Construction Specification for Civil Works

C264 – Non-Rigid Road Safety Barrier

DRAFT

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REVISIONS: C264 – NON-RIGID ROAD SAFETY BARRIERS

REVISIONS	CLAUSES AMENDED	AMENDMENT DETAILS	DATE
1		Original Issue	20/05/2019
2	C264.04, C264.07, C264.08 and C264.09	Updated for MASH test level barrier systems and	01/05/2023

GENERAL

C264.01 SCOPE

The work to be executed under this Specification consists of the setting out, supply of all materials and erection of road safety barriers and terminals, in accordance with the requirements for non-rigid road safety barrier systems in AS/NZS 3845, at the locations shown on the approved design drawings.

This Specification details the requirements for public domain non-rigid road safety barrier systems. Where a patented non-rigid road safety barrier system is specified and shown on the approved design drawings, all materials shall be in accordance with the manufacturer's specifications and, it shall be constructed strictly in accordance with the manufacturer's instructions.

C264.02 DEFINITIONS

The Works

The Works – Defined as follows:

- **Developer Infrastructure Works** - work includes subdivisions and any public infrastructure work associated with an approved Development in the TRC local government area requiring a construction certificate.
- **Contracted Works –** infrastructure work undertaken by a Principal Contractor or subcontractor formally appointed by TRC and supervised by TRC.
- **Internal Works** - infrastructure work undertaken by TRC's day labour workforce.

Constructor

Constructor – Defined as the organisation responsible for construction of the Works and the Principal Contractor as defined in the *Work Health and Safety Act 2011*.

TRC Representative

TRC Representative – Defined as follows:

- **Developer Infrastructure Works** – Nominated TRC officer(s) for the approved Development.
- **For Contracted Works –** the Superintendent.
- **For Internal Works –** TRC Asset Owner

Constructor's Representative

Constructor's Representative – Defined as follows:

- **Contracted Works** – the Principal Contractor's nominated representative as per the relevant contract.
- **Internal Works** – TRC officer responsible for delivery.

Developer's Representative

Developer's Representative– Defined as the person or organisation appointed by the Developer to administer the Constructor responsible for the delivery of **Developer Infrastructure Works**.

C264.03 REFERENCE DOCUMENTS

Documents Standards Test Methods

Documents referenced in this Specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

Currency

Where not otherwise specified in the relevant Tamworth Regional Council (TRC) Construction Specifications or the approved design drawings, the Constructor shall use the latest versions of the Reference documentation, including amendments and supplements, listed in the TRC Construction Specifications at the time of the Works approval.

(a) Tamworth Regional Council (TRC) Specifications

C201 - Control of Traffic.

C271 - Concrete Works.

(b) Australian Standards

References in this Specification or on the approved design drawings to Australian Standards are noted by their prefix AS or AS/NZS.

AS 1906.2	-	Retroreflective devices (non-pavement application).
AS/NZS 3845	-	Road safety barrier systems.
AS/NZS 4680	-	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles

MATERIALS

C264.04 COMPONENTS

Steel

All steel components for public domain non-rigid road safety barrier systems, consisting of MASH and NCHRP 350 Test Level barrier systems, shall be in accordance with AS/NZS 3845 and shall be of the type as shown on the approved design drawings or an approved equivalent system that meets the same performance requirements.

C264.05 CERTIFICATION

Evidence of Conformance

Steel and timber road safety barrier components shall not be erected until the Constructor has produced documentary evidence to the TRC Representative and/or the Developer's Representative (for Developer Infrastructure Works) that road safety barrier components conform to the requirements of this Specification.

CONSTRUCTION

C264.06 GENERAL

Traffic Control

The Constructor shall at all times conform to the requirements of *C201 – Control of Traffic*.

Construction of non-rigid road safety barrier shall comply with AS/NZS 3845 except where explicit departures are detailed on the approved design drawings.

Timing of Construction

Road safety barriers shall be erected after the construction of the base on concrete pavements and after the placing of the initial layer of asphaltic concrete or sprayed seal on a flexible pavement, unless otherwise approved by the TRC Representative.

Set Out

The Constructor shall set out the work to ensure that all road safety barriers and terminal sections are located in accordance with the approved design drawings.

Cables and Ducts

Underground cables and ducts laid in the road safety barrier area shall be located prior to the erection of posts and all care must be taken not to damage such cables and ducts.

Underground Obstruction

The posts should be set to the full depth as shown on the approved design drawings. If this is not possible due to the presence of an underground obstruction, an alternative method of setting the posts, as approved by the TRC Representative, shall be used.

