

**The Edinburgh Tram Inquiry**  
**Witness Statement of Graeme Barclay**

My full name is Graeme Barclay. My contact details are known to the Inquiry.

Statement:

**General**

1. I was Construction Director with TIE between 18 March 2007 and April 2010. I was first approached by TIE in December 2006 when they were looking for someone to take over the MUDFA programme. My understanding was that at that time TIE were having difficulties with the programme. At that time I was Area Manager for Scottish Water Solutions. At Scottish Water Solutions, I was the Area Manager for the north east of Scotland, overseeing a number of large infrastructure programmes. I have been in the construction industry for 30 years and have worked for both clients and contractors in senior positions, managing projects that have been equally as large as the Edinburgh Tram Project. My experience allows me to understand how both contractors and clients think.
2. In December 2006 I met Steven Bell, Susan Clark and Colin McLaughlin, who were all directors of TIE at that time. I met them in City Point in Edinburgh and the meeting lasted about 2 hours. They asked me questions about my experience and I asked about the project. About a week and a half later I met with their Chief Executive, Willie Gallagher. I received a written confirmation of the offer of employment soon after. This was about mid-

December and I had a three month notice period with my employer at that time.

3. I started with TIE on 19 March 2007. My role at that time was Construction Director (Utilities). I left the Tram Project at the end of April 2010. During my time with TIE I was based at their temporary offices in Leith. These were the temporary offices for the MUDFA element of the TRAM project and not the temporary offices for the overall project.
4. When I met with Willie Gallagher prior to joining TIE, he asked me what I thought of the project and whether I could sort it out for them. He also asked me what I thought were the main areas to look at. Willie Gallagher told me they needed someone who understood contracts better, had managed projects of that nature and could assist him. They were losing the Project Manager for the utilities, but I did not know the background to that. This was right at the start, before I had identified any issues.
5. TIE were due to commence work in April 2007 but because of the forthcoming elections there was no certainty that the project would be going ahead. There was a period of time when they thought that the project would be cancelled. This was during the Scottish Government Elections as the SNP were vocally against the tram project. Labour were the ones putting it through. The Edinburgh Airport Rail Link (EARL) was being progressed at the same time. The tram had been through Parliament and had the go ahead, but EARL was still going through that process. There was concern in TIE at that time that if there was a change in government there could be a radical change in relation to the future of the project.
6. I reported to Steven Bell, who was the overall Project Delivery Director. He was dealing with the INFRACO and the MUDFA parts and I reported to him on the MUDFA part. Steven in turn would report to Matthew Crosse, who would then speak with Willie Gallagher. Willie Gallagher was the Chief Executive and the Chairman at that time.

7. I would very often deal directly with both Matthew Crosse and Willie Gallagher. Willie was an approachable person and liked to come and talk to people. Quite often Willie would come and talk to me and ask me how things were going, but the chain of the command was Steven and Matthew. Matthew Crosse was the Project Director initially. He left the project about 8 months after I arrived. I do not know the reasons for his departure.
8. Stephen Bell was already established when I got there. He was technical minded and left me to get on with my job. Matthew was exactly the same. He was a nice person and very supportive when I had issues that needed to be addressed. I also found Willie Gallagher very approachable.
9. When I arrived at TIE there was a team established, but they were fragmented. The first thing I did after I arrived was to interview them all, asking them about their roles and responsibilities and their line management. This was so I could obtain a clear view of how each person thought they fitted in with the team. It became quite clear to me that it was not the right team structure. Individuals did not seem to know what their role was or how they fitted in. Their roles were not clearly defined. I made the decision to restructure the team. I gave each individual a clear definition of his or her role and responsibilities. This also ensured that the team understood the chain of command within that structure. By bringing in other people, I filled the gaps and this made for a far stronger team. Quite often when you get a team which is not performing properly it is because the roles have not been defined properly. People do not know the chain of command and the structure has not been aligned to the project requirements. That is not unusual.
10. I did not know the person who did the job before me and I never met him. I never received a handover.
11. The support staff that I had under me were John Casserly, as Commercial Manager, and Thomas Caldwell who was a senior quantity surveyor. John Casserly had worked with me at Scottish Water Solutions for four years, so I

took him with me. Martin Hutchison was in place at the project before John Casserly, but he left as I arrived. Thomas Caldwell was brought in by Susan Clark about a month after I joined. I did not know him beforehand but he was very competent. There were also three or four junior quantity surveyors, but I cannot remember their names.

12. I had two senior project managers, Ian Clark and Michael Blake. Ian Clark looked after the water and telecoms side of things. I drafted Ian in. Michael Blake looked after the power side, including Scottish Gas Networks and Scottish Power. Michael joined about two months after I joined, coming over from Scottish Gas Networks. We interviewed Michael once I was on the project. He impressed me as a strong candidate, so we brought him in as well. Below them they each had two assistant project managers.

## Overview

13. As a group we delivered the utilities programme. I think originally the programme was for about 27 km of utilities to divert throughout the whole footprint of the tram on the original route. However, at the end of the day we discovered almost double that. The MUDFA contract allowed for this and we actually delivered twice the amount of utilities within budget for the full length of the tram route. Unfortunately, we were in a vociferous kind of environment because the media were against the project. The local businesses were against the project, the MSPs and the councillors were against the project, and everybody was looking for the project to fail. So it was quite a unique environment to be in. Given the challenges we had with the contractor, which I will come onto, I think we did well.
14. People in general do not like disruption. If you are going to build a tram route along the main arterial routes of a city like Edinburgh, you are going to get disruption.

15. The major sticking point was with the appointed contractor – Alfred McAlpine Infrastructure Services (AMIS) who were subsequently taken over by Carillion Utility Services (CUS). They were typical contractor-type organisation. They had gone in, looked at the contract, thought they had priced it right, and then realised soon after that they had not. The very nature of the project meant that it was going to be quite difficult. When you are moving utilities you know that it will not be straightforward. Every contractor will know this. For example, utility records are poor by their very nature. Even the statutory utility companies (SUCs) themselves recognise this because they have a waiver on every drawing they submit. They state that their drawings do not constitute a true record of the exact location of their utilities. You also have the added challenge that the works are in the City of Edinburgh, where some of the utilities are hundreds of years old. Any experienced and competent contractor bidding on this piece of work should have been fully aware of those challenges and the extra work and costs that would be involved.
16. There were issues with the contractor . When I arrived, I soon became aware of this. Within my first week I approached Andy Malkin, who was the AMIS Project Director, and said that I wanted to work collaboratively. The only way you are going to make the project a success is through both parties working together and that was very much my approach. However, it became obvious to me within three or four weeks that they were saying one thing and doing another. For example, I asked them to stop sending so much correspondence and tried to engage verbally with them. They agreed with this approach and said it would be the best way forward. However the letters from them kept on coming. We were based in the same office building, so they could communicate very easily with us.
17. The other issue was the design. This was done by Systems Design Services (SDS) who were Parsons Brinckerhoff (PB), Scott Wilson and the Halcrow Group. PB were the project managers for the design. It is a matter of record that the design was behind schedule and they could not produce it on time. That is why there was an initial full and final settlement with AMIS. This was

to take account of the delay that they incurred due to the delay in the design. I would deal directly with Alan Dolan and Steve Reynolds from PB in relation to design. To try and get the design moving, we had a review each week of where the design was, what drawings were coming out and when we needed them. This was to keep the focus on design, to prioritise the programme and to keep the designs in line with the programme. The issue around design was so critical that, despite having a design and construction manager, I felt I had to be involved as well to give it added weight.

18. Alan Dolan knew that the designs were behind and was trying to get them moving. The challenge was to get the SUCs to sign up to the designs. There were upwards of 18 different utilities involved. We also had to take into account service separation and recognise specific parameters in terms of configuration under the ground. We could not issue the drawing until all the SUCs had agreed to it. I think PB underestimated the amount of work involved. They had to look at what was actually in the ground already and then they had to decide where to put the utilities. They might not be able to put them in the place they wanted because of existing utilities. People often do not realise that, to divert a utility, new utilities have to be put in first, then the old one is taken away. So basically space is tight. There are also problems in relation to the Dynamic Kinetic Envelope (DKE). That covers the tram width plus a further distance each side, which I think was 2.2 metres either side. Within the DKE there is an electromagnetic flux which can damage the utilities. In terms of copper, it sends and induces a pulse through the copper which causes a distortion - called EMC - to telecommunication lines. The electromagnetic flux within the DKE can also cause corrosion and accelerate existing corrosion of water pipes. Utilities cannot go under the tram path, and, taking into account the DKE, there is this swathe of area that is unusable. In Edinburgh there is an additional issue, in that there are a number of old buildings with underground cellars extending underneath the footpaths. One can start to appreciate the extent of the issue that we were dealing with. The existence of these cellars reduced the space available to relocate utilities. In addition it was necessary to survey the cellar for structural condition and this would require obtaining permission from the

owner and occupier to gain access. That was why they had quite an issue in terms of getting the drawings together.

19. Steve Reynolds was fine, but he was under massive pressure as his company had signed a contract to deliver drawings at a certain time. Their programme tied in with our programme, and we needed their drawings before we could do the construction.
20. PB did not fully assess the extent and the quantity of the workload required to deal with the utilities and the time frame associated with them. They were always on the back foot.
21. It was not a case of doing the design drawing, handing it to the SUC and the SUC agreeing the design straight away and signing it off. The drawing would have to go through iterations. One SUC might enquire why a gas main was in certain area instead of their ducts. Then Scottish Water, for example, might request that their pipes be installed in a certain area. There were also issues where, for example, Scottish Gas Networks (SGN) had highlighted where gas pipes could not be moved due to safety reasons. As I said, there is only so much room available and we had to divert the utilities to where we needed them. We had certain powers under tram legislation, so the SUCs were obliged to actually work and collaborate with us. They were also to supply information regarding any services that were to be diverted within five years of the tram being installed. They had to tell us this because they were not permitted to move any utilities until five years after we had installed the tram.
22. Overall, in relation to where I think things went badly, I think one has to separate the politics from the other issues. The political issues arose at the beginning. They prevented us starting because we were unable to commence until we knew what the Government's decision was. Once we knew what that decision was, then we could start. There was also influence from politicians as we went through the project to varying extents. Similarly from the council, from local businesses and from the media. It was not a

constant, as it varied depending on what else was happening and where we were working. For example Leith Walk was a particularly vociferous area but there were hardly any issues regarding York Place or Queen Street. We were also under the spotlight when work was ongoing at Princes Street, Shandwick Place and Haymarket. So it depended where we were and what time of the year it was as well as what was the political agenda at the time.

23. In relation to the SDS side of things, it would have been prudent had they actually commenced that part of the contract a lot earlier. When one is dealing with so many SUCs, which all have to agree, then there is a real challenge and task ahead. The principle was correct, locate the utilities, divert them first, and then build the tram.
24. In relation to the SUCs, SGN by the very nature of their assets were quite cautious - for obvious reasons. However, once I got my new team in place we started building up good relationships with the SUCs. I had a named senior project manager dealing with specific utilities, with named assistant project managers as day to day contacts.
25. I do not know what happened before I arrived, but certainly there was a breakdown of relationships between AMIS and the MUDFA Project Team. When I looked at the people that were on the TIE side, they were not contractually experienced and there were people lacking project management experience. When I looked at the AMIS/CUS side, these were contractors, commercially and contractually focused, and I felt they actually drove that kind of behaviour. They saw an easy client and they took advantage of the situation.
26. AMIS were constantly approaching TIE for additional money and making spurious claims. In TIE's responses to their lengthy correspondence, it was evident that we felt that they had never substantiated anything to the point where we thought they merited being paid, other than over the initial design delay, which we settled with them. At a more senior level within AMIS we

had Steve Hudson, who was dealing with Steven Bell. He spoke to me quite a few times and we had quite a few frank discussions regarding the validity and quantification of claims made by AMIS. There were also quite a few discussions going on behind the scenes between Steve Hudson, Steven Bell and Susan Clark. I do not think that there was ever going to be a solution with AMIS. I fully recognise that they would be under pressure to deliver and to recover monies. We had known the extent of how much they were out in terms of their bid in comparison with other bidders. It was quite evident that they were pushing to recover money that was their focus all the time.

27. The MUDFA works, however, did not cost more than was anticipated. It lasted longer because we found roughly twice the amount of utilities. However, we delivered the project under budget. In the budget there was a sum of monies assigned to what could actually be measured. There was also a provisional sum which allowed for the unknown utilities. Putting the two together, we were able to deliver the project under budget.
28. In the original plan, the MUDFA works were to be concluded in the middle of 2008 and they were actually completed about the middle of 2009. In general, one of the reasons for the overrun was the fact that we came across a lot more utilities than was previously envisaged under the original programme. That is it in a nutshell. This in turn affected design demand and construction demand. However the resources supplied by AMIS to execute the works also had a significant impact.
29. I refer to a PowerPoint presentation given by TIE to the Tram Project Board on 19 April 2007 in relation to MUDFA Commercial Arrangements **(TIE00087959)**. I had only been there for three weeks at that time and I did not attend this presentation. To the best of my knowledge, I have not seen this before. I have no idea who put that presentation together. Slide 2 relates to MUDFA Procurement Strategy Objectives. That is just a statement of obvious facts in relation to inherent risks in utility diversions work. Slide 3 is in relation to contract headlines for MUDFA Procurement. This slide just gives a breakdown and one can see the 50% PC and provisional sums that I

have highlighted earlier (PC is an abbreviation for "Prime Costs"). These are the sums of money, including the provisional sum, put aside to allow for unforeseen utilities. I note that this is not itemised on the slide. Slide 4 identifies the MUDFA Contract Structure. I have never seen this before, however it is demonstrating how they envisaged work being undertaken on the sections. It is a very basic overview of the programme. Slide 5 is about MUDFA Contract Issues and Proposed Resolutions. This was obviously set up well before I arrived, and this can be seen in the fact that it is statement based. This is basically a statement of intent. I see that slide 6 is about incentivisation. I do not know anything about that, as this is something which was drafted well before I got there so I cannot comment on that. Slide 7 is in relation to MUDFA contract issues and their resolution. This is just a statement of intent again, because it shows the impact of the MUDFA revised programme for Phase 1A INFRACO and the risk mitigation factors. It is similar to an action plan. Slides 8 and 9 are in relation to MUDFA cost control and they are breaking down where key sums of money are allocated. The slides are self-explanatory. Slide 10 refers to the reduced level excavation budget transfer out of INFRACO with an estimate of £3m. I am not sure what that is about. From memory, the INFRACO designers were reducing the level of the track slab. I think that is what that was. I do not know what that has to do with MUDFA.

## **Arrival**

30. On arrival, I thought the organisation within the MUDFA project team was dysfunctional, not because of any individual but they were not structured properly. I interviewed every single one of the team, found out what they did, what they thought their role was, who they reported to and who was there to support them. It was quite clear very quickly that they did not really know their specific roles in the team. So the team was slightly dysfunctional and I rectified that fairly quickly. AMIS were running the show and TIE was there to assist. AMIS were trying to run the project the way they wanted to and maximising their return. This situation was not down to the contract. The

contract was actually not bad; it just was not being administered properly. The MUDFA team were not administering the contract effectively as they were fairly inexperienced in contract and commercial matters. We had a team that were not commercially and contractually astute, with a quite vociferous contractor. That did not make for a harmonious working relationship. I did not have the opportunity to assess the adequacy of the design until some time later, prior to the project entering the execution phase.

31. Things got better for TIE as I established the new team. We basically started to administer the contract properly. We still got the usual contractual claims and disputes but they were just normal issues. These were dealt through the contract process.
32. AMIS had three project directors during the lifecycle of the project which is really unusual. They were Andy Malkin, Dave Smith and Steve Beattie. At times, Graeme Christie, one of their managing directors, came in and covered. Steve Beattie was very good but only arrived at the latter half of the contract. We did have disputes, but he was a very helpful person to deal with. Dave Smith was only there for a short time and he was more of a challenge as he appeared to have difficulty making decisions. In such a role it is important that the person in place is capable of assessing the situation and taking decisions. The lack of such decisive behaviour introduced unnecessary and avoidable delays.
33. There were not many staff changes in TIE when I was there. Matthew Crosse left, but Steven Bell took over from him. I was happy with my MUDFA team; I had no issues at all with them.

### **The MUDFA contract generally**

34. Existing utilities had to be diverted in order for the tram to be constructed. I note the Utility Management Plan (**CEC01452246**) this formed part of the

PMP (Project Management Plan). This project management plan details how we intended to execute the work through all aspects of the project. This includes the governance of it, the cost control of the programme, quality and risk management. It details how we were going to manage that project through from the very early stages, right through to handover. Every part of that document is important, not just particular aspects of it. There is not one part more important than another. It had been started when I arrived and I took it over and made sure that it was actually reflective of how we were going to execute the works. I reviewed it on a regular basis to ensure that it was relevant to the on-going works and there had not been any changes.

35. We moved the utilities on behalf of all SUCs, except for BT and Verizon. That was unusual because, normally the SUCs would do it. It was just the nature of this specific project. It was better for us to deal with it because we were diverting all the utilities at once. Can you imagine bringing in SGN, Scottish Power, SSE, BT, Verizon, and Scottish Water and asking them to divert their utilities? Then stipulating that they would all have to do it at the same time. This was actually a very clever way of doing it. We were dealing with all the utilities in one go.
36. The reason that BT wanted to move their own utilities is that BT do their own design anyway, and they have a complex infrastructure. BT did their own design, but we did the actual works for them. Verizon did not want anybody touching their infrastructure as it was only a couple of years old, so they would do their own design and they would do their own movement for their utilities.
37. The Utility Management Plan refers to cost sharing on page 17. Cost sharing falls under the New Roads and Street Works Act 1991. Under that legislation, design drawings are done then cost estimates are put together based upon what it would cost to move these utilities. We then pay the SUC and if this was paid up front there was a discount. At the time we were getting something like about 7/8% discount. That is standard. One pays the

estimate upfront and when the actual cost comes in for the diversion, there is a reassessment of it against the estimate. If the actual costs are less then a credit comes back. If it is more, we pay the difference. The only difference was that we were the ones that were carrying out the diversions. There is also the consideration of betterment that is detailed under the New Roads and Street Works Act. Where there is betterment of the SUC's asset then we get a discount for that. The newer the asset which is removed or diverted, the less betterment there is. Take for example Scottish Water pipes, if the pipe is only a couple of years old and it is diverted, there is no betterment, so we would not get any discount for that. However, if we replace one of the other pipes that are 80 years old, we get so many per cent back. They have got to pay us because we have bettered their asset. The same situation would apply for BT as well, because we were replacing copper and putting in fibre optic. They were actually getting an enhanced asset and so they had to pay us. If the SUC is carrying out the work itself then I suggest that there is no betterment as this is an internal project by the SUC.

