

EDINBURGH TRAM INQUIRY

Q&A – ALAN DOLAN (EM May 2017)

Introduction

Alan Dolan was employed by Parsons Brinckerhoff Ltd. Alan took position as Interim Project Manager for the Edinburgh Tram Project from late 2006 when P Mcauley (Project Manager) returned to his home posting in the USA. In February 2007 Steve Reynolds became Project Director and Alan Dolan became Deputy Project Manager and Design Delivery Manager.

This Note is structured as follows.

- Introduction
- Design Overview
- The SDS Contract (2005)
- The Requirements Definition phase (September to December 2005)
- The Preliminary Design phase (January 2006 to June 2006)
- The Detailed Design phase up to SDS Novation (July 2006 to May 2008)
- The Detailed Design phase between SDS Novation and the 2011 settlement agreement (May 2008 to 2011)
- 2011 to completion
- Project Management, Governance and Final Observations

Introduction

1. It would be helpful if you could set out the following matters by way of introduction:

- (1) What were your professional qualifications and experience prior to working on the Edinburgh tram project?
Alan Dolan – PB - Project Management Team - Edinburgh Tram
Qualifications - BSc - I Mech E
Transit Related Infrastructure Projects UK and abroad - Light Rail Systems, Tram Systems and Heavy Rail Systems.
- (2) What experience, if any, did you have in producing design for a tram or light rail system?
Taipie MRT System Taiwan 1993-94, PUTRA LRT System Malaysia 1996-1999, MRT System Hong Kong 2001 and Singapore LRT 1997 and Yarra Trams Feasibility Project Melbourne Australia 2004
Heavy Rail experience includes Channel Tunnel Terminal Project 1987 - 1991, WCRM Project 2003 -2005, KL Sentral Terminal Malaysia 1996 to 2000 and Taiwan High Speed Rail Project Taiwan 2000 -2002.
- (3) What was your job title, duties and responsibilities and role in relation to the Edinburgh tram project? Did these change in any way over time (and, if so, when, why and in what way)?

Project Design Delivery Team - Deputy Project Manager / Design Manager. Interim Project Manager in 2006 until new Project Manager (Jason Chandler) took up the role.

(4) To whom did you report and who reported to you? Again, did these change in any way?

Reported to Project Manager and upwards to Project Director. The Project Director changed in 2007 (David Hutchison to Steve Reynolds).

Design Overview

It would be helpful if you could provide an overview of the matters in this section. In answering the more detailed questions later in this note please, of course, feel free to refer back to your answers in this section if you consider that they adequately answer the more detailed questions that follow.

2. By way of overview:

(1) What were the main difficulties and delays encountered in producing and progressing the design work for the Edinburgh tram project?

Timely securement of Agreement with Third Parties on Designs and Statutory Authorities for Utility Diversions. An issue was TIE management of "Critical Issue" RFI clearances being afforded to the Tram Designer in order to achieve co-ordinated design completion. Timely pro-active ability from stakeholders and interested third parties due to the outstanding completion of Third Party Agreements to be put in place. Outside influences providing ongoing change. Coherence to preserve good Project Management to keep the Project stationary from within the Client Team. Informal and conflicting instructions from different parties within the Client Team. Non understanding of Tram/LRT Systems issues by the majority of the Client Teams Officers. Overwhelmed Client Team with little experience of Tram/LRT systems design leading to silo working of different fractions of a Client-base working against each other. No Client ability to provide a robust programme management/delivery plan. Delay in response to "Critical Issue" RFI's which would assist the movement of the design forward. Misaligned expectation by the tie management team of the requirements for the designer

(2) What were the main reasons for these difficulties and delays?

Non-appreciation of the management afforded in order to assist a designer to achieve and maintain co-ordinated design completion and therefore maintain a robust design and delivery programme. The correct, stable level of TIE Management with the practical knowledge of delivering a scheme of such complexity. The SDS did not need TIE help or assistance in order to perform the SDS contract obligations but to carry out the needed timely provision of information, communication and proper management, particularly of stakeholder interests and any change in requirements. Inability of TIE to manage the changing scene of design landscape outside the SDS contracted works. (Number of Charettes called during the design period as an example). Inability of TIE to manage the Stakeholders and Interested Third Parties in this regard. Inability of TIE to secure the timely completion of Third Party Agreements and SU Approval body Agreements. Thus, allowing the Designer the ability to carry out his obligations to prepare and deliver timely (correct to programme) contracted submissions.

- (3) What steps were taken, when and by whom to address these difficulties and delays?
The commencement of a team led by new TIE Engineering Manager brought in to act from a lessons learned exercise (Mr David Crawley). The formation of an outstanding "Critical Issues List" and weekly/two weekly hit list against the Critical Issues until the blockage of "design holds" on the project were opened up for the Designer to be able to prepare the Tram Infrastructure Design. Clear and concise direct working between SDS Project Director and Mr Crawley to drive the clearing of the "Critical Issues List".
- (4) Were these steps successful (and, if not, why not)?
These steps were successful in-part over a period of time but fell away when Mr Crawley left the project and other TIE Manager's took over the clearing of outstanding issues.

3. In relation to the design for the utilities diversions:

- (1) Which party was responsible for producing the utilities design?
This was dependant on the individual SUC Agreement between TIE and each SUC Authority. SDS scope regarding the utilities diversions design was as scheduled in the SDS Scope of Services was as provided in the SDS Contact.
- (2) What was your role, if any, in relation to utilities design?
As Deputy Project Manager and Design Manager my role included, in relation to utilities design certain responsibilities regarding management of utilities diversions design works.
- (3) What were the main difficulties and delays encountered in progressing and completing the utilities design?
Timely engagement of SU's and SU Approval bodies. Misalignment of MUDFA and SDS contracts. Failure in having the SU Approval bodies early enough engaged, in order to assist TIE and SDS in technical discussions. Silo working of TIE causing conflict of SDS design working arrangements. Example is RATS (Risk and Trade off Programme) commencement of utility diversion work in an area where the Infrastructure works had been instructed to cease due to alignment changes. Different SU Programmes of work between some SU's and TIE programme. An example is the design and installation programme of telecom works against the TIE programme of design and installation works of SDS and MUDFA.
- (4) What were the main reasons for these difficulties and delays?
Inability of TIE to secure the timely completion of SU Agreements and SU Approval bodies. Misalignment of MUDFA and SDS contracts. Failure in having the SU Approval bodies early enough engaged, in order to assist TIE and SDS in technical discussions. Failure to provide timely written instruction to SDS to perform additional works outside their scope.

(5) What steps were taken, when and by whom to address these difficulties and delays?
SDS Project Director involvement meeting with SUC's and outlining difficulties/differences found in Agreements and programme. realignment of utilities design programme.

(6) Were these steps successful (and, if not, why not)?
To a degree yes successful but programme slips due to this misalignment. Realisation of TIE engagement to have necessary SU Agreements in place was too late.

(7) To what extent, if at all, did the difficulties and delays encountered with the utilities design affect the other (i.e. non-utilities) design required for the tram project?
Some SU's were dealing with designs and installing their (eg Telecom) 20-40 weeks after the TIE programme dates. This did hinder the overall Tram project programme as a knock on effect to Infraco.

4. In relation to site and ground investigations etc to inform the design:

(1) Which party was primarily responsible for instructing site and ground investigations etc to inform the design (including both the utilities and non-utilities design)?
SDS had certain responsibilities regarding instructing site and ground investigations etc to inform the design (as scheduled within the SDS Scope of Services Agreement).

(2) Were any difficulties encountered in that regard?
No more than usual for such a large transit infrastructure project such as this. Access was a problem in some areas.

(3) Do you consider that sufficient ground investigations were undertaken, at a sufficiently early stage in the project?
Yes (other than access problems mentioned above).

5. We understand that Parsons Brinckerhoff Limited (PB) sub-contracted certain System Design Services (SDS) services to Halcrow. By way of overview:

(1) What SDS services were sub-contracted to Halcrow?

The services as described in the signed Sub-Consultancy Agreement between PB and Halcrow
Examples being Survey Works, Apportionment of Utility Diversion Design Works, Roads Design Works, Apportionment of Structures Design Work, Planning Approval Works. For full list please kindly refer to the signed Sub-Consultancy Agreement between PB and Halcrow.

- (2) What, in general, were your views on Halcrow's performance? (see e.g. (i) the letter dated 23 November 2006 from David Hutchison, PB, to David Simmon, Halcrow, in relation to Surveys, PBH00003571, (ii) the letter dated 11 July 2007 from Steve Reynolds, PB, to TIE, PBH00003594, (iii) your letter dated 3 August 2007 to Mr Simmons, Halcrow, PBH00003598, and (iv) your letter dated 13 August 2007 to Mr Simmons, PBH00003597)

I do not hold any material views on Halcrows performance. I have experienced better Sub Consultant performance from different design houses but also much poorer performances from others over my working history in transit related infrastructure projects. The letters referred to above are symptomatic of the need to continue to drive large transit infrastructure design projects of this size and nature.

- (3) Did you have any concerns in relation to Halcrow's performance? If so, what were your concerns, what steps were taken to address these concerns and were these steps successful?

Critical Issues List clearance of RFI's which related to Halcrow scope of work being freed assisted Halcrow and their frustration to perform. Additional designated PM's for SUC Diversion Design Work and a better understanding of CEC requirement along with working closer with CEC on Approvals and Consents helped the Halcrow performance.

6. In relation to TIE, and by way of overview:

- (1) What, in general, were your views on the performance of TIE?

I do not hold any material views on TIE performance. Comment statement above in 2.1 and 2.2 above.

- (2) Did you have any concerns in relation to TIE? If so, what were your concerns, what steps were taken to address these concerns and were these steps successful?

As detailed in 2.3 above.

7. In relation to CEC and third parties (including the statutory utility companies, Network Rail, Forth Ports and BAA etc):

- (1) Which organisation was responsible for obtaining and co-ordinating the views and requirements of CEC and third parties in relation to design?

