

ETN Project
Trackwork design

With respect to this trackform information, the Infraco has commenced dialogue with CEC so that any initial CEC comments and expectations can be fully understood and addressed. The Infraco is planning to make a presentation to CEC with specialists if required and/or visits to established Rheda installations if required. The plan set out below provides details of the follow-up actions intended.

Necessarily, the designs referred to in 3.4, 3.5, 3.6 and 3.7 of this Plan need to be resolved and completed before these can be submitted to CEC for approval and, as indicated in the plans in each of these sections, these are also dependent on action from tie.

In order to complete this exercise, the following steps represent the Infraco's plan. Each step is logically a prerequisite to the next step:

Item	Action	Who	When
1	Arrange informal meeting to understand CEC expectations and arrange date for presentation relating to trackforms and trackform integration	Infraco CEC	CEC to advise
2	Provide further information resulting from meeting with CEC	Infraco	Plus 10 Business Days
3	Presentation to CEC (with specialist attendance) relating to trackform integration	Infraco CEC Experts	Plus 5 Business Days
4	Visits to existing installations if required	Infraco CEC	CEC to advise
5	Designs as listed in the above referenced sections 3.4, 3.5, 3.6 and 3.7	Tie Infraco	See relevant sub-section
6	Further submissions to CEC to close out Informatives	CEC	Plus 10 Days from request
7	Issue for construction	Infraco	Plus 10 Business Days

3.9 Design Assurance Statements

In order to avoid the proliferation of incomplete DASs, the Infraco, as documented in its Management Plan, elected to adopt a two step approach to DAS submission. More particularly, Infraco elected firstly to produce the individual DAS for each “design package”, being understood as a systems discipline (for SDS, these will be by geographical section, rather than discipline) and secondly, an overall DAS per geographical section and including full evidence of the integration between all its design elements. This was made clear in the Design Assurance Plan, submitted by the Infraco and endorsed by tie with levels as indicated in Appendix C.

In order to complete this exercise, the following steps represent the Infraco’s plan. Each step is logically a prerequisite to the next step:

Item	Action	Who	When
1	Individual discipline (Lots) DAS by system (Mostly complete)	Siemens Lots	15 November 2010
2	SDS DAS by geographical section (Mostly complete)	SDS	In line with IDC Schedule and close-outs
3	CEC close out of Informatives and any subsequent design submissions required	CEC	30 Business Days from last submission
4	Combined DAS	Infraco SDS	Following completion of all designs described in the above sub-sections

It is noted that certain of the steps to be “assured”, such as the documented close out of IDR/IDC comments, close out of RoR comments, or CEC close out of Informatives are a logical prerequisite for the closure of each DAS unless reported by exception.

APPENDICES

Appendix	Content
A	Project Management Plan Overview graphic
B	Design Integration Processes – Requirement and validity
C	Design Assurance Processes – Requirement and validity
D	Case for Safety Processes – Requirement and validity
E	Schedule of trackwork design submissions and RoR status
F	Schedule of MUDFA utilities that have not been relocated below the 1.2m utility-free zone
G	Plan indicating areas affected where the design is subject to formal change by tie due to obstruction within the 1.2m utility-free zone

APPENDIX A

Project Management Plan Overview of Processes



PMP Overview
Graphic

APPENIDIX B

Design Integration Processes

DESIGN INTEGRATION PROCESSES

Background

The basis for system integration originated with the Employer's Requirements Section 3.5 'Summary of Deliverables'. Included within the Deliverables are:

- Interface Control Documents;
- Interface Schedules;
- System Interface Management Plan;
- System Interface Register;
- System Integration Plan.

The Infraco Proposals included a response to these Employer's Requirements. The approach to system integration is explained in Chapter 2 of Section 1 of the Infraco Proposals 'Overall PM Concept, Design Management', which refers to Section 2, Overall Technical Concept, Chapter 1 – System Engineering.

Interface schematics were provided at Annex 3 to Section 1 of the Infraco Proposals, identifying the interfaces anticipated during the design process.

Current Plans

The Project Management Plan (PMP) is the over-arching plan, which embodies all the management plans used to deliver the ETN. A chart explaining the hierarchy and relationship of the various plans within the Project Management Plan is contained within the Project Management Plan document; the same is reproduced for ease of reference at Appendix A.

Of relevance to integration are the Design Management and System Engineering family of processes, containing the following plans:

- System Integration Plan;

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- Interface Management Plan;
- IDC Procedure.

