

Specification (Measurement)

**Transport and Main Roads Specifications
MRS70 Concrete**

July 2022

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1 Introduction

This Specification applies to the construction of road and bridge structures in concrete, and may also be applied to other specified concrete elements.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, MRTS70 *Concrete* and other Specifications as appropriate, and the quality system requirements of the Contract.

This Specification forms part of the Transport and Main Roads Specifications Manual.

2 Measurement of work

2.1 Standard Work Items

This Specification contains no Standard Work Items. Subject to the provisions of Clause 2.2 supply and installation of concrete may be measured by Standard Work Items associated with particular elements of work contained in the following Specifications:

- a) MRS03 *Drainage Structures, Retaining Structures and Embankment Slope Protections*
- b) MRS04 *General Earthworks*
- c) MRS62 *Bridge Substructure*
- d) MRS63 *Cast-In-Place Piles*
- e) MRS63a *Piles for Ancillary Structures*
- f) MRTS64 *Driven Tubular Steel Piles (with reinforced concrete pile shaft)* and
- g) MRS77 *Bridge Deck*.

2.2 Concrete not always measured separately

The supply and installation of concrete shall be measured under a separate Standard Work Item only when incorporated in the following elements of work:

- a) bored and cast-in-place piles
- b) bridge abutment and pier footings
- c) bridge abutments
- d) bridge piers
- e) bridge deck
- f) bridge cross girders
- g) bridge parapets, in situ kerbs and medians
- h) bridge relieving slabs
- i) concrete retaining walls, excluding culvert end structures, and
- j) blinding concrete.

In all other structures, slabs, footings and precast elements, payment for concrete shall be deemed to be included in the rate or lump sum amount for the relevant Standard Work Item(s) for that structure, slab, footing or precast element.

2.3 Calculation of quantities

Except where the methods of measurement for products made from concrete are specified in another Specification, the quantity of concrete shall be calculated from the dimensions shown in the Drawings.

Deductions shall be made for the volumes of all embedded items except:

- a) the volume occupied by reinforcing steel
- b) expansion and contraction joint material
- c) conduits, pipes and ducts less than or equal to 100 mm in internal diameter
- d) voids less than or equal to 100 mm maximum dimension, and
- e) chamfers 100 mm or less in size.

No measurement shall be made for concrete required to fill over-break in excavation.

The provision of all surface finishes, unless a specific Standard Work Item exists, shall be deemed to be included in the Standard Work Items for concrete and shall not be measured separately.

2.4 No additional payment for compliance with MRTS70

Irrespective of the method of measurement and payment for concrete, as defined in Clause 2.1, payment for the following work activities shall be deemed to be included in the scheduled rate for concrete and no additional payment shall be made:

- a) Compliance testing and reporting (Refer MRS50 *Specific Quality System Requirements* Clause 2).
- b) Trial mixes, and associated testing required for approval of mix.
- c) Additional testing due to construction practices or choice of mix, including but not limited to:
 - i. early stripping or loading
 - ii. temperature monitoring, and/or
 - iii. extended travel times.
- d) Additional volume of concrete due to over-break or extra cover.
- e) Rectification or re-instatement of non-compliant concrete.
- f) Use of concrete mix beyond that specified, including but not limited to:
 - i. use of higher grade concrete
 - ii. use of special purpose cements, and/or
 - iii. use of special purpose admixtures.

2.5 Reduced level of service of hardened concrete

Where hardened concrete is accepted but the characteristic strength of the supplied concrete is below the specified value, the reinforced or prestressed concrete element shall have its value reduced in proportion to the reduction in specified characteristic strength achieved.

Where hardened concrete has been rejected, in addition to options (a), (b), (c) detailed in Clause 14 of MRTS70, the Contractor may offer a further alternative as detailed in the following paragraph.

The rejected concrete may remain in place and the Contractor shall agree to a reduction in the scheduled rate for the quantity of concrete rejected equal to the supply cost of the concrete on the Site per cubic metre as determined by the Administrator.

