected in late 2008 and that the critical designs will be identified and dealt with in the programme*".

Price, Budget and Risk, "[*Stewart McGarrity*] explained that the to-go costs in the budget represented the full programme and scope of works, with a risk allowance of approx £30m relating to £90m of non-firm future costs. However, the budget does not contain allowances for stakeholder changes to programme or scope" (para 6.1). "It was stressed that the Infraco price was a negotiated number, which included a premium for achieving price certainty on previously provisional items, as well as some contingency for design issues" (para 6.2) **No involvement**

(1) What was your understanding of, and views on, these matters?

(2) If final design packages were not expected until late 2008, what was your understanding in relation to how BBS could undertake due diligence on the design and provide a fixed price?

(3) What was your understanding in relation to whether changes to programme or scope were likely post Infraco financial close/SDS novation?

(4) What discussion of these matters was there within TIE (and with CEC) around that time?

120. On 18 February 2008 BBS produced a Design Due Diligence Summary Report, based on design information received by BBS by 14 December 2007 (DLA00006338). That document raised various concerns about design, including that "*more than 40% of the detailed design information*" had not been issued to BBS. **No involvement in Infraco bid assessment.**

(1) In general, are you aware what design documentation PB/TIE provided to BBS, when and how, to enable them to undertake due diligence?

(2) Did you see, or were you otherwise made aware of, BBS's report? **No**

(3) In any event, what is your view on the matters in the Executive Summary of the report, including, in particular, the assertion that approximately 40% of detailed design was outstanding (or, at least, had not been issued to BBS) as at 14 December 2007? **It is clear that the design was incomplete at novation, a matter well understood everywhere and not consistent with the original intent.**

121. By e-mail dated 19 February 2008 (CEC01424691) you explained the original concept in relation to review of the design packages, what had actually happened and your views on what required to happen.

(1) It would be helpful if you could explain your views on each of these matters? **My e-mail dated 19 February 2008 explains the original concept in March 2007. A review would be undertaken of a percentage of the 9 sub-section packages that would have undergone a design assurance process. The reference here is to the Design Assurance Statement (doc WED0000027, Appendix 1, Attachment 2) that I prepared. This document was easy to complete and would quickly give a pretty good level of confidence without having to go into the detail of each design. The aim was to quickly get an overview of each package.**

122. Mr Reynolds' internal PB Weekly Report dated 22 February 2008 (PBH00035410, pages 7/8) noted that *"One potential problem that may emerge is that the required redesign work may be of sufficient magnitude to impact the construction programme. If that is deemed unacceptable then the alternative of BBS amending the offer to align with the SDS Design would have to be considered, but I understand that such an approach would add significantly to BBS's price"*.

Mr Reynolds also referred to an e-mail from Mr Crosse which gave an indication of the "disarray" that TIE was currently in.

(1) What was your understanding of, and views on, these matters? **I have no recollection of my views at the time and have not seen this note previously. However I imagine that if Infracore had to amend their offer to align with the SDS Design this would add significantly to the price because they are being asked to accept the risk attached to use of a design that was not their own. I had no involvement in the bidding process.** To what extent were these matters discussed within TIE (and with CEC)? **No recollection**

123. Steve Reynolds' Weekly Report dated 29 February 2008 (PBH00035854, para 2.1.1) noted, that *"Duncan [Fraser] confirmed what I had suspected that he has not been kept fully in the picture of the evolution of the [Employer's] Requirements"* (para 1.2) and that *"Substantial progress was made at a meeting on Tuesday in relation to misalignment between the Employer's Requirements, the SDS Design and the BBS Offer. We succeeded in securing a change of stance from TIE that any*

changes required to achieve alignment – pre or post novation – will now be instructed and paid for" (para 2.1.1). **I do not know how CEC were kept informed of these issues. I had no involvement in the development of the Employer's Requirements.**

(1) What was your understanding of, and views on the above, including (i) the extent to which CEC had been kept updated of the issues, and risks, arising from the misalignment of the SDS Design, BBS's Offer and the Employer's Requirements and (ii) the agreement reached as to how changes required to achieve alignment would be dealt with ?

124. Steve Reynolds' internal PB Weekly Report dated 7 March 2008 (PBH00017343, para 2.1.1) noted that PB would not be in a position to sign up to a novation agreement in the absence of a firm definition of scope and programme, BBS's Civils Offer contained the same major departures from the SDS design as it did at first draft, the philosophy adopted by BBS was radically different from the SDS designs which had already been through informal consultation with CEC (and, in some cases, been submitted for technical approval), and that *"in the position we now find ourselves (which is frankly indefensible from tie's point of view – an incomplete Civils offer so late in the process), I believe the first action, rather than PB undertaking an assessment of misalignment, should be for tie to put the BBS proposals in front of CEC to see if they are acceptable. If CEC declares itself content that is the time for PB to embark on the misalignment assessment. To do so before receiving this endorsement would incur unnecessary cost and would simply move the real problem – the likely refusal of CEC to approve the revised design – some weeks beyond novation. That would introduce all sorts of contractual and commercial problems"*. **No involvement**

- (1) What was your understanding of, and views on, these matters?
- (2) What are your views on whether, at the time of Infracore contract close and SDS novation, there was a firm definition of scope and programme?
- (3) At the time of Infracore contract close and SDS novation, (i) was there a complete Civils offer and (ii) had the misalignment between the SDS Design, the BBS Offer and the Employer's Requirements been resolved (and, if so, how)?
- (4) Was Mr Reynolds' suggestion followed of first putting BBS's proposals to CEC to see if they were acceptable before PB undertook an assessment of the misalignment?