Within the Interface Management Plan a template for the Interface Register is included. This identifies all interfaces and is used as a tracker for controlling and monitoring the process.

During the design stage, interfaces between the major design elements are identified, clarified and signed-off between the respective parties. The agreed interfaces identified on Interface Control Forms (ICFs) and supporting documentation thus become design requirements that are to be satisfied within the respective designs. Through the established Interdisciplinary Design Review process (IDR), incorporation and or implementation of these requirements is confirmed or commented upon if requirements are not met fully. Final confirmation on the integration of all design elements is made through the validation process of Interdisciplinary Design Check (IDC) and corresponding certificate.

The above processes were submitted to tie in accordance with Schedule Part 14 of the Infraco Contract and endorsed by tie as follows:

Plan	Date of issue	Endorsement
System Integration Plan	19 March 2010	Level B on 8 April 2010 INF CORR 4711
Interface Management Plan	19 May 2009 and 15 July 2009	Level A on 12 November 2009 INF CORR 2796
IDC Procedure	2 September 2009	Level A on 1 October 2009 INF CORR 2545

APPENDIX C

DESIGN ASSURANCE PROCESSES

DESIGN ASSURANCE PROCESSES

Background

Infraco's obligations in respect of DAS are set out at Clause 2.8 of Schedule Part 14 of the Infraco Contract (Design Review Procedure). The DAS is the culmination of the design assurance process and details how the design complies with statutory, stated and best-practice requirements.

The DAS refers to processes that are ongoing throughout the entire process of design. The DAS only constitutes a retrospective proof of the processes having been carried out, in order to provide a verifiable audit trail.

When sub-packages of design are submitted for review, the Review Procedure recognises that a full DAS may not be available, in which case a written statement of conformance containing the maximum possible inclusion of review criteria is submitted in lieu.

In addition, paragraph 3.6.1 of the Employer's Requirements states that the Infraco shall approach the design and technical services in a structured manner using a recognized "V" life cycle model with regards to the integration of design engineering, systems engineering and safety engineering activities.

Current Plans

The Project Management Plan (PMP) is the over-arching plan, which embodies all the management plans used to deliver the ETN. Each constituent Plan has been submitted to tie in accordance with Schedule 14 (Design Review Procedure and Design Management Plan) to the Infraco Contract Schedule Part 14 and endorsed as indicated in the Appendices. .

The hierarchy and relationship of the various plans within the Project Management Plan is contained within the Project Management Plan document, but the same is reproduced for ease of reference at Appendix A.

Of relevance to this section of the Plan are the plans within the “Design Assurance and V&V” family of processes. In particular, the detailed Design Assurance Plan and Verification and Validation Plans apply. These were submitted through the Infracore Contract Schedule Part 14 (Design Review Procedure and Design Management Plan) and endorsed by tie as follows:

Plan	Date of issue	Endorsement
Detailed Design Assurance Plan	8 October 2009	Level A 13 November 2009 INF CORR 2800/FG
Verification and Validation Plan	16 February 2010	Level B 16 June 2010 INF CORR 5096

APPENDIX D

CASE FOR SAFETY PROCESSES

CASE FOR SAFETY

Production of a 'Case for Safety' is included in the processes being implemented by the Infraco. These processes have been and will continue to be implemented until final completion and issue of the Case for Safety.

The following information is provided to explain the context of the documents and processes and to demonstrate that they are current and have tie's endorsement for implementation on the ETN project.

Background

The Infraco's obligations in respect of the Case for Safety arise from the requirement to satisfy the Railways and other Guided Transport Systems (Safety) Regulations 2006 in order to obtain safety certification from the Office of Rail Regulation.

Current Plans

Development of the Case for Safety is currently being pursued through the System Integration Plan and the Hazard Log. The Preliminary Case for Safety – Track was updated and submitted to tie for review on 21 September 2010. tie's Record of Review was returned on 11 October 2010 with a Level B endorsement. The Infraco expects to close out all comments by the end of October 2010.

The Hazard Log will continue to be actively managed by the Infraco in full consultation with the ICP and tie until all hazards are closed out and that safety assurance and the Case for Safety are achieved at the date of issue of a Certificate of Sectional Completion for the Sections of the Infraco Works.

