APRIL 2015

DETAIL SHEET

QUADGUARD STEEL RAIL CRASH CUSHION (including CZ and CZ DPA varieties)

VicRoads Requirements

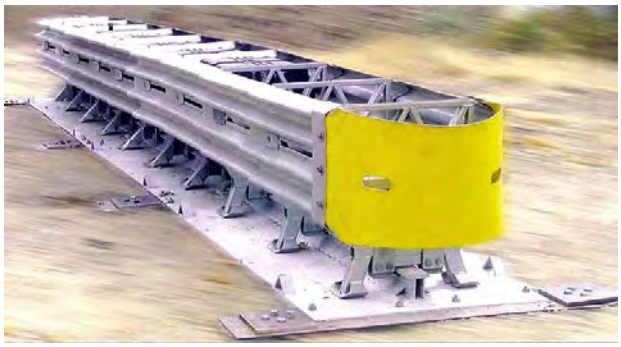
Refer to Austroads - Safety Barrier System Acceptance Conditions for the Quadguard Steel Rail Crash Cushion, the Quadguard CZ (pinned steel plate) Steel Rail Crash Cushion, and Quadguard CZ DPA (driveable pile anchor) Steel Rail Crash Cushion. All requirements listed by Austroads have been adopted by VicRoads for use on the Victorian declared road network.

In this instance, VicRoads applies no additional requirements/conditions for use of the Quadguard Steel Rail Crash Cushions on the Victorian declared road network.

Please Note: VicRoads requirements take precedence over any Product Manual instructions and Austroads conditions where conflicting.

References

- Product Installation Manual and Product Operational Manual refer licensed product supplier website
- VicRoads Road Design Note 06-04 Accepted Safety Barrier Products



For further information please contact:

VicRoads Technical Services
60 Denmark Street
Kew, Vic, 3101
Telephone: 8391 7192

Accepted safety barrier products are subject to periodic review and the information provided in this document may be superseded. Please refer to *Road Design Note 06-04 – Accepted Safety Barrier products* for the current VicRoads acceptance status.

Safety Barrier System Conditions

QUADGUARD Steel Rail Crash Cushion

Proponent	Boylan Group
Australian Distributor	Ingal Civil Products
New Zealand Distributor	Ingal Civil Products NZ
Date Issued	13 April 2015

Status	**Accepted** – May be used on the classified road network. These acceptance conditions take precedence over any instructions in the Product Manual.
Variants accepted	• QUADGUARD Steel Rail Crash Cushion with tension strut or concrete backup, and a yellow nose assembly. • QUADGUARD CZ (pinned steel plate) Steel Rail Crash Cushion with tension strut or concrete backup, and a yellow nose assembly. • QUADGUARD CZ DPA (driveable pile anchors) Steel Rail Crash Cushion with tension strut or concrete backup, and a yellow nose assembly.
Variants NOT accepted	• Variants that are not on the list above are not accepted. • Variants accepted in other jurisdictions, but not accepted in the local jurisdiction, are NOT permitted.

Speed limit (km/h)	100 km/h. Permanent barriers accepted for 100km/h may be used in 110 km/h speed zones.
Tested containment (kg)	2,000 kg at 100 km/h and 20°.
Adopted dynamic deflection (Nominal 2 tonne vehicle)	Not applicable.
Point of need	At leading end.
Development length	Not applicable.
Minimum length of barrier between terminals	Not applicable.
System width (m)	Cushion is available in varying widths up to 2.285 metres.

System conditions	Not specified.	
Terminals and Connections	W-Beam guardrail	Permitted – Quad-Beam to W-Beam.
	Thrie-Beam guardrail	Permitted – Quad-Beam to Thrie-Beam.
	Type F Concrete Safety Barrier	Permitted – Quad-Beam to Safety Shape Barrier.
		Not Permitted – No transition.
	Proprietary product	See barrier conditions.
	Other	1. All supplied units are to have the yellow plastic nose. 2. Installation behind a kerb is not recommended.
Gore area use	Permitted.	
Pedestrian area use	Permitted – consider potential for snagging and deflection.	