38. There were regular weekly meetings held with the SUCs and my project team. We would look at the programme, where we were in terms of design and where we were going to be working in the future. There was constant dialogue with all the SUCs. I then reported to the TIE Board on a monthly basis. The SUCs were generally proactive and provided the required information within the timescale set. As we generally had quite a good working relationship with most SUCs commercial issues were few and far between.
39. I came from Scottish Water Solutions, where I handled a £370m programme which dealt with Scottish Water assets. I therefore had experience in dealing with complex utility diversion. I have been involved in projects where there have been similar types of issues but not to this scale. This was quite a unique project because we were dealing with all the SUCs at the same time and in the City of Edinburgh. So it was a unique situation. Looking at other tram projects that have been carried out round the world, the majority of them try and avoid the city centre or the main arterial routes and they do

parallel routes. That is what they did in Dublin. In Edinburgh we actually used the main arterial routes. Some of these cities have wide avenues, so they can build it differently. Edinburgh does not have that, and because it is so old, the utilities are everywhere, so it is a unique situation.

40. In relation to the scope and scheme of the MUDFA contract, the contract is there on behalf of both the client and the contractor. It defines the rules and regulations of how the contract is going to be executed in terms of cost management. I constantly referred to the contract and, in relation to claims, for example, if there is no change to the contract, then there is no claim.
41. I thought that the scope and scheme of the contract was fine. It was what one can expect, in that one could not go in expecting to develop all the utilities along main arterial routes in Edinburgh and think it was going to be a walk in the park. That would just be naïve. AMIS was brought in because they were deemed to be a competent, experienced contractor. In my opinion, at that point, there was nothing missing in the contract. Contracts define primarily the responsibilities and roles of the Client and Principal Contractor (PC) and the works that were to be executed. The Contract confirms what has/has not been allowed for within it. It identifies what is/ what is not entitlement for recovery under the contract. It prescribes the procedures and timeframes for various communications between the Client/PC. The MUDFA contract was no different.
42. There were two distinct phases under the MUDFA agreement, pre-construction services and construction works. Where there were pre-construction services, this would mean bringing in a contractor at the very early stages to help prepare the design. We could then go straight into the construction phase. This is the whole concept of pre-construction services. There are certain milestones that have to be achieved under the pre-construction services. I cannot recall the specific milestones within the pre-construction services agreement.

43. I refer to the Note of Commercial Meeting dated 28 March 2007 **(CEC01638514)**. This is a note of a meeting between representatives of AMIS and TIE. I am noted as stating that there was no need to distinguish between the "Transition Period" and construction services. The view at that stage was that the distinction between pre-construction services and construction works was no longer required. The reason for this was that they had achieved the milestones under the contract.
44. The programme identified the works to be done. It was the tool that helped administer how the contract was managed. The programme triggered the requirement to carry out each section or package. The programme told us how we were going to achieve it. The project management plan told us the processes in relation to the utilities, traffic management, stakeholders etc. The project team managed those processes. The programme identified when it was going to happen. Then the processes and the execution plan told us what required to be in place. I do not now recall the detail of the programme. We had all these matters that needed to be concluded, signed off and agreed before we could actually start work. It was hugely bureaucratic, hugely procedural but it was necessary. The programme just broke it down. For example, the level 4 programme, which was the main contract programme broken down to a more detailed schedule, showed when we were looking for approvals of the drawings from the SUCs. It also showed when we had to put the notices out in relation to road closures. In addition, when the notifications to the various stakeholders had to be undertaken, we had to ensure that the resources were ready to come in and that we had the necessary plant. It was managed correctly, but it was just a big challenge, that's all.
45. The programme should allow for dealing with the expected level of effort or work that it entails. The exceptions will come along, when, for example, we would come across an unidentified service or there were problems due to other on going work in the same area. These issues do arise but generally they should be the exception rather than the rule. The Contract and

specification would define the factors that needed to be considered prior to work commencing in all areas.

46. In relation to payments, it was a re-measurable contract so basically AMIS would put the valuation in and we would then assess it. A re-measurable contract does not contain full detail of the specific work requiring to be undertaken. Therefore on completion of the work the quantities used need to be measured and the actual price is then calculated based on agreed rates stated within the contract. The original quantities would be identified in the Bill of Quantities. This would be based upon the terms of the original contract. This was no different to other contracts of a similar type I had experienced. I had left TIE by the time of the final payment so I did not deal with that, nor would I have known the final amount paid.
47. Generally the works were carried out by AMIS/CUS on behalf of TIE, other than Verizon as I have explained already. There was another subcontractor and this was Turriff. They were involved to deal with the replacement of gas mains. When a gas main has to be replaced, there is legislation that has to be complied with in relation to the subsequent connections which enter a building. SGN require the building to be reassessed to make sure it complies with legislation. If it doesn't comply with legislation, it has to be upgraded to comply before you can connect back up to the building. We had something like 100 plus tenements throughout Edinburgh which were affected. In some cases, we had to go inside the buildings that were affected and remove all the internal gas pipework and replace it all to bring it up to standard. We had to bring in Turriff, who were approved contractors by SGN for these kinds of works. CUS subcontracted Turriff to carry out these works on their behalf.
48. I refer to the MUDFA Sub-Committee Report meeting papers in April 2007 (**CEC01638569**). This document detail a number of situations in which the SUC did the work and TIE gave them partial reimbursement. This relates to Verizon. They did not have a lot of assets so it was not a big issue for us. We were quite happy as long as they did it at the same time that we wanted the

works carried out. The main SUCs involved were BT, Scottish Water, and SGN.

## Further Agreements

### Alteration of MUDFA agreement

49. As regards negotiations of further agreements with AMIS, I was only involved in the initial settlement of £991k relating to the design delay. There was one other matter that was missed in the original contract that was added. It was very minor in relation to items that were missing from the Bill of Quantities. I subsequently added them in. Other than that, I do not recall any other real changes or alterations to the contract. There were numerous attempts by AMIS to renegotiate the rates and prices and I would refer to the actual written responses from TIE. I would make no other further comment.
50. I refer to an AMIS report in March 2008 (**CAR00000302**). The document relates in particular to the recommendations on the application of Clauses 46 and 50. This appears to be an argument in support of changing the basis of on which they were paid. It was followed up in various letters. AMIS was of the opinion that things had changed and so the basis of payment should change. We disagreed with that assumption. The works had not changed, the utilities had not changed, and in fact nothing had changed. It was not as if suddenly we were finding utilities about 10 metres down and AMIS had to deal with this. The rates reflected the actual works they were undertaking, so our argument was that nothing had changed so therefore we were not altering the Schedule 4 rates. We answered all their letters regarding this issue on that basis. AMIS was saying that things had changed, but they could not substantiate this. We were saying the contract in its basic terms provided that they were there to divert the utilities. We were saying to them that they were an experienced, competent contractor and they were coming into Edinburgh. Edinburgh is an old city. However, they had said they had lots of experience of diverting utilities in all the major cities in the UK and around the

world. Why was Edinburgh suddenly something different? So we were of the opinion that nothing had changed. For the reasons stated the pricings were acceptable.

51. Clause 46 was in relation to snagging and defects. Our view was that nothing had changed. We looked at the programme and it was evident that AMIS was under resourced. We actually wrote to them numerous times referring them to sections that had been excavated but where no one was working. All they had to do was refer to the complaint register. AMIS was asked why we had so many complaints about sections of their work. A lot of the complaints were based upon people saying the contractors had closed an area off but no work was being carried out. Another common complaint was that workers would be at the site but not working because of insufficient resources. As a result the contractor supplemented the workforce but the quality of some of the work was questionable.
52. I refer to a letter sent to Andrew Malkin, the Project Director of AMIS, by myself dated 9 April 2008 (**CAR00000074**).. We had agreed to pay AMIS an additional £991k. This was in recognition of the problems that had arisen in relation to delay in design However it was SDS that caused this issue. They were not delivering the designs on time.
53. The basic payment to AMIS in terms of this agreement was remeasurable. Whatever they had moved or diverted, it was measured and we paid them against the rates that are applicable for that utility. These rates were determined in the original contract.
54. It may well be that DLA suggested that the money was paid to AMIS as an inducement to get agreement to novation. This despite the presence of a contractual obligation to accept novation. However, that was not the basis on which the money was paid. The money was paid as recognition of the full and final settlement of the delay due to design.

55. I refer to a letter from Steve Beattie, CUS, to myself dated 30 October 2008 (**CAR00000311**). It sets out a further three bases for recovery over and above Schedule 4 rates. Our view was that there was no change. Nothing had changed, that was our argument. Our responses were quite clear to that effect. Early on, we accepted the design issues and we settled on that. In October 2008 AMIS were still coming back to us and saying "*we never anticipated this*" and our response was "*what did you not anticipate?*". For example AMIS highlighted an issue about traffic management. The contract stated that there would be 100 metres of actual section of the road that would be closed off, with 100 leading metres and 100 exit metres. So this was approximately 300 metres. In fact we provided them with a lot more than that. We informed AMIS that we had actually relaxed the contract. Despite this their response was that it was worse than what they expected. An explanation for this was requested and their response was to complain about the mobilisation and demobilisation of their workforce. AMIS was informed that TIE was not there to manage their workforce. This aspect had nothing to do with us.
56. I refer to an email from Thomas Caldwell to myself dated 5 March 2009 (**CEC00956515**). The background is that we were wondering where CUS were coming from and we suspected that they were having a problem with their rates. It was known to TIE that CUS had subcontracted a lot of their labour force. We were aware the subcontract labour was actually costing more than they had allowed for in the contract. AMIS's behaviour was very much contractual and claims-orientated. We were trying to ascertain where they were going with it, what was the extent of their exposure based on the difference between the rates specified in the contract and the costs that they were incurring, for the labour force they were employing on the contract.. In his email Thomas explains an analysis of the AMIS rates that he carried out and suggests that AMIS were making a loss on the contract. He could not see how they could actually carry out the works and still make money. This did not add up. It suggested that the actual costings for the project were way out.

57. I refer to a letter from Steve Beattie, AMIS, to myself dated 17 April 2009 **(CAR000000315)**. AMIS was seeking a cost-plus agreement. I would need to refer to my actual response, but I did not agree with the request. Cost-plus means they get paid their costs plus an agreed percentage mark up on that. With that type of agreement there is no incentive to actually bring it in at a certain budget level. A cost-plus agreement means you pay whatever it costs plus an agreed fee on top of that. It is usually associated with projects that have no designs in place or no clear programme. This would result in areas of work coming in ad hoc. It is really very difficult to programme and put a price on it because it is so fluid. So cost plus is actually very good for things like emergency work, where one did not know what was required and just brought people in to do the job. One would agree it because there was not a clear scope and no time frame. Why would we go cost-plus on a project where there was a clear programme and a clear section of work? I would refer to my formal response at that time. Reviewing it today would be exactly the same. Nothing had changed, and so we did not see the argument for changing payment to cost-plus. It was not required under the contract. We were saying that they were mismanaging the project; they had inadequate resources and inadequate supervision. Therefore why would we then pay for their inefficiencies. It was as simple as that.
58. I refer to a letter to Andy Malkin, CUS, from myself on 18 April 2007 **(CEC01634872)**. The letter refers to Bill of Quantity pages that were missing from the Contract Agreement. I do not know why they were not added to the initial contract. This was for billed items which should have been in the contract. They were subsequently brought into the contract with the contract amendment.

### **Incentivisation**

59. I don't know about incentivisation. I cannot comment on it. I also cannot comment on any suggestion that value engineering provisions of the MUDFA Agreement were no longer operative. As I started employment with TIE in

mid March 2007 I attended a number of meetings to bring me up to speed but I have no recollection of any meeting about this issue.

## **Settlement Agreements**

60. The MUDFA contract had two phases. By March 2007 it was accepted that, as a result of delays in release of designs by SDS, there would be a delay to commencement of construction services. I note an email from Martin Hutchison to myself dated 20 March 2007 (**CEC01824853**). I also note the attachment, which relates to MUDFA Proposals (**CEC01824854**). I can see from this that there was not a new agreement. There were some minor amendments required to the contract. These amendments formed part of the required works, that had been missed in the original form of contract. I do not recall what they entailed, other than they were not of a significant nature. I think they were negotiated within the first year of my arrival. Both the Commercial Manager and I would have dealt with the amendment. As stated we provided a full and final settlement as recognition for the delay of the design at the initial stages of £991k. There was no change in the agreement, so I do not know what that is all about. I do not recall that there was a new agreement negotiated.
61. On 28 March 2007 TIE Ltd and AMIS had a commercial review meeting resulting in a commercial agreement to move into a construction services period. This does not relate to the earlier settlement where a figure of £991k was agreed. In respect of this particular instance we would never have settled for that figure. By then we had not incurred any delays because we were coming from pre-construction services into the construction services period. That was just an agreement that they had achieved all the milestones in pre-construction services and they were looking for payment in respect of those milestones. They were looking for us to agree that they had actually achieved those milestones.
62. I refer to the May 2007 MUDFA Sub Committee Report meeting (**CEC01701681**). This document notes that a commercial review in March

led to a commercial and contractual agreement. However, in relation to agreements, and to my best recollection, the only difference in any agreement was in relation to delays with design that the one-off settlement figure was for. I think there may have been a final settlement at the end, but that was after I had left. My recollection is we only did the one settlement and that was to take account of the delays at the start, as I have already made clear.

63. I refer to the MUDFA agreement between TIE and AMIS (**CEC01630357**). This refers to Commercial Proposals for Construction Services following Pre Construction Services Delays, so it takes us into construction services phase. I note that there is no date for this document. I do not recall this document. The letter dated 19 June 2007 from Andy Malkin to me (**CEC01677655**) states that this is a draft agreement associated with these delays. However I am not aware of this. If it relates to the delays in design then, yes, the settlement had been made with them. This would reflect that and take account of that. The letter also refers to that agreement being signed. If it was signed, it was not signed by me.
64. I note a letter sent to Andrew Malkin by myself dated 9 April 2008 (**CEC00217639**). This makes reference to a signed agreement concluded about September 2007 and a further agreement which was concluded in the second half of 2008. It is the same agreement. It takes a while for these agreements to come round. We only settled one claim, which was in the initial stages. I do not recall us ever settling anything else.
65. I note a document in respect of a MUDFA Agreement (**CAR00000356**). This is a CUS document that I have not seen before so I cannot comment on it.
66. I refer to a document titled Roadmap 'CUS Schedule 4 Rates and Prices Submission' which was produced for the meeting with AMIS/TIE on 3 September 2009 (**CEC00790177**). In my opinion this sounds like a claim by CUS. At the very bottom of the document there is a 'PK'. I think that will be Phil Kolon, who will have prepared the document. He was brought in for

CUS to look at their claims. I do not think he was a solicitor; he would be a claims consultant. At that point in time, September 2009, they were looking at a claim and that is what he is putting down as the basis for the claim. I did not get involved with this. I was too busy just closing off the MUDFA contract at that point in time. Steven Bell would have led on that, I think.

### **Agreements with other parties during the contract with AMIS**

67. Apart from the main MUDFA contract with AMIS, the other contracts are the the contracts with Verizon, Turrif, Adien, Class 1 and the SUCs.
68. There was a contract with Verizon as they were moving their own utilities. There was a contract with Turriff which is discussed at paragraph 48 above. Adien undertook the ground- penetrating surveys and there was a contract in that regard. There was also a contract with Class 1 in respect of the traffic management. Details of the contracts with the SUCs are referred to in paragraphs 242 to 246 below.
69. I note a number of documents relating to various dates (**CEC01298431, CEC01298432, CEC01298433**). These documents refer to agreements between TEL and Scottish Water. These agreements related to assets that we could not move. There had to be some form of agreement to ensure that they were going to gain access to the assets, based upon certain criteria. Say, for example, Scottish Water had a large sewer in Leith Walk that was 10 metres deep. We were not going to move that so we reconstructed access chambers that were not directly in line with the sewer below, but were off-set so as to be outwith the influence of the tram line. This allowed Scottish Water to gain access into their sewer, so that was one of the kinds of things that we covered in the agreement. That was all quite reasonable and not unusual.

## Delayed Commencement

70. As a result of the on-going elections in May 2007, we could not do anything. We were mindful that there could be a change of Government and that would have an impact on how things might progress.
71. I note the Construction Directors Report in April 2007 (**CEC01638569**). This details that the trial was due in April 2007, with the full programme starting in July 2007. The programme could not commence until after the Government elections were held in May. We could not start until we knew what the Government decision was going to be in relation to the tram project. That only came to light, about the tail end of June. There was a stand down following the results of the General Election until about June before we got the go ahead.
72. I had great concern about the delay to the initiation of the utility diversion works. I sent a letter on 26 April 2007 to Alan Dolan, SDS, (**CEC01691204**) in relation to Risk and Trade-Off Proposals (RATS). RATS was an initiative from AMIS wherein they had identified a location to divert utilities with minimal input from SDS and allow a prompt start to the project after the election results, subject to a favourable outcome. An example of this would be down at Casino Square. That area was deemed suitable for a trial because that was at the tail end of the programme for INFRACO anyway. It was a safe place to start as it was well away from the main route. It was deemed to be an area where there were a lot less utilities. Therefore it would be good to get a trial run and assess if we would manage it. It was a non-critical area with low utilities, low stakeholder engagement and low profile. We were able to start there whilst SDS were focussing on the main critical part designs, such as the main arterial routes.
73. It was decided that SDS could look at the existing utility drawings and provide a diversion for them. CUS would provide their thoughts on how the utilities could be moved and those were passed to SDS. SDS would consider

the proposals from CUS and if satisfactory would give the green light to commence. It was an attempt to try and speed up the process. It was to help get some of the works moving in a non-critical area, where there was not a big element of design. I mentioned that I had great concern about the delay to the initiation of the utility diversion work. I informed the contractor that we were going to implement the RATS proposal described in the paragraph above. This was because of the problems we were getting with design. We required to get something moving because we needed to commence work in some capacity. We looked at this specific area to enable AMIS to commence work whilst SDS was totally focussed on their tasks. We were trying To mitigate any further delay to the programme, following the election results.