APPENDIX E

Schedule of trackwork design submissions and RoR status



Schedule of
submissions

Submission-Number						Main Title	Submission Title	Document Number	planned Submission Date BSC -> TIE	Current tie Endorsement Level
System	Part	Phase-ID	Running-No	Rev.						
V	S&C	03	01	1	Detailed Design	Track Switches & Crossings Plans (V-m turnouts) - Preliminary Drawings	132737-000-00 130837-000-01 130840-000-01 130843-000-00 132118-000-00 132119-000-00 132312-000-00	15/07/09	INF CORR 3073 - 04/01/2010	
V	TRW	S&C	01	02	2	Basic Design	MMU - Review of ETN S&C Flangeway Study	61/10	01/07/09	INF CORR 4523 - 04/01/2010
J	TRW	S&C	01	02	3	Basic Design	MMU- Review of ETN S&C Flangeway Study- Final Report	61/11	21/07/10	Awaiting TIE endorsement
J	TRW	GEN	01	18	E	Basic Design	Trackform Overview	057158	15/07/10	Awaiting TIE endorsement
J	TRW	GEN	01	01	F	Basis of Design	Basis of Design: Sub System Trackwork	055820	06/05/09	INF CORR 4508 23/03/2010
V	TRW	RHC	01	01	B	Basic Design	Rheda City C Track Report	055821	19/01/09	INF CORR 4656 05/04/10
V	TRW	RHC	01	01	D	Basic Design	Rheda City C Track Report	055821	01/05/09	INF CORR 4656 06/04/10
V	TRW	RHD	01	01	A	Basic Design	Rheda City D Track Report	055822	19/01/09	INF CORR 4657 - 05/04/2010
V	TRW	RHD	01	01	B	Basic Design	Rheda City D Track Report	055822	19/05/09	INF CORR 4657 - 06/04/2010
V	TRW	S&C	01	01	B	Basic Design	Track Switches and Crossings Report	055826	28/04/09	Awaiting TIE endorsement

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Schedule of submissions

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Submission-Number										Document Number	planned Submission Date BSC -> TIE	Current tie Endorsement Level
SC-System	Part	Phase-ID	Running-No	Rev.	Main Title	Submission Title						
M	TRW	GEN	01	14	A	Basic Design	Longitudinal Calculations and Expansion Joints Trackwork		055631	16/07/09	INF CORR 1948 (11/01/2010)	
M	TRW	GEN	01	04	A	Basic Design	Trackwork Specification Rails, Rail welds, and Rail joints		055640	16/02/09	INF CORR 4764 (14/04/2010)	
M	TRW	GEN	01	04	B	Basic Design	Trackwork Specification Rails, Rail welds, and Rail joints		055640	16/03/10	Awaiting TIE endorsement	
M	TRW	GEN	01	05	B	Basic Design	Trackwork Specification Concrete		055648	02/03/09	INF CORR 4811 (19/01/10)	
M	TRW	GEN	01	05	C	Basic Design	Trackwork Specification Concrete		055648	21/09/09	INF CORR 4811 (19/01/10)	
M	TRW	RHC	01	02	A	Basic Design	Rheda City C Track Typical Sections		055716	16/02/09	INF CORR 1934 (30/03/09)	
		RHC	01	02	C	Basic Design	Rheda City C Track Typical Sections (with Minor Changes)		055716	23/03/2010	INF CORR 4481 (09/04/10)	
M	TRW	S&C	03	01	2	Detailed Design	Track Switches & Crossings Plans (VAE Turnouts)		058001 058042 058043 058045	04/02/10	INF CORR 5523 (04/07/2010)	

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Submission-Number										Document Number	planned Submission Date BSC -> TIE	Current tie Endorsement Level
SC- artne	Sub- yste	Part	Phase- ID	Runni- ng- No	Rev.	Main Title	Submission Title					
	W	GEN	01	17	B	Basic Design	Basic Design (DRAFT) Floating Slab			055632	01/02/10	INF CORR 6101 23/09/2010
PM	TRW	GEN	01	14	B	Basic Design	Longitudinal Calculations; Expansion Joints and Rail Stressing			055631	23/11/09	INF CORR 4678 06/04/2010
PM	TRW	GEN	01	08	B	Basic Design	Alignment Definition Drawing			055710	25/03/10	INF CORR 4681 06/04/2010
PM	TRW	GEN	01	08	C	Basic Design	Alignment Definition Drawing			055710	01/04/10	INF CORR 4681 06/04/2010
PM	TRW	GEN	03	06	B	Detailed Design	Overview Typical Trackforms			055712	11/02/10	INF CORR 4681 06/04/2010
PM	TRW	GEN	01	10	C	Basic Design	Transition Welds Alumino Thermic Welds			055713	22/07/09	INF CORR 4681 06/04/2010
PM	TRW	RHD	01	02	A	Basic Design	Rheda City D Track Typical Sections			055717	16/02/09	INF CORR 4681 06/04/2010
PM	TRW	RHD	01	02	C	Basic Design	Rheda City D Track Typical Sections			055717	23/03/10	INF CORR 4681 06/04/2010

