

**Technical Specification**

# **MRTS170 Public Utilities in Road Projects Site Works**

**July 2023**

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**Contents**

- 1 Introduction .....1**
- 2 Definitions of terms .....1**
- 3 Referenced documents .....3**
- 4 Standard test methods .....4**
- 5 Materials .....4**
- 6 Site Works .....6**
  - 6.1 General ..... 6
  - 6.2 Flowable (liquid) Fill / Grout ..... 6
  - 6.3 Vibration Assessment for Construction Works ..... 6
  - 6.4 Longitudinal services ..... 7
  - 6.5 Boring, jacking and microtunnelling ..... 7
  - 6.6 Trenching ..... 7
  - 6.7 Backfill of trenches ..... 7
  - 6.8 Longitudinal installation ..... 8
  - 6.9 Reinstatement of pavement and surfacing ..... 8
  - 6.10 Attachment to existing bridge structures and culverts ..... 8

## 1 Introduction

This Technical Specification defines or applies to the installation and/or protection of Public Utility Plant (PUP) within the State Controlled Road (SCR) including busways and cycle lanes. It is suitable for use with all Transport and Main Roads contract types. It does not apply to local government owned stormwater assets or other third-party assets that are not PUP.

This Technical Specification shall be read in conjunction with MRTS01 *Introduction to Technical Specifications*, MRTS50 *Specific Quality System Requirements*, MRTS171 *Public Utilities in Road Projects Principal Contractor Responsibilities*, TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines* and other Technical Specifications as appropriate.

This Technical Specification forms part of the Transport and Main Roads Specifications Manual.

Utility Authorities specify testing methods and technical requirements for their assets in their own technical standards or adopt Australian Standards requirements, as identified in Table 2. Requirements, such as minimum spacing requirements between each utility asset, are not provided as this will depend on Utility Authority standards, asset specifications and engineering judgement.

This Technical Specification therefore does not identify the technical requirements for the actual Utility Asset. Instead, it focusses on requirements to ensure the management of departmental infrastructure projects and the state controlled road corridor are not compromised.

## 2 Definitions of terms

The terms defined in Clause 2 of MRTS01 *Introduction to Technical Specifications* apply to this Technical Specification. Additional terminology relevant to this Technical Specification is defined in Table 2 below.

**Table 2 – Definitions of terms**

Term	Definition
Act	An Act is a statute or law passed by both Houses of Parliament that has received Royal Assent. On Royal Assent, Acts are given a year and number. Once an Act is formally enacted it can generally only be amended or repealed by another Act. When an Act changes, a compilation of the Act is prepared to show the Act as amended. Acts are also known as primary legislation.
Alignment Approval	Utility Assets are permitted within the road corridor however the Utility Owner must obtain an alignment approval from the road authority. The alignment approval confirms the location for the utility asset (generally an offset from the property boundary or kerb). Failure to obtain an alignment approval can result in the asset being removed at the Utility Owner's cost. This approval may be supplied through contractual or other agreement processes.
Approved Supplier / Materials	Utility Owners have identified particular products (pipe types, valve types, pits, and so on) or manufactures that can be used on their infrastructure. Generally, the prequalified Utility Owner contractor or the road construction contractor is responsible for purchasing materials from approved suppliers however the details will be taken from the design drawings.
Assets	An item of property owned by a person or company, regarded as having value.