125. Damian Sharp's report for March 2008 (CEC01526381 at p5) noted, under Key Issues and Concerns:

"1. Slippage between v22 of SDS programme on which construction programme based and v26/v27 – causes clashes with construction programme (principles agreed but detailed meeting required w/c 3 March).

2. Production of critical design deliverables (daily programme meeting held).

3. Changes due to alignment of BBS offer and SDS design (confirmation of changes needed)". **No involvement**

- (1) What was your understanding of, and views on, these matters?
- (2) What was your understanding of the "principles" that had been agreed in relation to the slippage between v22 of the SDS programme (on which the construction programme was based) and v26/v27 of the design programme? Did you play any part in these discussions?
- (3) Was a "detailed meeting" held in the week commencing 3 March 2008? Were you present at any such meeting and, if so, who else was present and what was discussed and agreed?

126. By e-mail dated 3 March 2008 (CEC01492877) Tom Hickman, TIE's Programme Manager, attached a spreadsheet (CEC01492878) showing where the V27 design programme clashed with the BBS construction programme (which, apparently, had been generated using V26 of the design programme).

- (1) How was that issue addressed? **No involvement**

127. A progress report provided to the TPB on 12 March 2008 (CEC01246825) noted: “SDS submissions to CEC for their approvals are now timed such that, in some cases, construction is programmed to commence before approval has been completed” (p12).

“Design. The delivery of design to meet the construction schedules for various structures is causing concern and detailed reviews and discussions are underway with SDS, CEC and BBS to provide solutions” (p19). **See WED00000027 pages 3, 4 and 5. See also Q159 which effectively summarises WED00000027.**

(1) What was your understanding of, and views on, these matters?

(2) What steps were taken to resolve these problems?

128. Damian Sharp appears to have provided a further report for March 2008 (for “period 13”) (CEC01523027 at p5) which noted the following Key Issues and Concerns:

“1. Slippage between v26 of SDS programme on which construction programme based and v28 – causes clashes with construction programme (further meeting taking place 28/3).

2. Delivery of completed packages for Technical & Prior Approval (further meeting taking place 28/3).

3. Changes due to alignment of BBS offer and SDS design (confirmation of changes needed)”. **No involvement but more of the same issues**

(1) What was your understanding of, and views on, these matters?

(2) Are you aware whether a further meeting was held on 28 March 2008? Were you present at any such meeting and, if so, who else was present and what was discussed and agreed?

129. Mr Reynolds’ internal PB Weekly Report dated 28 March 2008 (PBH00036973, para 1.1) noted that “it remains the case that tie has a price on the table which assumes approximately £12m of value engineering improvements will be delivered and a construction programme which does not reflect the design effort required to deliver those improvements. Tie appears comfortable with this state of affairs and has suggested that changes will be instructed on day one of the Infraco contract to address the imbalance. I do not believe the major stakeholders, including CEC are aware of the position and we must ensure that the Novation Agreement is worded such that it protects PB from any accusations of deception which could be levelled at tie in future”.

(1) What was your understand of, and views on, these matters? “. **No involvement in the arrangements between TIE and CEC for securing agreement to conclusion of the contract with BBS. I do not know to what extent CEC required TIE to keep it informed about the state of negotiations.**

130. On 31 March 2008, David Leslie, Development Management Manager, Planning, CEC, sent a letter to Willie Gallagher (CEC01493318) which noted: *“It is extremely disappointing that TIE, as the Council’s agent, has been unable to ensure that SDS have completed all the prior approvals prior to the bidding process, and that there still seems to be no effective control over the constantly-slipping timetable for Prior Approval submissions. This could create difficulties in the coming months where BBS have been forced to make assumptions in their bid which do not correlate with our own expectations ... It is ... of concern that the quality of so many submissions, despite a quality assurance checking system supposedly in place by TIE/SDS, remains very unsatisfactory, requiring extensive revisions or resubmissions as appropriate”*.

On 3 April 2008 Duncan Fraser sent a letter to Willie Gallagher setting out similar concerns by the Transport Department relating to Technical Approvals and Quality Control Issues (CEC01493639). **“No involvement in the negotiations with BBS and arrangements between TIE and CEC.**

- (1) What was your understanding of, and views on, the matters noted above?
- (2) What was your understanding of the difficulties that could arise post financial close *“where BBS have been forced to make assumptions in their bid which do not correlate with [CEC’s] expectations”* and if *“extensive revisions or resubmissions”* were required?
- (3) What discussion was there within TIE in relation to these matters around that time?

131. Damian Sharp’s report for April 2008 (CEC01293923 at p5) noted, under Key Issues and Concerns: **“No involvement**

“1. Large number of approvals on critical path (weekly senior meeting in support of new joint approach to approvals).

2. Design Mitigation Plan (interface with Infracore team).

3. Conclusion of Schedule 14 [i.e. Design Review and Design Management Plan]” What was your understanding of, and views on, these matters?

