



8110 Trench Cover/Grates

REVISION 19/03/2024

8110.1 Introduction

This supplementary specification refers to the supply and installation of grated or solid trench covers to cast insitu or precast trenches for the purposes of stormwater drainage or vehicle access.

8110.1.1 Definition of Terms

This section describes any term which are specific to this specification or requires clarification due to an ambiguous understanding.

Term	Definition
Trench Cover	Solid or grated cover over a drainage channel either located within a property access or on a footpath
Heel Proof	Grate with openings which are limited in size to restrict the penetration of the heel of shoes
Channel Component/s	Constructed lined drainage channel or precast proprietary product in the form of a drainage channel which has been designed to fit the trench cover on top

8110.2 Referenced Documents

This supplementary specification shall be read in conjunction with the following:

- MRS01 *“Introduction to Specifications”*;
- MRTS01 *“Introduction to Technical Specifications”*;
- MRS03 and MRTS03 *“Drainage, Retaining Structures and Embankment Slope Protections”*;
- MRS04 and MRTS04 *“Earthworks General”*
- MRS05 and MRTS05 *“Unbound Pavement”*
- MRS30 and MRTS30 *“Asphalt Pavements”*
- MRS70 and MRTS70 *“Concrete”*
- MRC Supplementary Specification 8407 *“Bituminous Cold Mix”*
- TMR Technical Note 162
- Australian Standard AS 3996 *“Access covers and grates”*; and
- the project Drawings

8110.3 Description of Work Items

Work items incorporated by this supplementary specification are identified in Section 8110.6 and 8110.7 with individual activities/tasks for measurement and payment sourced from the Bill of Quantities and listed in MRC Supplementary Specification Annexure 8110_1 Trench Cover/Grates Section 1



8110.4 Quality Systems Requirements

8110.4.1 Std Test Methods (Testing Regime)

The following minimum testing regime applies to this specification:

Civil works activities associated with the installation of trench Cover/Grates shall be tested as per the relevant MRTS specification MRTS03, MRTS04, MRTS05, MRTS30, and MRTS70 unless otherwise approved by the Superintendent.

8110.4.2 Hold Points, Witness Points and Milestones

The following table represents the minimum inspection requirements for this specification;

Activity	Inspection Type	When
Construction Procedure and other preliminary documentation as required by Clause 8110.5	Milestone	4 weeks prior to works commencing
Inspection of delivered items	Hold Point	At delivery time for each item.
Final location and alignment of drainage component	Witness Point	Prior to excavation commencing
Bottom of excavation inspected for unsuitable material	Hold Point	At the completion of excavation and compacting of the excavated floor
Inspection of excavated floor prior to installing drainage component and/or bedding	Hold Point	After compacted, trimming, and testing of excavated floor
Precast Drainage Channel and Trench Cover Systems		
Bedding installed and compacted for precast drainage channel	Hold Point	Prior to installing precast drainage channel
Levels comply with design drawings	Hold Point	prior to approval to proceed with fixing cover/grate
Cast Insitu Lining or Channel		
Prepour inspection of formwork and reinforcing for concrete lined drain/trench	Hold Point	Prior to pouring concrete
Curing of concrete to occur immediately after pouring	Witness Point	Immediately after pouring for 7 days
Stripping of formwork to lined channel approval	Hold Point	No earlier than 72 hours after concrete pour finish, approval by Superintendent
Loading of insitu poured drainage channel	Hold Point	No earlier than 7 days after concrete pour



Approval to proceed with fitting trench covers/grates	Hold Point	No earlier than 7 days after concrete pour of supports for insitu poured drainage.
Drainage component and covers/grates comply with design drawings alignment, grade, and levels.	Hold Point	At completion to fitting covers/grates prior to backfilling commencing
Approval to commence backfilling to Drainage Component	Hold Point	No earlier than 7 days after concrete pour of supports
Backfilling process	Witness Point	During backfilling process
Construction of roadway approaches to crossing and along pavement (as required)	Witness Point	During reinstatement of pavement
Practical Completion works acceptance	Hold Point	At the completion of all works and site has been cleaned and returned to pre-construction state.
Works as Executed documentation	Hold Point	4 weeks prior to practical completion being requested.