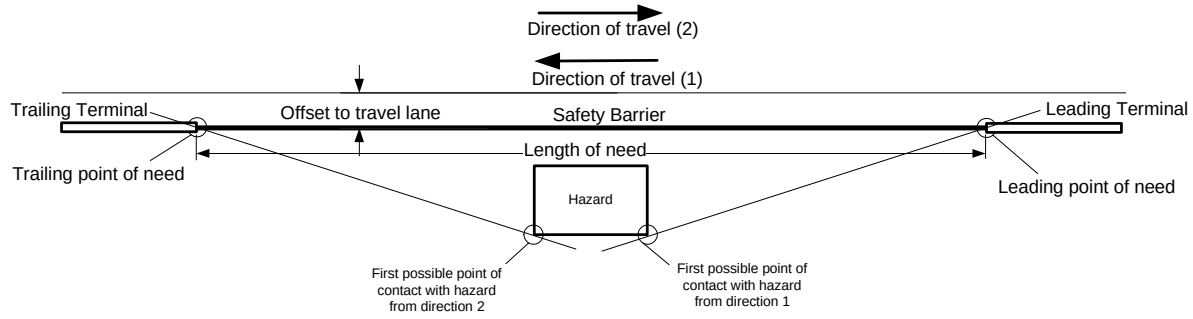
Cycleway use	Permitted – consider potential for snagging and deflection.
Frequent impact likely	Permitted.
Remote location	Permitted.
Median use	Permitted.
Minimum median width (m)	Not specified.
Flare **(See Explanation of Terms diagram)**	Not applicable.
Offset to travel lane (m)	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Section 6.3.5.
Hazard free area beside barrier or terminal **(Working Width)**	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Section 6.3.16.

Installation	The QUADGUARD Steel Rail Crash Cushion must be installed and maintained in accordance with the Product Manual and Road Agency specifications. The Road Agency specifications and standards shall have precedence.	
Minimum distance to excavation	Not applicable.	
Slope limit	Side slope limit: 12 Horizontal to 1 Vertical (8%).	
Foundation pavement conditions	Concrete	Permitted.
	Deep lift Asphaltic Concrete	Permitted with concrete pad or pinned steel plate or driveable pile anchors.
	Asphaltic concrete over granular pavement	Permitted with concrete pad or pinned steel plate or driveable pile anchors.
	Flush seal over granular pavement	Permitted with concrete pad or pinned steel plate or driveable pile anchors.
	Unsealed compacted formation	Permitted with concrete pad or pinned steel plate or driveable pile anchors.
	Natural surface	Permitted with concrete pad or pinned steel plate or driveable pile anchors.
	Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product.	
Attachments and screens	In accordance with the requirements of Australian/New Zealand Standard AS/NZS 3845, road furniture such as delineators, headlight screens, signs, lighting posts and fences for pedestrians, visual screens, debris screens, platforms for workers and other non-product hardware must not be attached to the product. Screens may be placed adjacent to the side of the product not exposed to traffic. The distance between the screen and the product shall be determined by a site specific risk assessment that considers the deflection distance. Screens must not have horizontal members that present a risk of impaling errant vehicles that impact the product.	
Damaged components	Damaged components must be replaced. Repaired components must not be used.	
Delineation	The installed system shall include delineation as prescribed by Road Agency specifications and drawings.	
Traceability and markings	Product markings shall be in accordance with marking/s prescribed by the current Australian/New Zealand Standard AS/NZS 3845 Road Safety Barrier Systems and Road Agency specifications.	

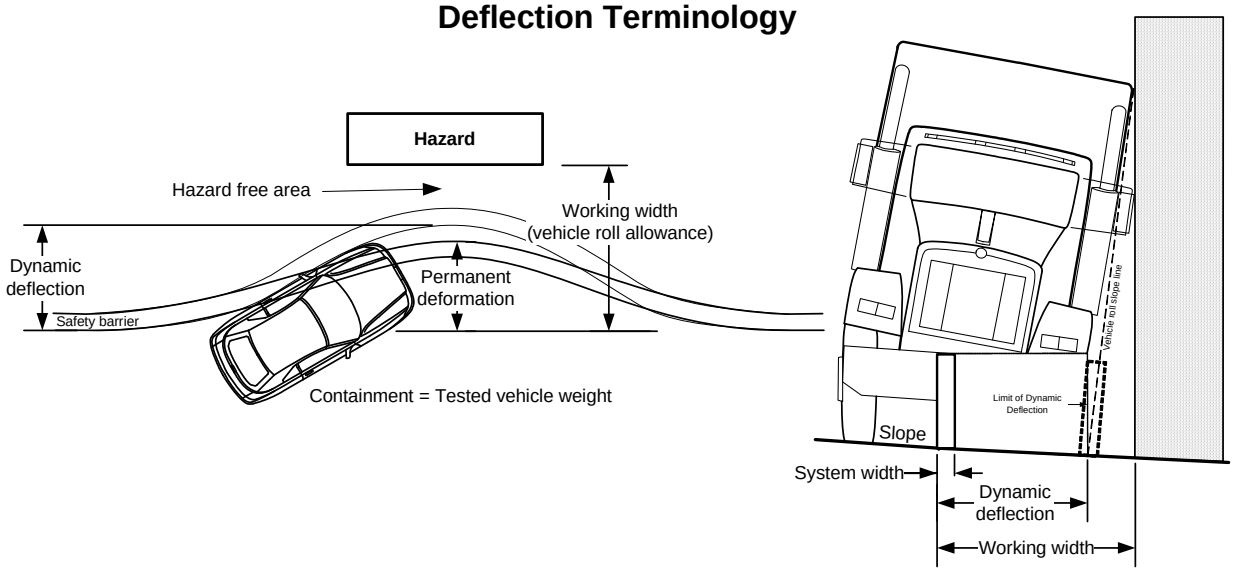
	Traceability details that must be permanently fixed to the product are: • Name of the product. • Manufacturer or distributor name. • Date of manufacture. • Model or version details of the product, if applicable. • Batch number, if applicable. • Serial number, if applicable. Traceability details must be easily visible but unobtrusive and not be in a form that becomes prominent advertising. No advertising shall be displayed on the installation. Traceability must be in a form that will not be erased with use.