132. In an internal PB e-mail dated 1 April 2008 (PBH00037087), Bruce Ennion noted that the Employer’s Requirements were now *“significantly diluted and open to interpretation”*. **“No involvement in the terms of the Employer’s Requirements.**

- (1) What were your views on that matter?
- (2) If you agree that the ER’s had been *“significantly diluted”* and were *“open to interpretation”*, what are your views on (i) why (and at whose instigation) that had occurred and (ii) the risks that gave rise to post financial close?

133. By internal PB e-mail dated 3 April 2008 (PBH00017943), Bruce Ennion attached a note of a meeting (PBH00017944) he had attended on 2 April with TIE and BBS. The note recorded that BBS believed that circumstances had changed in that the original TIE proposal was to produce a design in advance of construction, however, in order for BBS to achieve the requirements of the TIE construction programme it would now be necessary for design to progress in parallel with construction. The notes also recorded:

“BBS are also concerned that 90% of the SDS ‘design’ may be held pending the completion of the last 10% and the associated SDS Assurance process.

345 SDS design elements but only 35 SDS Deliverables.

SDS responded by pointing out that the implications of incorporating the last 10% may have an impact on the earlier 90% and this was a matter of ownership of risk”.

The issue of “90% of the SDS ‘design’ may be held pending the completion of the last 10% and the associated SDS Assurance process” is key. That would always be the case as long as CEC insisted on their consents process without compromise. While CEC might say that in determining whether to grant consent they would compromise I would say that that is not the impression that we had in TIE. The impression is that CEC would stick rigidly to their views when considering whether statutory consents should be granted and were not willing to discuss.

- (1) It would be helpful if you could explain your understanding of these passages?
- (2) What was your understanding of the risks arising from design progressing in parallel with construction?
- (3) To what extent was there discussion within TIE (and with CEC) of these risks?

134. On 16 April 2008 a report to CEC's IPG (CEC01246992) noted:
Planning Prior Approvals: 1 planning permission and 18 prior approvals had been granted and 40 batches remained to be submitted for formal Prior Approval (26 out of the 40 batches were under informal consultation).

"There is concern that prior approvals may have to be revisited if there are substantial changes in design coming from inter-disciplinary coordination, technical approvals or value engineering. Planning has written to TIE on 28 March 2008 raising their concerns" (para 6).

Technical Approvals: (para 6), to date no roads technical approvals had been obtained, *"there has been significant slippage"* and, similar to the concerns raised by Planning, Transport had also written to TIE on 3 April 2008 *"reiterating their concerns about the quality of the submissions being received"*.

"There is potential for the approvals to cause a delay to the construction programme" (original emphasis).

A table indicated that roads approvals were expected to be obtained between February and October 2008. It was unlikely that the appropriate Planning Prior Approvals would be obtained prior to the commencement of construction works for three locations (Russell Road Bridge, Haymarket Tramstop and the Depot at Gogar). These three locations were on the critical path for the tram delivery. An Appendix to the report noted:

Para 7.4, *"What design version was the BBS contract priced against and what changes have subsequently taken place"*, to which there was a response, *"Report by TIE on the Infraco Contract states in section 'Design Expectations of the Infraco' that V26 updated from V22 of the SDS design has been used for Price and Programme – Schedule 4 on pricing received from TIE"*.

(1) What was your understanding of, and views on, these matters? **See my answers to Q29, Q66, Q70, Q133 which remain relevant to this. The lack of prior approvals in the CEC planning process meant the tram route sections affected could not be completed as a design package and so client review could not begin despite almost all of the design being complete. Where prior approval had been given it may sometimes have had to be revisited if late stages of the design process caused details to be changed in a manner not consistent with the prior approval already obtained. The design process was incorrectly considered to be a serial process whereas in practice it was a highly iterative process.**

135. Steve Reynolds' internal PB Weekly Report dated 18 April 2008 (PBH00018333 at para 1.3), noted:

“Richard Walker indicated to me on Friday that he has concerns over the presentation of the Infraco Contract deal to Council. Some weeks ago I had expressed my concerns that the price on the table from BBS did not align with the programme contained in the offer. For example, the price assumes that value engineering savings will be made whereas the programme has no allowance for the design and approvals time which would be required. I had suggested that tie would have to be careful in the form of presentation so as not to mislead CEC. Richard is now expressing (to me) similar concerns and has suggested that he will take this up with tie separately. To a large extent the current position is one of BBS's making where the offer is dependent upon a set of pricing assumptions which can be interpreted by the informed reader as a basis for price increase and programme prolongation. It may be that Richard is belatedly expressing worries which have more to do with his concern over working with tie as a client or may even be due to friction between Bilfinger Berger and Siemens. Whatever the reason I detect an air of uncertainty and last minute concern over whether BBS should be taking the job”.