74. The RATS proposal eventually petered out as the other areas were far too complex for that process to work to best effect. There were no consequences as such for the ending of the RATS proposal, as I have explained. there were only certain areas that it could be applied to. The RATS proposal was only effective in areas where there were few utilities and the consequential diversions were basic. Once these areas had been addressed the proposal was no longer appropriate.
75. The MUDFA Sub Committee Report dated 4 July 2007 (**CEC01640813**) refers to the decision to proceed after the election in June. I think we actually started in Casino Square around the end of July. There was no impact on INFRACO with the late start, as they had not commenced work yet and so it was envisaged that the delay with MUDFA should not result in delay to INFRACO work.
76. This section was not on the critical path. There were certain elements in the programme that identified where INFRACO would prefer to start first, but they had not actually nailed their programme at that stage. As a result we did not really know where they were starting. However, we did know we were going to be in before them and well ahead. They were not due to start until the following year. So there was no impact to INFRACO, but there was a

delay to our commencement, which was then recognised by the settlement we made to AMIS.

77. I refer to an email from John Davis to Lorna Davis dated 8 January 2008 (TRS00004341). This email was prepared by me regarding the cost impacts of the stand down after the general election result. It refers primarily to recourse costs, that is settlement costs for the delay in design and subsequent works. I cannot say whether those actual costs were incurred. What I can say is the costs that we anticipated were incurred due to the stand down after the general election and to the delay in the design. These were recognised in the final settlement claim that was made by the contractor. That was the only cost that we had assessed at that point in time. When we actually went through the final overall delay to the works commencing, we got figures substantiated for CUS, based upon the actual records.

## Design Issues

78. To reiterate SDS were responsible for carrying out the design of all the works that were required.
79. There were on-going discussions and debates with SDS during the time I was with TIE. This was in terms of the programme of works and the need for prioritisation of design drawings to allow the execution of the works to commence. We were dealing with numerous SUCs and had to get them to review the drawings and come back with comments. It is a long and arduous task and I think SDS underestimated the amount of effort that was going to be required to get these drawings out. I believe that if they had commenced the design of the utilities a lot sooner, then we could potentially have avoided this. But there was a requirement to understand where the tram was going and the route it would take. The tram route had not been totally defined at that point in time, so they could not commence the utilities design. I think a

recognition of the congestion of utilities was under-estimated when they looked at the tram route. When I say the tram route, I mean the actual alignment of the tram in a street.

80. I refer to a report prepared by Scott Wilson for TIE dated April 2006 and titled 'Utility Diversions – Strategic Review' (CEC01827973). I can honestly say I have never seen that report before. It was dated before I joined and I was never shown this report whilst I was at TIE. Reading the report content now, I can see that it advises that a full detailed design for all work would have to be available before works commenced. I would agree that is actually fundamental. One would always start the design before the works commence. That is common sense. Works cannot be done without first having the design. It would ideally be for the whole of the works, as the tram route is intrinsically linked to where the utilities can be diverted to. Doing it in individual packages ie sections could also work, but could lead to interface issues if the utility diversions within consecutive sections do not fully align. As stated earlier, the design of the tram route was not fully finalised prior to commencement of the MUDFA works.
81. Obtaining adequate information in relation to the services to be moved and whether there would be any space to relocate them is the fundamental question for the whole project. Part of the problem was the quality of the record drawings from all the SUCs. Everybody recognised it was poor. Historically records are always poor when dealing with an older city like Edinburgh. One tends to find abandoned utilities. Nothing is done about them and they then put the new utilities in. So the actual available space is very limited. The only way to determine where all the services would be is to carry out an extensive ground survey of the whole route. That would potentially take years to complete. Therefore that would be impractical. As a result you have to look at the existing record drawings, carry out trial holes at various locations and use ground penetrating radar surveys where there is going to be a key congestion and commence the design from there . There will however always be changes. That is just the nature of the work involved.

This is very similar to work required on other city tram projects. The comments made by Scott Wilson in his report are reasonable.

82. I note that the report states that TIE was critical of the work by SDS by April 2006. SDS has an opinion of TIE being slow to recognise and implement methodology for the utilities diversionary works, or to reduce and provide the necessary resources to the design. That went right through into 2007. That was the reason why we had to do the settlement with AMIS, because of the late design. When I first arrived, one of the first things we commented on was design not being provided as required under the programme. That was jeopardising construction. Then we went into RATS for the first initial point, just to get us moving again. To help relieve the pressure on SDS, we identified less complex areas of diversionary works, which consequently required less design input. AMIS would then do the initial design, for SDS to check and ultimately approve. This allowed SDS to then focus on the more critical design works and allowed an earlier start to the diversionary works, in these areas, for AMIS.
83. I note that SDS were of the opinion that designs for utilities diversions could be done at the same time as road works designs. I would not agree with that position. The road works design determines the final routing of the tram. The route of the tram determines where the DKE is, and that determines where you have to put the utilities. I think SDS were trying to make out that the overall programme has not been impacted upon. If I were in their position, I too would suggest that we could do the two of them together, thereby giving a better flow and pulling the road programme back on track. I can only suspect that is why they would make that statement.
84. The report also notes that SDS were claiming that the agreements TIE had made with utilities were constraining design. I do not know anything about that. The SDS team had not demonstrated a clear understanding of the full requirements and locations of utilities design. It is common knowledge in this field that if the contract meant dealing with, say, 18 SUCs and getting their agreement to the diversion, then this was never going to be a straightforward

activity. It is going to require a certain amount of negotiation, debate and dialogue. I just think they underestimated the number of iterations and the number of reviews that had to go on until they achieved the overall multi-utility drawing for each section. This is done in layers and then one overlays the whole lot. Often a multi-utility drawing looks fairly confusing because there are 14 to 18 different utilities in the one area. I just think it sounds like they underestimated the complexity of the work.

85. I can see reading the report that there were a number of recommendations. The report and its recommendations were never discussed with me when I joined. I was not aware of any action plan around the recommendations in the report. The first time I saw this report was when I was asked to refer to it at the time of my statement.
86. The first option mentioned in the report was SDS removal and this was never done. Removal of SDS was considered a greater risk to the project. If you get rid of the designer you have to engage another designer. The new designer would have to take on the obligations of the previous designer, which would not be at the same cost. The new designer would also take time to get up to speed and they would probably want a different contract as well. I would say, there would have been a delay of at least a year to 18 months to the contract, plus the increase in costs. Then there would have been the delay implications for AMIS. They too would be sitting there for 18 months or a year, and they would then have had a good case to renegotiate their contract.
87. Option 2 was enhanced support. Allow a core team to support SDS with help and assistance, but not review or adopt the full responsibility. That would remain with SDS. I do not know where the enhanced support would have come from.
88. Option 3 was to establish a core project management team for the utilities diversion works from TIE, SDS, and TSS with appropriate staff. Delegate to

this team the necessary authority and responsibility. That is just MUDFA: that is what we did.

89. I refer to the Project Director's Draft Report to the Utility Sub Committee dated 12 February 2007 (**TRS00003639**). It notes that delivery of design was on the critical path for delivery of the MUDFA works and that SDS delivery dates for the first three sections of design were not met (Item 3.1). It states, however, that SDS is in programme to make delivery of the designs due on 7 and 8 February 2007. That is around five or six weeks before I started. In view of this, I would make no further comment on the matter. I would note from this report that TIE had placed a Design Manager, Jim Johnston, within the MUDFA team (paragraph 3.3). Jim was to work and assist in the management delivery of future design sections. I note that TIE had made recommendations to SDS for improvements to their delivery structure and process. This would have improved delivery of the critical work package. It is however referring to matters before I arrived.
90. The same report noted in paragraph 4.3 that AMIS had expressed concerns about the detailed design delivery. AMIS assisted in rectifying this by taking part in workshops with the SUCs. Again this was before my time and I would not care to comment further on the matter.
91. I refer to an email I received from Ray Dent of AMIS dated 28 March 2007 (**CEC01638353**). This email makes criticisms of SDS. This was the day after I joined, so I am unable to comment.
92. I note the AMIS monthly report from March 2007 (**CAR00000237**). This report details concern about design provision that had been expressed in each of the previous reports. It is repeated in April 2007 and again in June 2007. I think that is just in relation to the delay in the design. We tried to alleviate the problems by going down to the Casino Square section to allow works to commence. This also took some of the pressure off SDS by allowing them a little more time to work on the design. We then further

recognised this in the settlement of the agreement in terms of the delay in the design.

93. Availability of design was a constant source of concern at the MUDFA DPD meetings I attended. I refer to the MUDFA Sub Committee report dated 9th May 2007 (**CEC01701681**). At this meeting I stated that concerns remained in relation to the planned availability of detailed design approvals and bills of materials to support work order production and purchasing of materials in advance of operations. That is just a matter of fact. By that I mean that was something that we discovered. I think when I first met Willie Gallagher and Steven Bell, I said that my objective would be to make sure that the design team was on board and they had their design well in advance of the work commencing. I also said I would be insistent that we have key points of contact with the design team. I wanted to know exactly what the programme was in relation to the construction works. I put all that in place when I joined. It certainly gave me some visibility on how bad they were. I had the point of contact with the utilities, which meant that when the designers were meeting with the utilities, my team were with them. This resolved the immediate conflicts, as Jim Johnston, the MUDFA team Design Manager, requested that his team ensure the designer took account of all the utilities. So when they were pulling the drawing together, they were already aware of the most appropriate and pragmatic location for that utility. It was about bringing in someone who was going to negotiate and secure agreement between all the parties and how they were going to manage this design package.
94. I refer to an email from John Low dated 31 May 2007 (**CEC01664548**) in which he notes Scottish Water were not satisfied with drawings supplied. We required to get the SUCs to sign up to the design. If they said that the design was not of sufficient quality or standard for them to sign up to, we were in a Catch 22. If the SUC would not sign it, we would not have an IFC drawing.
95. Our view was that it was part of SDS's contract to provide the drawings in the quality and the manner that the SUC would sign up to. We were looking at the drawings and we were saying they were not of a sufficient standard. If

we thought they were of sufficient standard, we would then go back to the SUC and tell them so. However, in certain cases we were agreeing with the SUC that the drawings were not to a sufficient standard.

96. If it is part of the contract that drawings had to be signed off by the SUCs. It was pointless for SDS to just keep saying that the drawing was OK when the SUCs were saying it was not. For example, a drawing would be put to Scottish Water and they would come back and comment on the drawing. This is called a mark-up. A marked-up drawing with all their comments is fed back to SDS. SDS were then supposed to incorporate or take cognisance of the comments. They would then re-draft the drawing, and send it back to us. We would then look at it, agree that it was fit for purpose and send it to the SUC for sign off.
97. One has to remember the scale of what we were doing. At the time, it was the largest multi-utility project ever undertaken in Europe. It had never been undertaken before and this was a massive project for utilities all of which had to be diverted at the same time. People did not understand and did not comprehend the magnitude of what we were doing. It was so big that PB, one of the largest designers in the world, could not do it on their own. They had to bring in Scott Wilson and Halcrow. Halcrow were working on the water at the far end, beside Gogarburn and at Gogar Interchange, and Scott Wilson were at 1A and 1B. PB did the rest. Also bear in mind BT and Verizon did their own design. Just imagine trying to merge all this together in one, what they call plate. Each plate has layers, so if there were 14 different utilities to be diverted in one section of works, had to overlay it and make sure that it all tied in and did not conflict. It is a big ask and I think people underestimated how complex it would be. There was the C4 estimate to do and review for the price. This then had to be given to the contractor and the package had to be signed off. Everything then had to be in place, including; the road closures, notices and TROs. The notes of notification to the various stakeholders and the comms had to go out to all the parties. The contractor had to be set up ready to go and the traffic management design had to be completed. It then had to be tested and reviewed to ensure that everything

was working. Only then could it start. It is a pretty complicated process, and basically there was not enough time at the start to get all that done.

98. I refer to a letter from Andrew Malkin, AMIS, to myself dated 19 June 2007 (**CEC01636547**). This letter relates to the AMIS delay and disruption claim in June 2007. I do not recall the exact period of delay at that time.
99. In relation to the design tracker documents dated 25 June 2007 and 16 October 2007 (**CEC01640669** and **CEC01472357**) this would have been undertaken by Tony Glazebrook's team. He was the Design Manager for TIE. Tony Glazebrook dealt directly with SDS; I think he dealt with Jason Chandler and Alan Dolan. This is at the time AMIS claimed the design was 22 weeks behind schedule. SDS appear to be saying the design is on track. I would query that. I cannot comment further as I have never seen these documents before. What I do know is that we did not settle on 22 weeks.
100. I note a letter from Andrew Malkin, AMIS, to myself dated 19 June 2007 (**CEC01677655**). The letter sets out what AMIS stated they were expecting would be supplied to them by way of design. They were looking for a gold-plated package and it was never going to be that. It is a typical letter in which they lay out their expectations. I would refer to our response at that time; I would expect that it would refer them to the contract.
101. The proposal under preparation for negotiated resolution to the delay and release of design information is referred to in the May and July meetings of MUDFA sub-committee meetings (**CEC01701681** and **CEC01640813**). I think this is in relation to the settlement that I spoke about earlier because all through May, June and July we knew the designs were delayed and that was a matter of record. There is plenty correspondence and reports which agree that we had a problem at that time. After we paid the settlement that removed that aspect of the design delay. The new issue that arose was that AMIS wanted to change their rates and prices. We accepted AMIS' argument at that time because it was a matter of fact there was delay with the design.

We tried to mitigate it as much as possible but they did incur some delay and therefore additional costs. So we acknowledged this and that is what the settlement was for. By the June MUDFA DPD meeting it was noted that the programme was under review due to lack of availability of Intended for Approval (IFC) drawings and Bills of Material. That is just a repeat of what I have already stated.

102. I note the MUDFA Report dated 4 July 2007 (**CEC01640813**). The report provides that the release of design IFCs was still a major concern in maintaining the continuity of work. It is not described further within the document. I note it still remained a major concern as detailed within the MUDFA Report dated 4 August 2007 (**CEC01642221**). These concerns continued and were documented in the MUDFA Report dated 26 September 2007(**CEC01647483**). Within this particular report there is a graph which illustrates the problem. The graph demonstrates that the drawings are behind schedule. It shows the actual plans for design release and explains that the drawings that are getting released are something like two or three months behind. They caught up to an extent, as a re-sequence of the programme assisted them. The problems arose when they came across additional utilities that were never envisaged or planned for. They never really addressed this and it continued for about a year. That was mainly as a result of the number of utilities we encountered almost doubling.
103. Looking back, I would have started the design probably a year earlier. There would then have been a year of complete designs to work with. That way, if additional services were located, the time lost would never have amounted to a year. The lesson for similar projects is that the utilities should be completed well in advance of the tram infrastructure team commencing their work. In relation to the Tram Project the contract had commenced and it was too late.
104. At the start the quality of designs produced was not acceptable to AMIS and the SUCs. I refer to a letter from PB to myself dated 11 July 2007 in which

4 August  
should be  
1 August

PB acknowledged the problem (**CEC00840512**). I would refer to TIE's written response to that (**CEC01604632**).

105. The letter from PB illustrates that they are attempting to obtain the C4 estimates from the SUCs to help them with the design. The C4 estimate is the cost of doing the diversion. The SUCs give us that estimate, which then forms part of the package that we give to CUS. Under the contract, SDS was responsible for getting the C4 estimates, but they were saying that the SUCs were delaying them. We were saying that SDS were responsible for managing that, as they had signed the contract which said they would do the design details and take the C4 estimates. There is also a programme that PB signed up to. So the issue is why did they sign up to a contract and a programme and then in turn claim that the SUCs were delaying them. They must have taken cognisance of the requirement to liaise with the SUCs when they were looking at the programme. So that is why we did not agree with them. I think in the early stages we deferred payment because they had not delivered the goods in time. It evened out once they started delivering the drawings, but if we incurred costs because of them, we would then contra-charge them.
106. I refer to an email on 18 July 2007 from Ian Clark to myself (**CEC01678240**). This is in relation to late designs causing difficulties with Scottish Water. I cannot remember what the outcome of that was, but the email is self-explanatory. It is just stating the issues that we had. Part of the delay was the quality of design. The quality of the drawings was not to a standard that would enable a handover to the contractor. My team would look at the drawings and technically assess them before they were given out. If they were not of sufficient quality, they returned them to SDS. So every single drawing given out was assessed by us before it was issued to them. We signed it off for approval for construction. Ian Clark was my senior project manager for Scottish Water. He dealt with both Scottish Water and BT.
107. We did not assess every drawing. SDS would combine the utilities and other items and produce a combined drawing. That would come to us for comment

and it would go out to the SUC if approved. If there was any issue with the SUC, my project managers would deal with the SUC to explain the difficulties and say that we were trying to get a pragmatic approach and a reasonable agreement between all parties as to how we are going to place all these utilities in the space that we had. My team would lead that to get the SUCs on board. Once we got them on board, they signed the drawings and they would be issued out for an IFC.

