# NEW SOUTH WALES

# DEVELOPMENT CONSTRUCTION SPECIFICATION

C264

# NON-RIGID ROAD SAFETY BARRIER SYSTEMS (Public Domain)

# Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
EXAMPLE 1	Provision for acceptance of nonconformance with deduction in Payment	XYZ.00	AP	KP	2/6/97

# SPECIFICATION C264: NON-RIGID ROAD SAFETY BARRIER SYSTEMS (Public Domain)

# GENERAL

#### C264.01 SCOPE

1. 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 Drawings or as directed by the Superintendent.

2. 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 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 REFERENCE DOCUMENTS

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

## Documents Standards Test Methods

# (a) Council Specifications

C201	-	Control of Traffic
C271	-	Minor Concrete Works

# (b) Australian Standards

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

### C264.03 COMPONENTS

1. All steel components for public domain non-rigid road safety barrier systems, W-beam and Thrie-beam, shall be in accordance with AS/NZS 3845 and shall be of the type as shown on the Drawings.

2. Timber posts are to be used only in W-beam terminal sections, as detailed on the Drawings and shall be of the timber type, grade, size and treatment level in accordance with AS/NZS 3845. All surfaces shall be smooth and free from obvious saw marks.

Steel

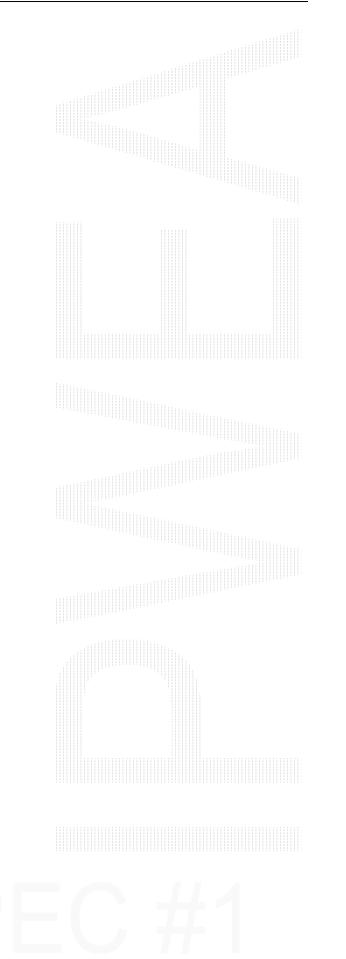
Timber

#### C264.04 CERTIFICATION Steel and timber road safety barrier components shall not be erected until the 1 Evidence of Contractor has produced documentary evidence to the Superintendent that the steel and Conformance timber road safety barrier components conform to the requirements of this Specification. CONSTRUCTION C264.05 **GENERAL** The Contractor shall at all times conform to the requirements of the Specification Traffic Control 1 for CONTROL OF TRAFFIC. 2. Construction of non-rigid road safety barrier shall comply with AS/NZS 3845 except where explicit departures are detailed on the Drawings. 3. Road safety barriers shall be erected after the construction of the base on Timina of concrete pavements and after the placing of the initial layer of asphaltic concrete or Construction sprayed seal on a flexible pavement, unless otherwise approved by the Superintendent. 4. The Contractor shall set out the work to ensure that all road safety barriers and Set Out terminal sections are located in accordance with the Drawings or as directed by the Superintendent. Underground cables and ducts laid in the road safety barrier area shall be located Cables and 5 prior to the erection of posts and all care must be taken not to damage such cables and Ducts ducts. 6. The posts should be set to the full depth as shown on the Drawings. If this is not Underground possible due to the presence of an underground obstruction, an alternative method of Obstruction setting the posts, as approved by the Superintendent, shall be used. Posts shall stand vertical and the spacing shall be such that when the safety 7. Post Accuracy barrier is erected no post movement is necessary in order to align holes or for any other reason. C264.06 **ERECTION OF STEEL POSTS** The safety barrier posts are to be located as shown on the Drawings. The top of Positioning of 1. the post shall be 710mm, 805mm or 865mm as appropriate for W-beam, Thrie-beam or Posts modified blockout Thrie-beam respectively, above the ground level, unless otherwise shown on the 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 Drawings. 2. When erected in position the posts shall be on a smooth line both horizontally Smooth Line/ and vertically with the tops of posts within ±20mm of the heights specified in paragraph 1 **Tolerances** of this Clause. Steel posts shall be erected by driving, or by other means, as directed by the 3. Foundation Superintendent, in accordance with the requirements for foundation posts in and Testing 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.

