Technical Note 163

Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines

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1 General

1.1 Background

The Department of Transport and Main Roads manages the road corridor on behalf of the state of Queensland. The departments’ broader objective is to deliver an integrated, safe, efficient and reliable transport system that is accessible to all. One of the department’s core values is to provide fair and equitable access to the corridor whilst ensuring the safety of the travelling public is at the forefront of all decisions.

Road corridors are becoming increasing congested due to population growth, increase in demand by the general public for community and recreational activities and demands from utility providers to provide a service. It is the responsibility of all parties to ensure the corridor is managed in an efficient manner and delivers the best outcome for all stakeholders.

1.2 Document application

The purpose of this document is to support the permitting application process for third party public utility plant Asset Owners to access the state controlled road corridor and provide technical requirements governing the installation of their services.

This process applies to the installation of utility services by an Asset Owner or its representative within the boundaries of a State-Controlled Road Corridor declared under the Transport Infrastructure Act 1994 (Qld).¹

All Works must be conducted in accordance with the conditions identified in the Protocols for Transport Corridors: Third Party Utility Infrastructure Installation in State-Controlled Roads, the approval conditions detailed in the Permit issued by the department, and the conditions identified in this document.

2 Definitions

Table 2 – Definitions of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Asset Owner</td>
<td>Organisation or individual (either public or private) that is the Owner of the utility service, network or infrastructure. This is the term that will be used to refer to both Public and Private Utility Providers. Note: This does not apply to Assets under the mineral resources suite of legislation for example, wholesale gas pipelines.</td>
</tr>
<tr>
<td>Asset Owner Legislative Obligations</td>
<td>Relevant state and federal government environment, native title and heritage obligations which must be addressed prior to submission of a Permit to the department.</td>
</tr>
<tr>
<td>Brownfield</td>
<td>Previously used land or sections of industrial or commercial facilities that are to be upgraded. For road transport infrastructure projects this can better be defined as locations on existing roads where work proposals are based on retaining the existing formation to the greatest degree feasible.</td>
</tr>
</tbody>
</table>

¹ Specifically, ss77-83 of the Act and Part 4 of the 'Transport Infrastructure (State-controlled Roads) Regulation 2006'
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Business Day</td>
<td>A day that is not a Saturday, a Sunday or a public holiday. Of note is that the Department of Transport and Main Roads also have a two week Christmas closure period commencing on the 24 December. This period is therefore not considered as Business Days.</td>
</tr>
<tr>
<td>Distribution Service</td>
<td>Utility service network that distributes product from Transmission network to retail consumer/end user.</td>
</tr>
<tr>
<td>DBYD</td>
<td>Dial Before you Dig</td>
</tr>
<tr>
<td>District Director</td>
<td>Transport and Main Roads District Director</td>
</tr>
<tr>
<td>GIMS</td>
<td>Geospatial Information Management System</td>
</tr>
<tr>
<td>Greenfield</td>
<td>Land that lacks any constraints imposed by prior work.</td>
</tr>
<tr>
<td>High Pressure Service</td>
<td>Utility service that exceeds 210kPa (MAOP) for gas networks</td>
</tr>
<tr>
<td>Jointing Pit</td>
<td>Chambers installed to facilitate the jointing of cables and optical fibres. The products are divided into two groups: 1. Cable jointing access chambers – worker-entry  2. Cable jointing pits – non worker-entry</td>
</tr>
<tr>
<td>Limited Access Roads</td>
<td>A road or part of a road that has been defined in accordance with Section 54 of the <em>Transport Infrastructure Act 1994 (Qld)</em> Generally refers to roads that have been specifically designed and constructed as a high speed road. This includes but is not limited to freeways, expressways, motorways and some bridge structures where due to safety concerns access must be restricted.</td>
</tr>
<tr>
<td>Low Pressure Service</td>
<td>Utility service the does not exceed 210kPa (MAOP) for gas networks and rising sewer mains.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Any or all activities that are undertaken to ensure the Asset is adequately managed, maintained and replaced when required and that appropriate levels of service are achieved.</td>
</tr>
<tr>
<td>MAOP</td>
<td>Maximum allowable operating pressure for a gas network (refer to AS 4645)</td>
</tr>
<tr>
<td>MRTS05</td>
<td>Transport and Main Roads Specification MRTS05 <em>Unbound Pavements.</em></td>
</tr>
<tr>
<td>MRTS21</td>
<td>Transport and Main Roads Specification MRTS21 <em>Bituminous Emulsion.</em></td>
</tr>
<tr>
<td>MRTS30</td>
<td>Transport and Main Roads Specification MRTS30 <em>Asphalt Pavements.</em></td>
</tr>
<tr>
<td>Parties</td>
<td>Persons or Organization that install a utility service in a state road corridor.</td>
</tr>
<tr>
<td>Permit</td>
<td>A conditioned agreement provided from the department pertaining to the access, installation, maintenance, upgrade and removal of a utility service within a State Road Corridor (including future transport corridors).</td>
</tr>
<tr>
<td>Public Utility Plant</td>
<td>Means plant permitted under another Act or a Commonwealth Act to be on a road.</td>
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</tbody>
</table>
### Term

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<thead>
<tr>
<th>Term</th>
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</table>
| Public Utility Provider  | For the purpose of this document only, this means an entity that owns public utility plant. Specifically:  
  a) the State or another entity representing the State; or  
  b) the Commonwealth or another entity representing the Commonwealth; or  
  c) a local government; or  
  d) a person authorised by law to provide a public utility service; or  
  e) a person authorised under an Act to provide a particular public utility service  
  f) an entity approved by the Minister as suitable to provide infrastructure for use by another entity in the provision of a particular public utility service; or  
  g) a person approved by the Minister as suitable to provide a particular public utility service  
  Note: This definition does not supersede applicable legislation |
| Private Utility Service  | A service connection, such as water, electricity, communication, etc. that will be utilised by an individual property Owner and not regulated by a Government Act.                                                                                                                   |
| RPEQ                     | Registered Professional Engineer Queensland                                                                                                                                                                                                                                                                                               |
| Reticulation Water main  | A water main that connects a trunk (distribution) main with service pipes.                                                                                                                                                                                                         |
| Service Authority        | A business organization, subject to governmental regulation, that provides an essential commodity or service, such as water, sewerage, gas, electricity, transportation, or communication, to the public.                                                                                                                   |
| State Controlled Road Corridor | A State-controlled road corridor is a road (or land intended to become a State-controlled road) which is “owned/managed” by the state and declared under Sections 24 and 25 of the Transport Infrastructure Act 1994                                                                                   |
| Road infrastructure or furniture | Includes but is not limited to bridges, gantries, traffic lights, pole mounted cameras, noise barriers, etc.                                                                                                                                                                     |
| Third Party Access       | Provision for a party other than the Department to gain access to a State Controlled Road Corridor to install a utility service that will not be owned by the Department.                                                                                                                                         |
| Transmission Service     | Utility service network that connects point of supply to the distribution network. Generally high pressure or higher KV networks.                                                                                                                                                     |
| Trunk Water Main         | Generally large diameter water mains that transfer water from one area to another acting as a transmission service.                                                                                                                                                                   |
| Utility Service          | A publicly, privately or jointly owned and operated Asset, located on either public or private property, the purpose of which is to transport for either the public or a private party a service or commodity such as electricity, communications, gas, light, oil, power, television, water, wireless signals and waste by means of cables, conduits, ducts, fibre optics, pipes and wires and includes related objects, such as access chambers, pits, valves, towers and other appurtenances. |
| Valve                    | A device for controlling the passage of fluid or gas through a pipe or duct.                                                                                                                                                                                                       |
| Works                    | All tasks required and associated with the installation of a utility service.                                                                                                                                                                                                       |
3 Access to the State Controlled Road Corridor