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Submission-Number						Main Title	Submission Title	Document Number	planned Submission Date BSC -> TIE	Current tie Endorsement Level
IC-System	Sub-system	Part	Phase-ID	Runni-ng-No	Rev.					
	W	GEN	03	07	B	Detailed Design	Basic Design: Rheda City Floating Slab Track (drawing)	055722	09/06/10	B
M	TRW	RHS	01	02	A	Basic Design	Rheda City SLC Typical Sections	055723	02/08/2010	INF CORR 2644 22/07/2010
M	TRW	GEN	01	09	A	Basic Design	Drainage Box Details	055788	25/06/09	INF CORR 1742 09/07/2009
W	TRW	GEN	01	11	A	Detailed Design	Tolerances Rheda Track - Horizontal/Vertical	055789	21/09/09	INF CORR 6251 22/09/2010
	TRW	GEN	01	18	C	Detailed Design	Wheel-Rail Interface Proposed CAF wheel profile- x.06.00323	055770	12/03/10	INF CORR 1759 09/07/2009
	TRW	GEN	03	04	A	Detailed Design	System Wide - Generic Track Type Transitions Ballast to Rheda City/Direct Fixation Track	055771	17/12/09	INF CORR 6115 21/09/2010
	TRW	RHC	01	03	B	Basic Design	Rheda City C Track at Tramstops Details & Location of Drainage Boxes	055775	30/06/09	INF CORR 4001 03/02/2010

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Submission-Number						Main Title	Submission Title	Document Number	planned Submission Date BSC -> TIE	Current tie Endorsement Level
System	Part	Phase-ID	Running-No	Rev.						
TRW	RHO	01	02	A	Detailed Design	Rheda City Open Formation Sections on Guided Busway Drawing	055778	15/07/09	INF CORR 4571 50/03/2010	
M	TRW	S1A	03	01	A	Detailed Design	Track Layout km100.000 - km110.000 New Haven - Ocean Terminal Ocean Terminal - Ocean Drive Ocean Drive - Constitution Street Constitution Street - Foot of Walk	055781 055783 055791 - 055793	23/07/09	Awaiting TIE endorsement
M	TRW	S1B	03	01	A	Detailed Design	Re-submission to tie only Track Layout km110.000 - km120.000 Foot of Walk - Balfour Street Constitution Street -McDonald Road	055821 055822 055831 055832	11/11/09	
M	TRW	S1B	03	01	A	Detailed Design	Track layout km110.000- km 120.000 Foot of the Walk - Balfour Street Balfour Street - McDonald Road	055821 055822 055831 055832	28/08/09	
M	TRW	S1C	03	01	A	Detailed Design	Track Layout km120.00 - km122.000 McDonald Road - Picardy Place Picardy Place - Andrews Square	055841 055842 055851 055852	28/07/09	Awaiting TIE endorsement
M	TRW	S1C	03	03	B	Detailed Design	Track layout km 121.300 - km 130.000 St Andrews Square - Princes St	055881 055882	18/05/09	Awaiting TIE endorsement
M	TRW	S1C	03	03	C	Detailed Design	Track layout km 121.300 - km 130.000 St Andrews Square - Princes St	055881 055882	29/07/09	Awaiting TIE endorsement
M	TRW	S1D	03	04	C	Detailed Design	Track Layout km 130.000-km 130.300 Princes Street - Shandwick Place	055871	30/07/09	Awaiting TIE endorsement
		S1D	03	04	B	Detailed Design	Track Layout km 130.000-km 130.600 Princess Street- Shandwick Place	055871 055872	18/05/09	Awaiting TIE endorsement
M	TRW	S1D	03	04	D	Detailed Design	Track Layout km 130.300 -km130.600 Princes Street - Shandwick Place	055872	30/07/09	Awaiting TE endorsement