8110.4.3 Construction Tolerances

Unless otherwise approved by the Superintendent the following construction tolerances shall apply as to this Specification;

The construction activity outcome shall not depart from the widths, lengths, heights, and shapes specified by the relevant specifications as applies to this specification;

- Concrete tolerances in accordance with MRTS70 Concrete.
- Earthworks tolerances in accordance with MRTS04 General Earthworks.
- Pavement tolerances in accordance with MRTS05 Unbound Pavement
- Asphalt tolerances in accordance with MRTS30 Asphalt Pavements
- MRC Std Drawing A4-00044

Tolerances specific to the project are detailed on the design drawings and are included in Clause 2 of MRC Supplementary Specification Annexure 8110_1 Trench Cover/Grates

8110.5 Preliminary

The Contractor is to submit the following documentation 4 weeks prior to commencing work or a prestart is conducted. **(MILESTONE)**:

- Construction Procedure
- Submission of proposed proprietary trench and cover/grate system for approval
- Erosion and Sediment Plan (as required for site/s)
- Traffic Management Plan and TGS's



Other requirements unique to the project will be listed in the MRC Supplementary Specification Annexure 8110_1 Trench Cover/Grates **(MILESTONE)**

8110.5.1 Materials

Supply of materials to site is the responsibility of the Contractor at their cost, where items are Principal supplied the nominated storage site shall be obtained from MRC Supplementary Specification Annexure 8110_1 Trench Cover/Grates Section 3 and shall be the point of supply.

Concrete lined channel shall be as specified on the project Drawings, all concrete shall comply with the design drawings and MRTS70 with steel reinforcing complying with MRTS71.

Where precast components are proposed, the Superintendent shall approve of the proprietary product prior to the contractor procuring the units.

All pavement materials shall be supplied, laid, and compacted in accordance with MRTS05, MRTS30 or MRC Supplementary Specification 8407.

8110.6 Construction

This section lays out the works operations with more detail based on specific requirements of this supplementary specification. Some activities may appear to include items which are stated within other specifications, the purpose is to reinforce that requirement specific to this supplementary specification.

8110.6.1 Work Operations

Work operations incorporated in this item will include:

a) Work operations included in Clause 2.1.5 of MRS01 “Introduction to Standard Specifications”;

b) Supplying all materials;

All materials, plant, and labour required to carry out the works under this Specification is to be supplied by the Contractor.

Materials shall be provided with load classifications covering the class A to E as per AS3966 and as specified on project drawings.

All trench drain assemblies are to have a design life of 50 years and have dimensional tolerances as per Table 4.2.4 A & B of TMR Technical Note 162 Trafficked edges and contact surfaces shall have protection as per Cl 4.2.8 of TMR Technical Note 162

All items are required to be inspected at delivery to site prior to use. Any items which are damaged are not to be used and are to be returned to the supplier. **(HOLD POINT)**

c) Carrying out excavation to design depth and alignment;

Prior to excavation commencing the location of the lined drainage or channel system are to be marked out on site in accordance with the design drawings and documents. **(WITNESS POINT)**

Prior to excavations commencing the contractor shall ensure all services are located. Any excavation of material shall be to level and grade as per design drawings, with all works carried out in accordance with MRTS04.

Excavation of material shall be to level and grade as per design drawings and documents, vertical tolerances shall not exceed +/-10mm, horizontal tolerances +/- 50mm



Bottom of excavation is to be inspected for areas of unsuitable material **(HOLD POINT)**

If unsuitable material is identified this is to be removed and replaced with approved material as per the instructions of the Superintendent.

d) Utilising or disposing of excavated material

Excess excavated materials shall be disposed of by the contractor or utilised as per Superintendents instructions. Material stockpiled shall ensure that all Environmental ESC measures are in place and maintained.

e) Conformance of bottom of excavation, inclusive of testing (as required);

All loose material is to be removed from the bottom of the excavation.

Excavated floor preparation is to be carried out as per MRTS03 and MRTS04 and is to be presented for inspection by the Superintendent with inspections, geotechnical testing and geometric requirements applying unless otherwise stated in MRC Supplementary Specification Annexure 8110_1 Trench Cover/Grates. **(HOLD POINT)**

f) Supply and installation of bedding materials (as required);

Precast drainage and trench cover systems (Proprietary drainage unit)

The contractor shall supply, install, and compact bedding material as required by the design drawings in accordance with MRTS03.