3.1 Approvals

No works shall be undertaken in a State Controlled Road corridor without the written approval by the department. Proposed utility services works and design plans are to be submitted for a written agreement by the department at least six weeks prior to any services installation and/or augmentation works.

3.2 Protecting departmental Assets

It is the responsibility of all parties to ensure the department’s existing infrastructure and Assets, either temporary or permanent, surface or sub-surface, are not compromised whilst working in the corridor. The department does not allow third parties to interfere with or disturb departmental Assets without prior approval.

Depending on the works being undertaken, the department reserves the right to engage its construction and maintenance teams to carry out certain activities. Examples of this are reinstatement of road pavements, disturbing or attaching infrastructure to departmental structures or bridges or disturbing departmental ITS & E Assets. These activities may incur a fee for service cost.

Information relating to the department’s existing road transport infrastructure Assets can be obtained by contacting the department to obtain plans to identify departmental Assets prior to commencing any ground disturbing activities.

Refer attached link for Local offices: Regional contacts (Department of Transport and Main Roads)

4 Preparing the work site

4.1 Clearing

The Asset Owner must ensure compliance with relevant legislative obligations during clearing (e.g. cultural heritage and environmental obligations). Any proposed clearing or trimming of trees or shrubs is to be indicated specifically or by way of a general note on the plans submitted to the department for approval.

Clearing must be kept to an absolute minimum required for the works and any landscaped areas, revegetated areas, and/or fauna management areas impacted by clearing works must be reinstated on a like for like basis or as otherwise advised in the permit.

Cleared vegetation, which is weed free, shall be milled or chipped and returned to site. Alternatively, cleared vegetation shall be removed from site and disposed of legally. Any disturbed ground surfaces must be reinstated with turf, seed or mulch as directed by the department.

4.2 Identifying third party Assets

It is the responsibility of all parties to ensure existing above and below ground infrastructure is not compromised whilst working in the corridor, including the department’s Assets.

Note, Not all Asset Owners (including the department) are members of DBYD, it is the responsibility of the authorised party to contact all Asset Owners including the department’s GIMS team to obtain the relevant plans.

Location of third party or departmental underground Assets within the road pavement must be undertaken using non-invasive methods.
The department will not approve any disturbance to the road pavement for the purposes of exposing existing subsurface infrastructure. Exemptions may be approved by the district director after the Asset Owner provides satisfactory evidence that subsurface infrastructure cannot be identified using non-invasive methods, is a safety risk, and warrants the integrity of the disturbed area for a period of two years in writing.

4.3 Notifying the public

The Asset Owner managing the Works must provide adequate notice to the public regarding their proposed Works. In general:

a) the Asset Owner must arrange suitable public communications and media notices to ensure that affected motorists and the local community are advised of any disruptions the project may cause

b) notices must be provided to affected residents and local businesses located adjacent to the proposed Works, and

c) the Asset Owner (or its nominated contractor) must install signage identifying the works being undertaken and contact numbers for community enquiries.

On request, details pertaining to the content of any advertising must be provided to the department at no cost.

4.4 Working Hours

The Asset Owner must comply with any Working Hours’ restrictions, including traffic control and lane closure requirements imposed by the department. Details of any requirements which apply will be provided with the departmental permit or traffic control permit. Extended Working Hours must be negotiated as part of your permit application; refer to Clause 3.5 for lane closure restrictions.

- It should be noted that additional time periods and information may be required by the department’s Road Operations team or District Director for applications applying for extended Working Hours

- Every attempt should be made to maintain capacity on roads which normally run close to their capacity particularly during peak hours in built-up areas. In addition to maintaining the required number of lanes in accordance with MUTCD Part 3, Clause 4.13.2, note should be taken of the effect on capacity of traffic lanes less than three metres in width and unsealed or rough surfaces. Either condition could lead to lane capacity being reduced.

Works may need to be scheduled so that peak hour capacities are maintained.

4.5 Traffic safety and control

The work involved in installing utility services shall proceed with minimum interruption to the travelling public, including vehicles, cyclists and pedestrians. All steps necessary shall be taken for the protection of the public during construction. Road traffic shall not be diverted to side tracks or detours without the written agreement of the department and the agreement of the police and local government, as may be necessary.

All works that will impede the flow of vehicles, cyclists and pedestrians on a state controlled Road, including but not limited to reductions in speed, lane closures, footpath closures, and so on, will require a traffic control permit. Traffic control permits will only be issued to departmental registered traffic control companies. For more information refer to the following link:
4.6 Environment and Cultural Heritage controls

General Requirements

Prior to the commencement of works, the Asset Owner is responsible for:

- ensuring that all cultural heritage, native title and environmental risks are identified; and
- ensuring the proposed works are carried out and managed in accordance with all relevant legislation relating to environmental, cultural heritage and native title

The Asset Owner or its appointed contractor will abide by all legal requirements and will exercise relevant duty of care to ensure that there is minimal impact on areas of conservation value, or cultural heritage significance.

Specific conditions

Where a development or activity is likely to deleteriously impact on state infrastructure or state owned property or process, the department will condition proposed works to minimise any negative impacts. Examples of this in relation to environmental values includes:

- preservation or if necessary restoration of nature conservation values or departmental significant environmental areas
- landscaping/revegetation (requirements for the return of the works areas to pre existing condition. This also would apply where the department or a departmental approved community group has completed previous landscaping/revegetation work in the project area).
- pest management
- areas of cultural heritage significance
- where works would degrade the site conditions
- the Asset Owner must remove any litter generated as part of the Works.