Paragraph 2.1.1 (2nd bullet point) noted *“The lack of any clear instruction from tie on the actions required to align the BBS Offer and the SDS Design resulted in wide ranging debate at Thursday's novation meeting. Willie Gallagher was asked to attend the meeting and I had to explain that PB had set out its requirements for scope definition as long ago as 11 March and that the Misalignment Reports provided by PB had been a key part of developing an agreed scope of work to be undertaken under the Novation Agreement. The lack of response from tie has meant that uncertainty remains over construction scope of work. The proposed compromise to deal with the current circumstances was that a detailed design workshop be convened to define the scope to the level of detail required prior to construction. This would be a three party workshop with tie in attendance and exerting control over the process from a cost and programme impact point of view. With an early May target for contract award such a workshop would have to be held post novation. The alternative is to hold the workshop first and delay Infraco Contract award until such time as the scope of work, price, and programme are all defined more accurately. From PB's point of view, having issued the misalignment reports these can be incorporated in the Novation Agreement with a suitable form of words to define the arrangements for dealing with any design scope of work which may ultimately be required to achieve alignment”.*

Mr Reynolds' internal PB Weekly Report dated 25 April 2008 (PBH00018668, para 2.1.2) noted *“PB is now satisfied with the status of the project master programme, although it should be noted that the programme will be subject to revision depending*

(a) on the actions arising from the review of the misalignment between the SDS Design and the Employer's Requirements, and, (b), the post-novation detailed design workshop centred on the BBS Offer vs. the SDS Design". **I had no involvement in any discussions within TIE about the reporting arrangements to CEC and the terms of any reports that were prepared. I do not know what these arrangements were. I am aware that CEC officials attended TIE Board meetings but I do not know if that was how CEC was kept informed of developments. I only attended these meetings for the purpose of making a presentation on matters that I was involved in. I attended to make a presentation, not as a decision maker.**

- (1) What was your awareness of, and views on, these matters?
- (2) What were your views on the risks that arose from holding a detailed design workshop after financial close to resolve the issue of the misalignment of the BBS Offer and the SDS Design?
- (3) To what extent was there discussion within TIE (and with CEC) in relation to these matters around that time?
- (4) Are you aware to what extent to which, if at all, TIE's capital cost estimate at that time, and/or risk contingency, included an allowance for the cost of changes to scope and programme that would be necessary (i) to bring about alignment of the SDS Design, the BBS Offer and the Employer's Requirements and (ii) to reflect the fact that not all design was complete (at least as at 25 November 2007) and not all statutory consents and approvals had been obtained?
- (5) To what extent do you consider that there was awareness within TIE (and CEC) of these risks?

136. Damian Sharp's report for May 2008 (CEC01365690) noted that of 310 cumulative planned design packages, 299 had been delivered.

- (1) Did these design packages comprise all of the design required for phase 1a? **No information available to me**
- (2) If not, (i) approximately what percentage of the phase 1a design did the design packages comprise and (ii) on what basis had these design packages been chosen/prioritised? **No information available to me**

137. Contract close of the Infracore contract (and novation of the SDS contract to BSC) took place on 14 and 15 May 2008. **I had no involvement in this process and do not know if such a payment was made.**

- (1) There is a suggestion that the sum of £1m was paid to PB as an incentive to novate the SDS contract. Is that correct and, if so, why was that sum (i) sought and (ii) paid, given that PB were required under the SDS contract to agree to novation?

138. It would be helpful if, as at 14/15 May 2008, you could give an indication of:
The version of the design programme in existence?

- (1) **No information available to me**
- (2) Approximately what percentage of the total detailed design for, respectively, phases 1a and 1b was complete?
- (3) Approximately what percentage of the approvals and consents for, respectively, phases 1a and 1b had been obtained?
- (4) Approximately what percentage of the utility design for, respectively, phases 1a and 1b was complete?

139. The Infraco contract included a Pricing Schedule (Schedule 4) [USB00000032].

No involvement

(1) In general, what was your understanding of the agreement reached between BBS and TIE on the following matters, namely:

- which party bore the risks and liabilities arising from incomplete design, the outstanding statutory approvals and consents and the misalignment between the SDS Design, the BBS Offer and the Employer's Requirements;
- the need for and purpose of an agreed Base Date for Design Information; and
- the circumstances in which design related Notified Departures were likely to arise?

(2) Did you see a copy of Schedule 4 at any time (whether in draft or final form) and, if so, what were your general views on it?

(3) Schedule 4 included certain Pricing Assumptions. What was your understanding of the need for and purpose of these Pricing Assumptions including, in particular,

Pricing Assumption 3.4.1?

(4) What was your understanding of the phrase in Pricing Assumption 3.4.1 that "*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*"?

(5) In general, what was your understanding as to how the Pricing Assumptions in Schedule 4 would operate in relation to any further design carried out after 25 November 2007?

(6) In respect of design related Notified Departures, what was your understanding in relation to the Notified Departures expected both (i) immediately after contract close and (i) thereafter, as further design work was undertaken?

(7) The "Base Date Design Information" was defined in para 2.3 of Schedule 4 as meaning "*the design information drawings issued to Infraco up to and including 25th November 2007 listed in Appendix H*". Appendix H did not, however, contain any list of drawings and, instead, simply stated "*All of the Drawings available to Infraco up to and including 25th November 2007*". Are you aware why Appendix H did not appear to contain a list of drawings comprising the BDDI? Were there any difficulties in identifying the drawings comprising the BDDI and, if so, how were any such difficulties resolved?