Submission-Number					Main Title	Submission Title	Document Number	planned Submission Date BSC -> TIE	Current tie Endorsement Level	
Part	Phase-ID	Running-No	Rev.							
✓	S1D	03	05	B	Detailed Design	Track Layout km 130.600 - km131.150 Shandwick Place - Haymarket	055881 055882	19/03/10	B	
✓	TRW	S2A	03	02	B	Detailed Design	Track Layout km 131.150 - km 200.250 Shandwick Place - Haymarket	055883	30/07/09	Awaiting TIE endorsement
✓	TRW	S2A	03	02	C	Detailed Design	Track Layout km 131.150 - km 200.250 Shandwick Place - Haymarket	055883	30/06/10	Awaiting TIE endorsement
✓	TRW	GBW	03	03	A	Detailed Design	Tram Section on Guided Busway Gully Sump Grating Cover Fixing Details	057117	11/12/09	B
✓	TRW	GEN	03	05	A	Detailed Design	Set Transition rail straight 49E1 /60R2 twist 49E1 1:40 in the transition area	058057 058058	04/02/10	INF CORR 4301 08/03/2010
✓	TRW	S&C	03	03	1	Detailed Design	sb0929796-60 Layout C/C 59R2-R50-1:30. 15-1435 Left hand crossover Shandwick Place assembly drawing sb0929796-70 Layout C/C 59R2-R50-1:5.96-1435 Left hand crossover York Place assembly drawing	058081 058062	19/03/10	INF CORR 4321 08/07/2010
✓	TRW	GEN	01	15	1	Basic Design	Wheel-Rail Interface Study Report	Rail Technology Unit 61/07	11/03/10	INF CORR 3218 21/01/10

APPENDIX F

Schedule of MUDFA utilities that have not been relocated below the 1.2m utility-free zone



Adobe Acrobat
Document

Shallow depth utilities above 1.2m

No.	Description	Quantity	Unit	Material	Remarks	Notes	Remarks	Remarks		Remarks																										
								Material	Material	Material	Material	Material	Material	Material	Material	Material	Material	Material	Material	Material	Material	Material														
SECTION 1A																																				
1	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
2	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
3	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
4	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
5	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
6	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
7	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
8	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
9	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
10	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
11	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
12	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
13	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
14	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
15	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
16	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
17	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
18	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
19	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
20	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
21	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
22	LEAD-IN CABLE	1000	M	CABLE	CABLE																															
23	LEAD-IN CABLE	1000	M	CABLE	CABLE																															

No.	Boring No.	Control to Project No.	Utility Structure No. or Project No.	Utility	Structure	Type of Structure	Position			Geological Details										Remarks					
							Zone	Elevation	Depth	Stratigraphic Unit	Description	Remarks	Remarks	Remarks	Remarks	Remarks	Remarks	Remarks	Remarks						
																					Zone	Elevation	Depth	Stratigraphic Unit	Description
42	UAZ0204H-UG-0205	TSABR0401		SEWERS	P	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	E	10017	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
43	UAZ0204H-UG-0203	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
44	UAZ0204H-UG-0203	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
45	UAZ0204H-UG-0203	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
46	UAZ0204H-UG-0203	TSABR0401		SEWERS	C	X	X	X	X	17500	11.5m	7.5	TA	11.5m	TA	Existing 1000mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	11.5m	7.5	TA	Existing 1000mm diameter sewerage pipe	Remarks
47	UAZ0204H-UG-0203	TSABR0401		SEWERS	C	X	X	X	X	17500	11.5m	7.5	TA	11.5m	TA	Existing 1000mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	11.5m	7.5	TA	Existing 1000mm diameter sewerage pipe	Remarks
SECTION 4C																									
48	UAZ0204H-UG-0204	TSABR0401		SEWERS	P	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	E	10017	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
49	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
50	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
51	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
52	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
53	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
54	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
55	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
56	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
57	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
58	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
59	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks
60	UAZ0204H-UG-0204	TSABR0401		SEWERS	C	X	X	X	X	18000	12.2m	7.5	TA	12.2m	TA	Existing 1200mm diameter sewerage pipe	L	10016 to 10018	7.5	10000	12.2m	7.5	TA	Existing 1200mm diameter sewerage pipe	Remarks

ID	Project Name	Contract Reference No.	Contract Description	Contract Type	Phase	Prerequisites						Contract Details								Notes	Status							
						Approved	Issued	Contracted	Completed	Finalized	Archived	Contract No.	Contract Value	Contract Date	Contract Type	Contract Duration	Contract Location	Contract Sub-Location										
01	UEN1010-DMS-0001	ICM10000	Advanced Single Model	P	X	X	X	X	X	X	Avery Green 400	45.0m	900	L&L survey records show Avery Green 400m width within 10m of centerline and 10m of road edge. 1:2.5m slope. 30% cover. 100% cover 10m of road edge.	L	10000-1000	100	Avery Green 400	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001	UEN1010-DMS-0001