SDS had certain responsibilities regarding the obtaining of Approvals and Consents as described within the SDS Scope of Services Agreement.

- (2) How was that done in practice?

Liasion and submission of Technical and Planning Approval Documentation

- (3) Did that give rise to any difficulties and, if so, what steps were taken to try and address these difficulties? Were these steps successful (and, if not, why not)?

Difficulties ranged from parties not having Agreements in place (Forth Ports as an example) until late in the design process. Changes in design and requirements from CEC and the number of Design Chernetes encountered.

- (4) What, in general, were your views on CEC, both as the client/promoter of the tram project and as statutory approval authority?

I do not hold any material views on CEC both as the client/promoter of the tram project and as statutory approval authority. It was made clear that Technical Approvals would not be given until the last piece of technical detail would be supplied. The approvals process could have been more efficient if "Approval in Principle" was better practised by CEC. It should be noted that there were procurement materials not identified by Infracore until after their appointment. The designer was not positioned to provide such detail until these design materials were realised.

- (5) What were your views on the extent to which the delay in producing, progressing and completing design was due to CEC? (see e.g. Halcrow's complaint about CEC Roads and Planning Departments in their presentation dated 25 November 2009 in support of their Roads Design Delay & Disruption Claim, BFB00095827).

I have no material view on the extent to which the delay in producing, progressing and completing the design was due to CEC? BFB00095827 is a factual document and the argument is forwarded as such in the letter itself. A more pragmatic and "Approval in Principle" scenario being given by CEC would certainly have helped speed up the design and construction process.

- (6) Similarly, what, in general, were your views on each of the main third parties?

I have no material view on main third parties. Once the Third Party Agreements were signed and satisfied (many carried out too late by TIE) a more pragmatic approach was provided to SDS as the Designer.

- (7) What were your views on the extent to which the delay in producing, progressing and completing design was due to third parties?

Once the Third Party Agreements were signed and satisfied (many carried out too late by TIE) a more pragmatic approach was provided by these Parties to SDS as the designer.

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

- (1) What were the main VE savings that were proposed (see e.g. the minutes of a VE structures meeting on 29 November 2007, CEC01327964)?

There were various VE Exercises carried out. I do recall the Gogar VE to Depot Works and the Gogar Access Road and Structures providing VE Saving potential.

- (2) What were your views on whether the VE proposals were likely to be achieved?

If delivered as identified against earlier designs it would seem possible for the VE savings to be achieved.

(3) Are you aware what VE works were actually achieved (including the approximate total value of such savings)?

I am not aware of the achieved value.

9. A report to Council in January 2006 (CEC02083547) noted that, in light of available funding, the tram network would require to be phased, with the optimum first phase (phase 1a) being a line from Edinburgh Airport to Leith Waterfront. Depending on financing, it may be possible to extend the first phase to include a line from Haymarket to Granton Square, via Roseburn (phase 1b).

Despite that decision (and the priority, therefore, to be given to phase 1a) we understand that the design for phase 1b was carried out at the same time as, or before, the design for phase 1a.

(1) Does that accord with your recollection?

I do not recollect at any time 1b being given preference before 1a. SDS did have a separate Section Design Manager dealing with 1b.

(2) If so, why was the design for phase 1a not prioritised over the design for phase 1b?

I do not recollect at any time 1b being given preference before 1a. SDS did have a separate manager dealing with 1b. The design was provided in accordance with the requirement of TIE and the SDS contract.

10. A number of documents noted concerns in relation to PB's performance.

See, by way of example:

- The minutes of the Tram Project Board (TPB) on 23 October 2006 (TIE00059601 at p3) noted, "*SDS performance was highlighted as a major concern with both resource and quality of work being questioned*" and that Willie Gallagher, Chief Executive, TIE had met with the Chief Executive of PB "*and received commitment that resource would be increased and quality issues flushed out*".
- A progress report by Andie Harper, TIE's, Tram Project Director, for October 2006 (CEC01803371 at p14) noted:
 - Numerous meetings had been held with SDS senior management in an attempt to address issues associated with progress of design, prioritisation of the Detailed Design programme, quality of product, resourcing to meet the programme and non-compliance issues.
 - AMIS had written to the project advising that the quality of design was "*far below*" what they would have expected at this stage and that that may have an impact on their ability to deliver their first programme.

- TIE's SDS Manager's monthly report for November 2006 (TIE00074137 at para 2.0 c) noted that a review of the Preliminary Design Inter Disciplinary Check had identified *"some major deviation from the SDS procedures. It would appear that rather than achieving appropriate inter disciplinary solutions issues have been rolled forward to the DD phase of the project"*.
- The minutes of the Design, Procurement and Development Committee (DPD) on 8 November 2006 (CEC01761606 at p2) noted that there was no confidence in SDS's delivery and lengthy discussions with senior SDS staff had taken place in relation to an apparent *"lack of accurate internal reporting"* and concerns in relation to *"co-ordination, working resource and management"*.
- An e-mail dated 19 January 2007 from Willie Gallagher to Tom O'Neill, CEO, PB (CEC01826306), noted concerns about *"missed deadlines and communication issues at all levels"* and the need for a new full time Director for the project, who would be on-site five days a week.
- A number of e-mails from Steve Reynolds, PB, namely: e-mail dated 31 January 2007 (PBH00020960); e-mail dated 1 February 2007 (PBH00020993) which noted *"The project management structure is confused, commercial control is inadequate and in simple terms the overall management of the project ... has been poor"*; e-mail dated 4 February 2007 (PBH00021050) which referred to the need for a *"rescue"* process; e-mail dated 28 February 2007 (PBH00021622) which noted that there had been a *"failure to face up to the facts"* and *"a failure to face up to reality last summer on Mr Jenkin's part leading to misinformation on the state of the job from about Sep 06 on"*; e-mail dated 2 March 2007 (PBH00021654) which commented on *"PB reporting performance over the last nine months"*; e-mail dated 14 March 2007 (PBH00021850) commenting on the performance of David Hutchison; e-mail dated 16 May 2007 (PBH00024369) which referred to *"very much the hang-dog attitude that got us into such a mess in Edinburgh"* and e-mail dated 26 July 2007 (PBH00027328) which noted that *"at several points on this contract we really didn't perform very well"*.
- E-mail dated 8 February 2007 from Jason Chandler (PBH00021173).
- The TIE SDS PM's monthly report for July 2007 (CEC01526606) which noted, *"Still concerns about missed delivery dates and quality of submissions"*.
- The minutes of the TPB on 12 July 2007 (CEC01565001 at para 4.2), which noted *"The MUDFA team remains concerned about the delivery of IFC drawings, but are progressing works to programme"*; the minutes of the DPD on 2 August 2007 (CEC01530449 at p6) which noted that the key to progressing the MUDFA works was the availability of IFC drawings from SDS and that *"Current performance is poor and action is being escalated with SDS and Halcrow directors"*; the progress report to the DPD on 2 August 2007 (PBH00027525 at p9), which noted that *"Designs due from SDS in the period were not delivered to schedule"*; the DPD minutes for 30 August 2007 (CEC01644467), which, under MUDFA, noted *"Main utility works not advanced due to design release"*.
- PB's draft "Lessons Learned" document produced in September 2007 (PBH00028567) and (PBH00028568).
- In an e-mail dated 26 September 2007 (CEC01667338) Willie Gallagher noted that he was *"gutted ... over the SDS/SUC/TIE performance to deliver the dates for the IFC drawings"* and that the issue was *"rocking confidence of all stakeholders on the Tram project"* (see also Mr Gallagher's letter of the same date on that matter, CEC01643235, Mr Reynolds' e-mail dated 28 September, CEC01714281 and Greg Ayres' letter of 4 October 2007, PBH00029050).

- Concerns were set out in Mr Gallagher's letter to Mr O'Neill dated 4 October 2007 (PBH00029051).
- An e-mail dated 20 March 2008 from David Gullick, Structures Group Director, PB (PBH00036644) noted, *"To date PB has struggled with delivery"*
- An internal e-mail dated 9 May 2008 from David Gullick (PBH00019090) stated *"There has been a recognition from Senior Management that Edinburgh Tram needs to be better monitored going forwards ..."* and noted changes to the way the project would be reported, managed and monitored.

By way of overview:

- (1) What, in general, were your views on the performance of PB in the Edinburgh Tram Project?

Some of the quoted items above are recognised. Other quotes refer to the SDS internal commercial management and monitoring of the project. Refer to factual documents regarding lessons learned (PBH00028567) and (PBH00028568). These identify factual views on the PB performance and Client.

- (2) Do you consider that any of the criticisms of PB noted above were justified?

It could be seen that particular elements of criticism justified, but this is typical of any project of this nature. The underlying reasons of any poor performance must also be considered. As in any large Transit Infrastructure Project such as this criticism and lessons learned are part and parcel of betterment.

- (3) Did you have any concerns in relation to PB's performance? If so, what were your concerns what steps were taken to address these concerns and were these steps successful?

PB concern was the lack of timeous confirmations and the lateness of change and the need for assistance from TIE in this regard to realise and provide a positive platform for the SDS Design Team to be successful. Critical issues management to provide a ready platform with CEC to provide positive input, SUC's buy in to liase and be amenable to design programmes with the correctly resourced review teams and C4 design information along with a growing list of RFI's which stalled the design process were concerns. The "Critical Issues List" and its freeing up of these issues were steps which helped the design process. This faltered as soon as Crawley input and pressure dropped off.

The SDS Contract (2005)

11. We understand that PB submitted their tender for the SDS contract by letter dated 12 or 13 May 2005 and included a bid programme with an assumed start date of 1 July 2005. In the event, the SDS Contract (CEC00839054) was not entered into until September 2005.