Notification requirements

The department requires that the Asset Owner (or their subcontractors) advise the department (as the land manager) of notification of any environmental or cultural heritage incidents to any regulatory authorities or Aboriginal Parties completed under any other legislation (for example Environmental Protection Act, duty to notify requirements) as a result of the project. This is to be completed within 24 hrs in writing.

The department requires the Asset Owner to notify of any meetings with, inspections, audits, or visits from representatives of other state or federal government departments (For example: Department of Environment and Heritage Protection (DEHP), Department of Natural Resources and Mines (DNRM), Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP)).

Should any unexpected sites or artefacts of potential cultural heritage significance be located during the course of ground disturbance works, the Asset Owner must:

  i. Cease the activities immediately in the vicinity of the find
  ii. Leave any found items undisturbed and erect a temporary barrier to deter access, and
iii. Notify the Department’s Cultural Heritage Officer on (07) 3066 4264 or TMR.Heritage@tmr.qld.gov.au to arrange management strategies.

Other requirements

The department makes no warrant as to the existence or non-existence of native title rights and interests over any of the land or waters within the boundaries of the state controlled road corridor, proposed to be used for the installation and/or maintenance of utility services. The Asset Owner is responsible for ensuring compliance with the Native Title Act 1993 (Cth) when constructing or maintaining utility infrastructure under relevant legislation.²

4.7 Drainage

The Asset Owner or its appointed contractor must not carry out any work which has the potential to detrimentally effect the flow of water on or around a road, or carry out any work which will interfere with existing drainage systems, (for example, underground stormwater systems, culverts, table drains and so on), without prior approval from departmental or local government authorities where required.

All works are to be adequately drained during construction so as not to cause damage to existing road facilities or create road safety hazards to travelling motorists or pedestrians.

Any work that propose alteration to existing drainage arrangements must be specifically detailed on the plans submitted to the department for approval prior to commencement of works. Complex drainage treatments need to be designed by an appropriately qualified designer and certified by an RPEQ prior to submission. Such works will be treated on a case by case basis and may require additional approval from the department’s Director of Hydraulics and Flooding. It should be noted that additional time periods may be required for the review of applications that impact on existing drainage systems.

5 Working in the State Controlled Road Corridor

5.1 Clear Zones for above ground installations

All above ground fixed object installations erected in the road corridor by the Asset Owner should be assessed as potential hazards by the Asset Owner in accordance with the Generalised Hazard Assessment process as outlined in Figure 6.3 of the Road Planning and Design Manual 2nd Edition (RPDM) Volume 3 Part 6: Roadside Design, Safety and Barriers which can be found at the following internet address: http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-planning-and-design-manual-2nd-edition.aspx

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² Federal legislation regarding cultural heritage, native title and environmental protection apply. The applicant is required to comply with all legal requirements. A list of some legislation that may apply includes:
- The Environment Protection and Biodiversity Conservation Act 1999 protects World Heritage properties and defines Commonwealth and National heritage-listed places as matters of national environmental significance.
- The Commonwealth and National Heritage Lists which commenced on the 1 January 2004
- The Aboriginal and Torres Strait Islander Heritage Protection Act 1984 protects traditional areas and objects from threats in exceptional circumstances.
- Protection of Moveable Cultural Heritage Act 1986 restricts the export of traditionally important Cultural Heritage objects.
- The Australian International Council on Monuments and Sites (ICOMOS) Burra Charter 1999 which is used as a guideline for making decisions under the Queensland Heritage Act 1992 and provides a consistent approach to significance assessment, development proposals and Queensland registered place management. The philosophy behind, and the operation of the Queensland Heritage Act 1992 reflects the principles, processes and practices set out in the charter.

- The Native Title Act 1993 (Cth) and the Native Title (Queensland) Act 1993
Assessment reports certified by an RPEQ shall be provided to the department to demonstrate compliance with this requirement. Installations within the clear zone will be subject to special conditions which the Asset Owner must comply with to ensure the safety of the travelling public.

5.2 Depth of Cover, Orientation and Proximity to Structures

5.2.1 Depth of Cover

The department acknowledges that various Australian Standards and Service Authority’s own standards stipulate many different minimum depth requirements for underground Assets.

For this reason, the department will not nominate minimum depths of cover specific to each underground service installations. Instead the department has set absolute minimum cover requirement that all utility services must adhere to within State Road Corridors. However, should a Service Authority’s own standard or an Australian Standard require a greater depth of cover, then the higher value of cover must be used.

It must be noted that this minimum cover will be reviewed on a case by case basis by the department. Deeper cover may be required depending on the material and class of the pipe proposed and the type of service being installed.

Unless otherwise approved, the minimum depth of cover for utility services installed within/under a State Road Corridor are as specified in Table 5.2.1.

Table 5.2.1 – Minimum depth of cover for utility services installed within State Road Corridor

<table>
<thead>
<tr>
<th>Location</th>
<th>Nominal Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Surface (from final finish to surface level)</td>
<td>1200 mm#</td>
</tr>
<tr>
<td>Footpath / verge (below lowest point in footpath allocation)</td>
<td>600 mm</td>
</tr>
<tr>
<td>Table drains (below invert level of table drains)</td>
<td>900 mm#</td>
</tr>
<tr>
<td>Between pavement subgrade and utility service / service conduits</td>
<td>300 mm</td>
</tr>
<tr>
<td>Bored, Jacked, or micro tunnelled installations</td>
<td>1200 mm</td>
</tr>
</tbody>
</table>

# If an enveloping pipe is impractical/infeasible for use, the minimum cover to a high pressure gas or liquid petroleum transmission line shall be increased to 3000 mm.
5.2.2 Orientation

Unless otherwise approved, all underground utility services crossing a road corridor must not be within 20 m of the lowest point of the road (road sag) and be located so as to cross as close as 90° as practicable; however a greater oblique angle shall be used to prevent bends being located below the pavement area.

Overhead electrical and telecommunication Assets may cross a road corridor at an angle up to 45° to the road subject to departmental requirements for:

1. all horizontal and vertical clearance requirements being addressed for current and proposed transport infrastructure (i.e. future street lighting, traffic signals, etc)

2. consideration of all constraints that would be placed on workers installing and maintaining overhead Assets including departmental Assets throughout the life of the service

3. consideration of any impact that the crossing may have on the safety of the travelling public and other users of the road corridor.