No.	Inventory No.	Drawing Reference No.	Detailed Reference No. (if applicable)	Material	Quantity	Unit	Notes	General Notes										Remarks
								1	2	3	4	5	6	7	8	9	10	
101	10100000000000000000	10100000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
102	10200000000000000000	10200000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
103	10300000000000000000	10300000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
104	10400000000000000000	10400000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
105	10500000000000000000	10500000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
106	10600000000000000000	10600000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
107	10700000000000000000	10700000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
108	10800000000000000000	10800000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
109	10900000000000000000	10900000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
110	11000000000000000000	11000000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
111	11100000000000000000	11100000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
112	11200000000000000000	11200000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
113	11300000000000000000	11300000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
114	11400000000000000000	11400000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
115	11500000000000000000	11500000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
116	11600000000000000000	11600000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
117	11700000000000000000	11700000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
118	11800000000000000000	11800000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
119	11900000000000000000	11900000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...
120	12000000000000000000	12000000000000000000		Timber	1	sq ft	...	1	2	3	4	5	6	7	8	9	10	...



MUDFA affected locations (refer to excel sheet 'All crossing conflicts <1.2m cover')

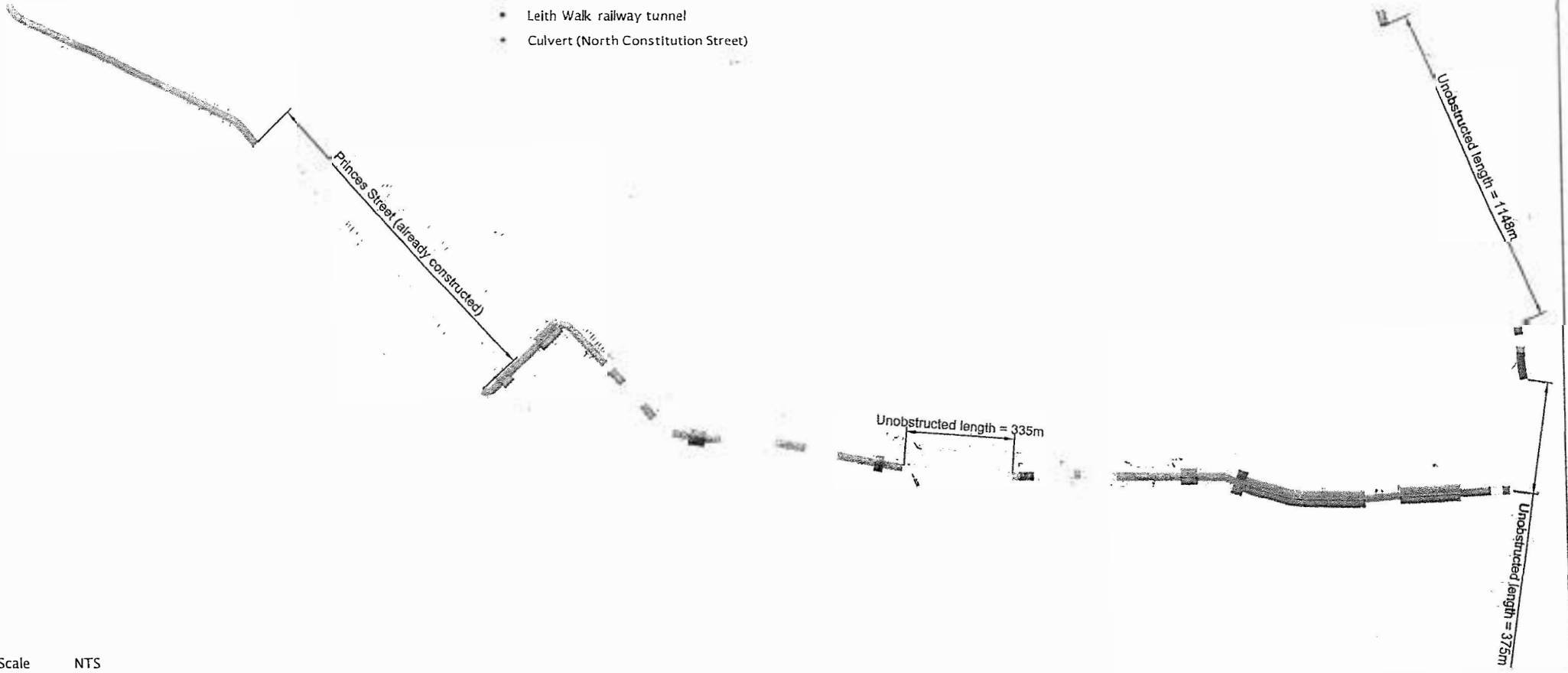


Locations of floating slabs (refer to D25 International report 'Edinburgh Tram Network, Newhaven Road to Haymarket - Ground borne noise and vibration study' reference C1247/R03 dated 04/08/2009)