(1) What was your involvement, if any, in tendering for the SDS contract for the tram project?
None

(2) Are you aware why the SDS contract was not entered into until September 2005?
Contracted negotiations between TIE and SDS

(3) What were the consequences, if any, of the delay in entering the SDS contract on the design programme including, in particular, the dates for undertaking, and completing, the Requirements Definition, Preliminary Design and Detailed Design phases?
Overall programme moving to the right

12. By way of overview, it would be helpful if you could assist with the following queries in relation to the SDS contract (CEC00839054):

Services

(1) What design services were to be provided by SDS under the contract (see e.g. Schedule 1, "Scope of Services" of the SDS contract, at p81, and the phased Design Approach i.e. Requirements Definition Phase, Preliminary Design Phase and Detailed Design Phase)?
The design services as listed in the "Scope of Services" of the SDS contract. These were the services to be provided. Once a designer has overviewed the functional requirement of the project and provided the Requirements Definition Scope Specifications to be used, the PD Phase may commence. It was realised early at the PD Phase that there were many growing unknowns which did not allow full completion of PD and DD. See Critical Issues List provided by Mr Crawley TIE Engineering Manager. Circa 2007.

(2) Paragraph 2.3.3 of Schedule 1 of the SDS contract (p84) provided that the SDS provider was responsible for undertaking and reporting on various specified surveys necessary to inform the design of the tram network. What surveys were undertaken by or on behalf of PB and when (including any surveys carried out in relation to utilities)?
Various surveys were undertaken by SDS ranging from slit trenching surveys' trial hole Surveys and radar surveys at critical point, junctions and ground investigation surveys including bore hole sampling.

(3) What design services in relation to utilities were to be provided by SDS in terms of paragraph 3.2 of Schedule 1 of the SDS contract (p91)?
That paragraph (third bullet point), for example, refers to the SDS provider "*undertaking critical design and developing a strategy for all utilities diversions to minimise diversion requirements and out-turn costs*".
Combined service trenching was proposed as a strategy to minimise diversion requirements and out-turn costs. A Utilities Strategy Report was provided based on the original design (provided by previous TIE Feasibility Designers). It was soon realised that the design blue print was to keep constantly changing in alignment and Tram Stop re positioning.

- Did the SDS contract envisage that all (or, at least, most) utilities design would be undertaken by PB?
Utility Diversion Designs as required within the “Scope of Services” of the SDS contract.
- To what extent, if at all, did the SDS contract envisage that utilities design would be undertaken by other parties?
To the extent of SUC Agreements between TIE and each SUC and individual utility companies.
- What “*strategy*” was developed by PB for all utility diversions to minimise diversion requirements and out-turn costs?
Combined service trenching was proposed as a strategy to minimise diversion requirements and out-turn costs.

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

The management of the design within the boundaries of “Scope of Services” of the SDS contract.

Programme

(5) What was the agreed programme when the SDS contract was entered into for carrying out the SDS services, including the Requirements Definition, Preliminary Design and Detailed Design phases? (see e.g. clause 7 (pp30-31), (ii) Schedule 1, Appendix 2, “Programme Phasing Structure” (pp111-112) and (iii) Schedule 4, “Programme” (at p248 onwards)

The programme agreed with SDS at the signing of “Scope of Services” of the SDS contract.

(6) We understand that the contract provided that TIE would review/approve preliminary design within 20 days. Was that timescale realistic? Was that timescale usual in the industry?

Timescale usual in the industry for small sections of work as part of a design process yes. As a design package (full system PD - probably not -very optimistic at least).

(7) How realistic was the agreed programme? (see e.g. (i) Schedule 4, “Programme” (at p248 onwards), where the start date for a number of sectors was 1 July 2007 (i.e. prior to the

signing of the contract) and (ii) Schedule 1, Appendix 2, "Programme Phasing Structure" (pp111-112), which provided that preliminary design for the sectors comprising phase 1a would be approved by dates ranging from 30 November 2005 and 28 February 2006, with detailed design for these sectors to be approved by dates ranging between 30 March 2006 and 30 September 2006)

I can only provide answer with the evidence that in April 2007 the establishment and ongoing "Critical Issues List" by Crawley (TIE) identified outstanding items to be settled by TIE to allow SDS to complete their designs in accordance with "Scope of Services" of the SDS contract and progress with approvals and consents on this basis. It would seem unlikely with this knowledge now that the programme could have been met.

(8) What was the "Master Project Programme" referred to in clause 7.1.1 (p30)? Was such a Master Project Programme agreed and in place when the SDS contract was entered into?

Outline only.

(9) What was the purpose of the "criticality" provisions for determining the order in which the SDS services were carried out (see clause 7.2 (p30) and Schedule 1, Appendix 2, "Programme Phasing Structure" (pp111-112))? Who decided that these services were critical and on what basis?

The direction of "criticality" was by TIE.

Approvals and consents

(10) What was the responsibility of SDS for obtaining necessary statutory approvals and consents (see e.g. clause 5 (p29) of the SDS contract and paras 2.6.1.2 and 2.6.2.4 of Schedule 1 (p87)?

The responsibility of SDS for obtaining necessary statutory approvals and consents as maintained in the "Scope of Services" of the SDS contract

Price and payment

(11) Were there incentives for meeting the design milestones early or on time? Were there penalties for not meeting the milestones on time and/or for late delivery of design?

Milestone payments were paid for by TIE.

Other

(12) Recital E of the SDS contract (p5) stated that "*TIE intends to appoint an infrastructure provider (the 'Infraco') to complete the design, and carry out the construction, installation, commissioning and maintenance planning in respect of the Edinburgh Tram Network*". What was your understanding of the work that would be undertaken by the Infraco contractor to "*complete the design*" i.e. once the Detailed Design had been completed by SDS, and all necessary approvals and consents had been obtained, what further design work would remain to be completed? Can you give examples?

The systemwide elements of Siemens assets being provided. (As examples Control Equipment, Cabinetry, Specialised PIDS and PIS Assets) I recall a list of assets to be provided by the Infracore following their procurement process and closure.

Requirements Definition Phase (September to December 2005)

13. We understand that work in relation to the Requirements Definition (“RD”) phase was carried out by PB between September and December 2005. It would be helpful if, by way of overview, you could explain the following matters:

(1) What was the primary purpose of the RD phase?

Establish a set of Requirement Definition Specifications and Documentation which would be used to allow input to the PD Phase. A primary function of RD phase was to take the small amount of Functional Requirement Documentation from the TIE DATA Room and against this, provide evidence of understanding from the functional requirement into a Requirement Specification for the defined elements.

(2) What work was carried out by PB during the RD phase?

Take delivery of the Functional Requirement Documentation from the TIE DATA Room and against this provide evidence of understanding the functional requirements into Requirement Specification for the defined elements of the system.

(3) What consultation with the various stakeholders did PB carry out during the RD phase?

Discussion and initial liaison with CEC was one. Understanding of their expectations and viewpoints on urban design issues.

(4) Do you have any general comments on the RD phase? Did, for example, PB experience any difficulties during the RD phase (and, if so, how were any such difficulties addressed)?

The RD Documentation was delivered to TIE I recall 19th to 21st December 2005. This meeting the 13 week delivery period for that phase. The limited functional descriptions provided within the DATA Room is a general comment for such a large infrastructure project.

(5) To what extent did TIE and CEC participate in the RD phase?

Answering of RFI’s and providing their expectations and viewpoints on urban design issues.

(6) What was the agreed timescale for completing the RD phase? Was that timescale met?
I seem to recall this phase being a thirteen week period. Delivered in the 13 weeks. Please see the programme schedule for factual timeframe.

(7) What drawings, reports and other documents were produced by PB as comprising the RD deliverables?
The full list of deliverables will be identified in Document Control Documentation between SDS and TIE. I cannot recall the exact number of documents. I would provide an estimate of some 25 to 35 Documents.

(8) What was TIE's response to the RD deliverables i.e. did TIE accept them?
The documentation was delivered on 19th to 21st December 2005 I seem to recall. Just prior to the xmas break. TIE did have reservations of distributing such to the ESS Team I recall (prior to the xmas break). The documents were accepted and signed for I seem to recall.

14. In an e-mail dated 26 July 2007 (PBH00027328) Steve Reynolds, PB, noted that *"at several points on this contract we really didn't perform very well and whilst I hadn't been made aware of the poor quality of the Requirements Definition Report that statement has now been confirmed to me"*.

(1) What were your views on the quality of the Requirements Definition Report and Mr Reynolds' comments?
I have no material view of Mr Reynolds comments. I am not aware who made the confirmatory statement to him. Review comments were provided by the TIE Team and ESS. The review comments were clarified and/or addressed.

Preliminary Design Phase (Jan to June 2006)

15. The SDS contract (CEC00839054) provided for preliminary design ("PD") for different sectors to have been approved by various dates between 30 November 2005 (8 sectors), 30 January 2006 (2 sectors), 28 February 2006 (4 sectors) and 30 March 2006 (11 sectors, largely relating to what became known as phase 1b) (Schedule 1, Appendix 2, "Programme Phasing Structure" (pp111-112)).

We note that while a letter dated 5 December 2005 from Ian Kendall, TIE (PBH00027510) stated that the contract duration for execution of both the preliminary and detailed design was not altered by the issue of the Master Project Programme, Procurement Key Milestones, an agreement (or, at least, an informal understanding) may have been reached that preliminary design would be delivered by June 2006.

(1) Was there an agreement to change the dates noted above for approval of the preliminary design?

I cannot recall an agreement of such.

- (2) If so, when and why was it agreed that preliminary design would be completed by June 2006?

I cannot recall an agreement of such.

16. We understand that PB duly submitted a PD package to TIE at the end of June 2006. By way of overview:

- (1) What was the primary purpose of the PD phase?

The PD primary purpose was to take input from RD Documentation and ensure the outline of a systemwide design can demonstrably fit within the boundaries of specification and foreseeable land take. This to ensure that all elements of the design both functionally and technically can meet the operational design objective of the Tram System.

- (2) What work was carried out by PB during the PD phase between January 2006 and June 2006?

The contracted work as defined in the "Scope of Services" of the SDS contract.

