

SUPERSEDED

**Specification (Measurement)**

**Transport and Main Roads Specifications  
MRS203 Provision of Weigh-in-Motion System**

**July 2020**

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## 1 Introduction

This Specification applies to the supply and installation of weigh-in-motion systems and equipment as an integral part of Transport and Main Roads wider requirement for traffic data acquisition systems.

This Specification should 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
<b>Vehicle detectors and sensors</b>		
61401	Supply and Installation of vehicle detector loops, [ <i>description</i> ]	lump sum
61402	Supply and Installation of piezo-electric vehicle sensors [ <i>description</i> ]	lump sum
61403	Supply and Installation of strain gauge vehicle sensors	lump sum
61404	Survey of site to identify installation location and suitability of existing pavement.	each
61405	Design for supply and installation of weigh-in-motion site	each
61406	Construction works to modify existing pavement to suit weigh-in-motion supply and installation	each
<b>Weigh-in-motion Site Processor unit</b>		
61431	Supply of weigh-in-motion Site Processor unit [ <i>description</i> ] and ancillary components	each
61432	Installation of weigh-in-motion Site Processor [ <i>description</i> ] and ancillary components	each
61433	Supply and Installation of weigh-in-motion Site Processor unit [ <i>description</i> ] and ancillary components	each
<b>Removal for salvage or disposal</b>		
61491	Removal of existing weigh-in-motion equipment for salvage [ <i>description</i> ]	each
61492	Removal of existing weigh-in-motion equipment for disposal [ <i>description</i> ]	each

## 2.2 Work Operations

### Item 61401 Supply and Installation of vehicle detector loops [*description*]

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 loop wire and conduit
- c) supply of PU200 epoxy resin and jointing kit
- d) dry cutting of slot as per standard drawings
- e) installation of conduit to pit
- f) installation of loop cable
- g) filling of slot, and
- h) jointing of loop cable to detector feed cable.

### Item 61402 Supply and Installation of piezo-electric vehicle sensors [*brass linguini piezo | quartz piezo*]

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 piezo sensor and conduit as per SD1906 *ITS – WIM Piezo Sensor Installation Details*
- c) supply of epoxy resin / grouting compound as per SD1906 *ITS – WIM Piezo Sensor Installation Details*
- d) dry cutting of slot as per SD1906 *ITS – WIM Piezo Sensor Installation Details*
- e) installation of conduit to pit
- f) installation of sensor cable
- g) filling of slot, and
- h) connection and testing of sensor as per SD1906 *ITS – WIM Piezo Sensor Installation Details*.

### Item 61403 Supply and Installation of strain gauge vehicle sensors

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 strain gauges, pits, enclosures and conduit as per SD1911 *ITS – WIM Sensor Configuration Strain Gauge Sensor*
- c) localised excavation as per SD1911 *ITS – WIM Sensor Configuration Strain Gauge Sensor*
- d) supply of sensor cables
- e) provision for core hole drilling through culvert roof as per SD1911 *ITS – WIM Sensor Configuration Strain Gauge Sensor*, and
- f) installation and mounting of strain gauges, pits, enclosures and conduits where necessary as per SD1911 *ITS – WIM Sensor Configuration Strain Gauge Sensor*.

**Item 61404 Survey of site to identify installation location and suitability of existing pavement**

Work operations incorporated in the above item include:

- a) Work operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) geographical survey work appropriate to the task, and
- c) all work associated with the provision of high-speed weigh-in-motion system, including site survey, details of the exact location, and pavement alignment and gradient checks as set out in the WiM site selection conditions of MRTS203.

**Item 61405 Design for supply and installation of weigh-in-motion site**

Work operations incorporated in the above item include:

- a) Work operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) design for all civil earth works and pavement modification works
- c) design the required electrical works
- d) design the required communications and control links, and
- e) design of weigh-in-motion and associated ITS integration components.

**Item 61406 Construction works to modify existing pavement to suit weigh-in-motion supply and installation**

Work operations incorporated in the above item include:

- a) Pavement works to incorporate piezo sensor, and
- b) In the event that the site fails the surface evenness test and another site is not able to be chosen, the Principal shall advise if a corrective course and tie-in to the existing pavement is required. The preparation and application for the corrective course and tie-in layer shall comply to MRTS30 Asphalt Pavements.

**Item 61431 Supply of weigh-in-motion Site Processor unit [*description*] and ancillary components**

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 only of weigh-in-motion Site Processor unit with required components.

**Item 61432 Installation of weigh-in-motion Site Processor unit [*description*] and ancillary components**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) installation, testing and commissioning of weigh-in-motion Site Processor unit with required components.

**Item 61433 Supply and Installation of weigh-in-motion Site Processor unit [description] and ancillary components**

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, installation, testing and commissioning of weigh-in-motion Site Processor unit with required components.

**Item 61491 Removal of existing weigh-in-motion equipment for salvage [description]**

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
- c) disconnection of Telecommunications connection
- d) removal of equipment, and
- e) transport of all components to Principal's storage facility or designated site storage area of re-use.

**Item 61492 Removal of existing weigh-in-motion equipment for disposal [description]**

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
- c) disconnection of Telecommunications connection
- d) removal of Equipment, and
- e) transport of all components and disposal.

**2.3 Method of measurement of provision of weigh-in-motion system**

This Specification provides Standard Work Items for the following weigh-in-motion components:

- c) supply only
- d) installation only, and
- e) supply and installation

of weigh-in-motion 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 C7827. 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 C7827. Transport to the Site of all other materials shall be the responsibility of the Contractor.

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