4. 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 **Damage to Posts** 

zinc-ric AS/NZS	h primer in accordance with the repair requiremen S 4680.	ts of Appendix E in	
5. Superir	Any post which has been excessively damaged wintendent and shall be replaced by the Contractor at its own		Contractor's Cost
C264.0	7 ERECTION OF TIMBER POSTS		
Drawing	The safety barrier posts are to be located as shown on the sts shall be 710mm $\pm$ 20mm above the ground level, unless gs. On terminal ends the level of the posts shall be such ad crossfall of the main pavement, unless shown otherwise	otherwise shown on the ch as to conform to the	Positioning of Posts
2. and ver	When erected in position the posts shall be on a smooth rtically.	th line both horizontally	Smooth Line
3. be wrap	The section of the timber posts to be cast into a reinforce oped in 12mm thick polystyrene foam sheeting before conc		Polystyrene Foam
	Concrete used in the footings for timber posts sh essive strength of 32MPa at 28 days and shall conform w ecification for MINOR CONCRETE WORKS.		Concrete
	Concrete footings shall be 600mm diameter, and shall hat plus 50mm. Overbreak and excessive depth shall be fille pst to the Principal.		Footing Size
6.	Wire fabric reinforcing shall be as detailed on the Drawing	S.	Reinforcing Fabric
7. two coa	The surface area of the posts which will be above grour ats of grey acrylic paint.	nd shall be painted with	Painting
C264.0	8 ERECTION OF ROAD SAFETY BARRIER RAILS		
1. directio	Steel blockout pieces shall be erected with the open secti n as adjacent traffic.	on pointing in the same	Blockouts
2. rail end	All rail laps shall be in the same direction as adjacent tra Is are not exposed to traffic.	affic such that approach	Rail Laps
3.	Stiffening pieces, 300mm long, shall be used on intermedi	ate posts.	Stiffening Pieces
to the g	Road safety barrier rails and blockout pieces shall be h manner that no damage occurs to the galvanising. Any mir galvanising shall be repaired within 24 hours using an org ance with the repair requirements of Appendix E in AS/NZS	nor damage occasioned ganic zinc-rich primer in	Minor Damage to Galvanising
	Any road safety barrier rails or blockout pieces which ed will be rejected by the Superintendent and shall be rep wn expense.		Contractor's Cost
6.	Road safety barrier rail attachment bolts and splice bo such that the barrier can be erected. Adjustments are ther		Erection Procedure
using the bumps.	he slotted holes provided to produce a smooth regular lir . The overall line of the top of the safety barrier rails is to v alignment of the road pavement.	ne, free of any kinks or	

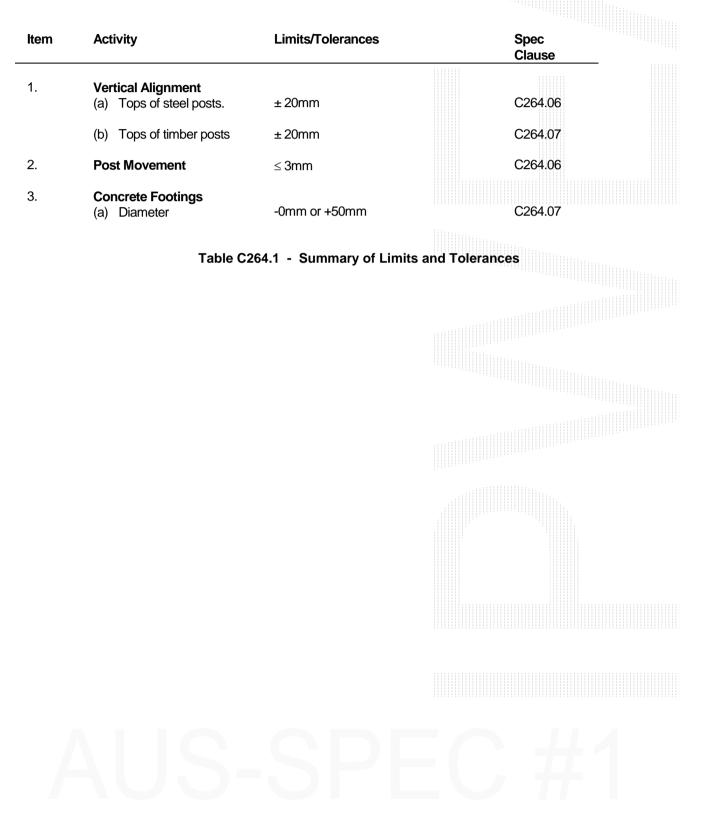
are to be fully tightened. The bolt head (not the shoulder) should be in full bearing with Tightening the rail. C264.09 END TREATMENT OF ROAD SAFETY BARRIERS Both approach and departure ends of the road safety barrier shall be constructed Leading, 1 with leading and trailing terminal sections at locations shown and as detailed on the Trailing Drawings. Terminals MELT Modified eccentric loader terminals (MELT) shall be constructed, as detailed on 2. the Drawings and, at approach end locations of road safety barriers as shown on the Drawings. Where the departure end of a road safety barrier is within the clear zone of opposing traffic, a MELT shall be constructed in place of a trailing terminal section. 3. The approach and departure ends of double sided road safety barriers shall have **Double Sided** terminal sections as detailed on the Drawings. Safety Barrier Non-rigid road safety barrier connections to rigid road safety barriers or bridge 4. **Connections** parapets shall be as detailed on the Drawings. to Riaid Barriers C264.10 DELINEATORS Delineators complying with AS 1906.2 shall be fixed with brackets to the road 1. Fixing safety barrier, to the details and at the locations shown on the Drawings beginning at the first post and then in accordance with the following table:-**Radius of Curve** Spacing of Reflectors on Barrier m every 30 - 90 3rd post 90 - 180 5th post 180 - 275 8th post 275 - 365 11th post over 365 16th post (including straight road) The delineators shall be so arranged that drivers approaching from either 2. Arrangement direction will see only red reflectors on their left side, and white reflectors on their right. and Colour SPECIAL REQUIREMENTS C264.11 RESERVED C264.12 RESERVED C264.13 RESERVED RESERVED C264.14



# LIMITS AND TOLERANCES

# C264.15 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this specification are summarised in Table C264.1 below:



# MEASUREMENT AND PAYMENT

### C264.16 PAY ITEMS

1. Payment shall be made for all the activities associated with completing the work detailed in this Specification on a schedule of rates basis in accordance with Pay Items C264(a) to C264(g) inclusive.

2. A lump sum price for any of these items shall not be accepted.

3. If any item, for which a quantity of work listed in the Schedule of Rates, has not been priced by the Contractor, it shall be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

4. Concrete footings for timber posts are measured and paid in accordance with this Specification and not in the Specification for MINOR CONCRETE WORKS.

5. Miscellaneous minor concrete work not included in the pay items in this Specification shall be in accordance with pay items described in the Specification for MINOR CONCRETE WORKS.

6. Traffic control is measured and paid in accordance with the Specification for CONTROL OF TRAFFIC.

# Pay Item C264(a) SINGLE SIDED ROAD SAFETY BARRIER

- (i) Single W-beam
- (ii) Nested W-beam
- (iii) Single Thrie-beam
- (iv) Nested Thrie-beam
- (v) Single Modified Blockout Thrie-beam
- (vi) Nested Modified Blockout Thrie-beam
- (vii) Single W-Thrie-beam Transition
- (viii) Nested W-Thrie-beam Transition

1. The unit of measurement shall be the linear metre.

2. The distance shall be measured along the centre line of the rail, centre to centre of posts, excluding terminal sections and connectors to rigid safety barriers or bridge parapets..

3. The schedule rate shall include the supply of all components and fixings and all activities associated with the erection of each type of road safety barrier.

## Pay Item C264(b) MODIFIED ECCENTRIC LOADER TERMINAL (MELT)

1. The unit of measurement shall be "each" MELT section supplied and erected as detailed on the Drawings.

## Pay Item C264(c) TERMINAL SECTION

- (i) Leading Terminal
- (ii) Trailing Terminal

1. The unit of measurement shall be "each" terminal section supplied and erected as detailed on the Drawings.

### Pay Item C264(d) CONNECTORS TO RIGID ROAD SAFETY BARRIERS (RSB) OR BRIDGE PARAPET

- (i) W-beam to RSB
- (ii) W-beam to Thrie-beam to RSB
- (iii) Thrie-beam to RSB

1. The unit of measurement shall be "each" connector supplied and erected as detailed on the Drawings, excluding the anchorage assemblies cast into the rigid road safety barrier or bridge parapet.

# Pay Item C264(e) DELINEATOR BRACKETS

1. The unit of measurement shall be "each".

# Pay Item C264(f) DOUBLE SIDED ROAD SAFETY BARRIER

- (i) Single W-beam
- (ii) Nested W-beam
- (iii) Single Thrie-beam
- (iv) Nested Thrie-beam
- (v) Single Modified Blockout Thrie-beam
- (vi) Nested Modified Blockout Thrie-beam
- (vii) Single W-Thrie-beam Transition
- (viii) Nested W-Thrie-beam Transition

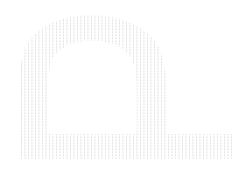
1. The unit of measurement shall be the linear metre.

2. The distance shall be measured along the centre line of the rails, centre to centre of posts, excluding terminal sections and connectors to rigid safety barriers or bridge parapets.

3. The schedule rate shall include the supply of all components and fixings and all activities associated with the erection of each type of road safety barrier.

# Pay Item C264(g) DOUBLE SIDED ROAD SAFETY BARRIER TERMINAL SECTION

1. The unit of measurement shall be "each" terminal section supplied and erected as detailed on the Drawings.



S	PECIFICATION C264 – NON-RIGID ROAD (Public Domai	-	ARRIER SYSTEM	
CLAUSE	CONTENTS			PAGE
GENER	۹L			1
C264.01	SCOPE			
C264.02	REFERENCE DOCUMENTS			1
MATERI	ALS			<b>1</b>
C264.03	COMPONENTS			1
C264.04	CERTIFICATION			2
CONST	RUCTION			2
C264.05	GENERAL			2
C264.06	ERECTION OF STEEL POSTS		··· ·····	2
C264.07	ERECTION OF TIMBER POSTS			3
C264.08	ERECTION OF ROAD SAFETY BARRIER RAILS.			3
C264.09	END TREATMENT OF ROAD SAFETY BARRIERS	S	· · · · · · · · · · · · · · · · · · ·	4
C264.10	DELINEATORS			4
SPECIA	L REQUIREMENTS			4
C264.11	RESERVED			4
C264.12	RESERVED			4
C264.13	RESERVED			4
C264.14	RESERVED			
	AND TOLERANCES			
C264.15	SUMMARY OF LIMITS AND TOLERANCES			6
MEASU	REMENT AND PAYMENT			7
C264.16	PAY ITEMS			7