



# 8504 Standard Bollards

REVISION 11/01/2024

## 8504.1 Introduction

This supplementary specification applies to supply and installation of bollards in accordance with Mackay Regional Council standard drawing A3-00915.

### 8514.1.1 Definitions of Terms

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

The terms used in this Technical Specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*. Additional terms used in this Technical Specification are defined in the Table below.

Term	Definition
Standard Bollard (Rectangular Profile – “Brolga”)	Defined as a proprietary bollard product of recycled plastic rectangular profile as shown in MRC Standard Drawing A3-00915.

## 8504.2 Referenced Documents

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

- MRS01 *“Introduction to Specifications”*;
- MRTS01 *“Introduction to Technical Specifications”*;
- MRS14 and MRTS14 *“Road Furniture”*;
- MRS and MRTS70 *“Concrete”*;
- Mackay Regional Council Standard Drawing A3-00915 *“Standard Bollard – Rectangular Profile”*; and
- Project Drawings.
- The Manufacturer’s Specification

## 8504.3 Description of Work

Work items incorporated by this supplementary specification are identified in Section 8504.6 and 8504.7 with individual activities/tasks for measurement and payment sourced from the Bill of Quantities and listed in MRC Supplementary Specification Annexure 8504\_1 Standard Bollards Section 1



**8504.4 Quality Systems Requirements**

**8504.4.1 Std Test Methods (Testing Regime)**

The following minimum testing regime applies to this specification:

Unless otherwise stated the manufacturer certification of the recycled plastic bollards form the basis of the requirements.

Civil works activities associated with the floor of excavation and concrete pours shall be tested as per the relevant MRTS specification MRTS04, and MRTS70 unless otherwise approved by the Superintendent.

**8504.4.2 Hold Points, Witness Points and Milestones**

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

Activity	Inspection Type	When
Construction Procedure and Traffic management plan (with TGS’s) and other submissions as required by Clause 8514.5	Milestone	4 Weeks prior to works commencing
Inspection of materials and documentation	Hold Point	As delivered to site
Layout survey through spot marking	Hold Point	During site layout survey prior to works commencing.
Excavation Floor	Hold Point	Prior to installing and bracing bollard
Formwork and reinforcing prepour Inspection (as required)	Hold point	Prior to concrete pour proceeding
Bollards on correct alignment and level, and vertically plumb on all sides	Hold Point	Post pour prior to concrete setting
Approval to strip any formwork/bracing	Hold Point	72 hours after concrete pour.
Bollards inspected for defects in surfacing to ensure no sharp edges or protruding elements	HOLD POINT	After formwork and bracing removed
Geometric survey for compliance with manufacturers specification and design drawing requirements	Hold Point	At completion of works
Works as Executed documentation	Hold Point	4 weeks prior to practical completion being requested.

**8504.4.3 Construction Tolerances**

Unless noted on the design drawings or otherwise approved by the Superintendent the following construction tolerances shall apply to this specification;

The construction activity outcome shall not depart from the widths, lengths, heights, and shapes specified by design drawings as applies to this specification.

- MRC Standard Drawings A3-00915



- Manufacturers dimensions and tolerances for installation of recycled plastic bollards

Tolerances specific to the project are detailed on the design drawings and are included in Clause 2 of MRC Supplementary Specification Annexure 8504\_1 Standard Bollards

## **8504.5 Preliminary**

The Contractor is to submit or ensure the following documentation is in place 4 weeks prior to delivery or a prestart is conducted. (MILESTONE):

- Construction and installation procedure
- Quality Plan
- Approved traffic management plan and TGS's

Other requirements unique to the project will be listed in the MRC Supplementary Specification Annexure 8504\_1 Standard Bollards (MILESTONE)

### **8504.5.1 Materials**

Supply of all 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 8504\_1 Standard Bollards Section 3 and shall be the point of supply.

Unless instructed otherwise by the Superintendent existing components to be salvaged and the nominated storage site will be detailed in MRC Supplementary Specification Annexure 8504\_1 Standard Bollards Section 4. This will also include any reuse of existing items.

All materials must be approved by the Superintendent prior to proposed use and shall be supplied in accordance with their relevant manufacturers specification and requirements.