(8) Are you aware why the BDDI was fixed with reference to 25 November 2007, rather than a later date, given that further design was completed by SDS between 25 November 2007 and May 2008 and either was, or presumably could have been, provided to BBS to enable them to update their design due diligence exercise and provide a revised price?

140. As we understand it, following Infraco contract close and novation, the situation was as follows, namely, (i) PB had a change instruction from TIE to produce further design to "cure" the misalignment noted above between the SDS Design, the BBS Offer and the Employer's Requirements, (ii) any change to design from that existing as at 25 November 2007 was, at least potentially, a Notified Departure under the Infraco contract (as a result of the Pricing Assumptions in Schedule 4) and (iii) changes to design were primarily under the control of BBS (rather than TIE) because of the novation of TIE's rights and duties under the the SDS contract to BBS.

(1) Do you agree, in general, with that analysis? **Yes**

(2) Did that situation cause you any concern? **Yes, because any misalignment can create unquantifiable risk**

(3) To what extent were any such concerns discussed within TIE (or with CEC) around that time? **Not aware what discussions took place within TIE or with CEC.**

Detailed Design (June 2008 to March 2011)

141. By way of overview, in relation to the design work carried out post novation:

(1) Did your responsibilities for, and involvement in, the project change after novation in any way? **No**

(2) In general, how, and by whom, was design completed post novation? To what extent was the design completed by PB, Halcrow and/or by BBS personnel? Did the process for producing, reviewing and agreeing design change post novation and, if so, in what way? What control did BBS have over that process? **Post novation design would be completed by Bilfinger Berger. I do not know to what extent design was completed by SDS. I do not know what percentage of the design required to be completed although the figure of 40% has been mentioned in the BBS Design Due Diligence Summary dated 18 February 2008 and that could be right.**

(3) In general, what further design work was carried out after novation and why?

(4) It would be helpful if you could give an indication of approximately how much of the design work carried out after novation was attributable to each of the following factors, namely, (i) design being incomplete as at 25 November 2007, (ii) design that was available as at that date but was later found to be of insufficient quality and/or insufficiently detailed, (iii) design requiring to be reworked in order to obtain statutory approvals and consents, (iv) the need to

“cure” the misalignment between the SDS Design, the Infraco Offer and the Employer’s Requirements, and (v) any other factors?

142. After May 2008, a fundamental dispute arose between TIE and BSC in relation to the interpretation of the Infraco contract. **Not aware of the details of this dispute**

(1) In general, what was your understanding of the main issues in dispute and the underlying cause(s) of the dispute?

143. A number of documents noted below indicate ongoing problems with design post-novation. By way of overview: **Not aware**

(1) It would be helpful if you could explain the main causes of the post-novation design problems?

(2) To what extent, if at all, did these problems have their roots in events prenovation and/or reflected a continuation of problems that existed pre-novation?

144. E-mails dated 14, 23 and 24 July 2008 between TIE and TSS (TIE00037562) discussed issues in relation to “DAS packs – tie reviews”.

(1) It would be helpful if you could explain the issues discussed in these e-mails and your views on these issues? **Andy Steel is correct that TIE needed to assure the design in its entirety. What we had was a bottle neck of designs that were nearly complete, the Infraco contractor ready to start and the Independent Competent Person not signing them off as they had not been checked. Andy Steel’s use of the word “assure” is important in a design context. It does not mean that everything has to be checked, but usually means simply that the correct process has been followed. That is what the Design Assurance Statement [doc WED0000027 Appendix 1, Attachment 2] is designed to achieve.**

146. By e-mail dated 9 September 2008 (CEC01118159) Lindsay Murphy, Project Manager, TIE, circulated a draft letter (CEC01118162) to BSC which attached a document, Operational Design Review Process (CEC01118161), which set out the internal review system being undertaken by Transdev with TIE and CEC *“in the absence of timely design assurance packs, to understand issues affecting the operability of the system design as provided by BSC/PB”*.

That led to various e-mails including an e-mail dated 9 September 2008 from Gavin Murray (TIE00038406) which stated, *“I would [note] however that the design team here have real concerns about the quality and operability of the SDS design. As we have been seeing IFC packages being issued to BSC which are either incomplete or incompatible with ongoing design”* and a further e-mail dated 10 September from Mr Murray which questioned the SDS Inter Disciplinary Review and check processes and noted, *“Unfortunately although SDS gave a very good speech about their QA procedures (about a year into the project) and how the design would be ‘right first time every time’ we have yet to see the evidence”*.

By e-mail dated 9 September 2008 (TIE00038406) you noted, *“late delivery and the need to place the construction contract means that the detailed design is not in fact detailed enough, and that even if the full scope expected originally (at the start of the project) of SDS had been delivered, BSC would still have some design to do – e.g. SDS track design really means identification of the alignment and the envelope inside which the actual track design must fit”*.

An e-mail dated 9 September 2008 (TIE00498072) from Lindsay Murphy noted that Tony Glazebrook *“isn’t coming in much as he has no role, objectives, resource or influence”*.

An e-mail from Andy Steel, TSS (TIE00498072) noted *“one thing to do is to quietly prepare the nuclear option – namely JD”* and *“when are tie going to admit that the opening date is now the only driving force and how are they going to avoid putting themselves into a potential ‘go to jail’ card situation”*.

