

Specification (Measurement)

**Transport and Main Roads Specification
MRS202 Variable Message Signs**

November 2021

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1 Introduction

This Specification applies to the requirements for the design, supply of materials and equipment, installation, testing, commissioning and maintenance handover documentation (including the provision for operator training) of Variable Message Signs (VMS) and Enhanced Variable Message Signs (EVMS).

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 2.1.3 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
Variable message signs and enhanced variable message signs		
61301	Supply of [Monochrome Multicolour] [Type A Type B Type C VMS or EVMS] and [cantilever T mount] support structure [with without] walk-on gantry [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] with [VMS or EVMS] Controller	each
61302	Supply and Installation of [Monochrome Multicolour] [Type A Type B Type C VMS or EVMS] and [cantilever T mount] support structure [with without] walk-on gantry [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] with [VMS or EVMS] Controller	each
61303	Installation of [Monochrome Multicolour] [Type A Type B Type C VMS or EVMS] and [cantilever T mount] support structure [with without] walk-on gantry [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] with [VMS or EVMS] Controller	each
61304	Installation of [VMS or EVMS] footing and including Anchor Cage for a PAD foundation [insert dimensions or referenced drawing]	each
61305	Installation of [VMS or EVMS] footing and including Anchor Cage for a bored Piled Foundation [incorporating [no. of Piles] at a diameter of [in mm] at a depth of [in m] or referenced drawing]	each
Ancillary items		
61331	Foundation Design for [Type A Type B Type C VMS or EVMS] on a [cantilever T mount] support structure [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] on a [PAD or bored Pile Foundation]	each
61332	Provision of [VMS EVMS] Spares [as listed in the contract documents or on drawing reference]	item

Standard Item No.	Description	Unit of Measurement
Removal of existing VMS and EVMS equipment		
61361	Removal of [VMS EVMS] equipment for re-use	each
61362	Removal of [VMS EVMS] equipment for disposal	each

2.2 Work Operations

Item 61301 Supply of [Monochrome | Multicolour] [Type A | Type B | Type C VMS or EVMS] and [cantilever | T mount] support structure [with | without] walk-on gantry [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] with [VMS or EVMS] Controller

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general requirements stated in MRTS201, and
- c) supply, fabrication, design, testing and documentation in accordance with the requirements of MRTS202 and MRTS61.

Item 61302 Supply and Installation of [Monochrome | Multicolour] [Type A | Type B | Type C VMS or EVMS] and [cantilever | T mount] support structure [with | without] walk-on gantry [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] with [VMS or EVMS] Controller

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general requirements stated in MRTS201
- c) supply, fabrication, design, installation, testing and documentation in accordance with the requirements of MRTS202 and MRTS61, and
- d) the setting out of the VMS including confirmation of vertical clearance from carriageway and lateral offset from carriageway and vehicle restraint systems including horizontal alignment of the sign.

Item 61303 Installation of [Monochrome | Multicolour] [Type A | Type B | Type C VMS or EVMS] and [cantilever | T mount] support structure [with | without] walk-on gantry [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] with [VMS or EVMS] Controller

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general requirements stated in MRTS201

- c) installation, testing and documentation in accordance with the requirements of MRTS202 and MRTS61, and
- d) the setting out of the VMS including confirmation of vertical clearance from carriageway and lateral offset from carriageway and vehicle restraint systems including horizontal alignment of the sign.

Item 61304 Installation of [VMS or EVMS] footing and including Anchor Cage for a PAD foundation [insert dimensions or referenced drawing]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) requirements stated in MRTS61
- c) the setting out of the VMS including confirmation of vertical clearance from carriageway and lateral offset from carriageway and vehicle restraint systems including horizontal alignment of the sign
- d) geotechnical site investigation to confirm minimum foundation capacity
- e) excavation of foundation to MRTS04 to the dimensions shown on the design drawings
- f) supply and installation of blinding concrete to MRTS70
- g) supply and installation of reinforcing to MRTS70 and MRTS71
- h) pouring, curing and finishing of concrete to MRTS70, and
- i) reinstatement of soil cover and general making good at site.

Item 61305 Installation of [VMS or EVMS] footing and including Anchor Cage for a bored Piled Foundation incorporating [incorporating [no. of Piles] at a diameter of [in mm] at a depth of [in m] or referenced drawing]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) requirements stated in MRTS61
- c) the setting out of the VMS including confirmation of vertical clearance from carriageway and lateral offset from carriageway and vehicle restraint systems including horizontal alignment of the sign
- d) geotechnical site investigation to confirm minimum foundation capacity
- e) excavation of foundation to MRTS04 to the dimensions shown on the design drawings
- f) supply and installation of blinding concrete to MRTS70
- g) supply and installation of reinforcing to MRTS70 and MRTS71
- h) pouring, curing and finishing of concrete to MRTS70
- i) reinstatement of soil cover and general making good at site.

Item 61331 Foundation Design for [Type A | Type B | Type C VMS or EVMS] on a [cantilever | T mount] support structure [incorporating an enclosure fixed to support structure to house VMS or EVMS controller] on a [PAD or bored Pile Foundation]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) design drawings, schedules, calculations and TMR approvals in accordance with TMR specifications.

Item 61332 Provision of [VMS | EVMS] Spares [as listed in the contract documents or on drawing reference]

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 spares in accordance with the requirements of MRTS201 and as listed in the Scheme Documentation, and
- c) transport of all components to the Principal's storage facility.

Item 61361 Removal of [VMS | EVMS] equipment for re-use

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) disconnection of Electrical Supply including termination and "making safe" of supply cable
- c) disconnection of Telecommunications connection
- d) removal of VMS and supporting pole and associated cabinet enclosure
- e) removal of foundations as detailed in the Contract Documentation
- f) reinstatement of soil cover and general making good at site, and
- g) transport of all components to Principal's storage facility or designated site storage area for re-use.

Item 61362 Removal of [VMS | EVMS] equipment for disposal

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) disconnection of Electrical Supply including termination and "making safe" of supply cable
- c) disconnection of Telecommunications connection
- d) removal of VMS and supporting pole and associated cabinet enclosure
- e) removal of foundations as detailed in the Contract Documentation, and
- f) transport of all components and disposal.

2.3 Method of measurement of variable message signs and enhanced variable message signs

This Specification provides Standard Work Items for:

- a) supply only
- b) installation only, and
- c) supply and installation

of Variable Message Signs (VMS) and Enhanced Variable Message Signs (EVMS) components.

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.

