

Specification (Measurement)

**Transport and Main Roads Specifications
MRS92 Traffic Signal and Road Lighting Footings**

March 2018

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1 Introduction

This Specification applies to the construction of concrete footings and related works required for the installation of traffic signal controllers, traffic signal mast arms, traffic signal posts and Rates 2 and 3 road lighting installations.

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.

The additional work items 60363, 60364, 60365, 60366 and 60367 to this Specification to allow conformance and as constructed survey requirements for the installation of footings for poles post and mast arms during construction of road infrastructure projects. The added sections also allow for surveying requirements for any existing underground assets that may be fully or partly exposed during construction works.

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
Traffic signal footings		
60301	Traffic signal post footing	each
60302	Traffic signal mast arm footing	each
60303P	Traffic signal mast arm footing extension for poor soil, 300 mm long, if ordered (Provisional Quantity)	each
60307P	Excavation in excessively hard material, rate additional to rate for Work Items 60301, 60302 and 60303P (Provisional Quantity)	m ³
60311	Traffic signal controller base	each
Road lighting footings		
60351	Road lighting pole footing, [<i>diameter</i>] mm diameter	each
60352	Road lighting pole footing in concrete median barrier, [<i>diameter</i>] mm diameter	each
60353P	Road lighting pole footing extension in poor soil, 3000 mm long, [<i>diameter</i>] mm diameter, if ordered (Provisional Quantity)	each
60357P	Excavation in excessively hard material, rate additional to rate for Work Items 60351, 60352 and 60353P (Provisional Quantity)	m ³
60361	Construction of retaining wall around footing	each
60362	Removal of road lighting pole footing	each
60363	Conformance and As Constructed survey for depth of footing	each

Standard Item No.	Description	Unit of Measurement
60364	Setting out and conformance for holding down bolts	each
60365	As Constructed survey for traffic signal post footing	each
60366	As Constructed survey for traffic signal mast arm footing	each
60367	As Constructed survey for road lighting pole footing	each

2.2 Work operations

Item 60301 Traffic signal post footing

Item 60302 Traffic signal mast arm footing

Item 60351 Road Lighting pole footing, [*diameter*] mm diameter

Item 60352 Road Lighting pole footing in concrete median barrier, [*diameter*] mm diameter

Standard Work Item 60302 applies to 2000 mm deep footings and Work Items 60351 and 60352 apply to 1900 mm deep footings for average to good soil conditions in accordance with the Standard Drawings. Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) excavation for footing
- c) disposal of excavated material
- d) provision of formwork, where necessary
- e) supply and installation of anchor cage or ragbolt assembly, as appropriate
- f) supply and installation of conduit to electrical pit or concrete barrier ends, as appropriate
- g) supply, placement and finishing of concrete, and
- h) stripping formwork and cleaning up.

Item 60303P Traffic signal mast arm footing extension for poor soil, 300 mm long, if ordered (Provisional Quantity)

Item 60353P Road lighting pole footing extension in poor soil, 3000 mm [*diameter*] mm diameter, if ordered (Provisional Quantity)

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) localised excavation
- c) provision of formwork
- d) supply of and installation of plinth with holding down bolts
- e) supply and installation of conduit to electrical and communication pits, where necessary
- f) supply, placement and finishing of concrete, and
- g) stripping of formwork and cleaning up.

Item 60307P Excavation in excessively hard material, rate additional to rate for Work Items 60301, 60302 and 60303P (Provisional Quantity)

Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) excavation for footing extension
- c) disposal of excavated material
- d) supply of anchor cage extension
- e) installation of anchor cage extension, and
- f) supply, placement and finishing of concrete.

Item 60311 Traffic signal controller base

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) localised excavation
- c) provision of formwork
- d) supply of and installation of plinth with holding down bolts
- e) supply and installation of conduit to electrical and communication pits, where necessary
- f) supply, placement and finishing of concrete, and
- g) stripping of formwork and cleaning up.

Item 60357P Excavation in excessively hard material, rate additional to rate for Work Items 60351, 60352 and 60353P (Provisional Quantity)

Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) additional work associated with the excavation of footings in excessively hard material.

Item 60361 Construction of retaining wall around footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) carry out localised excavation
- c) provision of formwork
- d) supply, placement and finishing of concrete, and
- e) stripping of formwork and cleaning up.

Item 60362 Removal of road lighting pole footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) removal of footing

- c) disposal of footing, and
- d) backfilling of hole.

Item 60363 Conformance and As Constructed survey for depth of footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 8.3.3 Depth of Footing of *MRTS92 Traffic Signal and Road Lighting Footings*

Item 60364 Setting out and conformance for holding down bolts

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 8.3.5.1 General of *MRTS92 Traffic Signal and Road Lighting Footings*

Item 60365 As Constructed survey for traffic signal post footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 9 of *MRTS92 Traffic Signal and Road Lighting Footings*

Item 60366 As Constructed survey for traffic signal mast arm footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 9 of *MRTS92 Traffic Signal and Road Lighting Footings*

Item 60367 As Constructed survey for road lighting pole footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 9 of *MRTS92 Traffic Signal and Road Lighting Footings*

2.3 Classification of material to be excavated

For the purpose of measurement and payment under Standard Work Items 60307P and 6704P, excessively hard material shall be classified as any natural material which, when using a large mechanical earth auger which is in good condition and which is recommended by the manufacturer of the earth auger for excavation of holes of the required diameter and depth, cannot be reasonably excavated without the use of explosives or pneumatic picks.

Material shall not be classified as excessively hard material unless explosives or pneumatic picks are actually used in its excavation.