- (1) What was your understanding of, and views on, these matters? **Exactly as I stated it in TIE00038406**
- (2) To what extent was design produced pre-novation found to be insufficiently detailed post-novation? If that was found to be a problem, what were the reasons for that? **Not aware.**
- (3) What is your understanding of Andy Steel’s comments noted above? **He appears to be referring to an immovable date creating an insoluble problem**

147. An e-mail dated 12 November 2008 from Tony Glazebrook (CEC01109031) noted certain issues in relation to “DAS review” (the attachment to the e-mail is CEC01109032). **The purpose of the Design Assurance Statement was to try to speed up the process of securing confirmation that the design is correct. SDS did not use the DAS as their preference was to adhere to the terms of the original contract rather than find a way to resolve difficulties in securing progress.**

- (1) It would be helpful if you could explain the issues discussed in that e-mail and your views on these matters?

148. An e-mail dated 30 April 2009 by Tony Glazebrook (TIE00037854) noted that SDS had failed to provide Design Assurance Statements in the agreed form and that *“their offerings usually come with the implication ‘the answers are all in there, go and find them’”*. Mr Crawley noted in an e-mail of the same date in the same chain that when the anticipated Design Assurance Statement packages eventually arrived, *“I am ... expecting that they will be just like the last ones i.e. they will be lists and lists of documents, loads of pages and ... absolutely no evidence, or even pointers to evidence, of how the well known litany of hazards and top risks have been mitigated. If that proves to be the case, then all the discussion over the last 2 years, culminating in a meeting held on 22 April this year, will have been in vain. They will be valueless. I will be depressed”*. **In my view the design could have been completed much earlier if SDS had placed more focus on the Design Assurance Statement approach. If SDS had provided an Assurance Statement this would have enabled TIE to be satisfied that SDS as competent designers had satisfied themselves as to the competence of the design.**

- (1) What was your understanding of, and views on, these matters?
- (2) To what extent, if at all, did these matters cause delay in producing or agreeing design (and in obtaining statutory approvals and consents)?
- (3) To what extent, if at all, did these matters cause increased cost or delay to the tram project?

149. An e-mail dated 5 May 2009 by Lindsay Murphy, Project Manager, TIE (CEC00944837) commented that BSC’s response to the Operation Design Review (CEC00944827) tracker was *“lazy and unhelpful”*. **Not aware in detail but it is a detailed issue in the general context of design delays.**

- (1) It would be helpful if you could explain the purpose of the Operation Design Reviews tracker with reference to the design work that was being undertaken at that time?
- (2) What were your views on BSC at that time?

150. An e-mail by Mackenzie Construction Ltd to BSC dated 15 May 2009 (BFB00058190) noted their *“growing anxiety ... regarding the quality, timing and presentation of design information necessary to allow us to proceed in line with the programme”* and that *“Apart from anything else it is very obvious that the Construction and Design are not at the same stage at the moment”*. **No involvement**

- (1) What was your understanding of, and views on, that matter?
- (2) Was there a continuing misalignment between the design and construction programmes?

151. By e-mail dated 13 August 2009 (TIE00037968) Richard Jeffrey, TIE, advised that the TIE Board had authorised the activation of a formal dispute resolution process with BSC and that the areas of focus were:

- responsibility for delay and entitlement to extensions of time
- the impact and reasons for design changes
- lack of progress
- the level of entitlement to additional payment.

- (1) What were your views, in general, on these matters? **No involvement**
- (2) What were your views on the extent to which, if at all, these matters had been caused or materially contributed to by (i) the delay in completing design and in obtaining statutory approvals and consents, (ii) the misalignment of the SDS Design, the BBS Offer and the Employer’s Requirements, (iii) the misalignment between the design and construction programmes and (iv) any other factors?

152. In March 2010 TIE produced a report on Project Pitchfork (CEC00142766) which included certain criticisms of PB (pp6 and 27) and BSC (pp 38 onwards).
(1) For completeness, and to the extent which your knowledge, to what extent, if at all, do you agree with these criticisms of, respectively, PB and BSC? **I have no knowledge of Project Pitchfork**

153. By letter dated 4 June 2010 (CEC00298078) Anthony Rush, TIE, wrote to Nick Flew, Managing Director, PB (Europe), advising that the design was still incomplete,

including the on-street track.

By letter 5 August 2010 (CEC00337893) DLA wrote to PB expressing concern “*over the programme and cost implications of the unusually high volume of design changes or alleged design changes that are still appearing and causing claims related to design development*”.

(1) What was your understanding of, and views on, the matters in these letters, including whether the design remained incomplete and, if so, why? **I have no knowledge of, and had no involvement in, these matters.**

(2) Incidentally, are you aware whether all of the design for (i) phase 1a (Airport to Newhaven) and (ii) phase 1b (the Roseburn link), was ever completed (and all statutory approvals and consents obtained) and, if so, when? **I have no knowledge of these things.**

154. In June 2010, Robert Burt and John Hughes, Acutus, produced a draft Report on investigations into delays incurred to certain elements of the Infraco works (CEC00443401). **No involvement**

(1) Did you see that report at the time? Did you play any part in the preparation of that report (e.g. by providing information to the authors)?