- (3) What consultation with the various stakeholders did PB carry out during that period?

Ongoing discussion with CEC. Operational discussions with TEL and TIE. Major Stakeholders such as NR/Forth Ports/RBS/BAA

- (4) To what extent did TIE and CEC participate in the PD phase?

TIE and CEC did manage and promote charette optioneering alternatives. The evidence of such is to overlay the design of the original Feasibility Drawings with the PD Alignments and Tramstop Drawings.

- (5) Do you have any general comments on the PD phase? Did, for example, PB experience any difficulties during that period in producing the PD package? If so, what difficulties were experienced and how were they addressed?

Critical Issues clearance was needed. Draft agreements by all Third Parties to be signed and SUC's ditto. This would have released immediate design assistance and earlier closure of design.

(6) In general, what drawings, reports and other documents were produced by PB as comprising the PD deliverables?

The contracted work as defined in the "Scope of Services" of the SDS contract. PD Deliverables. Document control between SDS and TIE will be able to confirm the deliverables list.

(7) What was TIE's response to the PD deliverables i.e. did TIE accept them?

TIE did accept the PD Deliverables. ROR comments were received from TIE and ESS. SDS gave clarification and/or updates to documentation to closure of the PD Phase.

17. By e-mail dated 11 April 2006 (PBH00004904) David Simmons, Halcrow Project Director, sent David Hutchison, PB, a Utilities Strategy document (PBH00004905).

The document noted (paras 2.2 and 4.4) that it was generally understood by all parties that the utility apparatus diversion design was out of sequence with the roads design work and was being advanced ahead of that design to support the procurement of an advance MUDFA contract.

The document also noted (para 5.1) that *"A GPR survey of critical areas is currently underway. Initially it was envisaged that the entire on street section of the tram network would be surveyed to minimise risk of encountering unidentified apparatus during the MUDFA and INFRACO works. This however has not been possible due to programme and budget constraints"*.

As a consequence, the scope of the survey was reduced to cover areas classified under the following criteria, namely, severe congestion, major services and spatial constraints (para 5.4).

In the Conclusion section it was noted that, *"The utility mapping and detection surveys are showing high level of inaccuracy in the combined utility drawings. It should be noted that the volume of apparatus not identified on the plans is significant. This raises severe risk on the MUDFA scope of works and programme"*.

(1) What was the purpose of that document?

Utilities Strategy Document was to define work scope definition moving forward and provide a utilities diversion document to base a defined sterilised area for tram infrastructure design clear of services. This was based on Tram alignments and Tramstop Infrastructure known at that date.

(2) Do you recall whether you saw the document at the time?

I recall seeing this document in draft but this document needed work.

(3) Do you recall whether the documents, or the matters in the document, were communicated to TIE?

I do not recall. A check on Doc Control would do this.

(4) In any event, do you have any views or comments on the matters in the document including, in particular, the matters noted above?

The document noted (paras 2.2 and 4.4) that it was generally understood by all parties that the utility apparatus diversion design was out of sequence with the roads design work and was being advanced ahead of that design to support the procurement of an advance MUDFA contract. This was a known risk to TIE.

The Detailed Design Phase up to SDS Novation (July 2006 to May 2008)

18. We understand that TIE were required to formally respond to the PD within 20 days (i.e. by the end of July 2006) but that, in the event, there were difficulties and delay in agreeing the PD and progressing the Detailed Design ("DD"). By way of overview:

(1) What was your understanding of the main reasons for the difficulties and delay in agreeing the PD and progressing the DD?

I recall a lack of technical resource within TIE and only partial input from ESS. ROR response comments were addressed by SDS, see below statement "*Our overall conclusion is that the bulk of the Preliminary Design submission is now either acceptable or acceptable given the responses from SDS*".

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

(1) What were your views on the above report?
It was a fact.

(2) Were there any aspects of the Preliminary Design which were not considered acceptable? Not from the statement above "*Our overall conclusion is that the bulk of the Preliminary Design submission is now either acceptable or acceptable given the responses from SDS*".

(3) Did TIE eventually sign off on the PD phase (see e.g. Steve Reynolds' internal weekly report for PB dated 20.4.07 (PBH00026003) which noted (p3) that Tony Glazebrook had that week formally signed off the Certificate for Completion of the Preliminary Design Phase).

By the statement above "Tony Glazebrook had that week formally signed off the Certificate for Completion of the Preliminary Design Phase" Therefore, TIE did sign off the PD Phase.

2007

20. We understand that Steve Reynolds was appointed as PB's Project Director in February 2007.

(1) Why was Mr Reynolds appointed as Project Director at that time?

David Hutchison moved to other areas of work for PB. Mr Reynolds was recognised as a more experienced PD in the sections of project role the design programme was moving into. PD/DD/Novation and IFC.

(2) Did your job title, duties and responsibilities and role change in any way around that time?

Yes. later on in that year. I was supporting Mr Reynolds (our PD) and acting PM until Jason Chandler settled in from his assignment from Merseytram to take the role of PM. Mr P McAuley had returned back to America earlier in 2006.

21. By letter dated 15 February 2007 (PBH00009783) Halcrow wrote to PB in relation to the need for PB to take the lead on "*inter-disciplinary design co-ordination*" in relation to the tramway cross section, which was noted to be "*a further example of PB's failure to address the necessary systems integration and systems engineering issues*".

(1) What were your views on the matters raised in that letter?

I have no material view on the matters raised in the letter. This is correspondence between Consultant and Sub Consultant which is a much more lengthy discussion than one line in a design team letter. This topic is not unusual on a roads/transit infrastructure design of this complexity and nature. There is a design view point for and against the argument who may take the lead in such circumstances.

22. An e-mail dated 23 February 2007 from Alan Lee, PB (PBH00009610) noted that Mr Lee had been asked to review the PB systems engineering and assurance budgets to determine whether there was any way of further reducing the remaining scope of works to such an extent that the revised budgets could be met.

The e-mail noted that "*previous submissions have already culled tasks that are considered good practice yet not contractually required*" and that a number of tasks had been identified as potential cost-savers. These tasks had been ranked as high, medium or low risk or transferable ("transferable" tasks meaning the work could be reallocated to other project staff, with low utilisation and potentially cheaper costs).

It was further noted that the high risk items would require to be considered very carefully before cost cutting them as "*They may have implications on contractual compliance and professional integrity of the company and the individual. The major concern being to prove that PB has designed and assured everything to the appropriate level of detail in the event of an investigation*".

See also an e-mail dated 6 March 2007 by Keith Hawksworth, PB (PBH00021708) which noted that PB had *"a lot to do just to achieve zero margins"*.

(1) Why was there a need for PB to cut costs?

I am not aware there was a "need" for PB.

(2) What tasks had previously been "culled"? Can you give examples?

I cannot. I was not party to the correspondence.

(3) What were your views on whether it was appropriate to cull tasks that were considered "good practice yet not contractually required"? Can you give examples?

No, I cannot.

(4) What tasks were identified as high risk? In the event, were these tasks culled from PB's scope of works?

I am not aware of any design deliverable withdrawn from the "Scope of Services" of the SDS contract.(ie the scope of works to be delivered)

(5) What tasks were identified as "transferable"? In the event were these tasks transferred to other staff?

I believe this to be an inter company "tiff" regarding assurance operatives being only partly effective (Client Facing) and having the maximum (costly) travel time distance to the Edinburgh "workface". More local staff were proposed from Glasgow office and Newcastle rather than Wales and London.

(6) To what extent, if at all, was the cost cutting and re-organisation within PB that was the subject of these e-mails discussed with TIE?

I am not aware of any cost cutting and reorganisation within PB being discussed with TIE. I believe the correct Client facing operatives were found to assist the Client better in this particular situation.

(7) Why was there a concern in relation to what PB may have to prove in the result of an "investigation"?

I do not know of any concern in this regard.

(8) To what extent, if at all, did any cost cutting and re-organisation by PB affect the services provided by PB under the SDS contract?

The provision here of re organisation assisted the Client in better relations.

23. By letter dated 28 February 2007 (CEC01800436), you advised Ailsa McGregor, TIE, of your concerns that PB were again being asked to consider a reprogramming exercise to re-align the deliverables for the utilities programme. You further expressed concern that the

period of 20 working days that had been allowed in the SDS programme for Statutory Utility Companies to respond was too short, that *“the utilities team at tie appear to be attempting to develop an early programme of utility diversion works for MUDFA, for early implementation (in road), in complete denial of the consequence of utility apparatus diversion designs that both our parties are developing and delivering being out of sequence with the development of the finalised roads and OLE design on which it should be based”* and that TIE’s programme of utility diversion works had MUDFA executing works in the street before utility designers had an opportunity to undertake necessary re-designs in level and location of the apparatus diversions that will follow from necessary changes to track alignment and road layout and level and OLE pole location that would flow once Charette and DAP roads design issues were resolved.

Ms McGregor responded by letter dated 7 March 2007 (CEC01815617) in which she stated that, *“The content of your letter appears to overlook the key issue, which is that the SDS Utility designs have been issued considerably later than planned, primarily due to design delays and slippages from Halcrow, your sub-consultant. The impact of these delays has generated a necessity to review the overall Mudfa programme, the prioritisation and the sequencing”*.

You responded by letter dated 17 April 2007 (PBH00003588).

(1) It would be helpful if you could explain the main issues in these letters?

The issue here is one of Silo working by TIE. Once SDS could carry out new alignment designs due to output of Charettes and road design issues accruing from them. SDS would be able to provide the correct footprint for utilities and MUDFA.

(2) Were your concerns addressed to your satisfaction (and, if so, when and how)?

No. There were continual moves to get SDS to work to a programme of the MUDFA Contractor in areas where Charette and road realignments were causing delay and risking placing utility assets in the tram path. If TIE were to issue a formal instruction to carry out this design work the responsibility would have been TIE. No instruction was given at that time.

