Transdev Edinburgh Tram

Proposal for **tie**'s Design Review Process

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Summary

This document proposes a ~~draft~~ process that **tie** could implement to review the designs generated by SDS for the tram project. The process is based around a risk based approach to reviewing the designs, with a focus on those areas that present the greatest perceived risk to the project. CEC is involved in this process. The process suggests a balance of cost and risk that is intended to provide best value to the project overall. The next action lies with **tie**.

Version control

The version and date of this document is shown in the footer, and changes are tracked from the previous draft.

Contents

1 Introduction

The delivery of Detailed Designs by SDS has started, but currently **tie** does not have a satisfactory process in place to review these designs. A number of workshops have been held on this subject by **tie**, and TSS has delivered a proposal to **tie** for this process. ~~t~~**Tie** has not accepted the proposal from SDS due to the cost implications.

On 26th January, at the Leadership meeting, Transdev agreed to lead a review of the interaction between **tie** and SDS in the development of the design for the system~~, and~~. ~~O~~on 7th February Transdev was asked to focus on the Design Review process and drive a design review process into place. On about 20th Feb, tie (Matthew Crosse) advised Transdev (Jim Harries) that the implementation of he process is now the responsibility of **tie**'s David Crawley.

This document sets out the process proposed by Transdev and a plan for its implementation, and was amended on 23rd Feb to reflect developments since 9th Feb.

Items in square brackets in this proposal will need some further refinement with **tie**.

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2 Proposed Design Review Process

The process for the actual design reviews is set out as a ~~flowchart~~ table below. However, before this process can be set up, preparatory work is needed. The preparatory work is set out in section 3 of this document.~~:~~

Note that the timescales associated with this process needs to be defined.

Step	Activity	Who
1.	A~~n~~ deliverable that is part of the design arrives from SDS and is entered into **tie**'s extranet.	~~Tie~~'s **tie**'s document controller
2.	The deliverable is identified in the ~~Detailed Design~~ Deliverables~~,~~ Schedule. Please refer to section 4 of this document. From the schedule, the following are identified: • The Discipline and Design Reviewer(s) • The type of design check required. If the type of check is on a random basis, then a random number generator will be used to decide if this element is to be checked	**tie**'s document controller
3.	If any action by a Design Reviewer is required, then the Design Reviewer is alerted [by email] and a ROR is generated on the extranet with the relevant information from the design deliverable.	**tie**'s document controller
4.	If the element does not need to be checked, then go to step 9.	
5.	The Design Reviewer reviews the document and generates the comments. The Design Reviewer will invite comments from other reviewers where that is considered to add value. These other reviewers will include CEC where appropriate or previously identified in the Deliverables Schedule. Refer to section 4.	Design Reviewer
6.	These comments are added to the ROR.	Design Reviewer or Admin
7.	Where the element is subject to a random check, the Design Reviewer will consider if the results of the review should cause the nature of the random check to be changed. He will advise **tie**'s Engineer accordingly and any changes to the checking process will be made.	Design Reviewer and **tie**'s Engineer
8.	The Status of the Design Element is updated on the Extranet to ["Accepted" or "Rejected"] as set out on the ROR.	Admin

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9.	ROR is issued to SDS.	Admin

3 Steps for Iimplementation

This section sets out the actions needed to implement this process. The process cannot start until these steps have been achieved.

Step	Task	Who
1.	Accept this document, including the change in the risk profile as set out in section 6, and allocate a project manager to deliver the process.	**tie** Tram Project Director
2.	Obtain ~~a suitable schedule of deliverables~~the Deliverables Schedule from SDS	~~**Ailsa McGregor**~~**tie**
3.	Discuss and agree with Howard Elwyn-Jones how best to track the overall process, and amend process accordingly	~~**Jim Harries**~~**tie**
4.	Develop this D~~d~~eliverables S~~s~~chedule as set out in section 4 of this document	**tie**'s Engineer or other person allocated by **tie**
5.	Agree the arrangements with TSS. See resource implications in section 5.	**tie** [who]
6.	Document the process as a procedure on the extranet	~~**[Jim Harries]**~~**tie**
7.	Brief all those involved in the process and make it happen.	**tie**'s Engineer or other person allocated by **tie**

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4 Deliverables Schedule

The format of the deliverables schedule would be developed into the following sample format, with the three additional shaded columns on the right hand side. This development process would be undertaken by **tie**'s Engineer, supported by

- a Transdev representative
- a TSS representative, and
- a CEC representative.