<b>Term</b>	<b>Definition</b>
Civil works	Separate works which are undertaken by a construction company in order to facilitate work by an Infrastructure Utility Owner. This may be installation of conduits and pits, access roads, excavations.
Contestable Works	Works on Utility Infrastructure that can be undertaken or managed by an organisation / contractor who is not the utility infrastructure owner. Contractors who undertake the works generally require prequalification (approved supplier status) from the Utility Infrastructure owner.
Contractor	A company engaged to undertake the works
Council assets	Council assets may include land, sewerage pipelines, water pipelines, pumping stations, drainage channels, and so on.
Design	Design of the electrical network, water pipeline, gas pipeline, sewerage pipeline and related infrastructure.
DBYD	Dial Before You Dig. Data supplied from DBYD is only valid for 60 days.
Distribution network	The network of pipes (water, gas) or electrical lines that supply the utility service to the end user. Property service connections are feed from the distribution network.
Fees	Some Infrastructure Utility Owners charge fees for example design lodgement fee, field audit fee, inspection fee, switching fee.
High voltage power	Includes 11 kV, 33 kV, 66 kV, 110 kV and 275 kV power (electrical) lines.
IFC	Issued for Construction.
Investigation	A detailed investigation of an Infrastructure Utility assets, used to determine the location, depth and extent of the asset. The quality of the information is categorised in accordance with AS5488.
LGA	Local Government Authority, also referred to as "council".
Local authority approval	Include any approvals from a local authority in relation to the works.
Local Laws	Some councils have a register of local laws and subordinate local laws.
Low voltage power	a power (electrical) line conducting electricity in the range from 50 to 1000 V.
MoU	Memorandum of Understanding – a non-legally binding agreement between two organisations.
Non-Contestable Works	Works on Utility Infrastructure that can only be undertaken (or managed) by the Utility Infrastructure owner.
Permits	LGA may require contractors to obtain a permission to work in their road corridor. This permission is provided as a road corridor works permit.
Prequalified Supplier	In some cases, the Infrastructure Utility Owner has a list of approved companies and individuals that are authorised to undertake, manage and/or coordinate works on their assets.
PUP	Public Utility Plant means plant permitted under another Act or a Commonwealth Act to be on a road. This can also be referred to as Utility Infrastructure or utility assets.

Term	Definition
Public Utility/ Public Utility Provider	An entity that owns public utility plant. An organisation that has a right, under federal, state or local legislation, to undertake Works in the road corridor. These are entities empowered by legislation to own and operate infrastructure for the purpose of providing essential services to the community.  This covers electricity entities (generation, transmission and distribution), gas suppliers / pipeline licence holders (distribution and transmission), telecommunications carriers (excluding mobile towers which are considered commercial assets), retail-distributors or council water suppliers (water / wastewater / recycled water / sewage delivery but not bulk water).
QUU	Queensland Urban Utilities.
RCP	Transport and Main Roads Road Corridor Permit.
SCR	State Controlled Road.
Utility Owner / Authority	Includes electric power distribution or transmission company owned by the Government of Queensland (for example, Energex, Ergon, Powerlink), statutory authority of the Government of Queensland (for example, Urban Utilities) private company (for example, APA Group, Optus, Telstra), corporation owned by the Australian government (for example, NBN Co). Also known as a public utility provider in the <i>Transport Infrastructure Act 1994</i> (Section 105N).
URMP	Utility Relocation Management Plan.

### 3 Referenced documents

The requirements of the referenced documents listed in Table 3 below apply to this Technical Specification and specifies the technical requirements associated with Utility Assets. This list is not complete as it is the designer's obligation to confirm all technical requirements associated with a particular Utility Asset are specified in the Issue For Construction (IFC) design and comply with the Utility Authorities and Transport and Main Road's requirements. Where there are inconsistencies between this Technical Specification and the referenced documents, the requirements specified in this Technical Specification shall take precedence.

**Table 3 – Referenced documents**

Reference	Title
American Petroleum Institute recommended practice, API RP1102	<i>Steel Pipelines Crossing Railroads and Highways</i>
AS 2885.1	<i>Pipelines – Gas and Liquid Petroleum, Part 1: Design and Construction</i>
AS 2885.2	<i>Pipelines – Gas and Liquid Petroleum, Part 2: Welding</i>
AS 2943	<i>Plastics pipes and fittings for gas reticulation - Polyamide compounds</i>
AS 4645	<i>Gas Distribution Networks</i>
AS 4799	<i>Installation of underground utility services and pipelines within railway boundaries</i>
AS 4853	<i>Electrical Hazards on metallic pipelines</i>
AS 5100.2	<i>Bridge Design – Design loads</i>

