NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: *08-08-11-093*

Note: the prompts given below are only a guide to the information required for approval. Dependent on the type of equipment or system that requires approval delete any section that is not applicable or include additional information if necessary. Mandatory fields are marked with an asterisk (*).

1 **Equipment or System to be approved** *

DUAL GAUGE TRACK LAID ON CONCRETE SLAB ON BRIDGE STRUCTURE (PORT ADELAIDE, SA).

2 **Originator** *

Name: Frank Lander Company: ARTC

3 **Introduction** *

The Port River bridge comprises approximately 1,200 m of track in which the rails are fastened directly to the bridge structure via Pandrol VIPA base plates.

4 **Determination of Need** *

Most of the structure is on a 385 m radius curve. It was considered that the differential expansion between the rails and the bridge structure would lead to long term alignment problems if a conventional ballasted deck approach were used. This led to the adoption of a slab structure.

Noise attenuation is achieved by the use of Pandrol VIPA base plate assemblies which incorporate an intermediate baseplate sandwiched between two studded elastomeric layers as per attached drawings.

5 **Significant Change or Not** *(as determined by the Manager Standards)* *

This change in equipment or system is assessed as **MINOR**

6 **Review Panel** *(as determined by the Manager Standards)* *

- John Furness - Manager Standards
- Tim Calver - Standards & Technical Services Engineer
- Ian Domleo – Senior Track & Civil Engineer

7 **Safety**

The method for fastening the rails and base plates devised out by Janus Railway and Civil (Roger Wyatt).

Vertical alignment is achieved by the use of a built up section of grout to the required thickness, 5 to 20 mm thickness as required. Rectangular 5 mm thick HDPE pads are placed between the baseplates and the grout to limit localised contact stresses.

Two chemically anchored M24 studs, one each in opposite corners, secure the common rail plates. Four studs, on in each corner hold the dual rail plates. The studs are grade 8.8 M24 with minimum 135 mm embedment in the concrete slab in accordance with the bridge designers recommendation. Pull-out tests on trial installations exceeded 100 kN.

An independent third party review was carried out by SKM.

8 **Performance and Suitability**

The system has been installed in the Docklands light railway in London and the Mandurah extension in Perth WA.

The fastening conforms to the following standards:

ARTC Code of Practice	Section 1 – Rail
	Section 5 – Track Geometry
ARTC Standards	TCS-09 – Mixed gauge track

Design documentation attached.

(i) **Use in other rail networks**

Docklands light railway (London)
Mandurah line extension (WA)

(ii) **Use in the ARTC network**

N/A

(iii) **Issues arising from usage of the equipment/system**

	No impact on train operations or signalling. A detailed inspection and maintenance plan is attached.
(iv)	**Changes required to infrastructure or systems for use of the equipment** N/A
9	**Reliability** The clips and insulating spacers are standard Pandrol Fastclip and eClip as used in the adjoining concrete sleepered track.
10	**Maintainability** Lateral adjustment of +/- 18 mm in service (eg to compensate for rail wear) can be achieved. Increased vertical alignment can be achieve by inserting shims. The frequency of inspection should be the same as the adjoining track. A maintenance plan has been prepared covering routine inspections and replacement of damaged or missing components.
11	**Approval** * **DUAL GAUGE TRACK LAID ON CONCRETE SLAB ON BRIDGE STRUCTURE (PORT ADELAIDE, SA).**
12	**Conditions of Approval** * In addition to the attached Maintene Plan, there is to be a comprehensive joint walking Inspection of all track. Any defects found are to be reported on an exception basis to ARTC, DTEI & Transfield Services. ***<<NOTE: Review Panel may add additional Conditions of Approval>>***

13	**Does the Originator accept the additional Conditions of Approval as set by the Review Panel:**	Yes	☐	No	☐	N/A	☐

14	**Sign off**	***ARTC office use only***
	Review Panel:	
	[signature]	Date: 2/1/08
	G.S. Cull	Date: 19/12/07
	Ian Dowler	Date: 18/12/07