## **8504.6 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.

All material and construction shall be in accordance with notes and details on Mackay Regional Council standard drawings and as detailed on project plans.

Specific construction requirements associated with these works is detailed in MRC Supplementary Specification Annexure 8504\_1 Standard Bollards Section 5

### **8514.6.1 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, where the bollard/s are Principal supplied the designated storage site will be the point of supply for the purposes of this Specification.



All items shall 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) Existing bollard removal (as required)**

The removal of existing bollards and footing shall be carried as required out prior to spot marking of the new bollard/s. The Contractors chosen method of removal will be such that any impact on surrounding environment is minimised. Unless otherwise approved by the Superintendent existing holes are to be backfilled and compacted prior to site location approval of the new bollard/s.

Existing bollards to remain or salvaged are identified on the design drawings or as directed by the Superintendent. Refer to MRC Supplementary Specification Annexure 8504.1 Standard Bollards for items to remain or be salvaged and the storage site location.

Disposal of any demolished bollards and their footings not requiring storage or reuse shall be disposed of by the contractor at their cost to the nearest MRC waste disposal transfer station.

**d) Site layout with Superintendent**

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

**e) Carrying out excavations;**

Excavation of material to level and grade as per MRC Standard Drawing A3-00915 and design drawings, vertical tolerances shall not exceed the manufacturers specification, in the absence of detail the tolerance shall not exceed +5mm/-10mm.

Horizontal tolerances shall not exceed the manufacturers specification and the design drawings. Where a straight line of bollards are installed the set out shall be such that when a string line is placed along the face of the bollards no bollard is out of alignment by more than 5mm's

The excavated hole is to be inspected for areas of unsuitable material. If unsuitable material is identified this is to be removed and replaced with approved material as per the instructions of the Superintendent. (HOLD POINT)

**f) 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.

**g) Bottom of Excavations**

All loose material is to be removed from footing hole. The sides of the excavated hole are to be vertical and stable.

The excavated floor preparation is to be carried out as per MRC Standard drawing A3-00915 and is to be presented for inspection by the Superintendent with inspections, geotechnical testing and geometric requirements in accordance with MRTS 04 unless otherwise approved by the Superintendent. (HOLD POINT)

**h) Concrete placement**

All concrete works associated with the footings shall be carried out in accordance with MRTS70, MRC standard drawings, the design drawings, and the manufacturers specification, where conflict exists the manufacturers requirements and specification will take precedence, with



inspections, geotechnical testing and geometric requirements applying unless otherwise approved by the Superintendent. (HOLD POINT)

**i) Installation of bollard**

Prior to concrete placement the bollards shall be installed in place and braced in position as required by MRC Standard Drawing A3-00915. Prior to the concrete setting the bollards installed shall be surveyed and checked for alignment, level, and vertically plumb to ensure no movement has occurred. Any movement will require rectification to ensure the finished bollards meets the requirements of the design drawings, manufacturers specification. (HOLD POINT)

Concrete curing is to commence directly after the concrete pour has begun to set, where the work operations utilises formwork for the purpose of bracing and holding in place the bollard this must not be removed for a minimum of 72 hours after pouring of the concrete unless otherwise approved by the Superintendent. (HOLD POINT)

All bollards installed shall be generally of a smooth surface and free of protruding elements or elements which may introduce snag or spearing hazards to passing cyclists, pedestrians or people using personal mobility devices (HOLD POINT?).

**j) Clean up of Site**

Any disturbed areas are to be backfilled, turfed, and made good. The site is to be cleaned of all debris, excavated material, and construction materials

**8504.7 Post Construction**

Items which close out the project, and readies the project for Practical Completion inspection

**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. (HOLD POINT)

Certification of works 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.

**8504.8 Measurement and Payment**

Provision for these works shall be included in the scheduled unit rate for the items shown in Clause 8504.3 of this Supplementary Specification and Annexure. No separate payment will be made for the works specified in this Supplementary Specification. Any works associated with replacement of non-conforming material and/or construction procedures shall be at no cost to the Principal.

Version Control:

Version	Description	Reviewed / Endorsed	Date
1.0	Original issue		31.05.2019
2.0	Review of Specification	C. Sultana	11.01.2024