The selection of both the individual Design reviewer and the proportion to be checked will be on a ~~risk basis~~professional judgement as below:

- Where SDS is considered to be highly likely to produce acceptable designs, then checking rate will be very low, typically 5%.
- Where there are other processes in place to check the designs, such as independent structural design checks, then the need for **tie** to undertake separate additional checks ~~is likely to~~should be eliminated
- Where **tie** has specific concerns about SDS, for example in certain aspects of system integration, then the proportion to be checked is likely to be high, and
- Where aspects of the designs are critical to system performance then the checking rate is also likely to be high.

Once the three additional columns have been added, the schedule will be subject to further development in the light of experience gained during the design review process, as set out in section 2, step 7.

A sample of the envisaged schedule is set out overleaf as an example.

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Sample Expanded Deliverables Schedule

Date delivered	Discipline (get SDS to add this)	Title	Doc type	Design Reviewer	Proportion to be checked	Notes
	Ducting	Duct layouts		TSS nominee, named	5%	
		Junction sequencing		TSS nominee, named	25%	
		Road layouts		Transdev nominee, RJ	100%	Previously 100% reviewed at RDWGs
		Individual substation electrical documentation		Transdev nominee, JH	2 substations, Depot and one other	
		Individual substation aesthetics		CEC nominee	100%	
	SCC	Interface with Operator in Control Room		Transdev nominee, CW	100%	
		Track Alignment Design		TSS nominee, named, and Transdev nominee, RJ	20%	

Date delivered	Discipline (get SDS to add this)	Title	Doc type	Design Reviewer	Proportion to be checked	Notes
		Anything for prior approval		TSS nominee, with CEC representative	100%	
		And lots more rows to add				

5 Resource Implications

5.1 TSS Resource Implications

The key resource implications are with TSS. The implementation of this process is partly dependant upon the increasing involvement of **tie**/TSS/Transdev with SDS at earlier stages of the design development process as is being separately developed by Kim Dorrington and other senior engineers in the project.

~~Overall T~~~~there are three~~ impacts on TSS resources are:

- Increased TSS involvement with SDS in the ongoing dialogue with most of the design disciplines in SDS as is being developed with Kim Dorrington ~~through the group of Engineers that is being led by Jim Harries~~
- A reduction in the potential TSS involvement by moving away from the 100% checking rate of SDS's design that had been required by **tie**
- A reduction in the potential TSS involvement by using resources from outside TSS to undertake some of the checking process. This will reduce the need for TSS checks where TSS checks are duplicating required checking by others. These other resources include Transdev, CEC, and **tie**'s own in house resources where **tie** considers this to be appropriate.
- There may be contractual implications on the relationship between **tie** and TSS

5.2 CEC resource Implications

These are similar to the implications on TSS in that earlier involvement with the design process will offset the need for checking and commenting on designs later. The overall resource impact on CEC of this new process needs to be established by **tie** with CEC.

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6 Risk transfer

Currently TSS has been asked to undertake a 100% check of the Detailed Design, and underwrite the design. The process that is set out in this document is likely to be considerably less than a 100% check, and consequently some risk will be transferred from TSS to **tie**. However, the liability for the design still rests with SDS, so the key issue is how to reduce the overall project risk. By undertaking the risk based approach set out in this document, the due diligence process that Infraco will undertake on the emerging design should give Infraco the comfort that not only is the design produced by a competent designer, but also **tie** is approaching the review of the design in an appropriate manner.

7 Conclusion

On balance, it is considered that the process set out in this document present the best value to the project in terms of the programme risk, quality and quantity of design review.