24. An e-mail dated 2 March 2007 from Orla O’Regan, Technical Support Services Provider (TSS) (TIE00040945), attached copies of Dashboards produced in December 2006 for the Overall Project (TIE00040946) and for the SDS contract (TIE00040947).

The Design Dashboard noted that 28.3% of Detailed Design had been undertaken against a Planned figure of 71.9%.

(1) Did the rate of completion of detailed design as set out in these documents, in general, accord with your understanding around that time?

The exact percentages I cannot recall. At that time (March 2007) SDS were experiencing design frustration due to Critical Issues. Refer to Crawley TIE “Critical Issues List”. Until TIE could move the FRI’s against these Critical Issues the SDS design was always going to be behind design target.

(2) For the avoidance of doubt, what were the main reasons for the delay at that time?
Please kindly refer Crawleys Critical Issues List. This is a TIE document not SDS. It highlights the items causing delay.

25. On 29 March 2007 Ray Dent, TIE, sent an e-mail to Graeme Barclay (CEC01638353), noting a number of concerns in relation to SDS, including that various actions from previous meetings etc were simply not progressed, there appeared to be an SDS tactic of avoiding doing works now and accepting that it will have to be done later where they expect to be paid (e.g. *“SDS were going to do hundreds of trial pits, then proposed tens of trial pits, then 3, and now zero”*), that despite the clear understanding that TIE wanted SDS to de-prioritise section 3 designs (the Roseburn spur), SDS continued to work on it as a priority on the basis that TIE had not instructed them to do otherwise etc.

(1) What are your comments on these matters?

I am not aware of such statements *“SDS were going to do hundreds of trial pits, then proposed tens of trial pits, then 3, and now zero”*

26. The following documents noted changes in the process for producing and reviewing design during 2007 (including steps to address certain outstanding critical issues):

- The minutes of the DPD on 13 February 2007 (CEC01790790 at p5) noted a presentation (PBH00021285) by Mr Reynolds and Matthew Crosse on *“plans for improving design matters and the changed approach to engineering”*.
- The minutes of the DPD on 13 March 2007 (CEC01361501 at p6) refer to a presentation by Mr Reynolds and Tony Glazebrook, TIE, in relation to proposed key changes to the design approval process.
- By internal TIE e-mail dated 23 March 2007 (CEC01628233) David Crawley, TIE, attached a list (CEC01628234) of outstanding major critical issues to be discussed at a meeting on 29 March 2007. Mr Crawley noted that *“a decision, even if sub-optimal in the first instance, will allow faster progress to be made through subsequent change control than delay for a ‘better’ decision”*. The e-mail also noted that while a definitive and final decision on some issues would not always be within TIE’s gift, it would be possible for TIE to make an interim ‘decision’ to give direction.
- A draft update by Mr Crawley to the meeting of the DPD Sub-Committee on 10 May 2007 (TIE00064787) noted, under Design Assurance, that *“Agreement has now been reached with SDS on the provisions of designs accompanied by design assurance documentation. This will result in packages of designs being supplied, section by section, in a form which is self-consistent, complete (or if not, with defined status), with interdependencies already reviewed and with associated approvals. The package will also contain associated TRO information although until the full modelling exercise has been concluded this cannot be finally confirmed ... Overall there are likely to be about 40 such packages”*. It was noted, under Design Deliverables progress reporting, that there were 5,373 items of contracted milestone deliverables related to the 40 design assured packages. It was further noted that *“There is an important conclusion from this Dashboard – the rate of delivery from ‘Now’ must effectively double if the programme is to be met. This does not necessarily imply that actual work rates must increase as to*

meet this Deliverables rate requires that a large proportion of the Deliverables affected must be at an advanced stage of completion already”.

- A draft update by Mr Crawley and Mr Glazebrook presented to the meeting of the DPD Sub-Committee on 7 June 2007 (CEC01528966) included a table (at page 52) which showed that the critical issues had decreased from approximately 80 on 19 February 2007 to about 15 on 21 May 2007.
- Slides prepared by TIE to brief Audit Scotland in June 2007 (CEC01674236) noted (page 5) that there were 19 Design Assured packages covering the whole tram system, with the first package due in July 2007 and the last due in November 2007 (with each package containing approximately 100 drawings, 25 documents and documentary evidence) and were noted to be a “*Key contributor to creation of Infracore confidence and low price*”. It was noted (page 9) that slippage was due to three reasons, namely, a logged critical issue, a TIE Change Notice having the effect of changing the scope and slippage within the PB SDS contract performance, that these issues were now well understood and that the principal blockers (Critical Issues) were being removed systematically.
- An e-mail dated 22 June 2007 from Matthew Crosse (CEC01640587) forwarded an e-mail in which David Crawley noted that there had been significant improvement in the critical issues, which was due to “(1) *A renewed focus on the need for progress. (2) A decision that items at PD1 should be progressed to the Detailed Design phase despite not having been through the modelling of PD2 phase. This does of course introduce risk, but it is likely to be minimal overall, and in many cases sensibly zero as often no alternative physical design solutions are possible anyway. (3) The right people being present at the meeting*”. In his e-mail Mr Crosse observed, “*It is good we (i.e. tie and CEC) are now being far stronger in respect of decision making. Particularly, acceptance that some decisions need to be forced – sometimes prematurely – in order to allow the detailed design to get started. And yes, they do carry itinerant levels of risk and some locations might need reworking*”.
- By e-mail dated 29 June 2007 (PBH00026295), Steve Reynolds advised that he was “*remobilising those areas of design activity which have been held*” and recorded certain concerns about continued attempts to optimise the design. He also noted that, “*should it be decided subsequently to revisit the design ... then this is a risk that TIE is taking*”. Tony Glazebrook agreed with and accepted that interpretation.
- A letter dated 11 July 2007 from Steve Reynolds noted that SDS had now remobilised those areas of design activity that had been held awaiting resolution of the Critical Issues (PBH00003595). The letter noted that “*For the avoidance of doubt we understand that should it be decided subsequently to revisit the design, (other than for reasons of non-compliance with standards), the risk of programme prolongation and increased costs remains with tie*”.
- The minutes of a Design Review Meeting on 18 July 2007 (TIE00044271) noted that 18 packages of self-assured design was not now possible and that the route would be split into 14 subsections and, further, into 63 batched sub-sections.
- A progress report to the DPD Sub-Committee on 30.8.07 (CEC01530449) noted (page 12) that “*Previous reports have concentrated on activity designed to remove blockages to progress, most notably the critical issues, the last of which was removed, for all practical purposes, on 28 June 2007*”.

It would be helpful if, by way of overview, you could provide your views on the following matters:

- (1) What were the main outstanding critical design issues and why they were outstanding?
Please kindly refer to Crawley TIE "Critical Issues list". This lists the outstanding issues. This is a TIE prepared document
- (2) What steps were taken to resolve these matters?
Crawley brought together TIE officers to "move" these issues such that clarification may be given to SDS such that the designs could be moved along.
- (3) What were the main changes made to the process for the production and review of design in 2007?
One such process change was SDS Section Design Managers giving presentations to major stakeholders (walk through of the designs) prior to the issue to reviewers. CEC/TIE and major Stakeholders.
- (4) Were these steps successful (and, if not, why not)?
Better received on the understanding of the design.
- (5) With the benefit of hindsight, to what extent were the various critical issues truly resolved in 2007 and to what extent were they resolved on the basis of assumptions that later turned out to be incorrect and/or which required to be changed?
The Critical Issues List "focused" TIE and the major Stake holders to making decisions and closing the SDS RFI's allowing the SDS designs to progress.

27. By letter dated 26 April 2007 (CEC01691204), Graeme Barclay, Construction Director, TIE, noted that TIE were greatly concerned about the delay in the initiation of the utility diversion work programme and had decided to implement the AMIS proposal of a Risk and Trade off programme in two areas in section 1.

In a reply dated 1 May 2007 (CEC01664017) you stated that it was unfortunate that the MUDFA construction implementation programme started in the one area where TIE had placed the SDS infrastructure design on stop.

- (1) Why had TIE placed the SDS infrastructure design in that area on stop?
I believe TIE were aware of alignment issues and Charette changes which would cause further amendments.
- (2) What was the "Risk and Trade off programme" that TIE proposed to follow? Did that have any consequences for the SDS design?
The RATS programme was the MUDFA Contractors proposal to install at risk of services being clear of the known present alignment alignment at that date. MUDFA would not be aware of Charette changes causing alignment changes. The review of these works took valuable resources from the Utility Diversion Designers at a time when we were being pressurized to meet an agreed programme date. No formal instructions were given to SDS from TIE at that time..

28. An internal PB e-mail chain dated 8/9 May 2007 (PBH00010898) noted certain issues, including that PB's resources were currently very stretched. Jason Chandler, PB, noted "*This job is suffering and so is our reputation as a company who can deliver light rail jobs in the UK. If TIE gets wind that we are not delivering on this job because we are working on a bid for another job we will not be winning any other bids*". (see also internal PB e-mails dated 11 May 2007, PBH00010947).

(1) What was your understanding of the issues raised in these e-mails?

I was not party to the mail. Please kindly refer to Jason Chandler.

(2) To what extent, if at all, did these issues impact upon the quality and timeliness of the services provided by PB in relation to the Edinburgh tram project?

From the reading it appears nothing. But please relate to Jason. I believe he was correctly keeping a tight ship and pushing his design teams accordingly.

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

(1) What were your views on these matters?

I do concur with the author if it is regarding assets that are in dis-repair. We were contracted as Utility Diversion Designers not to "asset upgrade".

30. In an internal PB e-mail dated 27 July 2007 (PBH00012299) you noted "*a problem between the PB Divisions (Rail versus Roads)*".

(1) What was the problem?

Utility Interface Leads and a section of Utility works. Who versus who. This was inter company correspondence. I was particularly frustrated at that time that just as a utility design area was freed up back by TIE into the design programme the Section Design Leader was moving to a highways project management role.

(2) What difficulties did it cause in progressing design?

None specifically in delivery terms.

(3) Was the problem resolved (and, if so, how and when)?