108. I refer to an email chain of 25 July 2007, involving Steve Reynolds to Matthew Crosse, where SDS had failed to deliver drawings despite saying they would. (PBH00012229). Matthew Crosse told Willie Gallagher and Willie Gallagher said this had really shocked him, because he had just told the media that they were going to be starting work there, only to find out that these drawings were not ready. So we held the meeting the very next morning to discuss what we were going to be doing. I cannot remember the outcome of that meeting.
109. I note a letter from AMIS dated 26 July 2007 (CEC01685595). AMIS expressed concerns with the design position and expressed their doubts for the future. I would refer to TIE's response at the time on that matter. Our job as the client's representative was to protect the client under the contract. It is a standard letter from AMIS and their commercial manager, Keith Gourlay. They suggested that they assist in carrying out a full and comprehensive technical audit of all design drawings and schedules. We would just not agree to that. It was their interpretation of what the contract was supposed to provide, but we did not necessarily agree with them.
110. I refer to an email chain culminating in a response from myself to a number of recipients dated 26 July 2007 (TIE00261822). It does appear from the email chain that SDS failed to provide other necessary information. This email relates to the costs and programming implications if they could not do IFC. There is the other residual hazard information. There are always some hazards or risks associated with a design. Designers have got to take this into account and put in place measures to mitigate the residual risks. It is a

requirement that the designers are supposed to recognise, and they mitigate risk as much as possible. This is called a hazid log (Hazard Identification log). DS were supposed to provide that log with the drawings and they had not done so. That was widespread at the time of these emails.

111. I would not like to comment on the spreadsheet (**CEC01643527**) contained in an email exchange between Susan Clark and John McAloon on 23 August 2007 (**CEC01643526**). It is just giving a snapshot of where the drawings were at that time. Susan Clark was responsible for the programme overall as the Programme Director.
112. In my email to Steven Bell dated 24 August 2007 (**CEC01678883**), the attachments (**CEC01678884** and **CEC01678885**) just demonstrate the design delay at that time. All that shows is the plan and it is about six or seven weeks late.
113. In my email to Steven Bell on 5 September 2007 (**CEC01641042**) I say "*We are heading for a problem*". This is in relation to the delay to IFCs. We were heading for problems because the IFC drawings were not being submitted in accordance with the programme. The design programme is linked to the construction programme, so that was going to have a direct impact on construction commencing. Likewise, the record of review procedure is linked to the programme.
114. I note an email from Willie Gallagher to myself and others dated 29 September 2007 (**CEC01642721**). PB was seeking to apportion blame. I would refer to our written response at that time. This was in terms of getting the IFC drawing approved and getting all the requisite information from them so they could incorporate this in the packages that were given out. We were stating this was within their remit and that they knew what their remit was. I did not see what had changed. They needed to engage with the SUCs. They accepted it in the contract, so they should have got on with it. They would issue a drawing to the SUC and leave it with them. They should have been

sitting down with them and discussing the issues. They required to manage it better.

115. PB stated that BT failed to meet dates and several packages remained outstanding. However BT were doing their own design. Therefore BT had to come back and provide them with a design. I would have gone back again to say that this was part of their remit and they were supposed to manage that.
116. PB said that the SUC review to approval in four weeks was not sufficient for most SUCs. That was in the discussions with them before we signed the contract with SDS. It was also in the programme that they provided to us in terms of describing the process they were going to go through. They were party to discussions about how we were going to get drawings approved. The process was agreed: they would get the SUC's drawings and we would then review them. We would then look at where the tram route is going to go, and then identify the diversion route from it. They would then draft the drawing, and then sit down with the SUC. So they knew all the process, all the timelines to get the designs approved. The question is why suddenly did they find it difficult and say four weeks was not enough. We emphasised to them that this was what they had agreed to.
117. By October 2007 it appears that measures to give MUDFA IFCs priority had borne fruit and things were getting better. We re-sequenced the programme to allow for some of the designs that SDS had already done. I think it was Gogarburn which was an easy section. We re-sequenced the work in such a way that allowed CUS to work in the Gogarburn and Ratho areas. They were the easier sections, so that allowed them to start working. We were still working in areas within Leith Walk. As a result SDS was able to work on the more critical areas and produce those drawings in time.
118. I note the record of review document dated 6 February 2008 **(CEC01452244)**. This is how we reviewed the documents before they were issued. It is as I have explained: the designers did the drawings, the drawings came to us. we then reviewed the drawing to make sure it was

sufficient in terms of quality and standard to go out. The drawing then went to the SUCs and we got them to agree whether the drawings were suitable to be incorporated in the finalised IFC drawing. If the SUC agreed, the drawing was then put in the IFC drawing, which was overlaid with all the agreed diversions. The record of review explains that in a more processed manner. It gives a procedure for how to go through it. It worked reasonably well.

119. I refer to a letter dated 12 February 2008 from PB (**CEC01457196**). This letter highlights how PB rejected an approach that TIE had suggested to address design issues. It states that no additional costs were to be incurred on investigating utilities. TIE's initial letter should have been drafted differently. What I was saying to them was that TIE would not accept any additional cost, but we expected them to do whatever they required to do to ensure that the diversion was going to work. So for example they required to carry out all necessary trial digs. The problem was that SDS did the ground penetrating surveys and said we should be using them. However, surveys are not totally reliable. They are influenced by the moisture content of the soil, the type of soil and the apparatus under the ground. For example, in Haymarket we had all the drawings that said that there were no major obstructions. However, when we actually starting digging, we came across an underground shelter that was big enough to bury six double-decker buses. The Adien survey did not pick it up. We were finding these shelters all over Edinburgh and the surveys had never picked them up. They were deemed to be of an historical value and we had to investigate and take photographs before removing it. That all takes time, effort and ultimately leads to delay.
120. The graphs detailed within MUDFA Report dated 12 March 2008 (**CEC01453676**) and also the report dated 9 April 2008 (**CEC01456730**) just highlight what I have stated regarding the extent of the slippage. There is nothing more to add.

121. I note an email exchange I had with Steven Bell in March 2008 (**TIE00679525**). The content concerns what to do about obtaining designs for Section 7b. However I do not recollect the details. A letter to CUS dated 30 June 2008 (**CEC01342173**) appears to be the follow-up. There were then letters to CUS in January 2009 complaining that adequate drawings were not produced (**CAR00000456** and **CAR00000056**). It is all part of the same issues relating to the design.

### **AMIS Performance**

122. The pre-construction service period finished in March 2007 when I arrived. I am not able to comment on how well the contract operated prior to my arrival. All I would say is that it appears to have gone satisfactorily due to the fact it was signed off. That is the only comment I would like to make on this subject.

### **Lack of resources within AMIS**

123. There are numerous items of correspondence and notes of meetings which refer to concerns about the level of resources applied to the project by AMIS. There was a shortage of operatives and a shortage of supervision from AMIS. They just had inadequate supervision on site, which was why there were certain issues occurring. It just was not being managed properly and I would question their competency because of the quality of some of the workmanship. The effect of this was loss of programme output, poor quality of workmanship and bad relationships with stakeholders. People had complained as roads had been closed off but no work was being done. There were also complaints that holes had been excavated but no-one was near them for a numbers of weeks. There was plenty of correspondence about AMIS and their insufficient supervision on site.

124. I note emails from John McAloon to myself dated 4 September 2007 (**CEC01640697**) and an attachment (**CEC01640698**) relating to temporary reinstatements. This is a recognised way to do these works and it is a standard practice. A temporary reinstatement would only be used when it was known that the area would have to be opened up again to complete the work. We did that quite a lot on Leith Walk, as there were a lot of works going off into side streets. There would therefore be a number of temporary reinstatements to pick up in the next part of the diversion, which would be in the next phase. Temporary reinstatements are really to save cost on later works. You would not put in a permanent reinstatement to go back and then start digging up the road again.
125. I refer to an email from Brian McCall to myself and others dated 10 October 2007 (**CEC01637431**). This email makes reference to public concern over work that appears to have been undertaken twice. They could have perceived this but it could in fact have been temporary reinstatements. In Haymarket, for example, there were some sections in the road that we dug up maybe two, three or four times because of the complexity of the actual utility there. There were two, three or four utilities in that area. It is not possible to just stop all utilities in one area, it depends what they are. In this email, however, AMIS accepts there was a miscommunication between their management and their workforce and they have excavated a hole in the wrong place.
126. I note an email from Stewart McGarrity to Steven Bell dated 21 February 2008 noting that minutes did not refer to resource shortages in AMIS (**CEC01490664**). I do not know why that was the case. A report within the MUDFA Report dated 12 March 2008 (**CEC01453676**) notes that the skill base of workforce personnel had been re-assessed. Thereafter changes in the work force were undertaken. This resulted in resource shortages in the interim.
127. I refer to the MUDFA report dated 7 May 2008 (**CEC01301007**) where there is further concern about AMIS resource level. In addition the MUDFA report

dated 4 June 2008 (CEC01302139) highlights areas of concern regarding tidiness and quality of workmanship. It was quite clear to me that we were consistently telling AMIS that they had inadequate resources on site and we had issues with the quality of their works. This correspondence shows me referring to a labour histogram that shows the resources assigned to the project at that time. It is clear from information supplied that the resource on site at that stage was well below what was required, because we had the resource profile for that programme. We demonstrated to them in March 2008 that, according to the programme, they were under-resourced; so we were telling them to get that addressed. Then, again, in May 2008 we referred to numerous discussions and debates regarding the level of operatives and supervising staff at that time. We stated that it was a matter of record that we had raised our concerns regarding this very matter over a period of four to five months. We then advised them that it was affecting their output on the project and compromising the programme. We were asking them to come up with actions and mitigation measures which would address that. We never got to a conclusion on this issue. They never achieved the output they said they would in the programme. It cost them money to bring in additional resources, so the more they brought in, the more money they were going to lose. They were trying to recover the loss of the rates that they had agreed and what it was actually costing them to go out to the market to bring the resources in.

128. In general the quality of works by AMIS was poor, particularly around BT ducts. The nature and infrastructure means that there can be a bank of ducts that is 12 ducts wide and 4 high. The configuration of the ducts in the chamber has got to marry up at the each side. These are the standards that BT set. If the ducts have to be diverted, you have to be sure they are not compressed or crushed. You have to use a mandrill, which is like a wooden rugby ball but a lot smaller, to assess whether you are able to get cables through the duct. In some cases, BT had problems getting the mandrill through. Where this occurred they had to dig down, opening up the road to locate where the ducts had been crushed. AMIS were saying that it was all in order but, when BT went in to start running the cables through, they were

finding that the configuration was not correct when it went from one chamber to another, or there was a blockage. If this was the case, BT would not accept that section and the road that had just been resurfaced had to be dug up again to find the ducts that were crushed. They then had to cut through these ducts, split them and carry out remedial work before back-filling. The costs of this were borne by AMIS.

129. There were other problems regarding poor workmanship. For example, BT chambers. They are supposed to be sealed because the last thing they want is water pouring in through the inlets. With a lot of them, one could lift up the manhole cover and look inside and they would be full of water. So they were having problems with sealing them. Also the general finish inside the chamber was not good. Some of the manholes for Scottish Water were not up to scratch either, as they were of poor standard. Some of the pipes that were put in for Scottish Water were not tested in accordance with the requirements and we were finding bits of rag etc in the pipe when they said that they had tested it. They should not be finding anything like that in a water pipe. Likewise in sewer pipes. These had to be air tested to make sure that none of the joints were broken. When this test was done, many of the sections were failing. Scottish Water did not accept this and AMIS had to go back and dig it all up again. AMIS was not blaming that on design. They were just saying that it was a minor problem and that one of the joints moved or something. We received numerous different excuses.
  
130. Another example was a water main near Saughton House that had to be re-laid three times. Every time they tested it, they blew a gasket. One of the anchor blocks blew up in the air. These problems were escalated to a more senior level in their team. We were constantly discussing it and citing lack of supervision and lack of quality. If they did not have the right supervision and the right competency on site, there was only one thing that was going to suffer, and that was going to be quality. There was also a constant change of staff in AMIS, which did not help. They had three changes in Project Directors.

131. I refer to a document titled BT remedial work dated September 2009 **(CAR00000030)**. This is a summary of remedial work required on Leith Walk, which refers to the same issues I have mentioned. It just summarises that we could not get the chambers and the ducts signed off, which meant we could not do the cabling works.
132. PB was responsible for the production of “as built drawings” or “as laid drawings”. I think there was something of an issue in terms of the provision of them, but I cannot remember whether it was with AMIS or with PB.
133. I refer to a letter dated 15 January 2009 from PB to Frank McFadden **(CEC01119470)** also a report from PB dated 7 January 2009 **(CEC01119469)**. In addition I note an email from myself to Frank McFadden and other dated 23 January 2009 **(CEC01119549)**. I can see that PB are saying that the information that they require to provide “*as building drawings*”, is not reflected in the MUDFA contract. So they were looking for further information over and above what was in the MUDFA contract. That is what that says to me. I do not know if this could have been foreseen. In my email to Scott McFadden and Steven Bell and others, it can be seen that we were trying to obtain as built drawings prepared because INFRACO had required them. This would enable them to start the finalisation of their design in preparation for their programme. SDS was messing about with it and so I brought in MLM Engineering Consultancy to actually do the as built drawings. SDS was saying this was because we had not provided enough information in the first place, and they could not do it. As a result of this I brought in another consultancy to assist INFRACO to start planning for their works. The problem was that we were then incurring additional costs that we had never allowed for. This action in the early stages was to prevent INFRACO being delayed and there was no way of me accepting or acceding to the issue surrounding it.
134. I note a letter from myself to Steve Beattie in February 2010 **(CEC00597972)**. This letter states that AMIS had demobilised and left before necessary remedial works were completed, with the result that progress was

delayed. I do not know how much the delay was, as I left within six weeks of that and have no idea if the costs were recovered.

### **Quality of Works Done and Investigations**

135. It was generally the case that the length of services that needed to be re-laid was greater than had been anticipated. At the end of day, twice as many utilities had to be diverted as were noted in the original contract under the measured items. There was however a provisional sum that catered for additional unidentified services. This allowed for us to deal with them within the budget.
136. The additional work was in part because, when excavations started, additional services were uncovered. They were not known in advance because they were never identified within the utility drawings provided by the SUCs. It was not possible to rely on the records of the SUCs because their records were very poor. Some of the utility services like Scottish Water, SGN, and some of the power ones are very old services, so the records get lost or whatever. It is not the same as building a new road, bridge or building, where there are accurate records and drawings. In light of this, utilities always caveat their drawings by saying they cannot be relied upon as a true record of the actual location of the service.
137. It was also the case that surveys for utilities had been carried out by a company called Adien. They carried out ground penetrating radar surveys, but they were not totally reliable. The surveys pick up other electromagnetic impulses that come from other utilities. They are also affected by the moisture content of the actual soil. They give that caveat when they are engaged, but it gives a better picture than the one available. In some cases it works, in some it does not. In our case, it was too inconsistent . We discontinued their services ultimately.

138. In their claim for variation of the Schedule 4 rates, AMIS said it was inappropriate that the Adien survey was only 11% of the total tram route (34.2% of the roads) (CAR00000302 at page 11). More surveys were undertaken on this project than on other projects which I have worked on. We had more trial holes and more site investigations than would normally be the case. We chose very selective areas where we were aware that there was congestion of utilities. We did trial holes and we did ground penetrating just to confirm it. We were selective regarding where we undertook surveys. When we saw a utility drawing which suggested the congestion of utilities would be of an acceptable level, then we did not do a survey. I refer to this in an email dated 23 May 2007 (**CEC01664374**) that I sent to Tara Edgar. This email contained the text of a letter I wanted sent to Adien in relation to this. The issue was that they carried out an Adien survey at Casino Square and then we started to dig out the road. We found there were other services that they had not picked up on the survey. That is the first time that we heard that the moisture content of the soil might affect the survey. Adien said it was an isolated case, but that is when we had to do trial holes at specific locations to verify the information. We chose specific areas where we thought that congestion of utilities would be a big problem.
139. There are other ways in which a complete picture of the services could have been obtained. However these are hugely time-consuming and by May 2007 it was too late to start. To carry out numerous trial holes we would have had to put traffic management in place. We would have needed a tested traffic management plan put in place before this could have been done. A TRO would have had to be put in place, notices would have needed to be in place, a road closure would have had to be put in place and relevant communications would have had to be sent out. All of this to carry out a trial hole. So if we had done all those trial holes in different locations one can only imagine the impact that would have had on the programme. My opinion is that it would have been massive.
140. The only way to obtain a complete picture of the services would have been to have done more trial holes. We did do trial holes where we could, but it did

not solve the problem. This would only identify something else which we never knew about. This could have led to changes in the programme again.

141. As I have explained excavating a trial hole does not make the programme go any smoother. Another problem might be discovered in any case, which could lead to a delay.
142. I refer to the MUDFA report dated 6 June 2007 (**CEC01664524**). The report lists 139 danger notes arising from poor records. This is all associated with the unidentified utilities and congestion which I have identified. This is just standard project management. We had a risk register which we were using to continually assess and review the risks. To mitigate the risk, as I have described, we would utilise trial holes and Adien surveys. However you only uncover the whole picture once you excavate. The provisional survey was an indication that we were going to come across significant utilities that had not been identified. This was because of the very nature of the records held by the SUCs.
143. There would be revision made to the risk register depending what we were finding. For example, on The Mound we found a large 800 diameter medium pressure gas main that went to Princes Street. It was a cast iron main about 70 years old. SGN would not touch it because they were so worried about it, so we had to bring in a specialist subcontractor. The risk register was reviewed continuously.
144. As a result of congestion, some services could not be re-routed in the vicinity of the original service and instead had to be routed on a detour where there was more room. For example in Constitution Street, there was the tram slab then the 2.2 metres either side which needed to be kept clear. There is no room in Constitution Street, so we had to divert the utilities down a side street and bring the service back in where there was room to connect back up to the utility. We had to do that quite a lot, especially in similar areas. So a diversion we would normally think of as maybe 200 metres turned out to be 600/700 metres.

