

NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: 14/46839

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 *

ADS HDPE N12 Dual Wall Drainage Pipe

Supplied by: ADS Pipe - Account Number ADS001 Manufactured by: ADS Pipe

2 Originator *

Name: Daniel Page Email: danielp@adswater.com.au

Company: ADS Pipe

ARTC Contact Person: Peter Prasad

3 Introduction *

The ADS High Density Polyethylene (HDPE) N12 heavy duty drainage pipe is a RailCorp approved drainage pipe that is extensively used across the RailCorp and ARTC networks as an alternative pipe material to RCP and FRC.

4 Determination of Need *

The ADS Heavy Duty pipe can be used as a direct replacement of existing pipes.

It has a number of advantages over traditional pipe materials including:

*longer lengths and lighter weights, allowing greater lengths to be installed using smaller equipment during possessions, which significantly reduces health and safety risks.

* it is also more environmentally friendly than both RCP and FRC, having a significantly lower CO2/m rate.

The ADS heavy duty pipe is not NEW, it has been around for over 40 years and it has been installed in Australian rail applications for more than 5 years.

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
- Peter Prasad - National Bridges & Structures Engineer
- David Buttenshaw - Project Engineer Major Works, Hunter Valley
- Christian Rogers - Project Manager, Interstate Network
- Denis Snowden - WHS Advisor, Hunter Valley

7 Safety

The ADS HDPE pipe was submitted for RailCorp approval in late 2008 and achieved this approval in June 2009.

The ADS heavy duty pipe was assessed by AREMA in real life accelerated testing conditions for normal and below standard installation conditions. The pipe is manufactured in accordance to the stringent AASHTO highway and bridge code and has a design life of 100 years with a high factor of safety in accordance to the Australian pipe design standard 2566.

The ADS heavy duty pipe is a proven robust general purpose drainage pipe that is suitable for use within the ARTC rail corridor and has improved environmental and health and safety aspect compared to traditional pipe materials.

8 Performance and Suitability

ADS heavy duty pipe complies with the AS2566 design standard as well as many of the more stringent international design standards.

The ADS heavy duty pipe is a class 4+ pipe. It can be substituted for all class 4 pipe conditions without the need for a design check so long as the installation conditions complies with in the above standards. In most cases, the ADS pipe can be substituted for Class 6 pipe and in some cases Class 8 locations. A cautionary AS2566 design check is required for class 6 and 8 cases.

Additional ADS HDPE pipe literature and case studies can be found at www.adswater.com.au/nswlibrary

Detailed soft and hard copy technical manuals are also available from the web site www.ads-pipe.com

AS 2566 design software is also available from your local ADS office.

(i) Use in other rail networks

RailCorp have type approved the ADS HDPE N12 pipe and note their approval in their Standard ESC 420 Track Drainage and Manual TMC 421 Track Drainage.

ADS Pipe has been installed in the following projects:

- Richmond Duplication
- Schofields Railway station
- Kingsgove to Revesby Quadruplication
- Auburn Stabling yards
- Liverpool Turnback
- Southern Freight Link
- Glenfield Interchange
- Glenfield to Leppington
- Berry improvements
- Enfield Intermodal
- Lilyfield to Dulwich Hill light rail
- Hunter 8
- Greta Rail support facility
- Ravenworth North Rail
- NCIG
- North Strathfield rail underpass
- Gosford passing loop
- Epping to Thornleigh Third Tunnel
- MVM Hunter Valley
- NWRL
- Trackwork Service Alliance
- Aurizon Hexam Interchange
- Maitland/Singleton Scheduled maintenance
- Gunnedah Upgrade
- Chatswood Infrastructure works
- Wickham Transport Interchange
- All RailCorp/Sydney Trains scheduled maintenance and major works projects since 2009.

(ii) Use in the ARTC network

- Southern Freight Link
- Liverpool Turnback
- Glenfield Interchange
- Glenfield to Leppington
- Hunter 8
- Greta Rail support facility
- Ravenworth North Rail
- NCIG
- MVM Hunter Valley
- Aurizon Hexam Interchange
- Maitland/Singleton Scheduled maintenance
- Gunnedah Upgrade
- Wickham Transport Interchange

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

The ADS pipe is a direct substitution of traditional pipe materials and has no known issues separate to those associated with the use of other traditional drainage materials.

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

None

9 Reliability

AS2566 design life is +100 years.

10 Maintainability

The ADS pipe conforms to the standard drainage pipe maintenance methods and procedures.

11 Approval *

The ADS HDPE N12 Dual Wall Pipe is approved for use on the ARTC network.

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

ADS Pipe (Cubic Solutions Pty Ltd) is not ISO 9001 accredited, however ADS International are quality accredited under the AASHTO standards independent accreditation program.

Yes No

13 Conditions of Approval *

1. Installation to be in accordance with ADS HDPE Pipe Installation Guide
2. ADS pipe designs must undergo third party independent verification as per the ARTC Track & Civil Code of Practice Section 9: Structures.

14 Does the Originator accept the additional Conditions of Approval as set by the Review Panel:

Yes No N/A

15 Sign off

ARTC office use only

Review Panel:

John Furness	<u>On File</u>	Date: 31 March 2015
Peter Prasad	<u>On File</u>	Date: 20 March 2015
David Buttenshaw	<u>On File</u>	Date: 16 March 2015
Christian Rogers	<u>On File</u>	Date: 31 March 2015
Denis Snowden	<u>On File</u>	Date: 16 March 2015

Approval:

Rob Rath (On File) Date: 17 April 2015
Acting General Manager Technical Standards