Yes. Replacement by Newcastle Office. Consultation in IDR and IDC reviews.

31. The minutes of the meeting of the DPD Sub-Committee on 2 August 2007 (CEC01530449 at p10) noted that that v17 of the design programme would be slightly revised to give structural design elements a lower priority than other design elements (which was noted to facilitate their earlier completion, with consequent improvements in the overall review process).

(1) Why was it decided around this time to give structural design elements a lower priority than other elements? Was that related in any way to the need to speed up the programme and/or a decision taken around that time to carry out a Value Engineering exercise in relation to structures?

I Cannot recall this. I am however aware that there was good working relationships in the structures approvals process.

(2) Did that mean that the design for structures was less advanced in late 2007 (when Bilfinger Berger Siemens (BBS) confirmed their price on the basis of the available design) than it would otherwise have been?

I have no evidence to support the above assertion.

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

(1) Why did these staff withdraw?

Team and workload assessment by PB Senior Management.

(2) Were there sufficient key SDS staff working on the project at that time?

Team and workload assessment by PB Senior Management identified as yes.

33. By letter dated 5 October 2007 (PBH00003606) you set out certain concerns in relation to a proposed change to the design review process for utility diversion designs.

(1) What were your concerns? Were your concerns addressed?

Duplication of process could lead to comments from TIE conflicting with SUC's requirements/approvals and duplication of sets of designs which is not satisfactory.

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

- (1) What was your understanding of the reason(s) for that slippage?
Design process and review activities.
- (2) To what extent, if at all, did PB resourcing issues contribute to that slippage?
I am not aware of any resourcing activities contributing to such slippage.
- (3) What steps were taken (and when) to address the slippage? Were these steps successful?
Reasonable pressure applied to design teams to maintain agreed dates.

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

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

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

- (1) What was your understanding of, and views on, these matters?
I recall BBS requesting PB "internal server access". Which was not allowable and not a contractual requirement.
- (2) Did PB have accurate records of the design carried out (and any revisions or changes to design)?
PB had an efficient Document Control System to incorporate the above.
- (3) If so, what was the problem in BBS accessing these documents?
I believe this to be BBS requesting PB "internal server access".

36. The report to CEC's Internal Planning Group (IPG) on 15 November 2007 (CEC01398241) noted:

Detailed Design Review Process, "Reviews of the individual disciplines of the detailed design continue. The packages have yet to be coordinated by the designers therefore the value of these reviews is limited and all packages will require resubmission when complete and fully coordinated by the designers and TIE. Further delays to the design programme are

becoming apparent with all technical reviews programmed to complete after financial close. CEC have emphasised that this needs to be resolved as a matter of urgency ... The latest programme, V21 is still not approved by CEC and consultation is required between CEC, TIE, SDS and BBS before an approved programme can be produced” (para 3.3).

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

Co ordination exercises would continue by the procurement strategy of TIE with Infraco anyway. There was limited risk as the IDR and IDC process by SDS was ongoing at this time on Detailed Design works.

(2) In the event, to what extent did design packages require to be re-submitted when “complete and fully coordinated by the designers and TIE”?

The procurement strategy of TIE did leave assets which had to be provided by BBS to SDS for formal IDC closure.

(3) What risks or difficulties did you foresee arising if all technical reviews were programmed to complete after financial close?

Co ordination exercises would continue by the procurement strategy of TIE with Infraco anyway. There was limited risk as the IDR and IDC process by SDS was ongoing at this time on Detailed Design works.

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

(1) It would be helpful if, by way of overview, you could outline your involvement (if any) in these discussions, the main issues discussed in relation to novation, the main concerns of the parties and how these concerns were addressed?

I was not party to formal discussions with BBS in this regard. Done at more senior level.

38. In an e-mail dated 20 November 2007 to Matthew Crosse (PBH00031415), Mr Reynolds noted “*the potential change to Employer Requirements*” (the mismatch between SDS design and the Infraco Employer’s Requirements had been noted previously, see e.g. (i) Mr Reynolds’ Weekly Report dated 23 February 2007, PBH00021529, para 3, and (ii) an e-mail dated 13 June 2007 to Mr Crosse, PBH00025580 , bullet point 6).

(1) When did you first become aware that there was a misalignment between the SDS design, the Employer’s Requirements and BBS’s offer?

Later in that year. Refer to Mr Reynolds.

(2) What was the problem and how had it arisen?

By changes in the Employers Requirements, thus differing from SDS design understanding. Refer to Mr Reynolds.

(3) In general terms, what was the extent of the misalignment (e.g. was it minor, moderate or major etc)? Was it across the whole design or confined to particular items or areas?
In general terms, it was a systemwide misalignment.

(4) What problems did the misalignment cause?
Further re-work to the design.

(5) What steps were taken to address that issue prior to novation of the SDS contract?
Keep the changes to a minimum.

(6) Were any further steps taken after SDS novation (e.g. further design or re-design) to address the misalignment?
Yes.

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

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

In addition, an e-mail dated 26 November 2007 from David Crawley (PBH00031752) set out a number of concerns in relation to the programme for prior approvals, the programme for technical approvals, the programme for consents, the design deliverables tracker and progress reporting and management reporting (the attachments are PBH00031753 and PBH00031754).

(1) What were your views on the state of design and prior approvals at that stage?
I had no material views at that stage regarding prior approvals.

(2) What were the main items outstanding, why were they outstanding and what was the plan (and programme) for dealing with the outstanding matters?
Not finished.

(3) Were the design, prior approval and construction programmes ever re-aligned (and, if so, when and how)?
Not finished.

40. An e-mail dated 3 December 2007 from Sandra Cassels, DLA (CEC01540976) noted that there was a disagreement between TIE and SDS in relation to the surveys SDS required to carry out under the SDS contract, it being noted that *“Tie are of the opinion that SDS were obliged to carry out certain types of survey far greater in scope than SDS actually carried out, whereas SDS are of the opinion that they have fulfilled their obligations under the SDS Agreement”*.

(1) What was your understanding of, and views on, the disagreement between TIE and PB in relation to the surveys that PB were required to carry out under the SDS contract.
I have no material view regarding the disagreement on surveys. Please refer above in the SDS position on this matter. *SDS are of the opinion that they have fulfilled their obligations under the SDS Agreement”*.

(2) What types of survey did the dispute cover?
There was disagreement to various surveys.

(3) Did the dispute relate to surveys in both the on-street and off-street sections?
Yes

(4) What were the consequences of that disagreement in terms of progressing the design (or other works required for the tram project)?
The design progressed in tandem with this disagreement.

(5) How and when was the disagreement resolved?
I cannot recall the close out of this issue.

41. A report presented to CEC’s IPG on 11 December 2007 (CEC01398245) noted:

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

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

(1) What was your understanding of, and views on, these matters?
I note the CEC concern and have no material views on this matter.

42. By e-mail dated 14 December 2007 (CEC01397774) Duncan Fraser, CEC, referred to a presentation by TIE the previous day and asked certain questions about the Quantified Risk

Allowance, including querying the provision made for the likely change in scope given the incomplete/outstanding design, approvals and consents.

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

Geoff Gilbert replied, *"I have previously explained the interrelationship between emerging detail design, Employer's Requirements and Infracore Proposals works and how price certainty is obtained out of this process and are in the process of delivering such certainty. Therefore, please advise what scope changes you anticipate arising out of the prior approvals and technical approvals. The overall scope of the scheme is surely now fixed, is it not?"*.

(1) What was your view, at that time, on the above matters including, in particular, whether the "scope" was fixed or was likely to change?

The scope was fixed. It is the detail of the "scope" that I think Mr Fraser was perhaps considering and worrying.

2008

43. An e-mail dated 23 January 2008 from Damian Sharp (PBH00016028) attached a document listing all of the items that were currently holding up the Interdisciplinary Design Check (IDC), Prior Approvals and/or Technical Approvals (PBH00016029).

(1) Does that attachment, broadly, accord with your understanding around that time of the items that were holding up the IDC, Prior Approvals and/or Technical Approvals?

It would appear to be consistent.

(2) What steps were taken to address these items? Were any such steps successful (and, if not, why not)?

Closer liaison with Technical and Planning Officers of CEC.

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

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

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

I have no material views of the statement. It is not unusual in large transit infrastructure projects like this to be carrying final design to packages due to differing procurement regimes.

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

The presumed understanding would be that BBS are world leading Infrastructure Contractors and suppliers of Transit Systemwide solutions. Such world leaders would be able to provide due diligence on the designs available to a risk profile.

45. On 18 February 2008 BBS produced a Design Due Diligence Summary Report, based on design information received by BBS by 14 December 2007 (DLA00006338). That document raised various concerns about design, including that *“more than 40% of the detailed design information”* had not been issued to BBS.

(see also Mr Reynolds’ Weekly Report for 23.11.07, PBH00031681, which noted, para 3.1, *“We have now complied with the request for information on as-yet incomplete design packages to be provided to BBS. CDs containing some 200 pieces of documentation have been delivered”*).

(1) What design documentation did PB provide to TIE and/or BBS to enable BBS to complete their due diligence exercise

“CDs containing some 200 pieces of documentation have been delivered”. This was the total information. All documentation delivered to TIE by PB should have been on the TIE server for BBS to access also.

(2) Did you see, or were you otherwise made aware of, BBS’s report?

I do not recall the report. This would have been a “moment in time document” I believe.

(3) In any event, what is your view on the matters in the Executive Summary of the report, including, in particular, the assertion that approximately 40% of detailed design was outstanding (or, at least, had not been issued to BBS) as at 14 December 2007?

I cannot confirm the 40%. This is another persons assessment and view. My recollection was not that at that date this some was not available.

46. Mr Reynolds’ Weekly Report dated 29 February 2008 (PBH00035854), para 2.1.1, noted, *“Substantial progress was made at a meeting on Tuesday in relation to misalignment between the Employer’s Requirements, the SDS Design and the BBS Offer. We succeeded in securing a change of stance from TIE that any changes required to achieve alignment – pre or post novation – will now be instructed and paid for”*.