Overhead electrical/telecommunication Assets crossing less than 45° to the road may be approved on a case by case basis subject to the departmental District Director (or his delegate) discretion.

Overhead electrical/telecommunication diagonal crossing at intersections will NOT be approved, all crossing at intersections MUST be 90° to the road, unless approved by the department’s District Director (or his delegate).
5.2.3 Proximity to structures

Any service and/or pipeline that is proposed to be laid within a 5 m horizontal distance from a departmental structure (i.e. bridge abutment, culvert, gantry, etc.) will be assessed on a case by case basis to ensure the installation method and/or the type of service does not present an unacceptable risk to the department. Specific requirements for services installed within a 5 m horizontal distance from a departmental structure will be stipulated in the Permit.

It should be noted that additional time periods and information will be required for the review of applications identifying the installation of a service within a 5 m horizontal distance from a departmental structure.

The installation of services longitudinally within a drain must be avoided due to maintenance issue that may result in the future. Where, due to an alternative routing being impractical a service must be located longitudinally within a drain, consideration must be given to how the service will be accessed and maintained throughout its operational life and how the drain is to be maintained. Additional protection or depth of cover may be required to minimise the risk of the service being damaged during drainage maintenance works.

5.3 Longitudinal services

Installation of a new utility Asset or upgrades to existing utility Assets will not be permitted longitudinally in a limited access road unless it is required for road infrastructure purposes or at the department’s District Director’s, (or his delegate’s) discretion where no other reasonable alternative routes are available.

If permitted, the installation must not adversely affect the design, safety or operation of the limited access road and must be maintained and serviced without access from the carriageway of the limited access road, or any associated ramps. The installation needs to be constructed in a manner so that all future access and maintenance to such utility services will be carried out from outside the limited access road corridor.

The need to set this condition for installation within limited access roads is primarily to maintain road safety at the highest degree to which these roads have been specifically designed and constructed.

Longitudinal services maybe permitted in State Controlled Roads other than limited access roads, if

- the propose service does not have a negative impact to the travelling public or the operations of the State Controlled Road.
- there is insufficient space available to accommodate the proposed service without interfering with departmental Assets and other services already occupying the verges
- the proposed services does not have a negative impact on the department’s future planning and expose the department to unnecessary relocations costs and time delays during future road upgrades.

5.4 Boring, Jacking and Micro Tunnelling

Unless otherwise agreed in writing by the department’s District Director, or his delegate, all utility services crossing under sealed State Controlled Road Corridors shall be bored or jacked with no disturbance to the pavement or shoulders and have the minimum cover as stated in Table 5.2.1.
Enveloping pipes shall be used for all pressurised services, such as high pressure gas, combustible fluids, water mains, rising sewer mains etc in accordance with relevant industry standards and this technical note.

The requirements in this document shall take precedence over the asset owners requirements and industry standards for installations in the state controlled road reserve.

All bored or jacked works under State-Controlled Road Corridors must be carried out by certified quality assured (ISO 9001) or industry accredited (by relevant Service Authority) specialist contractors with experience in similar works (diameter, length, ground conditions). Departmental nominated Inspector (or representative) must be present at a pre-start meeting prior to construction and frequent site inspections will occur during the activity. On site boring or jacking works are only permitted to commence after the department’s Inspector (or representative) has attended the prestart meeting. This prestart meeting must confirm that the proposed works reflect the approved plans and all conditions of the Permit.

A minimum of five working days’ notice is required to the departmental Services Inspector prior to commencement of works.

The diameter of the bored hole must not exceed the diameter of the pipe or service by more than 50 mm. If the diameter of the bored hole exceeds 200 mm, the cavity between the pipe or service and the hole must be filled or pressure grouted with flowable material as approved by the department’s District Director, or his delegate. This requirement will be reviewed by the department on a case by case basis dependent on the material or class of enveloping pipe being installed.

The enveloper pipe shall have a minimum cover of 1200 mm relative to the edge of the pavement and/or 900 mm below the invert of adjacent table drains, whichever provides the maximum cover. It must be noted that this minimum cover will be reviewed on a case by case basis by the department. Deeper cover may be required depending on the material and class of the enveloping pipe proposed, the type of service being installed and the design loads required. Where envelopers are not being used additional depth of cover may be required.

Uncased bore holes, other than installed by horizontal directional drilling, exceeding 150 mm diameter, will not be permitted under existing roadways.3

Protective conduits, ducts or enveloping pipes are to extend a minimum of 1 m beyond the batter, table drain or kerb alignment. This minimum requirement may be extended to accommodate future road enhancement works where known, or local conditions. The Permit will stipulate if the enveloper must be extended.

Minimum horizontal and vertical clearances to other utility services must be maintained as specified by Australian Standards, Service Authority Standards, and Legislation or as detailed in the conditions contained within the department’s Permit.

Enveloping pipes and service tunnels must be adequately grouted or drained and vented in accordance with relevant Australian Standards, industry standards and workplace health and safety standards. Liquids and heavy gases may be drained by gravity drains, light gases shall be exhausted through stand pipes projecting above the ground surface. Vent standpipes must not be placed in clear zones, in areas where they will interfere with maintenance operations, nor be concealed by vegetation.

3 Electrical underground conduited systems using high impact polyethylene are considered to be cased.
Vent pipes must be located outside the state controlled road boundary or where this is unsuitable, in locations agreed to between the Asset Owner and the department.

In addition to the above reference should also be made to the following Transport and Main Roads specifications for the installation of services under the roadway:

- MRTS140 Horizontal Directional Drilling
- MRTS141 Microtunnelling and Pipe Jacking, and
- MRTS142 Thrust Boring and Auger Boring.

### 5.5 Trenching

Where boring, jacking or micro tunnelling has been shown to be either uneconomical or impractical, approval may be given for a utility service to be installed through a road via trenching method. Such approval will be at the discretion of the District Director and any conditions pertaining to an approved trenching installation will be provided in the Permit.

Trenching is generally considered as the installation method that will be employed for installations within areas of the road corridor that are not developed for traffic. Any damage caused to existing infrastructure, as a result of trenching works, must be repaired by the Asset Owner whose works have caused the damage, at no cost to the department. Such repairs must address relevant Australian Standards, industry practices and any relevant departmental Asset Owner or organisational specifications. Any repair work must be completed in a time frame agreed with the Owner of the damaged service. For clarity the reinstatement of subsoil drainage is included in the above requirements.

Should the installation through a road via trenching be approved, the pavement reinstatement must comply with Figure 5.5(b). Details of typical trench under existing road. Unless otherwise agreed, the actual reinstatement must also be witnessed and certified by a RPEQ engineer for compliance with the details provided in Figure 5.5(b). Such certification shall be provided to the department on completion of works, at no cost to the department.