(2) It would be helpful, in any event, if you could provide your views on the matters discussed in the Executive Summary (pages 4-5)? **Qualitatively, it feels correct, but I have no access to information to confirm any quantification reported.**

155. On or around 16 July 2010 Steven Bell produced Handover Notes which noted, in relation to Project Pitchfork, that you and Bob Cummins were finalising the formal plan and approach to review submitted Assurance Statements and that you had been requested to attend a Carlisle Scope meeting on 20 July 2010 (see also e.g. Susan Clark’s e-mail dated 13 August 2010, CEC00076511, asking you to attend a Project Pitchfork, Contingency Planning, Design workshop).

(1) What was your involvement in Project Pitchfork, Project Carlisle and, generally, any discussions between TIE and BSC to try and resolve the dispute?

No involvement

156. Mediation discussions to explore settlement of the dispute between TIE and BSC took place at Mar Hall in March 2011. **No involvement**

(1) Were you present at these discussions and, if so, what part did you play?

Detailed Design (April 2011 to completion)

157. Following the discussions at Mar Hall in March 2011, a Settlement Agreement was reached in September 2011 for completion of a line from the Airport to York Place. **No involvement**

By way of overview:

- (1) What involvement, if any, did you continue to have after the Mar Hall discussions?
- (2) If you continued to be involved, (i) what further design was undertaken from April 2011 until completion of the project, (ii) did any difficulties arise in completing the design during that period and, if so, (iii) how were any such difficulties resolved? (see, for example, e-mail dated 20 August 2011 by Alistair Maclean, CEC, to Sue Bruce (TIE00689424) with an attached note (TIE00689425) which stated that the design remained incomplete and that there remained known utilities conflicts in the on-street section of the works)

Changes to the SDS contract

158. In relation to changes to the SDS contract:

- (1) Are you aware of the main changes to the contract that took place and when?
- (2) How were these changes agreed?
- (3) What was the cost of these changes?

No involvement

Project Management and Governance (and final observations)

159. In relation to the project management and governance of the tram project:

- (1) What were your views, in general, on the project management and governance of the tram project?
- (2) What were your views on the various bodies (and the senior personnel in these bodies) involved in the project management and governance of the tram project (including TIE, TEL and CEC)?

1. **No-one at a more senior level within TIE felt that the project could be delivered on time and on budget. Becomes a self-fulfilling prophesy.**
2. **TSS, TIE and CEC should have worked with SDS to ensure that collectively they delivered the Project rather than have TSS (Scott Wilson), TIE and CEC to work at arms' length.**
3. **Unwillingness by CEC and TIE to work with SDS to develop a design that would be acceptable to CEC.**
4. **Failure to recognise that development of design is an iterative process and that parties should work together to progress.**
5. **MUDFA programme delayed due to lack of knowledge of utilities and other ground conditions. However it was known from the outset that this was likely to be a problem so should have started the MUDFA work earlier. Alternatively it would have been appropriate to delay award of the Infraco contract to allow design and utility diversion work to catch up.**
6. **Transfer of risk to Infraco instead encourages them to increase cost in bid.**
7. **Lack of experience of staff at a senior level in projects of this nature.**

8. Poor working relationship between staff in TIE and SDS and between TIE and Infraco.

9. Insufficient budget to deliver what was wanted. Over-reliance on value engineering to reduce cost to fit the available finance.

10. Extent to which CEC and Scottish Ministers as funders engaged in progressing the project and dealings with contractors in support of TIE.

11. Members of the Tie Board being conflicted by virtue of the different positions that they held.

160. In an e-mail dated 25 June 2010 (CEC00370310) you provided a rough estimate of the cost of the Croydon tram system and how that compared with the cost of the Edinburgh tram system.

(1) Do you have any views on why the Edinburgh tram system appears to have cost so much more than other tram systems? **Poor governance and over specification.**

161. Finally: **See WED00000027 and Q159 which effectively summarises WED00000027**

(1) Are there any other observations you would wish to make in relation to the Edinburgh tram project, (including, for example, how your experience of the Edinburgh tram project compared with other projects you have worked on)? **Not been engaged in other projects involving construction of a tram system. However I have been involved in light rail construction projects that have allowed me to look at the deficiencies with the Edinburgh Tram Project.**

I confirm that the facts to which I attest in this document, consisting of this and the preceding seventy pages, and Annex 1 following, are within my direct knowledge and are true. Where they are based on information provided to me by others, I confirm that they are true to the best of my knowledge, information and belief.

David Crawley



28 April 2017

Annex 1

DAVID CRAWLEY – CV

A railway industry senior level practitioner at MD and director level with over 30 years management experience of operational metros, light rail and tram systems. A project, engineering, maintenance and safety management background support solid strategic planning and experience. A strategic and practical approach to identifying and delivering transport business benefit and selection of railway technology systems supported by experience of hands-on management of railway activities, performance improvement programmes and safety improvement programmes.