(1) How was the agreement in relation to changes required to achieve alignment of the Employer’s Requirements formally given effect?

Recognition that Alignment was additional to the original Scope of works by TIE.

(2) Were these changes carried out pre or post novation?

Both

47. A progress report provided to the TPB on 12 March 2008 (CEC01246825) noted:

“SDS submissions to CEC for their approvals are now timed such that, in some cases, construction is programmed to commence before approval has been completed” (p12).

“Design. The delivery of design to meet the construction schedules for various structures is causing concern and detailed reviews and discussions are underway with SDS, CEC and BBS to provide solutions” (p19).

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

The ability of each party (TIE/BBS and SDS) to work together to assist TIE maintain the programme.

(2) What steps were taken to try and resolve the problems noted above?

TIE/BBS and SDS to assist TIE maintain the present programme.

48. By e-mail dated 27 March 2008 (PBH00017765) Steve Reynolds circulated a draft of Schedule Part 4 (Pricing) of the Infraco contract.

In an e-mail of the same date (in the same chain) Bruce Ennion, PB, noted that he had *“read better”* and had *“grave concerns as to which way this is going!”*. He attached a draft of Schedule 4 with his comments (PBH00017766).

Mr Ennion’s comments included:

- Clause 1.2 (which provided, “The Construction Works price is on a lump sum basis that is fixed until completion of the Infraco Works and not subject to variation except in accordance with this Agreement”) – *“How can variations be calculated with any degree of realism?”*
- Clause 2.3 (whereby the “Base Date Design Information” was defined as the design information drawings issued to Infraco up to and including 25 November 2007) – *“SDS are aware that a number of the drawings referenced by [BBS] have been superseded during the tender period and made available to TIE but are not referenced by [BBS]”*.

(1) What were your views on Schedule 4 when you first saw it?

I have no material view on Schedule 4 or when I first saw it? I did concur with Enion reservations. Difficult to measure variation from.

(2) Did it cause you any concerns?

I did concur with Enion reservations. Difficult to measure future variation from.

49. By e-mail dated 22 March 2008 (PBH00036696) Scott Ney, PB, noted certain concerns in relation to the technical submission for Section 1b, including that *"I just do not believe that there is enough resource working on the project to meet the current demands"*.

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

It is reasonable to concur with Ney regarding workload by this workload by TIE.

50. On 28 March 2008, David Leslie, Development Management Manager, Planning, CEC, sent a letter to Willie Gallagher (CEC01493318) which noted:

"It is extremely disappointing that TIE, as the Council's agent, has been unable to ensure that SDS have completed all the prior approvals prior to the bidding process, and that there still seems to be no effective control over the constantly-slipping timetable for Prior Approval submissions. This could create difficulties in the coming months where BBS have been forced to make assumptions in their bid which do not correlate with our own expectations ... It is ... of concern that the quality of so many submissions, despite a quality assurance checking system supposedly in place by TIE/SDS, remains very unsatisfactory, requiring extensive revisions or resubmissions as appropriate".

On 3 April 2008 Duncan Fraser sent a letter to Willie Gallagher setting out similar concerns by the Transport Department relating to Technical Approvals and Quality Control Issues (CEC01493639).

(1) Did you see these letters? Was there any discussion of these letters within PB

I do not specifically recall the particular letters.

(2) What was your understanding of, and views on, these letters, including the matters noted above?

A closer relationship with the Technical Approvals Team was being actioned at this time and a better working together philosophy adopted with CEC Officers.

51. An e-mail dated 1 April 2008 from Bruce Ennion, PB (PBH00037087) noted that the Employer's Requirements were now *"significantly diluted and open to interpretation"*.

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

I do not have any material views on this matter but can understand reasoning from Enion to make the statement.

(2) Did you agree that the ER's had been "significantly diluted"? If so, why (and at whose instigation) had that happened?

Brought about during discussion with the Infracore at the instigation of TIE

52. By e-mail dated 3 April 2008 (PBH00017943) Bruce Ennion, PB, attached a note of a meeting (PBH00017944) he had attended on 2 April with TIE and BBS.

The notes recorded that BBS believed that circumstances had changed in that the original TIE proposal was to produce a design in advance of construction, however, in order for BBS to achieve the requirements of the TIE construction programme it would now be necessary for design to progress in parallel with construction.

The notes also recorded:

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

345 SDS design elements but only 35 SDS Deliverables.

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

- (1) It would be helpful if you could explain your understanding of the matters noted above? In design configuration terms there is always a risk moving forward until all is complete. Including the assurance process.

53. Contract close of the Infracore contract took place on 14 and 15 May 2008 (including novation of the SDS contract).

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

I was not party to this “suggestion” or discussion on the matter of “purely an incentive” to novate on these dates. Outstanding variation discussions were ongoing at this time and could certainly be apportioned to the sum.

54. By way of overview, in relation to the various agreements that were entered into around 14/15 May 2008:

- (1) What were the main provisions of the Novation Agreement (CEC01370880)?
Details dealt with by Reynolds and not at my level

- (2) Was a sub-contract entered into between SDS and BBS around the time of novation (and, if so, what were its main terms)?
Details dealt with by Reynolds and not at my level

- (3) Was a direct contract entered into between TIE and PB around the time of novation, in particular, in relation to ongoing utility design services (and, if so, what were its main terms)? (see e.g. e-mail dated 4 March 2008 from Damian Sharp (PBH00035961) with attached draft direct contract, scope of services (PBH00035962))

Details dealt with by Reynolds and full scope appreciation not at my level. Please kindly discuss/address to Mr Reynolds.

- (4) Was a collateral warranty provided by SDS to TIE around that time (and, if so, what were its main terms)?

Details dealt with by Reynolds and full scope appreciation not at my level. Please kindly address to Mr Reynolds.

- (5) Did PB enter into any other agreements around that time as part of novation and Infraco contract close

Details dealt with by Reynolds and full scope appreciation not at my level. Please kindly address to Mr Reynolds.

55. The Infraco contract included a Pricing Schedule (Schedule 4) (USB00000032).

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

- which party bore the risks and liabilities arising from incomplete design, the misalignment of the SDS design and the Employer's Requirements and the outstanding statutory approvals and consents;
TIE made the changes to the ER's with agreement therefore it would seem logical that the responsibility for risk stood with TIE.
- the purpose of an agreed Base Date for Design Information; and
Not party to it so I am not qualified to comment. One would assume configuration control of variations as a starting point.
- the circumstances in which design related Notified Departures were likely to arise?
Not party to it so I am not qualified to comment.

- (2) What was your understanding of the phrase in Pricing Assumption 3.4.1 that "*normal development and completion of designs means the evolution of design through the stages of preliminary to construction stage and excludes changes of design principle, shape and form and outline specification*"? Can you give examples?

Agreement with BBS and TIE on this matter originates. Examples should be directed to these two parties.

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

Details dealt with/by Reynolds and full scope appreciation not at my level. Please kindly address to Mr Reynolds.

- (4) What was your understanding in relation to the likely number and value of design related Notified Departures expected after contract close, as further design work was undertaken?

I was not party to discussion and or understanding on this subject.

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

I am not aware why Appendix H did not appear to contain a list of drawings comprising the BDDI

56. As we understand it, following SDS novation, the situation was as follows, namely, (i) PB had a change instruction from TIE to produce further design to "cure" the misalignment noted above between SDS design and the Employer's Requirements, (ii) any change to design from that existing as at 25 November 2007 was potentially a Notified Departure to the Infraco contract and (iii) TIE had little or no control over these design changes as a result of the novation of the SDS contract to the Bilfinger Siemens CAF Consortium (BSC).

- (1) Do you agree with that analysis?

Details dealt with/by Reynolds and full scope appreciation not at my level. Please kindly address to Mr Reynolds

- (2) Did that situation cause you any concern? If so, did you discuss any such concerns with TIE (or CEC)?

Details dealt with/by Reynolds and full scope appreciation not at my level. Please kindly address to Mr Reynolds

- (3) Do you consider that that situation ought to have caused TIE and/or CEC concern? In particular, it may be suggested that that situation gave PB and BSC a financial incentive to produce as many changes to the design as possible (over which TIE would have little or no control). What are your views on any such suggestion?

Details dealt with/by Reynolds and full scope appreciation not at my level. Please kindly address to Mr Reynolds

**The Detailed Design Phase between SDS Novation and the 2011 settlement agreement
(May 2008 to March 2011)**

57. After contract close in May 2008, a fundamental dispute arose between TIE and BSC in relation to the interpretation of the Infracore contract.

By way of overview:

(1) What was your understanding of the cause(s) of the dispute between TIE and BSC?
Details dealt with/by Reynolds and full scope appreciation and subject not at my level.
Please kindly address to Mr Reynolds.

(2) To what extent, if at all, did the dispute affect PB?
Instruction and ongoing negotiation was taken from BBS through discussion with SDS Project Director.

(3) What was PB's position in relation to the dispute?
Please kindly address to Mr Reynolds.