<b>Reference</b>	<b>Title</b>
AS 5488	<i>Classification of Subsurface Utility Information</i>
AS/NZS 2566.1	<i>Buried Flexible Pipelines, Part 1: Structural Design</i>
AS/NZS 3725	<i>Design for Installation of Buried Concrete Pipes</i>
AS/NZS 4680	<i>Hot-dip Galvanized (zinc) Coatings on Fabricated Ferrous Articles</i>
BS 5228-2:2009	<i>Code of practice for noise and vibration control on construction and open sites</i>
DIN 4150-3:1999	<i>Vibration on Buildings - Part 3: Effects on Structures</i>
MRTS01	<i>Introduction to Technical Specifications</i>
MRTS50	<i>Specific Quality System Requirements</i>
MRTS56	<i>Construction Surveying</i>
MRTS70	<i>Concrete</i>
MRTS140	<i>Horizontal Directional Drilling (HDD)</i>
MRTS141	<i>Microtunnelling and Pipe Jacking</i>
MRTS142	<i>Thrust Boring and Auger Drilling</i>
MRTS171	<i>Public Utilities in Road Projects Principal Contractor Responsibilities</i>
SEQ Code	<i>South East Queensland Water Supply and Sewerage Design and Construction Code</i>
TN163	<i>Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines</i>
WSA	<i>Water Services Association - Water Supply code of Australia</i>
-	<i>Transport Noise Management Code of Practice, Volume 2</i>

#### **4 Standard test methods**

This Technical Specification does not identify the technical requirements or testing requirements associated with an actual Utility Asset.

For departmental testing methods associated with Utility installation / protection, therefore focus on backfill of trenches (within the pavement and the verge), pavement reconstruction, concrete, line marking and installation methods that may impact on departmental infrastructure such as directional drilling. Refer to Clause 5 below for details.

#### **5 Materials**

Utility Authorities specify acceptable materials and products for their assets – often listing an Approved Supplier. It is the obligation of the designer to confirm all materials specified in an IFC design comply with the Utility Authority's material and product requirements. Consequently, this Technical Specification does not identify Utility Authority material or product requirements.

Transport and Main Roads' material requirements associated with backfilling trenches, asphalt, and so on are specified in the Technical Specifications documents identified in Table 5.

**Table 5 – Technical Specification testing requirements**

<b>Reference</b>	<b>Title</b>
MRTS03	<i>Ddrainage Structures, Retaining Structures and Embankment Slope Protections</i>
MRTS04	<i>General Earthworks</i>
MRTS05	<i>Unbound Pavements</i>
MRTS08	<i>Plant-Mixed Heavily Bound (Cemented) Pavements</i>
MRTS10	<i>Plant-Mixed Lightly Bound Pavements</i>
MRTS11	<i>Sprayed Bituminous Treatments (Excluding Emulsion)</i>
MRTS12	<i>Sprayed Bituminous Emulsion Surfacing</i>
MRTS13	<i>Bituminous Slurry Surfacing</i>
MRTS14	<i>Road Furniture</i>
MRTS17	<i>Bitumen and Multigrade Bitumen</i>
MRTS18	<i>Polymer Modified Binder (including Crumb Rubber)</i>
MRTS19	<i>Cutter Oils</i>
MRTS20	<i>Cutback Bitumen</i>
MRTS21	<i>Bituminous Emulsion</i>
MRTS24	<i>Manufacture of Precast Concrete Culverts</i>
MRTS25	<i>Manufacture of Precast Concrete Pipes</i>
MRTS26	<i>Manufacture of Fibre Reinforced Concrete Drainage Pipes</i>
MRTS27	<i>Geotextiles (Separation and Filtration)</i>
MRTS30	<i>Asphalt Pavements</i>
MRTS32	<i>High Modulus Asphalt (EME2)</i>
MRTS39	<i>Lean Mix Concrete Sub-Base for Pavements</i>
MRTS45	<i>Road Surface Delineation</i>
MRTS56	<i>Construction Surveying</i>
MRTS70	<i>Concrete</i>
MRTS96	<i>Management and Removal of Asbestos</i>
MRTS101	<i>Aggregates for Asphalt</i>
MRTS102	<i>Reclaimed Asphalt Pavement Material</i>
MRTS103	<i>Fillers for Asphalt</i>
MRTS140	<i>Horizontal Directional Drilling (HDD)</i>
MRTS141	<i>Microtunnelling and Pipe Jacking</i>
MRTS142	<i>Thrust Boring and Auger Drilling</i>

## **6 Site Works**

### **6.1 General**

The purpose of Utility relocation management during the Contract period is to provide for the co-ordination and/or completion of protection and relocation of affected Utility Infrastructure as identified on the “Public Utility Plan Layout” drawings for the impacted utility assets by the adoption of an appropriate Utility Relocation Management Plan (URMP).

