

Specification (Measurement)

**Transport and Main Roads Specifications
MRS141 Microtunnelling and Pipe Jacking**

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1 Introduction

This Specification applies to the installation of culverts, pipelines, public utilities and plant underground structures using microtunnelling or pipe jacking methods.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications* and other Specifications as appropriate.

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

2 Measurement of work

2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

Table 2.1 – Standard Work Items

Standard Item No.	Description	Unit of Measurement
Microtunnelling and Pipe Jacking		
33401	Design of microtunnel / pipe jacking installation system	lump sum
33402	Supply and installation of sleeving and carrier pipe	m
33403	Microtunnelling / pipe jacking, all materials	m
33408	Removal of spoil material from microtunnel / pipe jack	m ³
33409P	Addition of lime to spoil material in Acid Sulphate Soil area, (Provisional Quantity as directed)	m ³
33413	Grouting outer annuls and space between the casing and carrier pipe	m ³
33414	Sand fill the space between the casing and carrier pipe	m ³
33415	Operation of microtunnelling / pipe jacking machinery	lump sum
33416	Designer's inspection and certification	lump sum

2.2 Work Operations

Any other Standard Work Items other than given in Table 2.1 shall be in accordance with relevant MRS, e.g., in accordance with MRS02 *Provision for Traffic* and MRS04 *General Earthworks*.

2.2.1 Microtunnel / pipe jacking construction

Item 33401 Design of microtunnel / pipe jacking installation system

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) design of microtunnel / pipe jacking system in accordance with this Specification, and
- c) submission of design for approval to use in accordance with the Conditions of Contract.

Item 33402 Supply and installation of sleeving and carrier pipe

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply and installation of sleeving and carrier pipe.

Item 33403 Microtunnelling / pipe jacking, all materials

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) establishment of excavating and jacking equipment on the site
- c) carrying out all excavations including jacking and receiving pits where necessary
- d) cartage of culvert or other structural components from the storage site
- e) jacking culvert components in all materials
- f) cutting culvert or other structural components where necessary
- g) where necessary, filling pipe joints with mortar, and labelling drainage structures, and
- h) supply, placing and compacting backfill material.

Item 33408 Removal of spoil material from microtunnel / pipe jack

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) removing all spoils from pits
- c) stockpiling of material considered suitable for re-use, and
- d) hauling and disposing of unsuitable material.

Item 33409P Addition of lime to spoil material in Acid Sulphate Soil area, (Provisional Quantity, as directed)

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) mixing of lime into spoil material at the rate required to neutralise potential acid production (excluding supply of lime).

Item 33413 Grouting outer annulus and space between the casing and carrier pipe

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply cementitious grouting and other associated materials and grouting the annulus and any void between casing and carrier pipe.

Item 33414 Sand fill the space between the casing and carrier pipe

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply sand and filling the space between casing and carrier pipe.

Item 33415 Operation of microtunnelling / pipe jacking machinery

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) mobilizing and demobilizing microtunnelling / pipe jacking machinery
- c) provide access road / working platform as necessary
- d) provide surveyors for checking the alignment
- e) supply, install and monitoring of instrumentation throughout the operations, and
- f) install of all sundry items and other components necessary to complete the work.

Item 33416 Designer's inspection and certification

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) provision of design certification in accordance with the Conditions of Contract, and
- c) addressing review comments and revising design.

2.3 Measurement

2.3.1 Measurement of provision of traffic

The provision of traffic shall be measured in accordance with MRS02 *Provision for Traffic*.

2.3.2 Measurement of General Earthworks

The measurement of excavation and backfilling shall be measured in accordance with MRS04 *General Earthworks*.

2.4 Calculation of quantities

Quantities shall be calculated in accordance with the provisions of Clause 2.1.1 of MRS01 *Introduction to Specifications*.

3 Measurement and payment

3.1 Traffic management

The measurement and payment shall be in accordance with MRS02 *Provision for Traffic*.

3.2 General earthworks

The measurement and payment shall be in accordance with MRS04 *General Earthworks*.

3.3 All lump sums amounts

The lump sum amounts tendered by the Contractor and accepted by the Administrator under Standard Work Items shall be deemed to be full.

3.3.1 Times for payments for lump sums

Notwithstanding the requirements of the Conditions of Contract:

- a) the Contractor may claim payment under Standard Work Item 33401 only after permission to use the Contractor's Design has been approved by the Administrator under the Conditions of Contract or after such permission is deemed to have been given under the Conditions of Contract
- b) the Contractor may claim payment under Standard Work Items 33402, 33403, 33408, 33409P, 33413, 33414 and 33415 in accordance
- c) with the requirements of the Conditions of Contract, and
- d) the Contractor may claim payment under Standard Work Item 33416 only after delivery to the Administrator of the documents listed in the Conditions of Contract.