Location of special features

- Tower Place bridge
- Victoria Dock bridge
- Scottish Power cable tunnel
- High Voltage cable (Arthur Street to Dalmeny Street)
- Leith Walk railway tunnel
- Culvert (North Constitution Street)



Scale NTS
 Date 20/10/10
 Originator - DWH
 Checker - SDE
 Approver - MBE

Bilfinger Berger UK Limited EDI	
Date Received	10 NOV 2010 Scanned
File Number	
Action	
Distribution	



For the attention of Martin Foerder - Project Director
 Bilfinger Berger - Siemens - CAF Consortium
 9 Lochside Avenue
 Edinburgh Park
 Edinburgh
 EH12 9DJ

Our Ref: INF CORR 6664

Date: 9th November 2010

Dear Sirs,

**EDINBURGH TRAM NETWORK - INFRACO CONTRACT
 REMEDIAL TERMINATION NOTICE: INFRACO DEFAULT (a): DESIGN:TRACKWORKS
 RECTIFICATION PLAN**

We refer to your letter dated 26 October 2010 (reference ETN(BSC)TIE=T&ABC#052170) which you submit as your rectification plan in response to a Remediable Termination Notice issued on 8 September 2010 – *Infraco Default (a): Design: Trackworks* (reference INF CORR 5995). We are also in receipt of your letter of 26 October 2010 (reference ETN(BSC)TIE=T&ABC#052171) which de facto asserts that as you are not in breach of your obligations there is no requirement for you to issue a rectification plan.

Both of your letters contain your reasoning for asserting that you are not in breach of your obligations and that an Infraco Default (a) has not occurred. We do not respond to your arguments here – we will do so in due course.

This letter is our response to your rectification plan pursuant to Clause 90.2, whereby we are required to determine whether your rectification plan is acceptable to us. We regret to inform you that it is not.

If you decide to submit a rectification plan in accordance with Clause 90.2, it has to be comprehensive and set out how you intend to remedy the Infraco Default. In considering your plan we are obliged to act in accordance with Clause 118 to the extent that it applies to our right to use our absolute discretion in this matter.

We note that your rectification plan does not include a complete, fully integrated, approved and assured design for the on-street trackworks. We do not accept that your rectification plan comprehensively describes how you intend to complete a fully integrated, approved and assured design for the on-street trackworks. Some of the reasons for refusal are:

- there is insufficient explanation detailing a coordinated programme and the resources required and which will be utilised to deliver a fully integrated, approved and assured design;

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- there is no specific "timescale" as to when the individual deliverables will be provided and the durations required for activities appear to be excessive;
- the proposals do not provide straightforward staged completion plans inter alia addressing such issues as:
 - Specification requirements;
 - Consolidated drawings showing ducts and transitional slabs etc.;
 - QA requirements and provisions; and
 - Residual Risk Assessment;
- there is lack of demonstrable understanding or integration with the requirements of DMRB;
- the proposals do not integrate the foundation layer and surface layer with the track design;
- the proposal for integration of the on-street tramway with a road junction contravenes guidance in the Office of Rail Regulation's "Guidance on Tramways";
- lessons learnt from Princes Street are not visible;
- there is no evidence that "best value" has been considered or will be considered; and
- the proposals lack a Statement of Compliance showing how the design meets the general case and any special cases.

We would remind you that pursuant to Clause 90.4 we may at our discretion give notice of termination as a result of your failure to submit an acceptable rectification plan and that in accordance with Clause 90.5 you are not relieved in any way from the due and proper performance to all of your obligations under the Infraco Contract.