## Delays in MUDFA works and Re-working

145. There was only one main programme for the whole project, which was the contract programme. There were also eight or nine subsidiary programmes which were subsidiary or subdivisions of the main programme. The different names such as '*stakeholder constraint programme*' and '*stakeholder programme*' just look at the stakeholder requirements.
146. AMIS was responsible for the issue of programmes in respect of the MUDFA works. They would develop them and they would then pass them to us for comment. We in turn would pass our programme to INFRACO and to the senior planner within TIE who had responsibility for combining the MUDFA and INFRACO programmes to ensure that there were no conflicts. I think it was Tom Condie, who performed this role in TIE. They were generally provided on time.
147. Different programmes were issued by AMIS as the project progressed to reflect the actual progress of the works. There is no point having a programme that does not reflect what you are actually programming / forecasting it to do. We were constantly reviewing and revising the programme. The contract required AMIS to provide us with an updated programme on a regular basis for review and acceptance. Monthly reports give an update of progress against the programme. CUS were particularly poor at programming their works. We would get a programme one week and then within a week it was out of date and they were working in areas that they had never said they were going to work in. Either they were not working where they said they would be working or the progress was poor.
148. I note the Project Director's report to the Utilities Sub Committee dated March 2007 (**CAR00000237**). There is a reference to the programme being re-baselined (**CAR00000237** at page 9). I do not know the details of that as that report was done before I started. I suspect that the re-baseline was a result of the design being delayed. They would re-baseline the programme to

reflect these delays and the necessary extension to deadlines.

149. The new programme noted in the MUDFA Sub Committee Report dated 6 June 2007 (**CEC01664524**) was already under review by the date of the issue of that report. This was because of a lack of design information.
150. I refer to a letter from AMIS dated 8 August 2007 (**CEC01697452**). AMIS refers to a move towards a revised 07 programme in order to fit in with INFRACO. This is a programme to deal with the interfaces between the MUDFA works and the INFRACO works. For the first year, from 2007 to mid-summer 2008, it was only MUDFA that was working. INFRACO commenced works around about the third quarter of 2008. We had to ensure that the two linked together. We had to determine who would take account of the relevant interfaces that we were going to have with them. Even things like traffic management had to be managed so as not to conflict with the MUDFA works and the INFRACO works. So the revised programme referred to is just an interface programme.
151. Referring to various monthly MUDFA reports to committee (**CEC01451570**, **CEC01452779**, **CEC0145309**, **CEC01398499** and **CEC01302139**). These reports demonstrate wide fluctuations in what was achieved each month. This is because they show planned and actual progress. We could be slightly up in total meterage achieved in one period and down the next. These are just period variances so, for example, output in November 2007 went down, as we planned for 8 chambers and did 14. So the planned meterage was 1000 and we have completed 800. It just depends on where we were working and things had to be taken into context. I can see that, in December 2007, the target was exceeded but the cumulative was lagging. This was due to the nature of the work undertaken at that time and its relevance to the critical path.
152. Looking at December 2007, we were down 70 metres. That is not a wide fluctuation, but what it did highlight was that we had a real problem with the programme in respect of CUS, as they could not programme properly. We

had real difficulty with them in terms of what they were promising. It is worthy of note that this is based upon what they said they were going to achieve. Therefore if a month beforehand they said they were going to achieve 1,000 metres they might actually only achieve 800 metres. These figures were set a month in advance, so this was about what they said they had planned that month and then afterwards what they actually achieved.

153. The figures do fluctuate during this period and again it identifies that CUS could not programme or plan. The reason why we were getting the fluctuations each month is we had great difficulty with CUS to put the programme and plan it properly. Then take account of the fact that they did not apply the right resources to it and they were not managing the project properly. This was why we ended up with these wide fluctuations.
154. I refer to a letter from AMIS to myself dated 12 May 2008 (**CEC01369430**). AMIS stated that they were unhappy with a discussion of the programme at the May MUDFA. In addition they entirely refuted the contents of that report. We would have put a report in, probably commenting on the AMIS resources or another issue. We would have written to them telling them that they were inadequately resourced and supervision levels were not adequate, the quality of workmanship was bad and that they had not achieved the outputs. It was a constant issue with AMIS.
155. I note a letter from AMIS in December 2008 (**CEC01200503**). AMIS refers to moving from programme 7.9 to revision 8.0. I cannot remember what the changes were. However, the reason the programme was continually updated was to reflect the progress at that date and the works which still required to be undertaken. It is normal practice to update a programme in that way.

## Causes – The TIE View

156. The works were delayed because AMIS did not have adequate resources. An example of this was the BT work. Operatives had to be accredited to undertake this work. AMIS had problems resourcing appropriately qualified individuals. Generally they had an incomplete supply of supervisory and operative resources to meet the full demands of the programme.
157. In the papers prepared for the MUDFA Sub Committee Report in April 2008 (CEC01456730) four reasons were given for the AMIS delay. The first one was that there was a greater congestion of existing utilities than anticipated. I can confirm that was the case. It principally affected the Scottish Water diversions because they had the biggest number of utilities. I think from memory the costs associated with Scottish Water diversions were the greatest. They had maybe about 20% of diversions. The second reason given was temporary diversion provision. The third reason given was slower than estimated construction for BT chambers. The fourth reason was incomplete supply of supervisory and operative resources to meet the full demands of the programme and the enabling works. I have already commented on AMIS's lack of resources.
158. I refer to an image of an excavation in relation to on-going utility work (TIE00326623). There is no reference date for this image. I would not say this shows congestion. I would say that this illustrates exactly what you would expect to see in relation to underground utilities.
159. A lot of these excavations are "hand-dug" and it is not just the power cables which are the concern. Fibre optic cable also cause concern. A fibre optic cannot be repaired. This means it can be very expensive if you cut into one by accident as it will have to be replaced.
160. I note the image of the on-going excavation work dated 3 October 2010 (CEC00326626). The issue in this photograph is the bank of ducts. What

CEC00326626  
should be  
TIE00326626

one does not see from the photograph is that there are services going underneath. This is not what is generally found at a junction, but we were locating these at a junction. Normally we were trying to build a box there. There is a gas main there as well.

161. I note an email from Graham Christie, of CUS, to myself and other recipients dated 22 October 2008 (**CEC01140099**). This email sets out the factors that he thinks have adversely impacted on the MUDFA completion programme. One of the recipients was Steven Bell. Looking at the emails, I can see that Steven Bell has briefly identified more details for issues of clarity. These are traffic management constraints, incomplete design and utility information. I have detailed some of these issues already but I would refer to Steven Bell's reply. CUS told us they were experienced and competent contractors and that they had been undertaking utility diversions in city centres throughout the UK and in Europe. As a competent contractor AMIS would have been aware of traffic management constraints and the difficulties in obtaining accurate information regarding utilities in a major city.
162. I refer to an email exchange between myself Steven Bell and John Casserly dated 1 December 2008 (**CEC01146821**). These emails consider delays that might flow from accommodating a direction from CEC as to embargo and closures. We did set embargoes and there were certain embargoes that were imposed upon us. Generally the embargoes would be something like an event or a festival. They were for specified periods of time. Under the contract there were specific embargoes that were known, but these ones were over and above that. These were the ones the Council were imposing upon us. I was getting John McAloon to determine the impact on the programme and the Commercial Manager, John Casserley, to determine what the commercial impact would be.
163. It was not a common feature to get these additional embargoes, but it did occur more than it should have. I do not recall the extent and number of embargoes.

164. I note an email from me to Steven Bell and Julie Smith dated 12 January 2009 (**CEC01143748**). This email contains an attachment relating to a summary report on Change Notice (**CEC01143749**). These emails relate to the St James Centre, at the top of Leith Walk. They do not relate to embargos or closures. What they were discussing was us diverting our utilities to tie-in with the other redevelopment planned at that location. I am making the point that we cannot oblige at that time because if they had put on TROs, they would conflict with ours and have an impact on our programme. I understand that they were just trying to plan their works but our works were actually on-going and it would have affected our planning.
165. Design is not noted as an issue in the papers prepared within TIE for the April MUDFA DPD (**CEC01456730**). Design did become an issue later, and the problem never actually left. It was on the cusp all the time and we had to keep on mentioning it to them all the time. However, it was not such an obvious issue as in the initial stage.
166. I refer to an email from Jim McEwan to Steven Bell dated 9 December 2008 regarding late delivery of IFAs (**TIE00680964**). I note a further email from me to Damian Sharp dated 11 December 2008 (**CEC01140072**). My email notes the consequences of the late delivery of the IFAs. By that time we were well on. I thought we were getting out of the design by that stage. There were the odd issues but it was never really as bad as it was when we first started.
167. The emails are around the fact that IFAs were due on 5 December 2008. They had not been completed on time and they were to be delayed another week. This came down to SDS resources. We were executing the programme and some of the design releases were still being delayed. These delays were occurring in areas where we were actually working so that compounded the problem. With regard to how it affected the works overall, I would refer to the final programme.
168. I refer to an email with attachment from Jim McEwan to Richard Jeffrey,

myself and others dated 22 July 2009 (**CEC00762213** and **CEC00762214**). The email and attachment illustrate the cause of the delays. Jim's view at that time was that the MUDFA programme should be folded and what was left brought under the main INFRACO project. I tended to agree with him, but the problem lay in trying to terminate the contract and bring another contractor in under these circumstances.

### **Causes - The AMIS View**

169. I refer to documents produced by AMIS for a delay and disruption claim (**CAR00000316** and **CAR00000317**). The documents illustrate the issues as AMIS saw them. There are no reference dates on either of these documents. I am unable to comment on these. They are AMIS internal documents and I am not in a position to comment on that basis.
170. I note an email from Taryne Lowe to David Arnott and others dated 7 May 2009 (**CAR00000716**). This was produced by Taryne Lowe of AMIS and sent to their legal advisers. I have not previously seen sight of this document and could not comment further on its content.
171. Extensions of time were granted to AMIS in respect of the delay in the initial design. I note a letter sent by myself to Andrew Malkin, AMIS, dated 9 April 2008 (**CAR00000074**). This letter refers to an AMIS settlement agreement up to and including 30 September 2007. This is associated with the full and final settlement for the design delay up to and including 30 September 2007. TIE did grant an extension of time, but that was associated with the delays surrounding the full and final settlement of the initial design. The full and final settlement agreement was a sum of money of £991k. In the same settlement, we agreed to an extension of time.
172. There are a number of other extensions of time notes. I responded by letter, dated 16 December 2008, to Steve Beattie, MUDFA Project Director (**CAR00000558**). I am basically making the point that the extension of time notes were time-barred. They have to notify us within a prescribed period of

time. If they fail to notify us within that prescribed time, they have failed to comply with the requirements of Clause 38 of the contract. The same reasons were usually given for seeking extensions of time. They would say that they had found more services, that the drawings were poor and the like. They have a contractual obligation to mitigate these delays. What I am saying in that email is that they had not provided us with any supporting reports that detailing problems with the progress of the works or had they provided a breakdown of what they were doing to actually manage the works. We continually told them that we needed the detail of what the actual output was and what were the causes and effect of these external influences on the programme. We never did get that, we just got letters from them stating that they had problems, and then they would produce records showing operative working times. We were saying that just means nothing. On a weekly basis they had to provide us with the work they were going to do in respect of the programme, what they had actually done and the reasons behind any slippage against programme. They never did provide this information.

173. Following discussions in March 2009, there was agreement on a number of matters. One of these issues was that TIE gave an extension of time to 1 April 2009 to accommodate another revision of the programme. This is documented in correspondence between Steven Bell and CUS dated March 2009 (**CAR00000398** and **CAR00000194**). In some cases we had weekend work and this depended on where they were working and what diversion it was. I think we did come to an agreement that we would pay for some of this if we knew about it in time. They were saying they were losing money at The Mound. We asked them to provide a performance bond so we would have some guarantee that they would finish the work and we paid them £1.15m effectively on account. If they did not finish the works, we could draw back on the performance bond. For clarity this was not a settlement, it is actually us giving them a cash flow on account to carry out the works. The £1.15m was not extra; it was part of the originally agreed contract on completion amount.
174. Other extensions of time were predominantly because of the additional

services they were finding. They would get extensions of time but they would not get additional monies, other than what was covered under the measured items. An example of this would be in the Leith Walk area where they were going to have to divert 300 metres of water main. When they actually dug the hole, they found another water main. So there was 600 metres of water pipes to divert. We therefore paid them the measure for doing the 600 metres and then we gave them a half week's extension to do the full works. These are not risky contract terms for us as the costs are all covered in the provisional sum. For AMIS it was different, but they are deemed to be experts in the field.

175. There were instances where design changes meant that works were abortive or the conclusion of them was delayed. That would only occur when we uncovered a service that we did not know about. It could have been avoided if we knew the service was there and we were able to do trial holes. However, as already explained, undertaking more trial holes would have been costly and time consuming. If we had had more accurate records from the SUC's that would have really helped us.
176. I note an email that was forwarded by Jim Johnston to me dated 21 March 2007 (**CEC01824866**). The topic which was being discussed was that AMIS had been asked to change the working order and they were unhappy with this. Matthew Crosse, the Tram Director at that time, was instructing that some works be stopped. I forget why. I cannot remember the circumstances behind that. At that time I had only been in the project for a month.
177. I refer to a letter sent by Alan Dolan, PB, to myself dated 1 May 2007 (**CEC01664017**). Work had not started at that time and the content was about prioritisation of design. Design was being delayed so they were prioritising the design, so re-scheduling the design deliverables. The changes to the alignment of the tram would only affect the utilities if they had actually carried out designs in advance of that. In this document PB are claiming that works that had been prioritised are the ones in which the design had been put on hold. I cannot recall this issue and would not

comment on it.

### **Attempts to Tackle**

178. The first thing which I did to attempt to stop and even reverse slippage was to put my team in place. I restructured my team and augmented it with more experienced personnel. I brought in people to actually deal with the SUCs directly and to support the design team. I then started dialogue with AMIS to promote a more collective engagement with them.
179. In terms of AMIS's actual approach to the project, they had to change their Project Director three times, they did not resource the contract properly and they could not programme the works properly. Therefore we continually had programme and quality issues with them.
180. MUDFA produced a number of action plans to deal with the key issues arising with the works. They would have been brought to my meeting with my team every month. I would thereafter bring them to the Project Board. In essence it is the action plan to deliver the contract and this was considered at our meetings. The action plans dated 15 August 2008, 19 August 2008 and 2 September 2008 (**CAR00000248**, **CAR00000249** and **CAR00000250**) were standard action plans.
181. The action plans were to provide visibility of what we were actually doing and what meetings we had to attend. In addition they set out how things were being managed and what were the key programme and project management constraints. They also looked at the organisational structure and staffing. They show that we were continually focussing on key priorities. All the action plans are of a similar nature.
182. I note an email from Willie Gallagher that I am copied into dated on 11 March 2008 (**CEC01450701**). Willie speaks of a recent MUDFA report and makes reference to "*three week slippage*" and other "*meaty commercial issues*". I

think it was just taking a snapshot. At that point in time, the programme was showing a three week slippage against the latest accepted programme. Willie would be able to provide more detail of what the "*meaty commercial issues*" were.

183. I refer to the MUDFA DPD report dated 7 May 2008 (**CEC01301007**). The report illustrates that there was a wish to work through the summer embargo at Haymarket. The reason for this was because we wanted to get that part completed. We were halfway through Haymarket and did not want to stop. If we had stopped we would have had to go and terminate the utilities wherever they were, reinstate them, open up the roads resurface, white line and put in kerbs. The embargo would only have been for four or five weeks. We would then close Haymarket and start again. My opinion was that this would be ridiculous. I think that at the end of the day the compromise was that we stopped one part of it to allow another key part to continue. Page 5 of the report outlines this fully. What we were trying to avoid was a bottleneck of works. We wanted to keep the flow up. The goal was to try and save some money.
184. The MUDFA Report dated 7 May 2008 also identifies a recurring theme in complaints, which was that there were worksites with no-one working. This was happening due to CUS's lack of resources. This could have been avoided by them resourcing it better. CUS continually stated that they were fully resourced, yet there were areas where they were not working and they were not meeting the outputs.
185. I refer to an email from Tom Hickman to myself dated 23 December 2008 (**TIE00250208**). This email has an attachment detailing the rate AMIS was making progress with outstanding work at that time (**TIE00250209**). It can be ascertained from this that it would be some considerable time before MUDFA was complete. Tom is just making reference to the outputs. I have already stated that AMIS failed to meet any of their outputs on their programmes.
186. I refer to an email from myself to John McAloon, TIE, dated 14 January 2009

(CEC01143925). There is also an attachment with this email (CEC01143926). The email and attachment outline timescales for recovery from January 2009. This is the effect of our programme on INFRACO. I think that was the first time we looked at the programmes for MUDFA and INFRACO together and saw where there were potential conflicts between the two. We wanted to look at how we could alleviate these programme issues. It was not a case of INFRACO catching up. MUDFA had been on-going for about 18 months. INFRACO had started around about August 2008 and was becoming the driver of the programme by January 2009. This was about how we merged and mitigated risk. This process seemed to work well.

### **Consequences of delay of MUDFA works**

187. I note an email from Martin Hutchinson to myself and others dated 4 May 2007 (CEC01635185). This email highlights a concern that the settlement with SDS might ignore how much their delay was costing on the MUDFA contract. Mark Hutchinson was the Commercial Manager when I first joined and he left very shortly after that. This is about the design delay on MUDFA contract works. It is advising the potential liability due to SDS's delay in the issuing of design. We were saying that if SDS continued with the delay, there would be a claim from AMIS against TIE. We were asking for confirmation that this issue was being taken into account in the settlement discussions between TIE and SDS. We were also asking for confirmation of whether further information was required from us in respect of the potential claim by AMIS.
188. The additional length of utilities that had to be moved was beyond original expectations. We found nearly double the amount of utilities during the course of the work. Therefore the actual programme was extended and the amount of work almost doubled. As a result of having a provisional sum that allowed for the doubling of the utilities, there was no real additional cost to the project because that was contained within the original budget. However the time period to carry out the works was extended.