Experience

2006- Present

XANTA LIMITED – Managing Director

T/o £3.0 m. Commercial, Management and Engineering consultancy for the rail industry. Management and rail services to TfL, London Rail, London Underground, Docklands Light Railway, London Trams, Nottingham Tramlink, Thales, BAM, Finchpalm, AMCL, Mouchel, Siemens. SITEC, IRSE

Typical personal fee-earning roles:

- **Docklands Light Railway**– Numerous projects on asset management, incident investigations and management system advice.
- **PricewaterhouseCoopers** – key role in the business case review for the London Underground sub-surface signalling upgrade value c£650m
- **Chief Engineer, London Tramlink** – all functions of this role covering standards and engineering decisions.
- **Alstom / Siemens Consortium** Support for bid to replace the LUL sub-surface signalling
- **Siemens** – Support to bid for new Piccadilly Line trains for Tube Lines and for replacement bogie and traction bid to LUL
- **Edinburgh Tram Project - tie Limited** Subsidiary of City of Edinburgh Council - Board Safety Advisor and previously Director of Engineering, Assurance and Approvals, for the Edinburgh Tram Project 2007-8. Supply and support of Director of Engineering Services. Focus on ROGS, safety verification and assurance of the Tram Network
- **English Partnerships & Communities and Local Government** – peer reviews of change programmes.
- **London Underground Ltd** – Advice on PPP and operational preparedness related to Metronet insolvency.
- **PA Consulting and PA Strategy Partners** – investment advice to defence industry contractor.

2003-06 METRONET RAIL

T/o £600m, London Underground Railway Infrastructure maintenance and upgrade, consortium of Balfour Beatty, RWE Thames, Atkins, EDF and Bombardier Transportation. Two operating companies in the group - Metronet Rail BCV/SSL Ltd.

2005-May 2006 Chief Operating Officer

Promoted to develop consistent operations practices across both group companies. Ultimate accountability for effective and safe operation of the contractual and statutory railway safety cases and maintenance of two thirds of the London Underground estate. Member of Holding and Operating boards and of the Holding board Safety Committee.

- Halved railway disruption through asset failure, earning company contractual bonuses of £10m.
- Delivered savings of £20m from a £150m services and materials budget.
- Improved safety KPIs by 15%.
- Negotiated affordable pay settlements with trades unions; RMT, TSSA, TGWU resulting in a complete absence of strikes
- Led interface with the Lenders' Technical Advisor to ensure the lending banks, led by RBS, had timely and relevant performance information.
- Improved customer relationships through structured service reviews leading to an increase in measured customer satisfaction from 60% to over 85%
- Restructured operations into a single management control regime from two independent companies achieving 20% savings on management overhead costs.

2005 Managing Director, Metronet Rail BCV Ltd

Moved to sister company in preparation for restructuring. Ultimate accountability for profitability and effective and safe operation of the contractual and statutory railway safety cases. 'Caretaker' role of 6 months preparing for arrival of new CEO and group re-structuring.

- Ensured that all preparatory work for a group-wide re-structuring was in place.

2003-05 Managing Director, Metronet Rail SSL Ltd

Promoted by new owners. Ultimate accountability for profitability and effective and safe operation of the contractual and statutory railway safety cases.

- Established the company in private sector ownership ensuring delivery of its objectives including £50m profit in the first year.
- Identified key service delivery criteria affecting profitability and reputation and reduced service disruption of 25% due to asset failure.
- Championed and delivered a culture change programme focused on customer service.
- Delivered a cost and process review achieving compliance with the shareholders' bid leading to a reduction in cost of operations of 20%.
- Led formal regular presentations of financial and performance information to lenders, banks and shareholders.

1983-2003 LONDON UNDERGROUND Ltd

T/o £1bn, Metro railway transport in London 1999-03

2000 London Underground Limited board member, and Managing Director, Infraco BCV Ltd

Promoted to ready Infraco BCV Ltd for the London Underground PPP

- Established the company, a subsidiary of LUL, as a going concern for transfer to the private sector subsequently purchased by Metronet Rail.
- Ultimate accountability for effective and safe operation of the contractual and statutory railway safety cases
- Oversaw the transfer to new ownership without loss of process or safety incidents
- Developed key metrics and management processes to enabling delivery of the new LUL Public Private Partnership obligations – all key obligations met.
- Performed key interface role presenting and explaining operations to bidders, government and TfL prior to sale and establishment of the London Underground PPP.

1998-99 General Manager, Infrastructure Companies, PPP Project

Promoted to deliver the key PPP strategic commitment to government

- Created three new Infrastructure companies for transfer to the private sector.
- Met success criteria of no TU unrest, no increase in cost of operations, and maintenance of the statutory Safety Case.

1997-98 General Manager, Investment Review

Development opportunity with exposure to policy making and investment review.

- Key member of a LUL/government led review with PriceWaterhouse generating options for private finance in LUL. Led to adoption of the LUL PPP.

1994-97 General Manager, Trains and Stations Groups

Promoted follow re-structuring

- Managed a team of 350 professional engineers supporting the LUL operational railway and capital investment programme.

1983-94 Promoted rapidly from Structures and Dynamics Engineer to Rolling Stock Engineer, subsequently being promoted to Change Manager with a corporate role for development of engineering in London Underground.

1975-1983 BRITISH AEROSPACE Plc + others

Aircraft stress analysis and design (BAe 146, 125 Trident and Airbus). Sponsored through University by Osram (GEC) Ltd.

QUALIFICATIONS

MSc, DIC, Applied Mechanics, Imperial College, London University

BSc, Mechanical Engineering 1st, Middlesex University

MIMechE CEng