Yours faithfully,

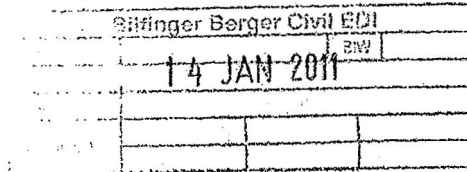


Steven Bell
Project Director - Edinburgh Tram

Our ref: ETN(BSC)TIE=TD&ABC#058098
Your ref: INF CORR 6664

14 January 2011

tie limited
CityPoint
65 Haymarket Terrace
Edinburgh
EH12 5HD



Bilfinger Berger-Siemens- CAF
Consortium

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For the attention of Mr. Steven Bell, Tram Project Director

Dear Sirs,

**Edinburgh Tram Network Infraco
Infraco Contract: Remediable Termination Notice: Alleged Infraco Default (a) Design: Trackworks
Rectification Plan**

Reference is made to:

- tie letter reference INF CORR 5995 'Remediable Termination Notice', dated 08 September 2010
- Infraco letter reference ETN(BSC)TIE=T&ABC#052171 'Alleged Remediable Termination Notice (Design- Trackworks)', dated 26 October 2010
- Infraco letter reference ETN(BSC)TIE=T&ABC#052170 'Alleged Remediable Termination Notice (Design- Trackworks) Rectification Plan', dated 26 October 2010
- tie letter reference INF CORR 6664 'Remedial Termination Notice: Infraco Default (a): Design: Trackworks Rectification Plan', dated 09 November 2010

Without prejudice to our position as set out in our letters above we again advise that we do not accept that an Infraco Default has occurred and that a rectification plan is required.

We are disappointed that you have rejected our Rectification Plan without taking the opportunity to discuss the issues raised in your letter INF CORR 6664 with us first. Our request that you engage with us to finalise and implement the Plan still stands. Finalisation of the trackwork design requires input from a number of parties including tie and CEC. As such the Plan recognises that Infraco will have to work in mutual co-operation with tie to finalise the design and that tie will have to comply with its obligations under the Infraco Contract. The actions we identified in the Plan are necessary, including actions by tie.

Your rejection of the Plan appears to have been based on the strategy you were pursuing of using Remediable Termination Notices in relation to every grievance you had on this Project. Despite indications we received from you that you would engage with us in relation to the Plan you have, in our view, taken an unreasonable approach in rejecting this plan. We note that you believe you have absolute discretion in relation to this matter and are therefore not required to act reasonably. This approach, however, conflicts with the successful delivery of the Edinburgh Tram Network and your public law duties.

Whilst we do not accept your allegation that an Infraco Default exists in relation to Trackwork Design, our Plan set out how this design will be completed including elements dependent on awaited tie

this is provided by tie. For the avoidance of doubt, it was not the intention to deal with issues such as this within the Plan. CEC Approval is, however, addressed in the Plan.

7. Lesson Learnt from Princes Street

Section 3.1 of the Plan deals specifically with lessons learnt from Princes Street. The discussions with CEC, which are indicated in the Plan at item 3 of Section 3.1 have now commenced and a presentation was made to CEC and tie on 02 December 2010, which explained in detail the lessons learnt from Princes Street.

8. Best Value


The design elements yet to be completed are listed in the Plan. There is very little scope for the design to affect Best Value, as this is now detailed design. Best Value decisions are generally made at concept or preliminary design stages. Infraco will assist tie in any of its Best Value initiatives, as required under Clause 73.2 of the Infraco Contract.

9. Statement of Compliance

The Design Assurance Statements (DAS) are part of the Plan. As required by Paragraph 2.8.1 of Schedule Part 14 of the Infraco Contract, the DAS's will detail how the design complies with statutory, stated and best-practice requirements. How the DAS's are achieved is covered in the individual sections of Section 3 of the Plan. Additionally, Appendix 3 explains the process for producing the DAS.

We would remind tie that, notwithstanding tie's rejection of this Plan, the elements of the Plan still have to be completed and, where dependencies are identified, in particular on tie actions, these must also be carried out. Failure by tie to address and carry out its necessary actions will jeopardize the successful completion of the Plan and may amount to a breach of tie's obligations under the Infraco Contract.

Yours faithfully,


Martin Förder
Project Director
Bilfinger Berger Siemens CAF Consortium
MFO/ABR/KDI/SDE

cc: Klaus Dieker - Infraco (Siemens)
Michael Wilken - Infraco (Siemens)
Damian Wheeler - Infraco (Siemens)
Thomas Schwanse - Infraco (Siemens)
Stefan Rotthaus - Infraco (Bilfinger Berger)
Simon Nesbitt - Infraco (Bilfinger Berger)
Ian Brazenall - Infraco (Bilfinger Berger)