



8304 Root Control Barrier

Revision: 13/03/2024

8304.1 Introduction

This Supplementary Specification refers to the supply and installation of root control barrier, in trenches, alongside footpaths, kerbs, pavements, concrete, and building foundations to prevent structural damage due to root penetration, in accordance with the manufacturer’s specifications, at locations nominated on the project Drawings.

8304.2 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 “General Earthworks”
- MRC Supplementary Specification 8300 “Landscaping and Horticultural Treatment”;
- Mackay Regional Council Standard Drawing A4-177 “Tree Planting to CBD Grate and Guard”;
- Mackay Regional Council Standard Drawing A3-09715A “Street Tree Planting to Mackay City Centre Local plan Area Permeable Paving”;
- Manufacturer’s specifications; and
- the project Drawings

8304.3 Description of Work

Work items incorporated by this supplementary specification are identified in Section 8304.6 and 8304.7 with individual activities/tasks for measurement and payment sourced from the Bill of Quantities and listed in MRC Supplementary Specification Annexure 8304_1 Section 1:

8304.4 Quality Systems Requirements

8304.4.1 Std Test Methods (Testing Regime)

The following minimum testing regime applies to this specification:

Unless otherwise stated the manufacturers certification of the root control barrier shall form the basis of the requirements of the table listed in 8304.5

Calculations for percentage of stabilising agent to be incorporated with material to be used as backfill.

8304.4.2 Hold Points, Witness Points and Milestones

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

Activity	Inspection Type	When
Material Certification	Milestone	4 Weeks prior to works commencing
Construction Procedure	Milestone	4 Weeks prior to works commencing



Final location of root control barrier	Hold Point	During site survey layout.
Excavated location of root control barrier trench	Witness Point	At completion of excavation
Bed/Subgrade Excavation Floor	Witness Point	At completion of excavation and compacting
Installation of root control barrier	Witness Point	Prior to commencing backfilling operations
Installation of sodium bentonite or equivalent	Hold Point	Prior to approval to commence backfilling operations

8304.4.3 Construction Tolerances

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

- Earthworks tolerances in accordance with MRTS04 Earthworks General

Tolerances specific to the project are detailed on the design drawings and are included in Clause 2 of MRC Supplementary Specification Annexure 8304_1 otherwise MRTS04 applies.

8304.5 Preliminary

Root control barrier proposed to be used within the project must be supplied and delivered with its certification to the Council requirements and the property test specifications. Variations to above root control barrier requirements must be approved by the Superintendent before use. (MILESTONE)

Where the root control barrier is Principal supplied arrangements for collection from storage site and delivery to the project site will need to be made by the Contractor at their cost.

8304.5.1 Materials

In conjunction with the root control barrier Sodium Bentonite shall also be supplied and installed as part of this supplementary specification works operations.

The following table outlines the Technical Information and product specification required for the root control barrier to be supplied unless noted otherwise on the project Drawings.

Technical Information & Product Specification		
Material	HDPE	
Min Width	600mm	
Style	Vertical Ribbed	
Thickness	0.75mm	

Property	Test method*	Unit
Thickness	ASTM D 1777	mm
Carbon Black Content (range)	ASTM D 1603	%
Density	ASTM D 1505	g/cc
Tensile Properties (each direction)(min. avg.)	ASTM D 638	
Yeild Strength	TYPE IV,2 ipm	N/mm width
Break Strength	TYPE IV,2 ipm	N/mm width
Yeild Elongation	G.L 1.3 in (33mm)	%
Break Elongation	G.L 2.0 in (51mm)	%
Tear Resistance (min. avg.)	ASTM D 1004	N
Puncture Resistance (min. avg.)	ASTM D 4833	N
Nutch Constant Tensile Load (min. avg.)	ASTM D 5397	Hr

*Please note tests results shall comply with the test method and it's required result range.



8304.6 Construction

Root control barrier shall be installed to conform to the requirements of the manufacturer, including sealing of joints to prevent root penetration, to the minimum depth nominated on the project Drawings. Where a minimum depth has not been nominated on the project Drawings or in the item description, the barrier shall be a minimum of 600mm depth.

8304.6.1 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;

Type and supply of root control barrier will be nominated in the Design Drawings. All materials, plant, and labour required to carry out the works under this Specification is to be supplied by the Contractor, refer to MRC Supplementary Specification Annexure 8304_1 Root Control Barrier.

Where the root control barrier is Principal supplied the designated storage site will be the point of supply for the purposes of this Specification, delivery to site will be the Contractors responsibility and cost. Other associated materials but not limited to glue/tape, Sodium Bentonite, stabilising agent, and backfill material shall be supplied by the contractor at their cost.

Materials shall be stored on site away from direct sunlight and in accordance with the manufacturers requirements.

c) Site layout with superintendent

The final location of the root control barrier is to be marked out on site and shall be inspected and approved by the Superintendent prior to excavation commencing. **(HOLD POINT)**

This will determine the size and location of the root control barrier to ensure its effectiveness.

d) Carrying out excavations;

New trees – Ensure excavation is wide enough to not inhibit the root ball (twice the size is preferred) and outside of the drip line. The depth measured from the proposed finished surface level shall be 100mm’s deeper than the width of the root control barrier. **(WITNESS POINT)**

Existing trees – The trench shall be 100mm’s wide and 100mm’s deeper than the width of the root control barrier, the length of excavation shall be as per the design drawings and the Superintendents instructions if site inspection required further determination. The alignment of the trench shall be adjacent to and parallel to the infrastructure being protected. **(WITNESS POINT)**

e) 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.

f) Bottom and extents of excavation

All loose material is to be removed from the base of the excavation prior to the root control barrier and sodium bentonite being installed. **(WITNESS POINT)**

g) Carrying out all works to allow the installation of the root control barrier as specified on the Drawings, and in accordance with manufacturer’s specifications

Install the root control barrier free of folds and tears to produce an effective barrier between the infrastructure needing protection and trees.

If there is a requirement to join the ends of the root control barrier ensure it is overlapped and in place so it can be sealed. Sealing the joint shall be carried out as per the design drawings, in the absence of



design details the methodology shall be approved by the Superintendent and be such to stop tree root penetration.

Installation shall be perpendicular to finished grade, and all edges shall be a minimum 20mm below finished surface levels once restoration of the adjacent disturbed areas have been completed. **(WITNESS POINT)**

Place a 50-100mm thick layer of sodium bentonite (or other growth inhibitor as nominated by the Superintendent)) at the base of the trench as per the design drawings to the manufacturers requirements. **(HOLD POINT)**

h) Backfilling, restoration, and cleaning up

Backfilling to the root control barrier is to be carried out in 150mm layers and with a compaction method approved by the Superintendent ensuring the soil is lightly compacted to limit future subsidence occurring.

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

8304.7 Post construction

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

Contractor is to supply and submit Works as Executed documentation as required by *MRC D20 - Drawings and Documentation* for approval by the Superintendent 4 weeks prior to requesting a practical completion inspection.

Certification of works to AS1428.1 shall be submitted with the “Works as Executed” Plans and documentation.

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

8304.8 Measurement and Payment

Provision for these works shall be included in the scheduled unit rate for the items show in Clause 8304.3 of this Supplementary Specification and annexure. No separate payment will be made for the works specified within this Supplementary specification or it’s annexure.

Version Control:

Version	Description	Reviewed / Endorsed	Date
1.0	Original issue		05.08.2014
2.0	Review of specification	C. Sultana	13.03.2024