189. I refer to an email from Steven Bell to myself dated 20 August 2009 **(TIE00682255)**. The email is seeking my comments on how matters had progressed compared with original expectations. We had originally contracted 27,000 metres of utility diversion. The level of utility diversion was above 50 kilometres at the conclusion. Specified parts of the route had been removed from the scope of CUS's works by mutual agreement. The reason was to reduce the workload on CUS, because they were still not finishing the works, so we decided to take them off it. By that time there was not a lot left. As a result, we gave sections of work to Farrans, a building and civil engineering contractor, and Clancy Docwra. We gave Farrans the airport section, which was a brown field. It was the easy section and we gave the deep manholes chambers and the section to Newhaven to Clancy Docwra.
190. Within the list of CUS documents there are a number which refer to delays and their causes. This is not typical. These are just spurious claims. They were never able to substantiate them. They just sent us a lot of records that meant nothing. They could never substantiate their outputs because they never made programme. We continually said that they were under-resourced and this is reflected in their progress against programme.
191. I refer to a letter sent by myself to Steven Beattie, MUDFA Project Director, and dated 5 May 2009 **(CAR00000107)**. This is an example of typical exchanges between TIE and CUS. The letter refers to BT Duct remedial work. I would refer to my comments contained in the letter. Works that had been carried out by CUS were not to the standard required by BT and this caused a delay in the handover of that particular infrastructure. I make it clear in my comments that CUS's claims were wholly unsubstantiated and an attempt to waive their responsibilities for the delay of handover of that section.

### **Extensions of Time**

192. I note a letter from Andrew Malkin, AMIS Project Director, to myself dated 8 August 2007 **(CEC01697452)**. This letter outlines a request from AMIS for an

extension of time and sets out the basis for the delays. They never accepted that the reason why they were delayed was because of their inability to actually execute the works proficiently.

## Impact on INFRACO

193. The MUDFA trial was due to start in April 2007, with completion in January 2009. It was initially planned that INFRACO would be awarded in October and underway in January 2008. At this stage, it was also planned that MUDFA and INFRACO would be carried out at the same time. This was to be managed by the utilities work being programmed and prioritised in line with the requirements of the INFRACO programme. Quite simply, we were diverting the utilities in advance of when INFRACO was required in that area. It was noted that there would be an overlap between the INFRACO and the MUDFA works. We did not really think it would be a major concern, as we thought we had enough headway on the utility programme, such that if it maintained the progress we would be ahead of INFRACO. In that scenario, there would not be an issue provided INFRACO aligned themselves to our programme of diversions.
194. I note an email sent by Tom Hickman to myself dated 12 December 2007 (**CEC01452538**). This email appears to consider the conflicts between the extended MUDFA programme and the intended INFRACO programme. The extended programme arose when we started recognising that we were finding a lot more utilities. It was still within the contract budget, but we obtained an extension of time because it was going to take longer to divert the larger number of utilities.
195. The email identifies a number of conflict areas. These are the areas where we had potential conflicts. We had to discuss those and look at mitigating measures to make sure that we did not impact on INFRACO. We managed this by examining both programmes and looking at how best to re-sequence

them. INFRACO could not work unless we had our utilities diverted. We needed to concentrate on the areas which they had prioritised so that they could commence work there. So we resequenced the programme to align to the overall Tram programme requirements, where necessary.

196. The MUDFA report dated 9 April 2008 (**CEC01456730**) details when we first started to look at the impact on INFRACO.
197. In the Project Progress Report for June 2007 (CEC01565583, page 5) there is a note that a new programme 6 is being discussed and that regard is being had to the requirements of INFRACO.
198. I note an email exchange between Robert Bell, a construction director in INFRACO and myself dated 10 December 2008 (**CEC01139858**). The emails refer to a clash between the MUDFA and INFRACO programmes. That was in relation to a gas main where they realigned the tracks. We had to then do a gas main diversion which we never thought would be required. The email from Robert Bell is reasonable, discussing issues that they were trying to work through. It just seems like a normal conversation for partners working together. We would have had a meeting to see what was required to mitigate delays and see which party was best placed to deal with it. MUDFA traffic management plans may have had to change as a result.
199. The GANTT document dated 15 December 2008 is a chart illustrating the interaction between MUDFA and INFRACO (**CEC01183886**). This would most likely have been discussed at our programme meetings. It identifies the areas where we were working and the interaction of MUDFA with INFRACO. From my observations of the document it clearly provides that there was no conflict.

## Working Relationship with AMIS

200. There were a lot of formal exchanges between TIE and AMIS under the contract. That is not unusual for this sort of contract. From early on, I think the relationship was very poor when Andy Malkin and Dave Smith were dealing with matters for AMIS. When Steve Beattie arrived it got better, but they still had a lot of issues in terms of their quality of workmanship and resources. I think that they suffered seriously due to the resource issues. They had contracted at a certain rate so their workforce was more expensive. As a result they were continually losing money. That to me was the underlying cause of the difficulties.
201. It was a frustration that AMIS was continually not accepting that they had a lack of resources, yet the actual facts were there. The poor quality of workmanship was there in terms of BT not accepting the standard of work. Scottish Water was saying that they had issues in terms of the quality of work being done. AMIS were not achieving the programme because it was obvious that they had sections that had no workmen there. We did a comparison of the programme requirements and their actual resource requirements and there was a deficit in the actual number of resources that were required to complete the works. They never actually achieved an output on any of the sections.
202. AMIS was not structured properly to deal with the logistics of the job. They were all over Edinburgh and we were probably working at maybe five, six or seven different locations and these were four or five kilometres apart. Then there were the logistics of getting from one point of Edinburgh to another. Logistically that is difficult but it is not impossible. If one is structured properly, it can be managed. There were questions about the competency of some of their resources, both in supervision and in the men carrying out the works.

203. I refer to a letter from Andrew Malkin, AMIS Project Director, to myself dated 23 August 2007 (**CEC01702113**). The letter outlines an AMIS claim that lack of response from TIE escalated the problems. Further that TIE behaviour led AMIS into excessive correspondence. AMIS was talking about the delays that they were incurring through the design and other various issues. I never agreed with the suggestion that it was about the amount of correspondence they were receiving. When I first joined the project, I was of the opinion that there seemed to be an excessive amount of correspondence coming from AMIS. I suggested that to prevent this we should enter into dialogue. They agreed with this, but then continued to issue correspondence to us. We had an obligation under the contract to respond and it was just a vicious circle.
204. I dispute the point made in the letter that the lack of response from TIE was escalating the problems. They were always issuing protracted correspondence since the day I joined the project. If one looks at the number of letters that they raised, for example, this letter is number 409. This is in August 2007 and construction services only started in April or May 2007.
205. It was not easy to have verbal discussions with them. Often we would think that discussions had resolved some matter satisfactorily, and then we would get a letter. Their management team was constantly changing. Their Project Director was originally Andy Malkin. He lasted a year before leaving and was replaced by Dave Smith. I think Dave Smith lasted something like six months, and then Steve Beattie replaced him. Before him I think it was covered by Graham Christie. That kind of change in management at that level is representative that something is not quite right within their organisation.
206. I note an email from Steven Bell to myself and others dated 29 October 2007 (**CEC01473016**) and an attachment document from DLA (**CEC01473017**). The DLA document considers termination of the MUDFA contract. This was sought because we were not happy with the way AMIS were undertaking their role. They were very focussed on entitlements under the contract and were not particularly proactive. We were considering their termination

because we believed it was going to be a long drawn-out battle with them throughout the whole length of the project. For the same reason we are discussing the termination of SDS. However bringing in new contractors was not considered. If new contractors were brought in then new contracts would have to be drawn up at greater costs.

207. I note an email to Robert Bell, construction director with INFRACO, from myself dated 23 September 2008 (**CEC01137202**) which suggests an improvement in relations with AMIS. My email was in relation to an earlier email from Robert. The email from Robert highlighted resident complaints in relation to on-going MUDFA work in the Leith Walk area. I had suggested to Robert that there had been improvements in work practices and these would require time to be fully visible. This was at the time when Steve Beattie was at AMIS and he was very proactive. He was a member of their Senior Management Team. He was Project Director number 3 and their performance got better under him.
208. I note an email from Steve Hudson to Steven Bell dated 5 November 2008 (**CEC01010662**). Within this email Steve Hudson sets out his view of the deterioration of contract working and contract relationships. I did not see this email. He is talking about the pre-construction services. Steve Hudson was the Commercial Director with AMIS, and then he went to be Commercial Director of CUS. I do not agree with much of that email. In my opinion they had under-priced the work and from day one it was quite clear they wanted the whole contract re-priced. Their numerous letters go on about re-rates. They wanted to move to a cost-plus arrangement for payment. In my view they had signed up to the contract agreed the rates and nothing had changed. I would dispute the matters in the email and would be interested in Steven Bell's response. AMIS never mentioned anything about their lack of resources, incompetent project management, incompetent work force or the fact the programme was changing on a daily basis. That is what I find quite frustrating.
209. In relation to specific points made within Steve Hudson's email we had a

correspondence tracker that was managed by our administrative assistant, Tara Edgar. This ensured that all responses to their letters were recorded. I think under the contract we had 2 weeks to respond and this was managed on the tracker.

210. AMIS refers to challenges around the commencement of INFRACO, yet they were further away from the collaborative approach that was agreed in 2007.. Their real key problem was their Project Director, Andy Malkin, and their Commercial Manager, Keith Gourlay. Both of them were massively contractual and there was no way they were intending to work with us. That was very clear from the onset.
211. The email mentions discussions around a revised programme concluded in October 2008 when Roger Robinson met Willie Gallagher. I cannot comment any further on this.
212. The longstop date referred to in the email from Steve Hudson was in answer to an agreement that we made. It was an extended date for completion but I do not recall the details.
213. The "*settlement on commercial issues up to the end of 2008 with a payment of £1.2 now*" mentioned within the email is not a settlement claim. We had provided AMIS money up front because they were concerned that they were not going to be paid. It was agreed that we would pay them on account for works that were coming. That certainly was not a settlement, but a payment on account.
214. The email also refers to the "*reimbursement of the shortfall between resource value earned through rates and the cost incurred in targeting the programme*". This was all about their output and their output was terrible. They wanted paid for reducing their output, as they claimed that the number of utilities had increased. They were informed that they were not managing the project properly. In addition it was not resourced properly therefore we were not going to pay for their inefficiencies. Even when the utilities

uncovered were as expected AMIS failed to achieve the programme output due to a lack of resource and appropriate management of the works..

215. I note that Steve states in the email that he had strengthened his team, introduced new management, and responded to criticisms of their performance and that the quality had significantly improved. We should not have been getting into that level of detail and management on that project. The reason for this was because we were so wary and so concerned about the quality of the workmanship and their general management of the project.
216. Within the email Steve states that AMIS had made changes and request TIE remove John Casserly and his commercial team. Under the contract, the client could request a change of personnel but the contractor cannot. When I first joined in March 2007, part of the problem was the team. Willie Gallagher did accept that TIE's project management was weak and he asked me to come in, look at it and fix it for him. I restructured it and clarified the roles of everybody within the team, and then I brought in John Casserly and a few senior project managers. I also brought in a few more quantity surveyors to bolster them. I have not previously seen sight of this email. I can only presume that Steven Bell dealt with it as it was sent to him.
217. I note an email from John Casserly to Sharon Fitzgerald, which I was copied into dated 8 January 2009 (**CEC01119012**). There was an attachment on the email which details advice on an action against AMIS (**CEC01119013**). The attachment relates to a number of comments made by DLA in respect of claims by TIE against AMIS. I note the first issue as "*BT Remedial Works*". It soon became apparent that very few of the BT utility diversions that CUS had installed had been done correctly. The ducts required to be mandrelled. CUS advised that this had been done , but when BT came in, they were unable to get the cables through and over the configuration. So there was the question of whether CUS actually mandrelled them in the first place. We had numerous problems with BT, all about quality and workmanship.
218. Issue 2 in the attachment illustrates that CUS backfilled a number of utility

diversions throughout all the work sites with an alternative material to the one they were meant to use. That material was cheaper but it was inadequate (structurally) and required to be removed.

219. Issue 3 in the attachment was in relation to the Gogar Depot and concerned water main gaskets which were not up to standard. AMIS installed the wrong fittings and when it came to testing they failed. We had to get the joints replaced. It should have been a straightforward operation, because it was off road and in a green field site. There were not the same issues with this site as others such as street works. It was a large pipe but nothing fancy and they provided a poor standard of workmanship. I think this happened because they just did not manage it properly. They did not have the right materials, and I think they went into dispute with the manufacturer.
220. Issue 4 in the attachment was in relation to the long stop date. They are describing a terminal float.. There was a date to complete by, but then there was what one would call terminal float that is the float within the programme for key activities that is held at the end of the programme. This in effect gives another period of grace.
221. In conclusion I really do not know what happened in relation to the claims between the parties. I assumed it would be all wrapped up in the final account, which we never did. I left TIE end of April 2010. Right up to that point, we were negotiating and continued refuting their claims.
222. I refer to a letter sent to Steven Beattie, AMIS, by myself and dated 27 February 2009 (**CAR00000227**). This letter relates to weekend working, which was an attempt to clear delays in the programme. From my recollection AMIS wanted paid for any work undertaken at the weekend. Our view within TIE was that AMIS should pay because under the terms of the contract AMIS had an obligation to mitigate delays. My opinion was that they were behind programme because they were ineffectual, inefficient, not managing their team properly and not resourcing properly.

223. Weekend working was required by AMIS to maintain the programme and it was rejected because they wanted paid for it. This is another symptom of the deterioration of the relationship and this can be seen in the volume of correspondence.
224. I note an email from Taryne Lowe, Acting Commercial Manager with CUS, to John Casserly, TIE, dated 9 March 2009 (**CAR00000134**). The email relates to the request by TIE to be notified for each and every change in advance of works. This was not unreasonable, formed part of the contractual requirements and was not an attempt to hit back at the approach adopted by AMIS. It was due to the level of change that was happening. We were concerned that things were changing on site without agreement. We were not happy about it and we said the contract requires them to notify us of change. When they made changes without informing us, this put something new into design that had not been considered.. For example, if AMIS were dealing with gulley connections and discovered something was in the way then that gulley had to be moved. TIE would not be notified of this and AMIS would just move it. However, the positioning and level of any gulley takes into consideration the anticipated road contour and water flow anticipated to reach it. This had not been in the design and therefore had not been considered.
225. I note an email to Jim McEwan and others from myself dated 15 April 2009 (**TIE00260318**). There was some internal discussion about correspondence sent to MUDFA within the email exchange with Jim McEwan. We were saying to them that they needed to work overtime to catch up with the programme. They were continually not meeting dates. I do not fully recall what the outcome of that was; I think we came to an agreement that we paid some amount of their overtime to get things moving.
226. I refer to email exchanges between Mark McKavanagh of CUS and Russell Maxwell of TIE dated 9 November 2009 (**CEC00803790**). This would appear to be a snapshot of AMIS's frustrations. There are discussions around Technical Queries (TQs). AMIS is saying that they cannot move because

they have TQs in place for the section and these are not getting answered by TIE. We are saying that we had addressed the TQs. I note an email sent by Gil Clelland to myself dated 11 September 2009 (**CEC00803791**). Gil acknowledged genuine issues that Carillion have around work in the Haymarket area where a structural engineer is required.

227. I would not say that the issues were getting in the way of our ability to deal with the work, but it was just a day to day frustration. They had constant dialogue and they were working together all the time. Taking the email in context, it is just a snapshot and there could be good days and bad days at work. It was just the nature of the work that we were doing.

## Costs

228. I note the document providing details of MUDFA out-turn costs (**CEC01147737**). This is providing costs and financial figures at a specific point in time however I do not see a date on the document. It would appear that the document is providing an update. This was normal and required each month to give an anticipated out-turn cost. The spread sheet would be presented at our meetings and we would discuss it there. It shows the key budget assumptions and proposals for bridging the budget gap. It is also looking at proposals on how we are going to actually recover some of the outstanding costs. Quite simply, it is demonstrating where savings can be made against budget. It is not about us getting money back but about areas where we could save money through things like review design or value engineering. This is normal practice.
229. I note the document referred to as a CUS and TIE view of AFA and dated 9 October 2008 (**CAR00000338**). This is a document setting out the payments which CUS considered it was entitled to for the works done and the corresponding payments that TIE considered were due. This was all part of their claim strategy. This is October 2008 and they're telling us at that point

in time they are up to £62m in the final account and we're at £48m. The difference would be on the disputed items, so straightaway there is variance. Our variance was £7.9m on the measured items and then they have works including overhead and profit, so they have added in another £8.6m of overhead and profit, £800k on site controls. Other change of controls is £1.7m, prelims again £1.9m and they had added them in again, along with another £0.5m. They have basically underestimated the whole thing and are trying to recover it.

230. I refer to a letter from Steven Bell, TIE, to Steve Hudson, CUS, dated 24 March 2009 (**CAR00000398**). This letter relates to points agreed at meetings on 6 and 19 March 2009 between TIE and AMIS/CUS. Part of what was agreed was that TIE would pay £1.5m on account, provided a Performance Bond was given and works were started on The Mound gas diversion. This is not a claim; it is an on account payment. Monies were either due or they were not under the contract. As it was a special gas main they had to get specific items paid for. CUS were worried about their cash flow at that time. However we were quite happy to pay on account to procure materials and the special equipment required. It was just an on account payment so they could go ahead. In order to do this, we requested a Performance Bond. So in effect we were not going to provide them with money for nothing.
231. I note an email from Tom Caldwell, TIE, to myself and others dated 20 April 2009 (**TIE00113920**). This email refers to instructions being issued to CUS to carry out works without the need for an estimate prior to the works being undertaken. The project managers were given delegated powers under the contract, and I delegated them powers to issue instructions. Normally the contractor should give us a notice of change. We would review it and if we were content we would issue a change order. This was dealt with by Clause 46 of the contract. However, there were circumstances where a quick change was necessary. For example, if we had a situation where, for example, traffic management was not working and it was beginning to cause problems, there was not time to go through the normal process. We would give the contractor flexibility to make the necessary change and would

provide them the revised costs for that. So it was primarily to do with timing. It is all relative to the issue and proportionate to the request. It would not, for instance, be done for a mains gas diversion. I would not be able to say without referring to documents what additional costs were incurred in this way.

