Specification (Measurement)

Transport and Main Roads Specifications
MRS141 Microtunnelling and Pipe Jacking

July 2017
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1 Introduction

This Specification applies to the installation of pipelines and other 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

<table>
<thead>
<tr>
<th>Standard Item No.</th>
<th>Description</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>33401</td>
<td>Design of microtunnel / pipe jacking installation system</td>
<td>lump sum</td>
</tr>
<tr>
<td>33402</td>
<td>Supply and installation of sleeving and carrier pipe</td>
<td>m</td>
</tr>
<tr>
<td>33403</td>
<td>Microtunnelling / pipe jacking, all materials</td>
<td>m</td>
</tr>
<tr>
<td>33404P</td>
<td>Microtunnelling / pipe jacking in hard ground, rate additional to rates for Work Item 33403 (Provisional Quantity)</td>
<td>m</td>
</tr>
<tr>
<td>33408</td>
<td>Removal of spoil material from microtunnel / pipe jack</td>
<td>m³</td>
</tr>
<tr>
<td>33409P</td>
<td>Addition of lime to spoil material in Acid Sulphate Soil area, (Provisional Quantity as directed)</td>
<td>m³</td>
</tr>
<tr>
<td>33413</td>
<td>Grouting outer annuls and space between the casing and carrier pipe</td>
<td>m³</td>
</tr>
<tr>
<td>33414</td>
<td>Sand fill the space between the casing and carrier pipe</td>
<td>m³</td>
</tr>
<tr>
<td>33415</td>
<td>Operation of microtunnelling / pipe jacking machinery</td>
<td>lump sum</td>
</tr>
<tr>
<td>33416</td>
<td>Designer’s inspection and certification</td>
<td>lump sum</td>
</tr>
</tbody>
</table>

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, and
   b) boring through all materials.

Item 33404P  Microtunnelling / pipe jacking, hard ground, rate additional to rates for Work Item 33403 (Provisional Quantity)
Work Operations incorporated in the above item include:
   a) Work Operations listed in Clause 2.1.5 of MRS01 Introduction to Specifications, and
   b) boring associated with hard ground in addition to that required for, in all materials.

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
   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, 33404P, 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.