While minimum depths of cover have been identified in Table 5.2.1, it is the Asset Owner’s obligation to ensure that load bearing requirements are addressed for any road crossing. RPEQ endorsed drawings must therefore be provided, at no costs to the department, confirming that all drainage, verge reinstatement works, load bearing requirements and relevant departmental technical specifications have been addressed. It should be noted that additional time periods and information may be required for the review of applications identifying the installation of a service through a road via trenching.

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 department. Details of the proposed barrier systems must be provided with the application and approval will be confirmed in the Permit.

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 conditions contained within the department’s Permit.
**Figure 5.5(a) – Location of longitudinal services under existing road**

![Diagram of longitudinal services under existing road]

NOTE: Alignment to be approved by DTMR prior to excavation.

**Figure 5.5(b) – Backfill of trenches – Typical treatment**

![Diagram of backfill of trenches]

- Bitumen Emulsion Joint Seal
- Refer Insert
- Saw cut exist. Bitumen surface 150mm wider than trench (150mm nom. depth)
- Prior to commencing excavation, consideration drawn to the relevant WH&S requirements is to be made. Either benching or shoring may be required.

If flexible fill/concrete is used to surround service, provide bedding sand breakaway layer 50mm thick at the point.
5.5.1 Backfill in trenches shall be as follows:

5.5.1.1 Sealed pavement and shoulders

a) Reinstatement of road pavement is to be carried out in accordance with the cross section detailed in Figure 5.5(b) under the supervision of the Asset Owners RPEQ or, if specified, the department's Inspector.

b) The bedding, and the backfill above the bedding, shall conform to MRTS04 General Earthworks, AS 3725 and Standard Drawing 1359 Culverts – Installation, bedding and filling/backfilling against/over culverts or as otherwise agreed by the District Director. Backfill must be compacted in layers of a minimum depth of 125 mm and a maximum of 150 mm. Where gravel backfill is used testing in accordance with MRTS05 Unbound Pavements may be required. Such testing will be at the District Director’s, or his delegate’s, discretion and, if required, will be specified in the Permit. Compaction testing results shall be provided to the department on request at no cost.

c) Bedding sand ‘breakaway’ layers 50 mm thick are to be installed at 500 mm intervals except within pavement for lean mix installations.

d) The finished surface of the lean mix concrete is to be a minimum of 150 mm below the existing road surface.

5.5.1.2 Unsealed pavement and shoulders

a) The backfill above the bedding shall be of lean mix, compacted sand, or approved gravel as detailed in MRTS05 Unbound Pavements. The backfill material shall be placed in uniform layers of not more than 150 mm to subgrade level.

b) The finished surface of the backfill is to be a minimum of 150 mm below the existing surface of the bottom of the existing pavement, whichever is the greater.

c) Compaction of layers shall be as follows:
   i. Below a plane 400 mm below the subgrade (i.e. the trimmed or prepared surface of the formation on which the pavement and shoulders are constructed) - minimum relative compaction of 95% (Test Methods Q140A – Relative compaction of soils and crushed rock and Q142A Dry density-moisture relationship of soils and crushed rock – standard or Q142C Density – moisture relationship of soils by rapid method – standard), and
   ii. Above a plane 400 mm below the subgrade - minimum relative compaction of 97% (Test Methods Q140A – Relative compaction of soils and crushed rock and Q142A Dry density-moisture relationship of soils and crushed rock – standard or Q142C Density – moisture relationship of soils by rapid method - standard).

d) Compaction testing results shall be provided to the department on request at no cost.

4 Flowable fill or stabilised sand maybe provided as part of the backfill at the Regional/District Director discretion.
5.5.1.3 **Trenches in Unpaved Areas of the Road Corridor**

- a) Backfill above the bedding may be sand or earth compacted in uniform layers of not more than 150 mm to a level 100 mm below natural surface. Compaction of the layers to a minimum relative compaction of 90% (Test Methods Q140A – Relative compaction of soils and crushed rock and Q142A Dry density-moisture relationship of soils and crushed rock – standard or Q142C Density – moisture relationship of soils by rapid method - standard) shall be achieved. Compaction testing results shall be supplied to the department on request at no cost.

- b) The top 150 mm of the trench shall be filled with an approved topsoil, unless otherwise agreed by the department.

- c) Ground disturbance or exposed bare earth shall be treated as detailed in Section 4.1.

- d) The reinstatement of an existing concrete footpath shall be for the full width. The full width must match the existing footpath. Concrete type, depth, cover to reinforcement, and so on must be like for like.

- e) Gas pipelines may have a lesser standard of compaction as agreed to by the district office on a case by case basis. This would be agreed to, provided that a process is in place regarding the monitoring of trench subsidence with suitable soil infill placement in a timely manner.

5.5.1.4 **Longitudinal Installation**

Lean mix and or flowable fill must not be used for services installed longitudinally in or adjacent to the pavement due to the potential to trap water within the pavement.

5.5.2 **Reinstatement of Pavement and surfacing**

5.5.2.1 **Sealed pavement and shoulders**

- a) Reinstatement of road pavement is to be carried out in accordance with the cross section detailed in Figure 5.5(b) and any conditions contained in the Permit issued by the department.

- b) Pavement reinstatement works shall be carried out under the supervision of the Asset Owner or its nominated contractor. The department may stipulate a RPEQ or departmental Inspector must be present when pavement reinstatement works are being performed at no cost to the department.

- c) The surface of the final lean mix concrete layer or granular layer (refer backfill in trenches) and the remaining sides of the trench shall be dry and given a thorough brooming before being uniformly covered with a bitumen emulsion tack coat applied at a nominal spray rate of 1 litre/m².

- d) The bitumen emulsion shall comply with the requirements of MRTS21 *Bituminous Emulsion*.

- e) The 150 mm (minimum) asphalt pavement surface layer shall comply with the requirements of MRTS30 *Asphalt Pavements*, and shall be placed between the initial saw cuts original profile level.

- f) In areas where it is uneconomical or impractical to source asphalt the method of pavement reinstatement shall be at the District Director’s discretion and will be specified in the Permit this may include the temporary use of cold mix.
5.5.2.2 Unsealed pavement and shoulders

a) Unsealed pavement and shoulder material shall be an approved soil aggregate material conforming to the requirements for base material, Type 2.3, Grading B or C, contained in MRTS05 Unbound Pavements.

b) In addition, the material shall have a maximum particle size of 25 mm. It shall be compacted to a minimum relative compaction of 95% (Test Methods Q140A – Relative compaction of soils and crushed rock and Q142A Dry density-moisture relationship of soils and crushed rock standard).

5.6 Attachment to existing bridge structures and culverts

Where alternative routing of utility services has been shown to be either uneconomical or impractical, utility services (dependant on type and size) may be attached to bridges or culverts at the discretion of, and with the conditions stipulated, by the department’s District Director, or his delegate, in the Permit. Details identifying alternative routes that have been deemed to be uneconomical or impractical MUST be provided to the department as part of the permit application at no cost to the department.

The method and conditions pertaining to the installation of a utility service on or within a bridge will be treated on a case by case basis and will require additional approval from Director of Technical Governance, Bridge and Marine Engineering. It should be noted that additional time periods and information will be required for the review of applications identifying the installation of a service on or within a bridge structure. Any additional information requested must be provided at no cost to the department.

No works that will impede the flow of vehicles, cyclists and pedestrians on the bridge or culvert will be permitted, without the approval from Director of Technical Governance, Bridge and Marine Engineering. Safe access to the utility service on a structure remains the Asset Owner’s responsibility.

Under no circumstances are utility services to be directly encased in concrete within the superstructure due to potential future maintenance issues. Envelopers may be accepted on a case by case basis and the location of such enveloper pipes will be determined at the District Director’s, or his delegate’s, discretion.

Where the installation of a utility Asset is approved on a bridge structure or culvert the utility service Asset Owner must install jointing pits (for fibre optic and electrical installations) or shutoff valves allowing a minimum of 20 m separation on each approach to the bridge and make provisions for the service to be isolated during the department’s maintenance works and economically relocated should the bridge be altered for maintenance operations or replaced.

Should the design life of the proposed utility Asset exceed the remaining design life of the bridge structure / culvert the Asset Owner must agree to remove their utility Asset at their expense should the bridge structure / culvert be demolished and replaced. It should be noted, that if the staging of demolition/construction works require part or all of the existing bridge structure / culvert to be removed before construction can commence, the Asset Owner will be required to remove their Asset within six months of written notification and arrange for any temporary bypass required, at no cost to the department. The department will endeavour to make provisions to cater for existing utility Asset during the upgrade of the transport corridor however will not fund any relocation.

The utility service Asset Owner shall maintain at their own cost, the conduit, cabling, pipe, enveloper and any associated infrastructure in good order and condition to the satisfaction of the department.
Unless specifically approved otherwise, closure of any part of the roadway or footpath, or the parking of service vehicles on the bridge or culvert during installation or maintenance, will not be permitted.

5.7 **Conduits through drainage culverts**

Where alternative routing of utility services has been shown to be either uneconomical or impractical, utility services (dependant on type and size) may pass through a drainage culvert at the discretion of, and with the conditions stipulated by, the District Director, or his delegate, in the Permit.

Details identifying alternative routes that have been deemed to be uneconomical or impractical MUST be provided to the department including a RPEQ certified hydraulic report detailing all impacts to the current system as part of your permit application at no cost to the department.

Where this method of installation has the written agreement from the District Director, or his delegate, the conduit is to be attached to the soffit, with no appreciable sag and along the wings of the specified culvert and then underground to a depth such that the cover specified in Section 5.2 – Depth of Cover, Orientation and Proximity to Structures is achieved.

Except as provided above, the conduit is not to interfere with the existing drainage system in any way. Where the installation of a utility Asset through drainage culverts is approved, the Asset Owner must install jointing pits or valves allowing a minimum of 20 m on each approach to the drainage culvert and make provisions for the service to be isolated during the department's maintenance and upgrade works.

Should the design life of the proposed utility Asset exceed the remaining design life of the culvert the Asset Owner must agree to remove their utility Asset at their expense should the culvert be demolished and replaced. It should be noted, that if the staging of demolition/construction works require part or all of the existing culvert to be removed before construction can commence, the Asset Owner will be required to remove their Asset with six months of written notification and arrange for any temporary bypass required at no cost to the department. The department will endeavour to make provisions to cater for existing utility Asset during the upgrade to the transport corridor however will not fund any relocation.

5.8 **Installation within the department's underground Asset**

Where alternative routing of utility services has been shown to be either uneconomical or impractical, utility services (dependant on type and size) may occupy the department's underground Assets at the discretion of, and with the conditions stipulated, by the District Director, or his delegate, in the Permit. Such approval will be treated on a case by case basis and will also require the Asset Owner to enter into a commercial agreement with the department prior to any approvals.

Details identifying alternative routes that have been deemed to be uneconomical or impractical shall be provided to the department as part of your permit application at no cost to the department.

It should be noted that additional time periods and information may be required for the review of applications proposing to use departmental underground Assets. Any additional information requested must be provided at no cost to the department.

Where the installation of a utility Asset is approved in the department's underground infrastructure, the Asset Owner must ensure jointing pits are installed prior to any point of connection. Such jointing pits shall be no greater than 20 m from the entry and exit points. Additionally, all cables must be labelled using permanent labels, before and after each point of connect, and within any departmental access pit or chamber.
Should any departmental underground infrastructure be damaged as a result of the service Asset installation, the Asset Owner agrees to fund all repair costs.

5.9 Conduits carrying combustible liquids or flammable liquids

Details of the design regarding an installation that is to carry combustible liquids/gases or flammable liquids/gases shall be negotiated on a case by case basis with the District Director, or his delegate. The requirements for the installation of such utility services will be dependent on the pressure and volume of liquid/gas that is to be carried. It should be noted that additional time periods and information may be required for the review of applications identifying the installation of a service proposed to carry combustible liquids/gases or flammable liquids/gases. Conduits carrying combustible or flammable liquids are not permitted on departmental bridges or structures.

5.10 Design of Enveloping Pipes for Underground Pressure Utility Services Crossing State-Controlled Road Corridors

5.10.1 Introduction/Applicability

This section outlines the requirements for the design of enveloping pipes for protecting underground pressure utility services crossing State-Controlled Road Corridors from external interference threats. Examples of the potential sources of external interference are construction or maintenance of roads and excessive external loads from traffic.

5.10.2 Referenced documents

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Petroleum Institute recommended practice, API RP1102</td>
<td>Steel Pipelines Crossing Railroads and Highways</td>
</tr>
<tr>
<td>AS 2885.1</td>
<td>Pipelines – Gas and Liquid Petroleum, Part 1: Design and Construction</td>
</tr>
<tr>
<td>AS 2885.2</td>
<td>Pipelines – Gas and Liquid Petroleum, Part 2: Welding</td>
</tr>
<tr>
<td>AS 5100.2</td>
<td>Bridge Design – Design Loads</td>
</tr>
<tr>
<td>AS/NZS 2566.1</td>
<td>Buried Flexible Pipelines, Part 1: Structural Design</td>
</tr>
<tr>
<td>AS/NZS 3725</td>
<td>Design for Installation of Buried Concrete Pipes</td>
</tr>
<tr>
<td>AS/NZS 4645</td>
<td>Gas Distribution Networks</td>
</tr>
<tr>
<td>AS/NZS 4680</td>
<td>Hot-dip Galvanized (zinc) Coatings on Fabricated Ferrous Articles</td>
</tr>
<tr>
<td>MRTS140</td>
<td>MRTS140 Horizontal Directional Drilling</td>
</tr>
<tr>
<td>MRTS141</td>
<td>MRTS141 Microtunneling and Pipe Jacking</td>
</tr>
<tr>
<td>MRTS142</td>
<td>MRTS142 Thrust Boring and Auger Drilling</td>
</tr>
</tbody>
</table>

5.10.3 Design of Enveloping Pipes

5.10.3.1 Material Types

The following material types shall be used for enveloping pipes:

a) Mild steel
b) Reinforced concrete

c) Glass filament reinforced plastic (GRP)

d) High density polyethylene (HDPE) with compound classification of PE 100, or

e) Modified poly vinyl chloride (mPVC) and unplasticised poly vinyl chloride (uPVC) with material class of 500.

A summary of the allowable material types for enveloping pipes are shown in Table 5.10.3.1.

Alternate material types including full technical details shall be submitted to the Director (Structures Review and Standards) of TMR Structures Division for review and acceptance.

**Table 5.10.3.1 Material types for enveloping pipes**

<table>
<thead>
<tr>
<th>Type of Pipeline/Service</th>
<th>Material Type for Enveloping Pipes (✓ - Allowed) (✗ - not Allowed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reinforced Concrete, Class 4 or higher load class</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td></td>
<td>Glass Filament Reinforced Plastics (GRP), PN 20 or higher nominal pressure, SN 10000 or higher stiffness class</td>
</tr>
<tr>
<td></td>
<td>Butt welded High Density Polyethylene (HDPE), PE 100 compound classification, PN 20 or higher pressure rating</td>
</tr>
<tr>
<td></td>
<td>Modified Poly Vinyl Chloride (mPVC) or Unplasticised Poly Vinyl Chloride (uPVC), material class of 500, PN 20 or higher pressure class with solvent weld joints</td>
</tr>
<tr>
<td>High pressure gas and liquid petroleum transmission pipelines complying with AS 2885</td>
<td>✓* #</td>
</tr>
<tr>
<td>Gas distribution networks complying with AS/NZS 4645</td>
<td>✓*</td>
</tr>
<tr>
<td>Pressure water mains</td>
<td>✓*</td>
</tr>
<tr>
<td>Pressure water service pipelines</td>
<td>✓*</td>
</tr>
<tr>
<td>Pressure sewers</td>
<td>✓*</td>
</tr>
</tbody>
</table>

* Enveloping pipes shall be grouted both internally and externally.

# If enveloping pipe is impractical/infeasible for use, the minimum depth of cover to the gas or liquid petroleum transmission pipe shall be increased. Refer Clause 5 for minimum cover requirements.

^ The space between the gas pipe and the enveloping pipe shall be sealed and vented at the ends outside of TMR’s road corridor.

**5.10.3.2 Design Life**

The design life of the enveloping pipes shall be equal to the design life of the carrier pipe or 100 years whichever is longer.
5.10.3.3 Design Loads

The design of the enveloping pipes shall account for the types of design load addressed in the design references specified. Superimposed live loads shall consider the following construction and road vehicles loads.

a) Construction loads:
   i. Truck and dog trailer with a minimum height of compacted fill of 0.5 m over the top of the enveloping pipe. The load configuration is defined in Figure 5.10.3.3(a).
   ii. 25.9 tonne excavator with a minimum height of compacted fill of 1.0 m over the top of the enveloping pipe. Load configuration is defined in Figure 5.10.3.3(b).
   iii. 580 mm wide compaction wheel with a minimum height of compacted fill of 1.0 m over the top of the pipe. Load configuration is defined in Figure 5.10.3.3(c).
   iv. Allow a dynamic load allowance of 0.5 to the construction loads. Distribution of construction loads through fill shall be determined in accordance with AS/NZS 3725.
   v. Where additional load cases other than those listed above are required as part of the construction sequence, these additional cases shall be considered in the design.
   vi. If the actual construction sequence results in lower fill heights, and/or heavier equipment/vehicles(s) is used than those specified, then the capacity of the enveloping pipe shall be reassessed. Adopt a higher load class of pipe, if the specified load class is structurally inadequate.

b) Road vehicle loads:
   i. W80
   ii. A160
   iii. SM1600, and
   iv. iHLP400.

Note these loads and their dynamic load allowance are defined in AS 5100.2 Bridge Design – Design Loads. Distribution of road vehicle loads through fill shall be determined in accordance with AS/NZS 3725 Design for Installation of Buried Concrete Pipes.

Figure 5.10.3.3(a) – Load Configuration: Truck and Dog Trailer
5.10.3.4 Structural Design

5.10.3.4.1 Mild Steel

Mild steel enveloping pipes shall be designed in accordance with AS 2885.1 *Pipelines – Gas and Liquid Petroleum, Part 1: Design and Construction* and American Petroleum Institute recommended practice, API RP1102 *Steel Pipelines Crossing Railroads and Highways*.

Mild steel enveloping pipe sections shall be joined together by welding in accordance with AS 2885.2 *Pipelines – Gas and Liquid Petroleum, Part 2: Welding*.

Alternate steel pipe jointing methods and steel protection methods including full technical details shall be submitted to the Director (Structures Review and Standards) of TMR Structures Division for review and acceptance.

Mild steel enveloping pipes shall be hot dip galvanised to AS/NZS 4680 *Hot-dip Galvanized (zinc) Coatings on Fabricated Ferrous Articles*, grouted both internally and externally and maintained by cathodic protection.

5.10.3.4.2 Reinforced Concrete

Reinforced precast concrete enveloping pipes shall be designed in accordance with AS/NZS 3725.

Reinforced concrete enveloping pipes shall be Class 4 or higher load class and have butt joints. Also the enveloping pipes shall be grouted both internally and externally.

5.10.3.4.3 GRP

GRP enveloping pipes shall be designed in accordance with AS/NZS 2566.1 *Buried Flexible Pipelines, Part 1: Structural Design*. 

*Figure 5.10.3.3(b) – Load Configuration: 25.9 Tonne Excavator*

*Figure 5.10.3.3(c) – Load Configuration: 580 mm Wide Compact Wheel*
GRP enveloping pipes shall have a nominal pressure of PN 20 or higher and stiffness class of SN 10000 or higher.

5.10.3.4.4 HDPE

HDPE enveloping pipes shall be designed in accordance with AS/NZS 2566.1 Buried Flexible Pipelines, Part 1: Structural Design.

HDPE enveloping pipes shall have a pressure rating of PN 20 or higher.

5.10.3.4.5 mPVC and uPVC

mPVC and uPVC enveloping pipes shall be designed in accordance with AS/NZS 2566.1 Buried Flexible Pipelines, Part 1: Structural Design.

mPVC and uPVC enveloping pipes shall have a pressure class of PN 20 or higher.

5.10.3.5 Geotechnical Assessment

Geotechnical investigation shall be carried out to assess the ground/subsoil conditions. The assessment/investigation shall include an analysis of the ground surface settlement and differential settlement due to the carrier and enveloping pipes.

5.10.3.6 Design Certification

The design of the enveloping pipes shall be certified by a competent RPEQ Engineer.

5.10.3.7 Transport and Main Roads Design Review

The RPEQ certified drawings and design report of the enveloping pipes shall be submitted to the TMR Region Office and Director (Structures Review and Standards) of TMR Structures Division for review prior to commencement of works on site.

5.11 Overhead Electrical Clearances

Overhead clearance to any existing or planned road infrastructure or furniture must comply with the distances/heights shown in the Electrical Safety Regulation (2013) as a minimum.

Consultation with departmental offices needs to be undertaken to identify over dimensional vehicle routes, future planning requirements etc. that will influence vertical clearance requirements.

The clearances given (in particular horizontal clearances) are relevant to the maximum insulator swing predicted under service conditions, with confirmation obtained from Local Electricity Entity.

In addition to electrical safety requirements, Assets crossing over any part of the carriageway shall also address the minimum vertical clearances identified for bridge structures over roads in Table 3.1.2.4 of the Design Criteria for Bridges and Other Structures, Transport and Main Roads, which can be found at the following internet address:


5.12 Overhead Telecommunication Clearances

Overhead clearances to any existing or planned road infrastructure or furniture for telecommunication lines located within State road corridors must comply with the distances/heights shown in the Electrical Safety Regulation (2013) or adhere to Industry Code C524:2013: External Telecommunication Cable Networks Table 1 for service not situated over any part of the carriage way.
Consultation with departmental offices needs to be undertaken to identify over dimensional vehicle routes, future planning requirements etc. that will influence vertical clearance requirements.

For services situated over any part of the carriage way, the clearances shall also address the minimum vertical clearances identified for bridge structures over roads in Table 3.1.2.4 of the Design Criteria for Bridges and Other Structures, Transport and Main Roads, which can be found at the following internet address:


6 Maintaining the State Controlled Road Corridor and Third Party Assets

6.1 Responsibilities and warranties

The Asset Owner will maintain the area affected by the works for a minimum period of twelve months (or for the period stipulated in an agreement) from the date of notification of completion of works or acceptance by the department.

The department reserves the right to charge the Asset Owner for any ongoing maintenance works required in a State Controlled Road Corridor as a result of any failure attributed to a service installation.

6.2 Restoration of work site

On completion of the activity, the site will be returned to a condition as or near practical to what was in place prior to works commencing, particularly for street scaping works. Restoration includes, but is not limited to, removal of any litter or materials, and revegetation.

For Works not contained within pavement and/or gravel shoulder areas, any ground disturbance or exposure of bare earth (by either clearing or machinery), in urban areas, shall be replaced/reinstated in a ‘like for like’ basis unless otherwise agreed by the department.

Exposed bare earth in rural areas is to be covered by mulch or similar, or reseeded, immediately after the activity is completed (unless otherwise agreed by the department). Soil on embankments and cuttings along the road are not to be exposed or damaged. Stumps must be retained for the short-term stability of slopes.

6.3 Recording, maintaining and providing records

The Asset Owner will be responsible to ensure any new installations are captured to TMR Survey Standards and registered with a suitable organisation such as ‘Dial Before You Dig’ to enable future site location.

Additionally, provision should be made for all installations to be clearly marked using marker posts or location marker discs for all road crossings and identifiable by electronic means to level B of the AS 5488 standard where suitable to do so.

Electronic As-Constructed plans, electronic survey models, or suitable reports that clearly outline the location of the underground Asset must be produced and made available to the department on request at no cost to the department after installation, in a format specified by the department. The Asset Owner must carry out and meet all the conformance, as-constructed and delivery requirements as prescribed in Underground Asset Surveying in the appropriate section of TMR Survey Standards (latest version), which can be found at the following web address.
This Work is to be conducted by a Surveyor that meets the relevant competency requirements as prescribed in *TMR Surveying Standards* (latest version).

### 6.4 Managing & Recording redundant / Abandoned networks

Existing network and/or infrastructure, being replaced by proposed departmental works or upgraded by the Asset Owner, that will become Redundant or be Abandoned will only be permitted to remain within a State Road Corridor at a District Director’s, or his delegate’s, discretion. It is the responsibility of the Asset Owner to manage their Assets in their set alignments.

Abandoned/redundant Assets that are left insitu will remain the responsibility of the Asset Owner to maintain. Should these abandoned/redundant Assets impact on the operation of, or upgrade to, the road in the future the Asset Owner will be responsible to fund any rectification works.

If approved it is the Asset Owners’ responsibility to grout fill any redundant networks left insitu and provide information as prescribed in the chapter of underground Asset Surveying in *TMR Surveying Standards* latest version to identify the entire length of the redundant network.

### 6.5 Asbestos

The department does not require existing underground AC pipes, ducts, conduits or service pits still in operation to be removed because they contain asbestos, provided the Asset is in good repair and presents no hazard to the operation of the road corridor. However, any product/Asset removed that contain asbestos must be handled and disposed of as required by current legislation.

Where existing underground Services are located in asbestos concrete (AC) pipes, ducts or conduits, or service pits/access chambers contain asbestos, the Asset Owner shall ensure all works meet:

a) Legislative requirements (including maintaining an asbestos register for live and abandoned asbestos Assets, which on request shall be provided to the department)

b) Current best practice standards for workplace health and safety, and

c) The current standards used by the Service Owner or Authority.

Producing, supplying and adhering to the above requirements helps minimise risk for all parties that utilise the State Road Corridor.