232. In an email I sent on 30 April 2009 to John Casserly (**CEC00975701**) I make reference to another £800K being "*down the pan*". CUS had submitted a MUDFA valuation in respect of works they had completed that month. We had struck off an amount of money. Steve Hudson was not happy with that. John Casserly had gone through the account again and proposed to increase the certification by £800k. This £800K was a payment on account and they still had to complete the works. I was not happy about that as I thought that they would assume that the money was theirs. However, the £800K was still within the agreed contract costing.

233. I note an email from John Casserly to myself and others dated 12 June 2009 (**CEC00959810**). I also note the two attachments with the email (**CEC00959812** and **CEC00959811**). The first attachment is a PowerPoint presentation entitled "*Edinburgh Trams MUDFA Programme Challenge Session*" and dated 15<sup>th</sup> June 2009. I think that John is referring in these slides to AMIS's payment applications and the MUDFA position at that time. I would just refer to the detail in the slides of the presentation for any comment. They are as John Casserly has stated. I cannot remember if I actually saw this presentation at the time but I think I would have done. It is just stating where we currently see the project, based upon what CUS are claiming. I would make no further comment on this matter. The second attachment is a spreadsheet entitled "*Claims and major issues summary with CUS*". The spreadsheet is self-explanatory. For each item it shows what they are looking for and what John Casserly has certified as due. John has then looked at the worst case and most likely outcome for each item. His certification is below on some and above on others. We did this as a standard, as we constantly looked at their claims and assessed them. I would present this to the TIE Board, but whether that then goes to the Tram

Project Board I am not sure. This is just good project management. It gives the exposure to liability at any point in time.

234. I note a document produced by John Casserly submitted to me, Fiona Dunn and Jim McEwan on 15 October 2009 (**CEC00820968**). This was the AFC sensitivity analysis. It produced a wide range of possible outcomes. It is not normal to have such a wide band, but there were still quite a lot of things that were on-going, and there were still designs which had not been completed. There were still areas that we had not finished off and we were still dealing with the on-going claims from CUS. These claims were so broad they are skewing the figures. We valued the claims at £2 million but CUS had valued the claim at £14 million. If CUS's claims had been more realistic, that range would have been a lot closer, rather than being so extreme. I cannot remember what guidance was given to the Tram Project Board and CEC in relation to this report. I was not involved in this, so I would not be able to comment further.
235. I refer to an email sent by Jim McEwan to myself and others dated 18 November 2009 (**CEC00765284**) and the spread sheet attachment (**CEC00765285**). The attachment records all the letters from CUS making claims for more time or more money as a result of delay and disruption. It was unusual to get so many in a contract. They were going on about delay and disruption from day one. Despite the fact that we did the first initial settlement, full and final settlement to September 2007, they still just went on about it all the time. They were after more money, simple as that. We were of the strong opinion that they had under-priced the works and they were bringing in their labour force through Sky Blue. Sky Blue was part of their company that hired out resources. Resources were costing them more than the contract allowed for. So it was quite evident to us that they were going to try and get more money.
236. I refer to an email to Frank McFadden and others from me dated 4 March 2010 (**CEC00589692**). I also note an attachment to the email titled TIE deductions (**CEC00589696**). The TIE table is in relation to recoverable

deductions from CUS. The spread sheet details these to the total of £1,869,183. This is a schedule of recoveries that we thought we were going to obtain from AMIS or CUS. It is of note that the figures for the costs from Scottish Water and BT were only the initial assessments. Notifications were to increase over the coming period. We thought that we had a lot of money coming back from CUS because of the issues with BT and Scottish Water previously mentioned. All this would have been resolved through the final account with which I had no dealings at all.

237. I refer to a letter sent by myself to Steven Beattie, CUS (**CEC00604143**). The letter was in relation to the proposed final accounts for work undertaken by CUS. I note that there is no reference date on this document. There was clearly a dispute and a dispute resolution process had commenced. There were issues around a number of matters such as double invoicing. So CUS were putting in items that were included elsewhere and these were getting added into the valuation for another section. This is what I called "*double dipping*", but it is erroneous. Approximately £680k in purported invoice costs incurred had been claimed, without the support or issue of relevant invoices to substantiate the cost. For example, they were billing us for plant hire. We asked them to be more specific and to tell us what plant was involved and where and when it was being used. The response was that they had costed all the plant and were billing as a general percentage. This was not about the final accounts for AMIS. It was just the final account for a specific section. These are just our comments. I was not involved in this particular dispute resolution because the date on this is January 2010. I was reassigned by then to look at defects and snagging and I finished in April 2010. I think that it may have been Frank McFadden, Fiona Dunn and Steven Bell who would have been involved in this.
238. I am unable to confirm what the final cost per metre of utility diverted was and how it compares to the contract position on this project or on other projects.

## Statutory Utility Companies (SUCs)

### Agreements

239. The utility work undertaken was carried out under statutory authority and there was entitlement under the NRSWA (New Roads and Street Works Act) to recover monies. Agreements were necessary with the SUCs as they were the authorised parties. We required agreements to commence the diversion of utilities, as there was an obvious impact on the SUCs. There are agreed rates for various sizes of utilities, the rates depend on the type and age of the utilities. There has to be agreement on the replacement item, what it is going to cost and what betterment is associated with it. That was particularly relevant for Scottish Water, SGN to an extent and BT. The two main utility companies were Scottish Water and BT.
240. These agreements were required under the New Roads and Street Works Act. The required parties to the agreements would be the SUCs, TIE and CUS. TIE was the party that was obliged to manage the design of the developments which was subject to the agreement of the SUCs. Once the design was approved. We agree the estimate of the cost to move the utilities and the SUCs contribution towards this.
241. Difficulties arose in negotiation of the agreements with the SUCs. In terms of the process, we would tell the SUCs that we are going to divert their utility. This was not something which they dealt with in their usual day to day process. We would advise them that the work was being done under legislation and that they were required to discuss it. We then had to get the SUCs to agree that we would design the diversion for them. Thereafter they had to approve that design and accept it. Subsequent to this we had to carry out the diversion on their behalf. The SUC was then entitled to assess the diversion and ensure it was satisfactory taking cognisance of their standards and requirements. All of this had to be incorporated into a contract. We had to do this for every SUC, and also take into account utilities separation. All

these issues had to be considered and incorporated, so that takes time.

242. I refer to a letter from Willie Gallagher to Andrew Holmes dated 5 July 2007 **(CEC01679426)** attached to which is a note in respect of CEC liability under the contract **(CEC01679427)**. Some of the SUCs required CEC to be a party to the utility diversion agreements as well as TIE. The letter confirms this and also seeks clarification of the level of protection against risks built into the MUDFA Contract. The attachment sets out CEC's liability under the utility diversion agreements. It also sets out the indemnity provisions under the MUDFA Contract. This was to ensure that we were being indemnified and not taking on board any other risks. So we were protecting Edinburgh Council by cognisance into the contract and obtaining agreement as to what we were undertaking. This was getting reviewed and checked by DLA Piper.
243. I note a letter from Scottish Water to myself dated 2 June 2008 **(CEC01298432)**. Scottish Water are indicating that were not happy with the draft agreement. There was a previous email from Ian Clark indicating that the agreement at that stage was a draft. Scottish Water had been going through various elements of the agreement in terms of how they were going to sign up to it. The main issue was the deep sewers which we could not move. We had to create access manholes either side of the tram exclusion zone instead. These letters represent a very specific issue which arose at an early stage in discussions.

## **Payments**

244. The arrangements for payments to and from SUCs were all based on agreed rates under the New Roads and Street Works Act for each utility. In the first instance all we had to agree was what work was to be done. The design was then agreed and with that comes an estimate to carry out the works. The estimate is agreed and we then discuss the amount of betterment with the SUCs. It is all legislated under the Act.
245. Betterment is also considered under the Act because it identifies what is the

age of the asset being replaced. As the asset gets older, the betterment for the SUC improves. So if we are replacing an asset that is two years old there is no betterment, whereas, if we replace an asset that is 80 years old, the betterment is 90% plus.

246. In relation to the mechanisms that would lead to payments, each section was done separately. Therefore each section would be discussed with the individual SUC in order to get agreement. For example, if the diversion involved Virgin Media it would have been in the ground for perhaps two years and under the legislation there is no betterment.
247. I refer to a document from DLA Piper dated 25 September 2006 **(TIE00488717)**. This is a note of advice that was emailed to me in March 2007. It is giving a breakdown of how to evaluate the works, based upon who is carrying out the works and what is allowed under the New Roads and Street Works Act. It is just a breakdown of that and it details the mechanisms and gives guidance on how we go about it in terms of the payment mechanism and the valuation of the works.
248. I note a document in respect of C4 estimates dated 25 September 2007 **(TIE00124620)**. A C4 estimate is the breakdown of the estimated cost to carry out these works. It is called a C4 estimate because it goes through various stages. The table demonstrates the breakdown of the costs for an individual section, whatever that may be. The figures are recorded in the tables, with the contributions detailed.
249. I refer to a MUDFA report dated 26 September 2007 **(CEC01647483)**. There is a note within the report detailing the intention to maximise recovery from the SUCs via specialist advice. The recovery process, as I have said previously, is detailed under the Act. However when dealing with the likes of SGN, Scottish Water and BT, which were the three largest ones, it is the interpretation of betterment that leads to some discussion. What we were thinking about doing was bringing in consultants that were experienced in this legislation. I think we did have a meeting with them, bearing in mind we

were looking after the customer's money, and we wanted to know how we could maximise recovery from the SUCs, based upon the legislation. Ultimately we never did engage consultants in this regard.

250. I do not think that there was any real dispute from the SUCs regarding payments. They were easy to deal with. The only way there would be a dispute would be when we had agreed a design and then maybe we had to make changes, so we would have to get those changes agreed. .
251. I refer to an email from John Casserly to Allan Ross, which I am copied into, dated 30 October 2007 (**CEC01473173**). I also note the attachment detailing costs produced by TIE for SGN (**CEC01473174**). The email and attachments were sent in advance of a meeting that was due to take place the next day. They are outlining where the contributions from SGN were going to be, looking at the date, it is quite early, and it is 2007. We had enough information to be able to make an estimate of what the contributions were going to be at that point . However, when the final work is done other things can arise that might result in change.
252. The spreadsheet entitled "*Edinburgh Tram Project Review of SGN Contribution as at 18 August 2008*" (**CEC00594323**) relates to the SGN contribution for utility work undertaken. The work involved replacement of a large 300 diameter cast iron gas main. Due to the nature of this, we were unable to carry out the works required so the contribution from SGN is £1.2m as we had to get specialist contractors in.
253. I note an email chain over a period of month culminating with a message from Alan Ross, SGN, to myself and others dated 18 December 2009 (**CEC00594320**). The emails relate to the SGN contribution for utility work undertaken. I am not able to give any more clarity around this email chain.
254. I refer to an email from Allan Ross to John Casserly and I dated 18 December 2009 (**CEC00594323**). This email notes the contribution for the

**CEC00594323  
should be  
CEC01150818**

Mound from SGN would be £75k to TIE. This is in relation to the special pipe valves that had to be specifically made for this large pipe. This was to be deducted from the net contribution.

255. I refer to an email exchange with BT utilities dated 16 December 2009 (**CEC00593976**). It refers to a developing discrepancy between TIE and BT's interpretation of the Act. John Casserly and I were of the opinion BT owed us more money as we had carried out extra remedial works for them. For example, replacing copper with fibre optic, so the capacity was therefore much greater. We thought that the betterment was significant. We had that discussion with them and we came to a mutual agreement.

### **Approvals**

256. Once agreements were in place we still had to get approval from the SUCs for the design proposal and formal procedures were put in place around this. In general, the process did run smoothly and to time, considering the large amount of work involved.
257. I note a letter from Alan Dolan, PB, dated 28 February 2007 (**CEC01800436**). The letter is a complaint that the SUCs are not able to approve designs within the 20 days assumed in the programme. They note that this will result in delay. PB also appears to be complaining that some utility works are being prioritised and are being done out of sequence. There is also concern that utility works are being undertaken before there has been time to revise designs to reflect output from the approved design review process. . This was before I started so I cannot comment any further. By early 2007, SUC approval of designs was described as critical. This is highlighted in the Draft Project Directors Report dated 12 February 2007 (**TRS00003639**). Again this is before I started with TIE so I cannot make any more comment on this matter.
258. I note the MUDFA report dated 12 March 2007 (**CEC01694523**). Paragraphs 5.4 and 5.7 refer to BT and Virgin Media designing the diversions for their

apparatus. This was because they were better placed to deal with the design than we were. They had the in-house skills, with engineers who dealt with the diversions so they were better placed to do this.

259. I note an email to Jim Johnstone from myself dated 22 March 2007 **(CEC01663132)**. This is a response to an earlier email outlining SDS drawings. I also the MUDFA report dated 12 March 2007 **(CEC01638569)**. The report makes mention of changes in the original process for submissions of design to the SUCs around March 2007.
260. I actually started with TIE around the time of the email previously referred to. However it was quite clear from the onset that SDS were putting designs through that were not commented on by AMIS for buildability. I found that out quickly. Basically SDS were looking at the utilities, passing them through to us for comment, but they never put it to AMIS to see if they could build it. I picked up on this and arranged the change in process, so that AMIS had to be involved in the review because they were going to be installing them.
261. I refer to the MUDFA report dated a letter dated 9 May 2007 **(CEC01701681)**. Paragraph 2.3.2 notes concern at the response time from SUCs. This was just the nature of the beast because we were trying to get approvals from a variety of utility companies and this was not something that happened overnight.
262. I refer to the MUDFA report dated 4 July 2007 **(CEC01640813)**. The graphs demonstrate a difference in approval rates by Scottish Water and Scottish Power. This is simply down to the complexity of the utilities. Scottish Power diversions were a lot less complex than those for Scottish Water. The other thing to be considered is the complexity of the design, how it is interfaced with other utilities and where it is on the critical path. That would be the reason for the difference in approval rates.
263. I do not think necessarily that SUCs sought to use the requirement for their approval of designs as a bargaining counter to secure a better financial deal.

The SUCs were fully aware that they had to give us their approval. If we could prove that they had been completely unreasonable withholding the actual approval, we had grounds to go around it because we had powers under the Tram Act.

264. I note an email from Steven Bell to myself and others dated 23 October 2007 (**TIE00678712**). This is an email exchange regarding works by SGN. This is where we are saying it is better for all concerned parties that SGN carry out the diversion works as opposed to us. We are also detailing what the potential costs are. It is just a proposal in relation to some service connections outside the limit of the tram line and in relation to the gas main issue at The Mound. The gas main at The Mound was 80 odd years old and it had lead joints. There was an obvious a risk around it. We thought that it would be better for SGN to carry out this work. Alan Ross has highlighted in blue the SGN response to each issue. Ultimately, SGN declined as they did not have the resources to proceed with the work at that time. This email was just all parties discussing proposals.
265. I note the papers for the MUDFA meeting dated 24 October 2007 (**CEC01496981**). The papers record that a remedial strategy for the issues around getting approval from the SUCs was adopted prior to the October meeting. This appeared to work. It was about getting the relevant parties together. Thereafter dialogue was going on to understand the priorities for each of the relevant parties. We could then achieve agreement on how we were going to manage the utility diversion designs and that appeared to work. That was part of my work in putting together a client utility team with key points of contact for each named utility.
266. I refer to the email exchange between Alasdair Dickinson and myself dated 23 October 2008 (**CEC01140455**). This relates to a concern that Scottish Water would not permit transfer of assets to allow work to commence. Under Scottish Water rules and regulations, in order for us to work on their assets there had to be a transfer of the asset over to us. The control of the asset would then be with us, so we could carry out the necessary works. Once the

work was completed, the asset would be transferred back to them. That is how the process is progressed. There is a benefit to this, in that there are no issues for the management of that asset at that point in time, so there is no confusion.

267. I note an email from Alan Ross to myself and others dated 24 December 2009 (**CEC00583925**). This is an email from SGN in which they indicate that they will not adopt gas assets until they have collateral warranties and defects correction agreements to their satisfaction. They acknowledge that their action may have a knock on effect for the tram programme. This is associated with the connections. When a gas pipe is replaced, all the distribution elements go into properties, so you then have to reconnect those properties. Under legislation we have to inspect the properties to make sure all their gas assets are up to current legislation. If they are not, we cannot connect up to them. Instead, we have to upgrade each and every connection in the property. It is a huge task and the collateral warranty is for that. Their actions are valid and not an attempt to exploit the situation for commercial advantage. They are complying with legislation. We did not have the skill base for this and were not authorised to go and carry out the works inside the buildings. As a result we engaged a recognised contractor, Turriff, to carry out this work. There are only certain parties that are approved to carry out these works and the specialist contractors have got to be approved by the owner of the asset, which is SGN.

## **Relationship with Tram Project Board**

268. I refer to the MUDFA Sub Committee Report dated 24 October 2007 (**CEC01496981**). This illustrates that output was ahead of programme. It details planned metres and chambers and the actual cumulative position to date. It does not actually state that progress was ahead of programme. What it means is that the output we have completed is ahead. It could be that they have carried out works that are not critical.. Looking at the graphs on page

17 onwards, they show actual hours expended are a lot less than they were supposed to have been. I can only think they have undertaken certain aspects out of sequence. It is very difficult to draw conclusions from a snapshot like this. Basically they are demonstrating that the output is okay, but not necessarily on the critical path. That means that overall the programme could still be behind. I can understand why it is difficult to reconcile that with the statements about late designs and late approvals from SUCs.

