

NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: 14/19018

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 *

Rawie 16ZEB/28a Friction Arresting Buffer Stop at Freight Link Headshunt in Melbourne only

2 Originator *

Name: Patrick Gray

Company: ARTC/RRL

3 Introduction *

A new dual gauge freight headshunt was proposed by the Victorian Regional Rail Link Project to replace the previous freight headshunt over the North Melbourne Flyover in order to make way for the new Regional Rail Link Track use of the Flyover to access Southern Cross Station. The new headshunt is comprised of a Section of the new Freight Link Track and the Freight Link Headshunt which branches off the Freight Link Track.

To control the risk of rolling stock overrun at the end of the headshunt it was determined through a risk assessment process that a friction buffer stop would be provided with capacity to safely bring a maximum freight train of 4500t to a stand from 15 km/h.

The Rawie 16ZEB/28a Friction Arresting Buffer Stop is a non-insulated device capable of arresting centre coupled freight vehicles through a friction shoe braking mechanism that allows impact energy to be dissipated over the nominated length of track.

This type of equipment provides enhanced rail safety over traditional fixed buffer stops by providing controlled speed reduction and reduces likelihood of destructive impact and the potential for rolling stock to override the buffer.

4 Determination of Need *

The ARTC Headshunt is new infrastructure delivered for the Regional Rail Link Project by the City to Maribyrnong River (RRL CMR) Alliance. The buffer stop has been proposed to control potential overrun of the Freight Link Headshunt dead end, by Safety in Design risk assessment to provide an engineered mitigation to the risk.

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

This change in equipment or system is assessed as SIGNIFICANT

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

- John Furness - Manager Standards
- Jamie Threader – Delivery Manager Melbourne to Crystal Brook
- Phil Meehan – Operations Support Manager Melbourne
- Patrick Gray – RRL Interface Support
- Jess Tai – Track Engineer

7 Safety

Rawie is a world leader in the design and provision of a range of buffer stop technologies including static, hydraulic, friction and elastic buffer stops and wheel stops.

The Rawie 16ZEB/28a Friction Arresting Buffer Stop is the largest model provided by Rawie and provides enhanced safety for stopping rolling stock through a controlled impact. The impact is controlled by the buffer sliding through an array of friction shoes to dissipate energy and arrest movement in a controlled fashion.

Please refer to the attached risk assessment carried out to assess the safety/operational risks associated with the use of the equipment at the end of the Freight Link Headshunt.

8 Performance and Suitability

The Rawie 16ZEB/28a friction buffer stop was specifically designed for the Freight Link Headshunt application and incorporates sufficient resistance and control and maintainability. Design performance criteria are for a train with live weight of 4500t travelling at 15km/hr.

Rawie has provided Certificate of Conformance verifying the design for the specified performance requirements of this buffer stop. This certificate is included in the documentation accompanying this approval application.

RAWIE is represented globally by approx. 40 agencies abroad in over 23 countries.

The Friction Buffer is compatible with ARTC Standard ETH-00-01.

RAWIE has Quality Certification to ISO 9001-2008.

The RAWIE 16ZEB/28a is the maximum rated Rawie friction buffer stop with enhanced stopping capability provided by

additional friction units incorporated on additional rails over the length of the buffer. A number of videos of various Rawie buffer stops in action are available on the Rawie web site.

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

Rawie Buffer Stops are in use in over 23 countries on freight and passengers systems, including high speed railways in Europe, the Americas and Asia and elsewhere.

Rawie Friction buffer stops have been used in Australia at the following locations by the named operators:

V/Line:

- a. West Tower Buffer now with PN. 16ZEB unit rated to control 5000t from 15 km/h. This unit is at the top of an embankment abutting Wurundjeri Way in Metropolitan Melbourne.

Metro Trains Melbourne:

- b. Epping sidings (4no. Rawie 10EB) adjacent a 5m mainline rail cutting
- c. Westall sidings (Rawie 10EB)

WestRail:

- d. Various

NSW RailCorp:

- e. Certificate of Product Approval (Type Approval) BS-PA-13/18

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

The Rawie 16ZEB/28a Friction Arresting Buffer Stop has not been used previously on the ARTC network as far as is known.

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

There are no issues that arise from usage of this equipment. This equipment provides an enhanced safety mechanism for arresting train overrun events without impacting adjacent rail infrastructure and other rail operations.

(iv) **Changes required to infrastructure or systems for use of the equipment**

Item number to be added to the system.

9 **Reliability**

Rawie has a long history of successful use globally.

10 **Maintainability**

Rawie buffer stops are supported in Australia by Cavotec Australia Pty Ltd with local operation at Lynbrook Victoria.

A feature of this friction buffer stop is that it handles wagon impacts in a controlled and progressive manner that minimises damage. For a minor event the buffer is repositioned and the friction units repositioned and reset.

For a more significant impact the buffer would be reset and the friction liners would be replaced.

Controls.

Installation and maintenance documentation has been provided by Rawie. Maintenance could either be carried out by Cavotec or by general contractors using the Rawie documentation and parts supplied through Cavotec.

11 **Approval ***

Rawie 16ZEB/28a Friction Arresting Buffer Stop for ARTC Freight Link Headshunt at Moonee Pond Creek Junction only.

12 **Is the supplier accredited to ISO 9001 specifically for this product? ***

A. Rawie GmbH & Co. KG is accredited for the development, manufacture and sales of buffer stops, track safety installations, vehicle loading technology, barrier systems and access control systems (certificate No. 40604714/3)

Yes ☒ No ☐

13 **Conditions of Approval ***

1. To be installed at the end of the Freight Link Headshunt in Melbourne only.
2. To be installed and maintained as per manufacturer's instructions.
3. The RRL CMR Alliance in procuring the Rawie 16ZEB/28a Friction Arresting Buffer Stop shall provide the following:
 - Installation, operation and maintenance instructions to be provided for each installation.
 - Spare parts list
 - Site specific design

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| 14 | Does the Originator accept the additional Conditions of Approval as set by the Review Panel: | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> | N/A | <input type="checkbox"/> |
|----|--|-----|-------------------------------------|----|--------------------------|-----|--------------------------|

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| 15 | Sign off | <i>ARTC office use only</i> | |
| Review Panel: | | | |
| John Furness | <u>On file</u> | Date: | <u>3 June 2014</u> |
| Jamie Threader | <u>On file</u> | Date: | <u>2 June 2014</u> |
| Phil Meehan | <u>On file</u> | Date: | <u>2 June 2014</u> |
| Patrick Gray | <u>On file</u> | Date: | <u>2 June 2014</u> |
| Jess Tai | <u>On file</u> | Date: | <u>3 June 2014</u> |

Approval:

Operations Safety & Environment Review Group

Date: 10 June 2014