

Structures Inventory

ETG-09-01

Applicability

ARTC Network Wide SMS

Publication Requirement

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Amendment Record

Amendment Version #	Date Reviewed	Clause	Description of Amendment
2.0	01 Jul 09		Supersedes current ETG-09-01 General Appendix to ARTC T&C CoP version 1.0 dated 01 May 2006. Includes minor editorial corrections and clarifications made following training.
3.0	13 Nov 09		Applicability changed to ARTC network. Span length re-defined.
3.1	18 Jun 10		Banner added regarding mandatory requirements in other documents and alternative interpretations.
3.2	10 Feb 14	2	Definition of Culverts updated. Further updates to definition of Culverts following OSERG review 8/09/2014.
3.3	01 Jul 16	2	Minor editorial changes and rebrand. Definition of Exposure Classification removed as it is no longer used.
3.4			Removed information relating to the configuration and management of structures in BMS. Information removed is superseded by EGW-10-01

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Mandatory requirements also exist in other documents.

Where alternative interpretations occur, the Manager Standards shall be informed so the ambiguity can be removed. Pending removal of the ambiguity the interpretation with the safest outcome shall be adopted.

1 General

This document forms an integral part of Section 9 of the ARTC Track and Civil Code of Practice and details the requirements for inventory information associated with Structures listed in Table 9.1 of the Section 9.

2 Definitions

Bridge	A structure spanning over a river, road, railway, or the like, carrying trains, road vehicles or pedestrian.
Bridge Management	A comprehensive process linking inspection and appraisal with operational needs and funding sources to plan, prioritise, fund and arrange or procure the operation, maintenance, rehabilitation and upgrading of structures.
Culverts	Arch, pipe or boxed shaped covered opening having walls, invert and roof cast integrally. Large culverts have an opening greater than or equal to 1.25m. A grouping of small culverts may also be managed as a large culvert if a risk assessment deems it necessary. Small culverts have an opening less than 1.25m but greater than or equal to 350mm span. Culverts with an opening less than 350mm or cess drainage pipes less than 500mm diameter are inspected and maintained as part of track cess drainage.
Elements	The elements that comprise a structure depend primarily on the structural form and type of material. Elements are the key components of structures for management purposes. Inspection procedures and reporting, and measurement, monitoring and prediction of condition mainly focus on structural elements.
Footbridges	These are bridges, normally over the railway track, carrying pedestrian traffic only.
Inspection	The term 'inspection' is a generic term to include all processes necessary to deliver the purpose of the Standard and may include, but not limited to, visual condition assessment, defect identification, non-destructive testing and load rating of a structure.
Inspection Personnel	This includes all of those participating in the activity of undertaking an inspection, and includes, but not limited to, inspectors, engineers, structures representatives and track protection officers.
Inventory	Sets of descriptive data that define structural assets and are used in the management and administration of structures.
Latitude	The maximum period for undertaking an inspection before or after the scheduled due date for that inspection.
Load Rating	A calculation of the load carrying capacity of a structure within the stress limits of design code requirements, assessed against a specific reference load or against design load.
Overbridges	These are bridges over the track, carrying road traffic, and may include provision for pedestrians.

Remedial Measures	Actions implemented to mitigate the unacceptable risk of a defect.
Substructure	Generally the vertical elements of a structure, usually below the bearings, that support the superstructure and transfer the loads to the supporting ground.
Superstructure	The elements of a structure, usually above the bearings that directly support traffic loads and transfer loads to the substructure.
Tunnels	Structures built primarily to enable the line to pass through a hill. Overbridges built to accommodate wide or skewed roadways are not defined as tunnels.
Underbridges	These are bridges supporting the rail tracks and passing over waterways, roadways, pathways, flood plains, railways, etc.

3 Location

All bridges and structures are to have a track kilometrage either painted on the structure, or engraved on a plaque which is fixed to the structure.

The kilometrage marking is to be located as follows:

1. Underbridges: on the Up side of the No. 1 abutment and on the Down side of the No. 2 abutment. The kilometrage at No. 1 abutment is the identifying kilometrage for that structure. For underbridges less than 10 metres long, the marking may be shown on the No. 1 abutment only;
2. Overbridges: on the abutment or pier adjacent to the furthest Down track facing the direction of decreasing kilometrage;
3. Footbridges: as for overbridges;
4. Culverts, or structures without defined abutments, are to have suitable signage to indicate kilometrage next to the structure;
5. Tunnels: on the Down side of the No. 1 portal, and on the Up side of the No. 2 portal;
6. Miscellaneous Structures: on the Down side of the track facing the direction of decreasing kilometrage.

The above requirement is not to be applied retrospectively.

4 Description of Structures

5 Span Lengths

The length of each span is measured as follows:

5.1 Single Span Bridges

The overall length of superstructure between abutment ballast walls/logs.

5.2 Multiple Span Bridges

- For end spans the distance between the end of the superstructure at the abutment and the centreline of the first intermediate support (eg a pier or trestle);
- For intermediate spans the distance between the centreline of the supports at each end of the span.

5.3 Culverts

The maximum internal width (or diameter) of individual openings.

5.4 Tunnels

The length between the facing wall of each portal.

6 Appendix 1 – Sketches of Typical Bridges