During the site works there are required standards that must be met by the Public Utility and Transport and Main Roads. Where there is no standard specifically identified the TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines* shall apply or the relevant departmental standards.

### **6.2 Flowable (liquid) Fill / Grout**

Refer to MRTS70 *Concrete* for information on Flowable Fill and TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines* for guidance on how it applies in utility works.

All work shall be carried out in accordance with the provisions of the contract documents and to the satisfaction of the Utility Authorities and the Transport and Main Roads Representative / Administrator.

### **6.3 Vibration Assessment for Construction Works**

Impacts to third-party utility assets, as they are governed by the utility provider codes of practice / permitting (including exclusion zones and vibration limits) and any other requirements specified within the detailed design drawings, relevant Technical Specifications, and contract documentation. The design consultant is responsible to liaise with the relevant utility provider during the design phases in accordance with the department’s functional specifications for PUP. The construction contractor is responsible to liaise with the relevant utility authority based on their work methods to seek approval during construction to manage potential impacts in accordance with this Technical Specification, MRTS171 *Public Utilities in Road Projects Principal Contractor Responsibilities* and utility provider requirements.

In the absence of third-party advice, guidance may be taken from British Standard BS 5228-2:2009 or German Standard DIN 4150-3:1999 which provide information on the vulnerability of ground-related services and structures to vibration.

The Contractor's Utility Asset Coordination Representative shall provide the Administrator updates to the URMP including the construction vibration assessment(s) and sufficient evidence of liaison with the relevant authority confirming requirements approval, or no objections to the work methods, permits, exclusion zones and/or vibration limits prior to works.

#### **6.4 Longitudinal services**

Technical note TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines* details requirements associated with utility assets installed longitudinally in the state controlled road corridor.

It is the designer's obligation to ensure longitudinal installations specified in the IFC design comply with Transport and Main Roads requirements as well as Utility Authority requirements.

#### **6.5 Boring, jacking and microtunnelling**

Transport and Main Roads requirements associated with boring, jacking and microtunnelling must adhere to the requirements specified in the following documents:

- TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guideline*
- MRTS140 *Horizontal Directional Drilling*
- MRTS141 *Microtunnelling and Pipe Jacking*
- MRTS142 *Thrust Boring and Auger Drilling*

#### **6.6 Trenching**

Trenching is generally considered as the installation method to be employed for installations within areas of the road corridor that are not developed for traffic (i.e. verge) or where structural pavements have not been constructed / completed.

While minimum depths of cover have been identified in TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guideline*, it is the designer's obligation to ensure that load bearing requirements are addressed for any road crossing. IFC drawings must therefore address all drainage, verge reinstatement works, load bearing requirements, pavement reinstatement works and relevant departmental Technical Specifications.

Trenches must not be left open overnight. Trenches are to be back filled, covered with a steel plate lid or be protected by a barrier perimeter approved by the Administrator.

Conduits must be bedded in accordance with the relevant Australian Standard or Service Authority Standard and maintain minimum horizontal and vertical clearances to other utility services as specified by Australian Standards, Service Authority Standards, Legislation or as detailed in the IFC drawings.

#### **6.7 Backfill of trenches**

Unless specified elsewhere in the IFC drawings and contract documents, the back fill of trenches shall be as detailed in TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines*.

### **6.8 Longitudinal installation**

Unless specified elsewhere in the IFC drawings and contract documents, lean mix and/or flowable fill must not be used for services backfill installed longitudinally in or adjacent to the pavement without a pavement drain due to the potential to trap water under the pavement.

### **6.9 Reinstatement of pavement and surfacing**

Unless specified elsewhere in the IFC drawings and contract documents, the reinstatement of pavement and surfacing shall be as detailed in TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines*.

### **6.10 Attachment to existing bridge structures and culverts**

Unless specified elsewhere in the IFC drawings and contract documents, that reinstatement of pavement and surfacing shall be as detailed in TN163 *Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines*.

