Specification (Measurement)

Transport and Main Roads Specification
MRS262 Temporary Variable Message Signs

July 2016
1 Introduction

This Specification applies to the requirements for the supply, installation, testing, commissioning and maintenance handover documentation (including the provision for operator training) of Temporary Variable Speed Limit (TVSL) signs.

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 Specifications Manual.

2 Measurement of Works

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>6427</td>
<td>Supply and Installation of [Vehicle</td>
<td>Trailer</td>
</tr>
<tr>
<td>6428</td>
<td>Supply and Installation of a 10 metre connecting cable between the [Trailer</td>
<td>Concrete Block] and the [LED Sign display</td>
</tr>
<tr>
<td>6429</td>
<td>Supply and configuration of a hand-held SRC device to control each TVMS Sign</td>
<td>Each</td>
</tr>
<tr>
<td>6430</td>
<td>Supply, Installation and configuration of RSCS Software on a [Laptop</td>
<td>PC]</td>
</tr>
<tr>
<td>6431</td>
<td>Supply, Installation and configuration of Configuration Software on a [Laptop</td>
<td>Other Compatible Device]</td>
</tr>
<tr>
<td>6432</td>
<td>Supply and configuration of a [3G</td>
<td>4G] mobile phone service to allow communications between a TVMS Site Controller and [RSCS Software</td>
</tr>
</tbody>
</table>
2.2 Work Operations

Item 6427 Supply and Installation of [Vehicle|Trailer|Concrete block] mounted TVMS Sign [with|without] solar panels, [with|without] battery bank, [with|without] Gyroscopic sensor, [with|without] Directional Compass, stabilisers

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 Introduction to Specifications

b) supply of fully integrated TVMS sign to MRTS262 including but not limited to:
   1. site controller and associated components
   2. wireless UHF communications transmitter / receiver
   3. wireless 3G / 4G Modem
   4. GPS Sensor
   5. solar panel array and associated mechanical support assembly and adjustment mechanism, where required
   6. batteries, charge regulator and all associated components, where required
   7. gyroscopic sensor, where required
   8. directional compass, where required.

c) installation of the components listed in b) above fully integrated into a [Vehicle|Trailer|Concrete block] trailer

d) risk analysis to ensure safety in the event of sign failure

e) configuration of [Vehicle|Trailer|Concrete block] mounted TVMS components listed in b) above in accordance with, TRUM Volume 1, Part 10 and MRST262.

Item 6428 Supply and Installation of a 10 metre connecting cable between the [Trailer|Concrete Block] and the [LED Sign display|Solar Panel Array with Battery Bank Enclosure] Extension

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 Introduction to Specifications

b) supply of Cabling Options below:
   1. supply of 10 metres of connecting ELV power and signal cables from the Trailer or concrete block mounted TVMS sign to the Sign Display Extension and, or
   2. supply of 10 metres of connecting ELV power cable from the Trailer or concrete block mounted TVMS sign to the Solar Panel Array with Battery Bank Enclosure Extension.

c) supply of 10 metres of sufficiently sized corrugated steel conduit

d) installation of the connecting cable within corrugated steel conduit

e) supply of corrosion resistant IP67 rated connector (or Utilux type round seven pin plug and socket arrangement) for cable termination

f) termination of both ends of the connecting cables with corrosion resistant IP67 rated connector (or Utilux type round seven pin plug and socket arrangement), and

Superseded
g) installation of the cable between the Trailer | Concrete Block and the LED sign display Extension or TVSL Solar Panel Array with Battery Bank Enclosure Extension.

**Item 6429**  Supply and configuration of a hand-held SRC device to control each TVMS Sign

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*

b) supply of two SRD hand-held units with accompanying batteries, and

c) configuration of the SRD to comply with the, TRUM Volume 1, Part 10 and MRTS262.

**Item 6430**  Supply, Installation and configuration of RSCS Software on a [Laptop | PC]

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*

b) supply of a disk containing the RSCS Software

c) installation of the RSCS Software onto a compatible Laptop or PC

d) configuration of the RSCS Software for administration, user access management, diagnostics and alarm / event monitoring, GIS maps etc.

e) configuration of the RSCS Software to comply with the TRUM Volume 1, Part 10 and MRST262.

**Item 6431**  Supply, Installation and configuration of Configuration Software on a [Laptop | Other Compatible Device]

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*

b) supply of a disk containing the Configuration Software

c) installation of the Configuration Software onto a compatible Laptop or other Compatible device

d) configuration of the Configuration Software for administration, user access management, diagnostics and alarm / event monitoring, GIS maps etc.

**Item 6432**  Supply and configuration of a [3G | 4G] mobile phone service to allow communications between a TVMS Site Controller and [RSCS Software | Mobile Phone Alerts]

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*

b) supply a 3G or 4G mobile data (if required to suit designed TVMS sign data bandwidth requirements) and SMS communications through the engagement of a suitable mobile phone service provider such as Telstra, Optus or Vodafone

c) configure the TVMS sign with the mobile phone service numbers requiring to receive the critical TVMS sign Alarm or Alert SMS based notifications, and
d) configure the TVMS sign such that a secure wireless Ethernet communications channel such as a Virtual Private Network (VPN) is established between the TVMS sign and the RSCS Software.

2.3 Method of Measurement of Temporary Variable Message Signs

This specification provides Standard Work Items for:

a) supply only

b) installation only, and

c) supply and installation.

of Temporary Variable Message Signs (TVMS). Any combination of Standard Work Items relating to these methods of measurement may be used in the Schedule of Rates. However, where a Standard Work Item for supply and installation of a particular component or group of components is included in the Schedule of Rates, no supply only nor installation only Standard Work Item shall also apply to that component or group of components, as applicable.

2.4 Supply of materials

Any materials to be supplied by the Principal will be as stated in the Principal Supplied Material List, Form C6827. All other material shall be supplied by the Contractor.

The responsibility for transport to the Site of materials supplied by the Principal shall be as stated in the Principal Supplied Material List, Form C6827. Transport to the Site of all other materials shall be the responsibility of the Contractor.