Notes	Conditions are based on drawings in the Product Manual supplied by the Proponent, dated November 2012 (Revision A). This acceptance will cease if there is any change in the product design or specifications.
	Only the Product Manual authorised by the Proponent shall be used in any marketing of the product.
	Acceptance of the QUADGUARD Steel Rail Crash Cushion does not place any obligation on the Road Agency, or its contractors, to purchase or use the product.
	The Austroads Safety Barrier Assessment Panel may periodically re-assess the QUADGUARD Steel Rail Crash Cushion. The Road Agency may withdraw or modify at any time, the acceptance status or conditions of use of the product without notice. Users should refer to the Road Agency web site to ensure they have the latest version of the conditions related to this product.

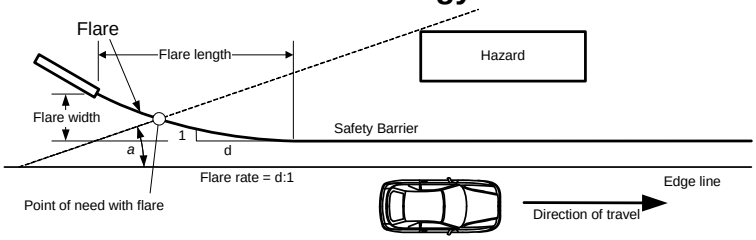
Design Terminology



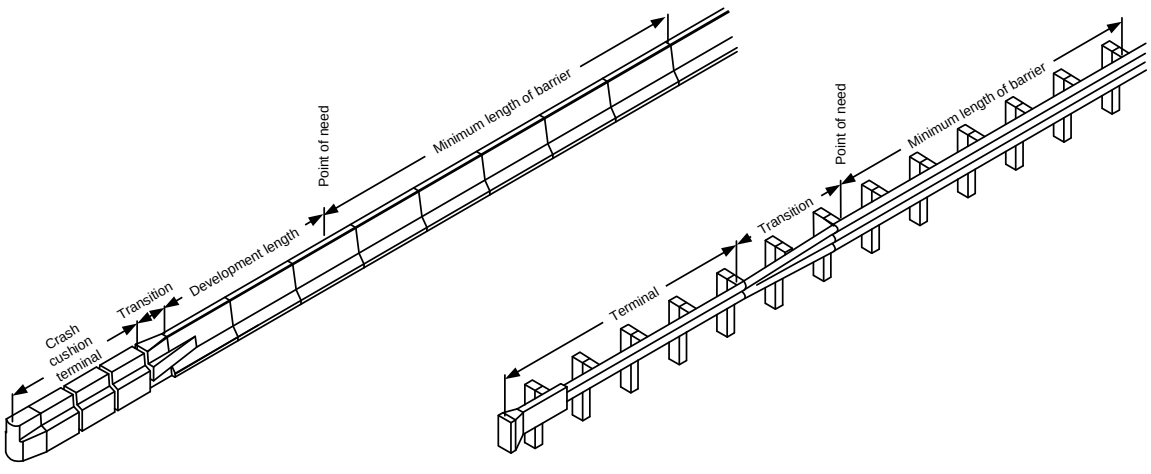
Deflection Terminology



Flare Terminology



Terminal Terminology



Safety Barrier terminology.vsd

For more information, refer to
Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers