# DIRECTIONAL BORING

DIPL Roadworks Master – November 2019

## General

This section specifies the underground boring of passages for the installation of piping, piped services, or cabled services, beneath trafficked surfaces, buildings or other nominated areas without trenching, disruption to traffic, or subsidence.

## Cross References

DRAINAGE WORKS

LANDSCAPE

DUCTING AND CONDUITS

TRAFFIC CONTROL SIGNALS AND INTELLIGENT TRANSPORT SYSTEMS

TRAFFIC COUNTING STATIONS

STREET LIGHTING

## Standards and Authorities

Conform to the following Standards unless specified otherwise:

AS 1579 Arc welded steel pipes and fittings for water and waste water.

AS/NZS 3000 Electrical installations (Australian/New Zealand Wiring Rules)

AS/NZS 3500 (set) Plumbing and drainage

AS/NZS 4645 Gas distribution networks

Conform to the requirements of the following Authorities if their services are to be installed in the bored passages:

Telstra

NBN Corporation

Power and Water Corporation

Jacana Energy

Territory Generation

Any gas supply agency or authority

Any data service provider

Any other Agency or Authority

## Proposed Method – hold point

**Hold point** – Submit details of the proposed method of directional boring not less than 14 days prior to commencement of construction using that method. Include details of proposed filling of cavities. No disruption or excavation of the surface is to take place over the length nominated.

Co-ordinate boring works with the Authorities with jurisdiction over the services to be installed in the bored passages.

### Directional Boring With Pipe Casing

Keep dimensions of jacking pits to the minimum necessary.

Use pipe jacking equipment inspected and approved and certified as fit for use by a competent person. The certification of fitness for use must have been issued not more than one year prior to the date of the scheduled completion of the works plus one calendar month. A competent person is defined in the NT Work Safe Bulletin 09.01.16 Competent Persons for Inspection and Maintenance of Plant.

Comply with the guidance provided in the Safe Work Australia Code of Practice Managing Risks of Plant in the Workplace.

**Witness Point** – Provide documentary evidence of the certification that the pipe jacking equipment is fit for use issued by a competent person. Provide documentary evidence of that person’s skills and qualifications which indicate their competence as defined in the NT Work Safe Bulletin cited above. This evidence is to be provided within 2 weeks of the award of the contract.

Use a welded mild steel pipe casing manufactured in accordance with AS 1579 and of sufficient strength to withstand the forces generated irrespective of the nature of sub-surface material encountered.

Ensure the inside diameter of the casing is 50 mm greater than the maximum outside diameter of the pipe joints, skids, cradle runners or other protrusions related to pipe insertion.

### Directional Boring Without Pipe Casing – Hold Point

**Hold Point** – Obtain written permission from the Superintendent to use directional boring without pipe casing.

Bore the hole cleanly without projections to a diameter at least 50 mm greater than the maximum outside diameter of the pipe joints, skids or other protrusions related to pipe insertion.

Use plastic skids extending the whole length of the pipe apart from joints to ensure the pipe is at least 10 mm clear of the hole perimeter. Insert the pipe so that the joints are neither stressed nor pulled apart.

## Testing of Services

Co-ordinate testing of services with the authority with jurisdiction over the installed service to be tested.

For plumbing installations testing is to be to the **Testing and commissioning** section of the applicable Part of AS 3500.

For electrical installations testing is to be to the requirements of PowerWater and/or to the requirements of AS 3000.

For telephone and data, including NBN, installations, testing is to be to the requirements of Telstra, NBN Corporation, or other authority with jurisdiction regarding the installation.

For installations related to Traffic Control, Traffic Count, and Street Lighting, refer to the applicable worksection for tests required.

For installations related to gas supply, refer to AS/NZS 4645, and to the applicable authority, for tests required.

Other tests may be specified in other work sections.

[Delete this sentence if no other tests are specified.]

The Superintendent may specify other tests.

[Delete this sentence if no other tests are specified.]

If any installation is tested, and fails that test, the Contractor is to rectify the installation and test the installation again, at no cost to the Principal.

## Filling of Cavities

This sub-clause is in respect to piping installed in passages bored without pipe casings.

**Pressure Service Pipes**

Carry out grouting around the service pipe in the cavity with pumped cementitious grout (Class 10 MPa) containing an appropriate plasticising agent. Any water service pipe is to be full of water under a pressure equal to normal expected operating pressure.

**Non‑pressure Service Pipes**

Fill cavities around the service pipes with Type 1 bedding material thoroughly watered in.

Type 1 bedding: Granular material free of clay, dust, fines, salt or organic matter complying with either of the following gradings:

|  |  |  |
| --- | --- | --- |
| **Table – Granular Bedding Material Gradings** | | |
| **Sieve Size** | **Percentage Passing By Weight** | |
| **Type 1A** | **Type 1B** |
| 9.5 mm | 100 | - |
| 6.75 mm | 100 | 90 – 100 |
| 2.36 mm | 100 | 75 – 100 |
| 1.18 mm | 95 – 100 | 45 – 95 |
| 600 um | 80 – 100 | 20 – 80 |
| 300 um | 40 – 80 | 5 – 40 |
| 150 um | 0 – 6 | 0 – 6 |
| 75 um | 0 – 6 | 0 ‑ 6 |

Linear shrinkage of materials passing a 425 um sieve to be less than 2.5%.

## End Caps

Fit end caps to a bored passage if services will not be installed in the passage on the day it is bored.

Fit end caps to pipe casing if services will not be installed in the pipe casing on the day it is bored/installed.

Plug ends of bored passages around the installed services after installation, testing, and commissioning of the services is complete. Use an appropriate plugging material which is compatible with the materials of the installed services with which the plugging material will come into contact.