The bedding shall be finished as per the design levels with the precast drainage component to be seated firmly on the compacted bedding and the upper surface of the trench cover being at the design finished surface level. **(HOLD POINT)**

Any divergence of the trench cover level from the design will require the drainage components to be removed and the bedding reshaped for installation to the correct levels as per the design drawings. **(HOLD POINT)**

Cast insitu lining or channel

Where insitu material on or against which linings are to be constructed is other than rock, the material shall be compacted as for material at the bottom of excavations in accordance with MRTS04 General Earthworks.

Concrete linings may be constructed without foundation bedding. Where concrete is constructed on ground without a blinding layer, a polythene sheet separator of thickness not less than 100 µm shall be installed between the ground and the concrete, refer to Cl 6.1 of MRTS03

Expansion joints shall be constructed at regular intervals not exceeding 20 m by installing 6 mm maximum thickness compressible packing for the full cross-section of the berm drain. Compressible packing for the expansion joint shall be bitumen impregnated fibre board or other equivalent.

Prior to approval for placing the concrete a prepour inspection of formwork and reinforcing is to be carried out for conformity to the design drawings and documents including line and level tolerance. The Superintendent shall give approval to proceed with the respective pours. **(HOLD POINT)**

All concrete works (including formwork and reinforcing) associated with the drainage component and trench cover shall comply with the design drawings and documents, and be



carried out in accordance with MRTS70, MRTS71, with inspections, geotechnical testing and geometric requirements applying unless otherwise noted in MRC 8110_1 Trench Cover/Grates Annexure.

Immediately after the initial set of the concrete, curing shall commence and continue for a minimum of seven days. Plastic sheeting shall not be used as part of the curing process. **(WITNESS POINT)**

Formwork is not to be stripped for 72 hours and loading not to occur for 7 days or as per design drawings and approved by the Superintendent **(HOLD POINT)**.

- g) Carrying out all works to allow the installation of the trench cover flush to surrounds.

On approval to proceed by the Superintendent the trench cover fixings shall be installed and the trench cover/s installed in place. **(HOLD POINT)**

Installation shall be carried out in accordance with the manufacturer's guide.

All trench covers are to be placed such that there is no gap between them, where the trench covers do not abut tightly and firmly against each other the contractor shall take necessary steps to ensure the covers abut without a gap.

The finished surface level and grade of the trench cover should be as per the design drawings and documents **(HOLD POINT)**

- h) **Backfilling to drainage component (as required)**

The Superintendent shall approve commencement of backfilling activities, unless otherwise approved by the Superintendent lean mix concrete or cement stabilised sand shall be laid and compacted within the trench area against the drainage components. **(HOLD POINT)** All backfilling shall be carried out in accordance with MRTS03 and MRTS04, and/or MRTS05 where pavement material is specified. **(WITNESS POINT)**

- i) **Construction of roadway approaches to access crossover (as required)**

All works associated with transitioning and constructing the formation and pavement approaches to the access crossover and along the pavement formation shall be as detailed in the design drawings and shall be carried out in accordance with MRTS04, MRTS05, and MRTS30 or MRC Supplementary Specification 8407 unless otherwise directed by the Superintendent. **(WITNESS POINT)**

- j) **Clean up of site;**

The site is to be kept cleaned of all debris, excavated material, and construction materials, with all waste removed from site.

8110.7 Post Construction

- a) **Collection and submission of all As Constructed data including QA data requirements.**

Contractor is to collect the necessary Works as Executed documentation as required by MRC *D20 - Drawings and Documentation* for submission and approval prior to any further works commencing which may cover the slab/s. **(HOLD POINT)**

Format of submitted "As Constructed" documentation shall be compliant with MRC Supplementary Specification 8919.



b) Inspection of Completed Trench Cover

At the completion of all works the Contractor is to present the completed trench cover and its components for inspection by the Superintendent for compliance to the design drawings and documents. **(HOLD PONT)**

8110.8 Measurement and Payment

Provision for these works shall be included in the scheduled unit rate for the items show in Clause 8110.3 of this Supplementary Specification and Annexure. No separate payment will be made for the works specified within this Supplementary specification or it’s annexure.

The length of trench cover, under this item, shall be measured as the distance along the centerline of the grate/cover, where it is to be installed. Any works required for the construction and/or installation of the trench and surrounds shall be deemed to be included in items 30652, 30653,.

Version Control:

Version	Description	Reviewed / Endorsed	Date
1.0	Original issue	MRC	07.12.2021
2.0	Specification Review	C. Sultana	20.03.2024