Post Accuracy

Posts shall stand vertical and the spacing shall be such that when the safety barrier is

erected no post movement is necessary in order to align holes or for any other reason.

C264.07 ERECTION OF STEEL POSTS

Positioning of Posts

The safety barrier posts are to be located as shown on the approved design drawings. The top of the post shall be set to the height above ground level as specified by the suppliers specifications unless otherwise shown on the approved design drawings. On terminal ends, the level of the posts shall be such as to conform to the extended crossfall of the main pavement unless otherwise shown on the approved design drawings.

Smooth Line/ Tolerances

When erected in position the posts shall be on a smooth line both horizontally and vertically with the tops of posts within ±20mm of the heights specified in paragraph 1 of this Clause.

Foundation and Testing

Steel posts shall be erected by driving in accordance with the requirements for foundation posts in AS/NZS 3845. The open section of the post shall point in the same direction as adjacent traffic. The posts are to be firm in the ground and any movement at ground level shall not exceed 3mm in any direction when force tested in accordance with AS/NZS 3845.

Damage to Posts

The posts shall not have any obvious deformation as a result of driving. Any damage which does occur to the posts is to be repaired within 24 hours using an organic zinc-rich primer in accordance with the repair requirements of Appendix E in AS/NZS 4680.

Constructor's Cost

Any post which has been excessively damaged will be rejected by the TRC Representative and shall be replaced by the Constructor at its own expense.

C264.08 ERECTION OF ROAD SAFETY BARRIER RAILS

Blockouts

Steel blockout pieces shall be erected with the open section pointing in the same direction as adjacent traffic.

Rail Laps

All rail laps shall be in the same direction as adjacent traffic such that approach rail ends are not exposed to traffic.

Stiffening Pieces

Stiffening pieces, 300mm long which are utilised on NCHRP 350 barrier systems, shall be used on intermediate posts.

Minor Damage to Galvanising

Road safety barrier rails and blockout pieces shall be handled and erected in such a manner that no damage occurs to the galvanising. Any minor damage occasioned to the galvanising shall be repaired within 24 hours using an organic zinc-rich primer in accordance with the repair requirements of Appendix E in AS/NZS 4680.

Constructor's Cost

Any road safety barrier rails or blockout pieces which have been excessively damaged will be rejected by the TRC Representative and shall be replaced by the Constructor at the Constructor’s expense.

Erection Procedure

Road safety barrier rail attachment bolts and splice bolts are to be tightened initially such that the barrier can be erected. Adjustments are then to be made to the rails using the slotted holes provided to produce a smooth regular line, free of any kinks or bumps. The overall line of the top of the safety barrier rails is to visually conform with the vertical alignment of the road pavement.

Splice Bolt Tightening

When the alignment both vertically and horizontally is obtained the splice bolts are to be fully tightened. The bolt head (not the shoulder) should be in full bearing with the rail.

C264.09 END TREATMENT OF ROAD SAFETY BARRIERS

Leading, Trailing Terminals

Both approach and departure ends of the road safety barrier shall be constructed with leading and trailing terminal sections at locations shown and as detailed on the

approved design drawings. The flare of the end terminal shall be in accordance with the suppliers specifications

End Terminals

Approved end terminals shall be installed at approach end locations of road safety barriers as shown on the approved design drawings.

Double Sided Safety Barrier

The approach and departure ends of double sided road safety barriers shall have terminal sections as detailed on the approved detailed drawings.

Connections to Rigid Barriers

Non-rigid road safety barrier connections to rigid road safety barriers or bridge parapets shall be as detailed on the approved design drawings.

C264.10 DELINEATORS

Fixing

Delineators complying with AS 1906.2 shall be fixed with brackets to the road safety barrier, to the details and at the locations shown on the approved design drawings beginning at the first post and then in accordance with Table C264.1.

Radius of Curve (m)	Spacing of Reflectors on Barrier (every)
30-90	3rd post
90-180	5th post
180-275	8th post
275-365	11th post
over 365	16th post
(including straight road)	

Table C264.1 – Delineator Spacing

Arrangement and Colour

The delineators shall be so arranged that drivers approaching from either direction will see only red reflectors on their left side and white reflectors on their right side.

LIMITS AND TOLERANCES

C264.11 SUMMARY OF LIMITS AND TOLERANCES

The limits and tolerances applicable to the various clauses in this specification are summarised in Table C264.2 below:

Item	Activity	Limits/Tolerances	Spec Clause
1	**Vertical Alignment**		
	Tops of steel posts.	± 20mm	C264.07
2	**Post Movement**		
	Post Movement	≤ 3mm	C264.07

Table C264.2 - Summary of Limits and Tolerances

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