58. In relation to the design work carried out after SDS novation, and by way of overview:

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

(2) Did PB's role change in any way? Did PB's staff involved in the project change?
Not at this moment in time. Moving forward into the Construction Service Support elements of work brought in PB differing skill sets.(site construction management staff related)

(3) In general, how, and by whom, was design completed post novation? To what extent was the design completed by PB, Halcrow and/or by BSC personnel?
Inclusion from BSC in Design Procedural Management (in IDC related works as an example)

- (4) How did the processes for completing and reviewing design change, if at all, post novation?
Different BSC people dealing with direct negotiation with SDS Commercial Manager instead of TIE
- (5) What input and control did BSC have over design post SDS novation?
Cost effect management and buildability inputs were "value added inputs" from BSC.
- (6) What input and control did TIE have over design post SDS novation?
No greater input/control was visibly provided by TIE. One further step away from design table.
- (7) In general, what further design work was carried out after SDS novation (in both the on-street and off-street sections)?
Detail Design/ Close out. IDC Review and closure works. Closure of technical reviews with CEC and Third Party Agreements. Preparation of IFC drawing and documentation incorporating BSC Systemwide procurement requirements.
- (8) What problems were encountered after SDS novation in progressing and completing design?
No greater problems than would be anticipated working with a Systems House on any Major Transit Infrastructure Project. Product detail dimentioning and timely supply of systemwide design elements to include in IDC work and provide to the infrastructure contractor pours.
- (9) What were the main causes of these problems?
Timely provision of Systemwide product and detailing
- (10) What steps were taken, when and by whom to try and resolve these problems? Were these steps successful?
Correct and robust detail management and procedures between the BSC Engineering Team/Design Manager and SDS Section Managers and Design Teams.
- (11) It would be helpful if you could give an indication of approximately what percentage of the design work carried out after novation was attributable to each of the following factors, namely, (i) design being incomplete at novation, Programme records will recall this. (ii) the need to "cure" the misalignment between the SDS design and the Employer's Requirements. Not exactly qualified to guess this. (iii) changes to design that were required to obtain statutory Approvals and Consents, Not exactly qualified to guess this (iv) changes to design as a result of utilities works or requirements Not exactly qualified to guess this and (v) other factors? Not exactly qualified to guess this.

59. The following documents indicate ongoing problems with design after SDS novation:

- (i) An e-mail chain dated 20 August 2008 (TIE00758117) noted Mr Reynolds' involvement in seeking to resolve an issue that appears to have arisen with Halcrow (see also TIE00034806).
- (ii) A e-mail chain in late September 2008 (CEC01132100) noted problems in relation to "As Built" drawings.
- (iii) A list of matters was noted in an e-mail dated 29 October 2008 by Steven Bell (CEC01159795).
- (iv) Mr Reynolds' e-mail dated 30 October 2008 to Jim McEwan (CEC01149381).
- (v) An e-mail dated 30 April 2009 by Tony Glazebrook (TIE00037854) raised concerns in relation to Design Assurance Statement Packages.
- (vi) An e-mail by Mackenzie Construction Ltd to BSC (BFB00058190) noted their "*growing anxiety ... regarding the quality, timing and presentation of design information necessary to allow us to proceed in line with the programme*" and that "*Apart from anything else it is very obvious that the Construction and Design are not at the same stage at the moment*".

(1) What were your views on these matters?

I do not have any material views of the above referenced mails. The documentation as read states fact as seen by authors at a specific moment in time. An example of which is that TIE conceded that Design Assurance Statement Packages could not be provided until the full design assurance process was carried out.

Were they resolved (and, if so, how, when and by whom)?

(2) More generally, what were your views on the performance of PB, Halcrow and BSC (in relation to design related matters) after SDS novation?

I recall a more harmonious and helping attitude from BSC in relation to the difficulty factors and issues after novation. Correct environment to assist and move the project forward.

(3) What were your views on TIE and CEC after novation (in relation to design related matters)?

The Crawley (TIE) Critical Issues "Machine" had died away by this time and the present TIE Delivery Managers and or Construction Management personnel did not appear to be as effective or understanding of the issues to be dealt with as a collective..

60. A letter dated 6 May 2009 from Steve Reynolds to Martin Foerder, BSC (PBH00003626), stated, "*It is now clear that the scope of the work to be provided under the novated SDS Contract is significantly different from that envisaged at Novation. Changes are still being instructed and it is currently not possible to define an end date for Phase III [Detailed Design]*".

(1) What were your views on whether the scope of the work to be provided under the novated SDS contract was significantly different to that envisaged at novation? What were the differences?

Concur with the Reynolds letter. Changes were still being instructed. On a Major Transit Infrastructure Project there comes a time when KIS and KIS principles need to be managed and adopted "Keep it Still" and "Keep it Simple" to administer to meet an end date. Continuous changes will always extend any programme of work.

(2) Why were changes to design still being instructed almost a year after contract close?
This is a question that you must ask the instruction deliverer not the receiver.

(3) What sort of changes were being instructed (and by whom)?
The only formal Instruction to vary originally came from TIE

(4) Why was it not possible to define an end date for Phase III (Detailed Design)?
KIS – "Keep it Still and deliver it".

(5) What were the consequences for the Infracore and MUDFA works of changes to design?
Extensions of time and cost

61. By letter dated 2 April 2010 (CEC00197190) Steven Bell sent BSC a report, Design Change Audit, which noted (page 2) that the audit team had found "*Little evidence that Infracore have properly managed the design process in a timely manner*".

(1) What steps did BSC take to manage the design process post SDS novation?
Provision of Design Integration utilising correct IDR and IDC procedures.

(2) Did you consider that BSC managed the design process in a timely manner?
The factual evidence of this is the design audit comments.

(3) Did you have any concerns at any stage in relation to BSC's management of the design process?
At that time no.

62. A document produced by TIE in March 2010, "Project Pitchfork" (CEC00142766) contained certain criticisms of PB (at pages 6 and 27/28).

(1) For completeness, what are your views on these criticisms?
I do not have any material views of the "Project Pitchfork" document.

I do not recall seeing this document but would have been happy to respond to the same if presented to me March 2010 .

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

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

DLA sent a further letter dated 18 August 2010 (CEC00098276), PB responded by letter dated 27 August 2010 and DLA sent a further letter dated 2 September 2010 (CEC00220025).

Mr Reynolds responded by e-mail dated 3 September 2010 (CEC00098294).

(1) What was your understanding of, and views on, the matters in these letters, including why the design remained incomplete?

Concurrence with the Reynold viewpoint.

(2) The letters refer to a possible agreement among consortium members. Can you shed any light on that? Was any such agreement (whether formal or informal) ever proposed, discussed or entered into? If so, what was the purpose and main terms of any such agreement or proposed agreement?

Not aware of such "Agreement"

64. Mediation discussions to try and settle the dispute between TIE and BSC took place at Mar Hall in March 2011.

(1) Were you, or any other PB representative, present at these discussions?

Not A Dolan. I recall Steve Reynolds and Jason Chandler may have been at those discussions

(2) What part, if any, did PB play in these discussions?

Please kindly refer Reynolds and Chandler for accurate answering here.

(3) What were your views on the settlement reached at Mar Hall?

I have no material viewpoint on settlement reached. SDS worked away from the deliberations under novation contract.

Detailed Design (April 2011 to completion)

65. Following the discussions at Mar Hall in March 2011, a Settlement Agreement was reached in September 2011 for completion of a line from the Airport to York Place.

By way of overview:

- (1) How were PB's interests taken into account in the September 2011 Settlement Agreement?
Please kindly refer to Steve Reynolds in this regard.
- (2) What were the main areas in which further design required to be completed between April 2011 and the completion of the project?
Please refer to Reynolds Chandler in this regard.
- (3) Did PB continue to complete the design during that period under instruction from BSC?
My recollection is yes to certain parts by instruction via BSC
- (4) Did any difficulties arise in completing design during that period and, if so, how were any such difficulties resolved?
No more than any other Large Major Transit Infrastructure Project
- (5) What were the main differences after the 2011 settlement that allowed the design to be completed (when compared with the problems before)?
There was a will by all parties to move forward. The KIS principle did start to kick in.

66. In relation to you ceasing to be involved in the tram project:

- (1) We are unsure when you left the tram project and should be grateful if you would confirm when and why you left the project?
I left the Edinburgh Tram Project as the design was coming to completion (April 2012) to take up a Tram Related Position in Manchester. The SDS Construction Services Team were in full force with differing skill sets (construction support services).
- (2) Was design complete when you left the project (and, if not, what items of design remained incomplete)?
Not entirely complete. Re-designs to Picardy Place were still being assessed and forwarded. The new Tramstop at York Place was being completed.

Project Management, Governance and Final Observations

67. In relation to the project management and governance of the tram project (and to the extent not already covered above):

- (1) What were your views, in general, on the project management and governance of the tram project including the project management of design
I have no material views on the project management and governance of the tram project including the project management of design. I have experienced Major Transit Infrastructure Projects in Hong Kong/Taiwan/Malaysia/Australia and UK. This was one of the more onerous projects. See comments from lessons learned in 2.1 and 2.2
- (2) What were your views on the various bodies (and the senior personnel in these bodies) involved in the project management and governance of the tram project (including TIE, TEL and CEC)?
See comments from lessons learned in 2.1 and 2.2
- (3) What were your views on the main contractors working on the tram project including PB, Halcrows, Bilfinger Berger, Siemens, and Alfred MacAlpine/Carillion?
See comments from lessons learned in 2.1 and 2.2

68. By way of final observations:

- (1) How did your experience of the Edinburgh tram project compare with other major infrastructure projects you have worked on (both previously and subsequently)?
It was a very poor experience for me as an engineer and management of project designs. I am presently working with a Client who has a proactive delivery model. The Client and Project Delivery Team wishes each Tram Extension Project to succeed and sets such a culture to assist each other within their defined Scope of Services. I have continued to work on Major Transit Infrastructure Projects throughout the UK and Internationally since 1987.
The positive from my experience working as a small cog in the design and delivery of the Edinburgh Tram Infrastructure is that it is now up and running and delivering a service to the people of Edinburgh. Extension to this network is now envisaged for the future to assist in the modal shift envisaged originally. I am pleased for this.
- (2) Do you have any views on how the design related problems and delays could have been avoided or reduced?
Yes. See comments from lessons learned in 2.1 and 2.2
- (3) Are there any other observations you would like to make that fall within the Inquiry's Terms of Reference and which have not been covered above?
No.



Terms of Certificate

I confirm that the facts to which I attest in the answers contained within this document, consisting of this and the proceeding 44 pages are within
(insert number)
my direct knowledge and are true. Where they are based on information provided to me by others, I confirm that they are true to the best of my knowledge, information and belief.

WITNESS SIGNATURE _____



DATE _____

17/07/2017