269. I refer to an email chain between Steven Bell and Stewart McGarrity along with others dated 5 June 2008 (**TIE00679871**). I note that Graeme Bissett and Willie Gallagher refer to report to a recent report to the Tram Project Board and comment that it did not provide information about problems noted in the MUDFA Sub Committee. That is a matter for them to comment on. I provided them with the report content and it is quite clear that they could not agree on how they were going to present that to the Tram Project Board. I gave them the MUDFA Sub Committee report and I also reported that to the TIE Project Board. I did not report to the Tram Project Board.
270. In relation to the guidance I was given as to what should be contained within formal reports, I was just requested to put a report together that addressed and identified all the issues on how we were managing the project. There were a number of people involved in compiling reports. These included Willie Gallagher, Steven Bell, Susan Clark and Stewart McGarrity along with others. I did my report to the MUDFA Sub Committee. It was my final decision as to what went to the MUDFA Sub Committee. I then supplied my report to Willie Gallagher and Graeme Bissett to present to the Tram Project Board. Willie Gallagher and Graeme Bissett also attended the MUDFA Sub Committee. The final decision on what went to the Tram Project Board was with Willie Gallagher.
271. I cannot understand why Willie Gallagher and Stewart McGarrity would complain that the MUDFA Subcommittee reports disclosed matters that were not in the Tram Project Board report. They were at the MUDFA and I

submitted the full papers, warts and all, to them. If Willie Gallagher did not attend MUDFA then Matthew Crosse or Matthew Crosse's equivalent Steven Bell would be there.

## Risk

272. Risk was managed in several ways. ARM was risk management software that we used. It is a recognised industry software for managing risks. We identified risks and then looked at the likelihood of them occurring, we gave each risk a score of 1 to 10. We then looked at the potential impact, classing it as minimal, medium or severe and gave that a score as well. That then gave a score of where each risk ranked in terms of overall risk. The information was then fed into software called Monte Carlo, which looked at all the risks in the project. For a project of that scale, we would have to run 10,000 iterations, which would then provide what is referred to as a QRA, which is the qualitative risk assessment at the end of each month. QRA is based upon qualitative and quantitative data, so we were aware of the top 10 risks qualitatively and the top 10 risks quantitatively and we managed that accordingly. Each month we reviewed the risks and the controls put in place, along with what impact those controls had on the likelihood and potential impact of the risk.
273. I note a risk table dated from 2006 although no exact date is attached to it (**TRS00004167**). This would appear to be one of the earliest risk tables. I have been referred to risk 139. This is associated with unidentified utilities. The poor quality of records relating to utilities and the limits inherent in surveys mean that this risk will always be on the register. I have made my comments about this and have nothing more to add.
274. It would be the same for unknown apparatus or assets which are shown as risk 164 in the table. These risks will always be on the register as there is always a risk you will come across something unexpected. If you come across an abandoned asset, you do not know who has ownership of the asset. We had a process that we would follow to deal with these. However,

there would be time involved in going through the process.

275. The treatment plan in respect of unexpected utilities and abandoned apparatus is the same. This can be seen from the table.
276. Surveys will not always pick up abandoned assets or unidentified utilities. The surveys I refer to could use either the ground penetrating radar or a survey could use a CAT detector which operates on signals, a magnetic impulse or a survey could actually undertake some trial holes.
277. I note an email from me to Susan Clark and Martin Hutchinson dated 5 April 2007 (**CEC01615521**). Within the email I detail that a trial dig had doubled the number of unexpected utilities discovered. This is just a reflection of the poor records held by the SUCs, which I have already highlighted. As previously stated I have had experience of this on similar projects.
278. I note the MUDFA report dated 6 June 2007 (**CEC01664524**). The MUDFA risk register, which is contained at appendix 2 to the report (page 22) notes the danger arising from poor records. I think the poor records must relate to the SUCs. In my opinion that is all it could be. The suggested mitigation is review of design information. This is referring to review design information and re-measurement during design workshops with SUCs and MUDFA. It involved reviewing the level of information we had from the SUCs. This gave us an assurance that we were taking account of all the utilities that were in that area and that the design took account of them. We were then identifying the areas of key interface and highlighting where we had a higher risk of utilities and potential conflicts. We had identified areas where we thought it would be prudent to carry out trial holes. This involved a bit more scrutiny. It required a bit more work at the beginning to make sure that we had looked at all possible opportunities to identify where the potential conflicts lay.
279. I refer to the MUDFA report dated 4 July 2007 (**CEC01640813**). Again, the MUDFA risk register notes the danger arising from poor records. There is no

change to that risk from the risk noted in the June papers. That is because of the way in which Monte Carlo works. There could be no change in the risk, but because of the 10,000 iterations, it would maybe come up with something that gets more prominent.

280. An email dated 10 July 2007 sent to me by Jason Chandler of PB (**CEC01678067**) refers to an Adien survey that had been carried out. This survey had not located any additional services. That did not mean that there were not any other additional services or structures. The Adien surveys did not capture all the underground workings. For example they did not locate a large underground chamber at Haymarket. The Adien survey personnel stated it was all dependent upon the make-up of the soil, the moisture content of the soil and the actual utilities in the area. There is no guarantee that they will locate all the utilities.
281. These surveys were just another option to be utilised. We had to look at that along with designs and we had to undertake trial excavations. Adien made it quite clear that they did not guarantee that their surveys would locate all the services. This is illustrated in the correspondence dated 19 July between Adien and Alan Dolan, PB (**CEC01678068**), I also highlighted similar issues in an email to Tara Edgar dated 22 May 2007 (**CEC01664374**)
282. I refer to an email from Mark Hamil to myself dated 6 December 2007 (**TIE00350879**). A copy of the risk register was attached to this email. Many of the risks referred to were arising as a result of unknown services being discovered. The document continues to refer to mitigation measures as a result of this. Mitigation measures do not change for these sorts of risks. Mitigation is not necessarily a control to avoid risk. It could be a control to lessen the impact of it. It is obviously impossible to avoid the unknown.
283. I refer to my email to Alan Dolan, PB, dated March 2008 (**CEC01453504**). I am stating that, despite survey work, we are still locating utilities. It was still live at that time because PB knew I was not happy with the product they

provided us. I was quite adamant that the product they were providing us with was just erroneous. It was Haymarket where they could not pick up a building underneath the ground. It was a significant size and their excuse was the soil content. I could not understand why they could not pick up a chamber that was big enough for six double-decker buses.

284. The uncertainty of utilities locations meant that there was a risk of resulting diversions that were unforeseen within limits of deviation (LOD). This is highlighted as Risk 21 within appendix 2 of the July meeting papers for the MUDFA Sub Committee Report (**CEC01640813**)
285. If there was no room to divert a service within the area we would generally go square and parallel to it until we were able to come back in. Under the contract, we are allowed 100 metres outside the LoD. If it was required to work outwith this then the responsibility for payment was with TIE. Constitution Street was a perfect example. There was a requirement to actually go around, instead of progressing along Constitution Street. The reason for this was that the street was too narrow.
286. The works outside the LoDs could only have been foreseen if we had known exactly what utilities and other structures were in the ground. For example, under Constitution Street we came across an old burial ground for plague victims.
287. This caused additional problems because we were going outwith our planned route. This resulted in the need to explore new traffic management and ensure that the notices were distributed. The road closures required to be put in place. We also had to go to the stakeholders and provide an update to them. There was also the risk that we might come across further utilities in the new route. Consideration was given to more detailed surveys depending on where the work would take place. The potential costs and the complexity of the diversions were also explored.

288. I have worked on contracts to relocate utilities before with Scottish Water Solutions. There were problems discovering unidentified utilities and it is a common theme. This, as previously stated, was as a result of the poor records kept by the SUCs. The SUCs maintain their own records and nowadays they are good records. They are required by legislation to record their plant competently. However, utilities records that are 100 years or even 20 years old are vague.
289. There are a number of policy and procedure documents in relation to risk dated around November 2008 (**CEC01109807, CEC01109808, CEC01109810, CEC0110981, TIE00756857 and TIE00756858**). I cannot comment any further than to state that these means of assessing risk are used along with the ARM software as I have previously explained. This is just going through the principles of risk management. The documents are just detailing the systematic way of managing risk. These are standard procedures found in the main project management plan for the overall project. It just demonstrates how all the processes will be managed.
290. I refer to an email from myself to Mark Hamill dated 26 March 2010 (**TIE00142614**). Within the email I am identifying two new risks. The email is referring to Clause 14.1, a Minute of Agreement between TIE and CUS. The first point, relinquishes CUS of any obligation to carry out remedial works to defective areas of carriageway. This includes reinstatement where INFRACO will be commencing work at some time and where the configuration of the kerb line is such that the construction works will affect the integrity of the reinstatement. TIE is potentially exposed to risk of repairing carriageway defects which require mediation in advance of INFRACO commencement. Basically if the works had not been done to standard it potentially exposes TIE to additional costs. For example, in Shandwick Place, if the trenches start to settle we would normally get CUS to repair them. So if INFRACO are going to come in a year later and the trenches are not to standard, they are going to refuse to repair them without more money. Fiona Dunn and Frank McFadden came to an agreement around this. John Casserly and I were never party to that and I would not comment further.

## Claims by CUS

291. CUS did make a number of claims for additional payment. I would refer to the numerous items of correspondence on the matter. My response was that I did not agree with these claims.
292. I note a letter to me from Steve Beattie, CUS, dated 17 September 2009 **(CEC00833711)**. This is a claim document produced later in the contract. I do not know what it refers to. I suspect it was probably around about the time I left TIE. I cannot remember what our response to that was. I would just have to refer to whatever our reply was at the time.

## Transfer of works to INFRACO

293. Part of the works were transferred to INFRACO because it was seen that it would be easier for INFRACO to undertake the work as opposed to CUS. This was as a result of INFRACO working in a certain area. It was agreed that, rather than having two groups within the same area, it would be more beneficial to have one. I believe that as a result they transferred some of the works to INFRACO at that time.
294. Some of the transferred works included empty manholes down Leith Walk and areas in Leith. These were all transferred to Clancy Docwra. I do not know what the effects on costs were as I did not deal with the transfers. Frank McFadden was the person who dealt with this.
295. I note the MUDFA Report dated 8 October 2007 **(CEC01684924)**. A copy of this was sent to me by Andrew Malkin. Within the document there is reference made to section 5B being novated to INFRACO. I think the only reason why we would have diverted 5B over to them was because we were not in that area and INFRACO wanted to move there first. I cannot however be certain of this answer due to the passage of time.

296. Another area transferred was the Gogarburn site which was in an area beside the Gyle. INFRACO were raising the ground profile there. If we diverted the utilities before they raised the ground profile, the utilities would then be excessive metres below ground.. The SUCs did not want that, so we did a temporary diversion. This took the utilities out of the footprint of the new embankment, then INFRACO carried out the work on the utilities. In relation to arrangements for payment, I think we would have taken that element out of the budget and that section of works would have been taken out of the MUDFA contract. We would have transferred this over to INFRACO.
297. I note the MUDFA design document (**CEC01452238**). I cannot comment on the date of this document as there is no reference to one. The document refers to the procedures for transferring the works to INFRACO and I could add no more than that. I cannot recall the procedures relating to the transfer of works to INFRACO.
298. I refer to a chain of emails between myself and Robert Bell dated 10 February 2009 (**TIE00717625**). These emails consider the transfers to INFRACO. This is about how TIE were integrating and communicating with all the parties involved. We were looking at how we could get things moving. It was about dealing with areas to enable INFRACO to start working and begin dealing with the delays.
299. I had nothing to do with the contract and I do not know in what ways the schedule of rates and prices for work done by INFRACO differed from those agreed with AMIS. I would refer to Frank McFadden on these matters.
300. I note a further chain of emails between myself and Robert Bell along with others dated 11 March 2009 (**TIE00361044**). The email chain is in relation to BT works and transfers to INFRACO. The issue is the stage at which the works were to be transferred. What Robert Bell was saying in the first email chain was that it was agreed that INFRACO took over from particular date. However, issues had arisen with the BT ducts as a result of works

undertaken by CUS. Remedial work was required to the ducts as a result. It was better leaving MUDFA to deal with this aspect. INFRACO could then deal directly with BT in terms of cabling once the issues with the ducts had been resolved. It was a nice and clean procedure. That was what that discussion was all about, nothing more.

301. I also note the email from John Casserly, MUDFA, to myself and others dated 16 April 2009 (**CEC00958785**). This email also refers to the on-going transfer of works to INFRACO. John Casserly was confirming the scope of works that were to be transferred.
302. I refer to an email from Alan Hill, MUDFA, to Michael Paterson and Michael Blake, both TIE, dated 5 June 2009 (**TIE00389553**). I also note the attachments schedule 43 agreement transfers to INFRACO and table of transfer's documents (**TIE00389554** and **TIE00389555**). These documents appear to set out a definitive position on what was to be transferred. I note that this email was not sent to me. Primarily it was associated with INFRACO. INFRACO were either working or about to commence work on any works that were outstanding. This just made sense. They were working in there, so rather than have two Principal Contractors requiring designated and assigned areas of responsibility, which would have been a significant logistical challenge,; any of the works remaining would be transferred.

## Public

303. There were a significant number of instances of complaints from the public. In some cases, such as on Leith Walk, there was a co-ordinated campaign of complaints. In general, the very nature of what we were doing, where we were doing it and how we had been doing it, along with the impact this had, made it no surprise that we getting numerous complaints from the general public. Even when things did go well, we still received complaints. However my recollection is that the work was undertaken in a way that complied with

the Code of Construction Practice.

304. I have highlighted some of the issues already around AMIS and the management of their work spaces. It is apparent that complaints by the public are actually supporting the issues that we had with AMIS.
305. Complaints were received regarding areas being closed off by AMIS where no or little work was being undertaken. I would note areas that AMIS had closed off with hardly anybody working there. They would have vans there and workers sitting in the vans doing nothing, or the site would be untidy.
306. Complaints were received about loss of parking spaces but there was nothing we could have done about loss of parking spaces. Complaints were also received in relation to difficulty with deliveries. We did what we could by putting resources in place so vans could stop off and we would have men unloading the vans for them.
307. Complaints were made which alleged that double yellow lines had been painted on the roads without authority. I would not accept that this occurred. The double yellow lines that were painted on the road were part of our traffic management plan and authorised through traffic regulation orders. So there were no double yellow lines painted without obtaining the relevant authorisation.
308. Complaints were received regarding road closures. Road closures were kept as short as possible. However when we came across unknown utilities, this was an unforeseen problem. That could add extra time to the road closures.
309. I refer to an email chain culminating with an email from myself to Willie Gallagher and Steven Bell dated 19 October 2007 (**CEC01495578**). This demonstrates where unforeseen circumstances can lead to delays with road closures. This in turn produced complaints from local businesses and residents. In this instance it was telecommunications work in Jane Street that

led to the delays. The work involved a telecom exchange for a major part of Edinburgh. It was impossible to put a time on this before the exchange was actually exposed.

310. I note an email chain from Gordon Christie to myself dated 26 February 2009 (**CEC00955696**). The email details three ex gratia payments made to local businesses, All Clean, Rick's Music and Carpet Bargain Store. This was an unusual practice. Schemes like this do not normally compensate businesses in this manner. I am not sure what the actual basis of these payments were. The recipients had to demonstrate there was a loss of revenue to the business which was caused by the on-going work. They were only relatively small amounts though, £1000, £600 and £300 respectively.

### **Tram Construction Stakeholder Committee**

311. The Tram Construction Stakeholder Committee replaced MUDFA DPD. I think that happened at the point where MUDFA was almost finished. It was not so much that MUDFA was coming to the end but more that INFRACO was on-going, so it was bringing them together to look at matters as holistically as possible.
312. I have been asked to comment why a meeting of the MUDFA committee in October 2008 was planned but cancelled and never rearranged. I cannot comment further on this. I do not actually remember when MUDFA DPD finished. I was still presenting papers to it up until the time that I left TIE.

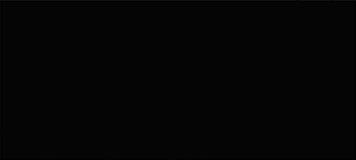
### **Narrowing of Scope and Termination**

313. I refer to an email from Ian Clark, MUDFA, to John Casserly and myself along with others dated 22 April 2009 (**CEC00967669**). I also note the attachment, titled Final Account with Comments (**CEC00967670**). The

attachment refers to the costs for the road widening at Jubilee Road and associated work at the Airport. Keir was the contractor there rather than AMIS. This was as a result of the AMIS contract being purely related to the utility diversions. The road widening did not form part of the scope of works under MUDFA.

314. I note the document relating to proposals for the closedown of MUDFA although there is no date associated with the document (**CEC00736638**). This is a paper considering the proposal to terminate the contract with AMIS early. I have never seen that paper before. I was not involved in the compilation of the document. I was not involved in the contract with Clancy Docwra and can make no further comment.
315. I refer to an email dated 29 October 2009 from Steve Hudson, CUS, to a number of recipients (**CAR00000090**). The email notes that there is an apparent desire on the part of CUS to exit from MUDFA. That is said to be apparent from the fact that settlements reached by TIE were above the "value" and "most likely" assessments by CUS. My opinion is that CUS were looking at exiting from MUDFA. I am unable to comment further as I have not previously had sight of this document. I was not involved in any of these settlement discussions. My opinion would be that TIE agreed the settlements with AMIS
316. I was not involved in the contract for the remaining works with Clancy Docwra. I could not therefore comment if the contract with Clancy Docwra was on different terms to that with AMIS. I also do not know of any reason why the contract with Clancy Docwra would be on different terms.
317. I note the document titled Tender Evaluation Report although there is no reference date (**TIE00119724**). This report would appear to outline the termination and re-tendering exercise and processes. I have never previously had sight of this document. I therefore cannot comment further.

I confirm that the facts to which I attest in this witness statement, consisting of this and the preceding 94 pages are within my direct knowledge and are true to the best of my recollection.. 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 recollection..

Witness signature  .....

Date of signing..... 6/7/17 .....

