

DETAIL SHEET

X-TENSION 350 TERMINAL END

VicRoads Requirements

Refer to Austroads - Safety Barrier System Acceptance Conditions for the X-Tension Terminal End (formerly known as X-350). All requirements listed by Austroads have been adopted by VicRoads for use on the Victorian declared road network.

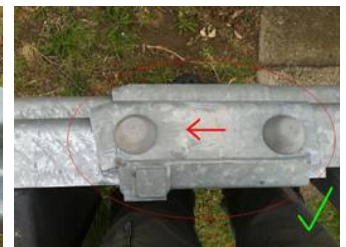
In this instance, VicRoads applies additional requirements/conditions for use of X-Tension Terminal End on the Victorian declared road network including:

- The terminal is to be fitted with a yellow plastic motorcycle friendly cover that fits over the impact head and must include a white and black retro-reflective hazard marker.
- The MEDIAN version is not a crash cushion and therefore is not suitable in gore areas or any areas where unidirectional traffic is present on each side of the terminal.
- Installation behind elevated kerbs, islands, drainage structures or any other item affect the height at which a vehicle could impact the unit is not recommended 15m prior to the unit or along the length of the unit, however if required, all system components must be free to operate.

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



- VicRoads Road Design Note 06-08 The Use of Guard Fence
- VicRoads Standard Drawing SD3545
- VicRoads Standard Drawing SD3571
- VicRoads Standard Section 708 – Guard Fence

For further information please contact:

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

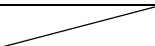
Accepted safety barrier products are subject to periodic review and the information provided in this document may be superseded. Please refer to Road Design Note 06-04 – Accepted Safety Barrier products for the current VicRoads acceptance status.

Safety Barrier System Conditions

X-TENSION 350 Steel Rail Terminal - Permanent

 	Australian Distributor	Australian Construction Products Pty Ltd
	New Zealand Distributor	CSP Pacific
	Date Issued	30 May 2016

Status	Accepted – May be used on the classified road network. These acceptance conditions take precedence over any instructions in the Product Manual.
Product accepted	X-TENSION 350 Steel Rail Terminal – Permanent with nose cone. <u>Variants</u> <ul style="list-style-type: none"> • Nil.
Product Manual accepted	Dated January 2015.
Variants NOT accepted	<ul style="list-style-type: none"> • Wooden posts and blockouts. • 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.

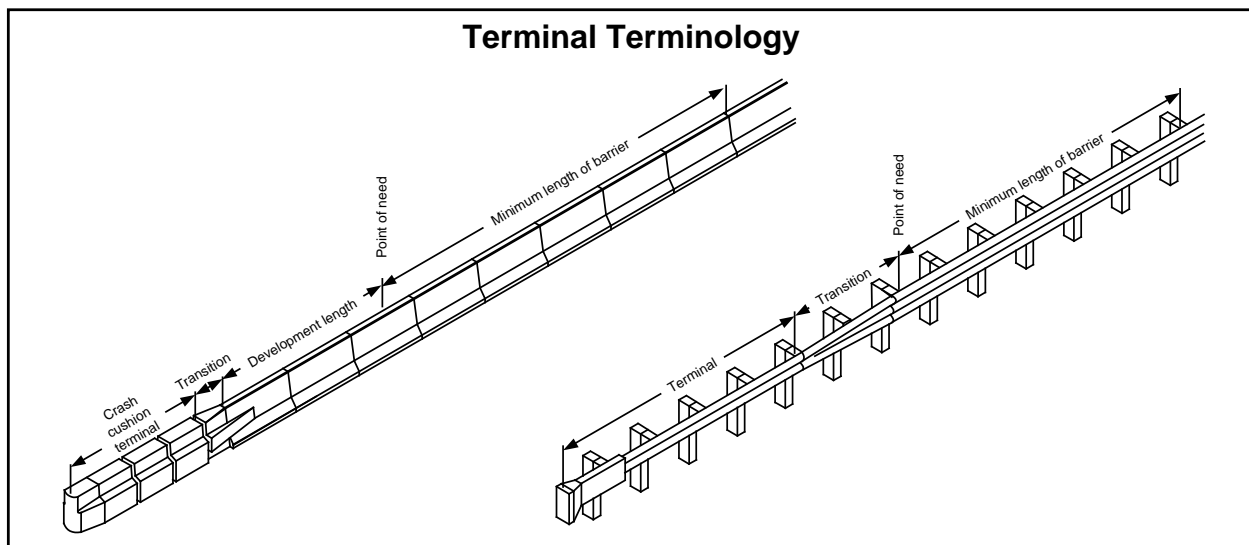
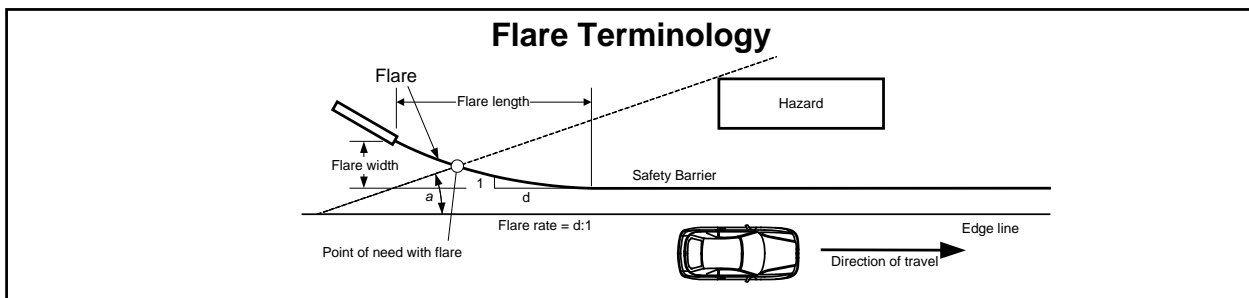
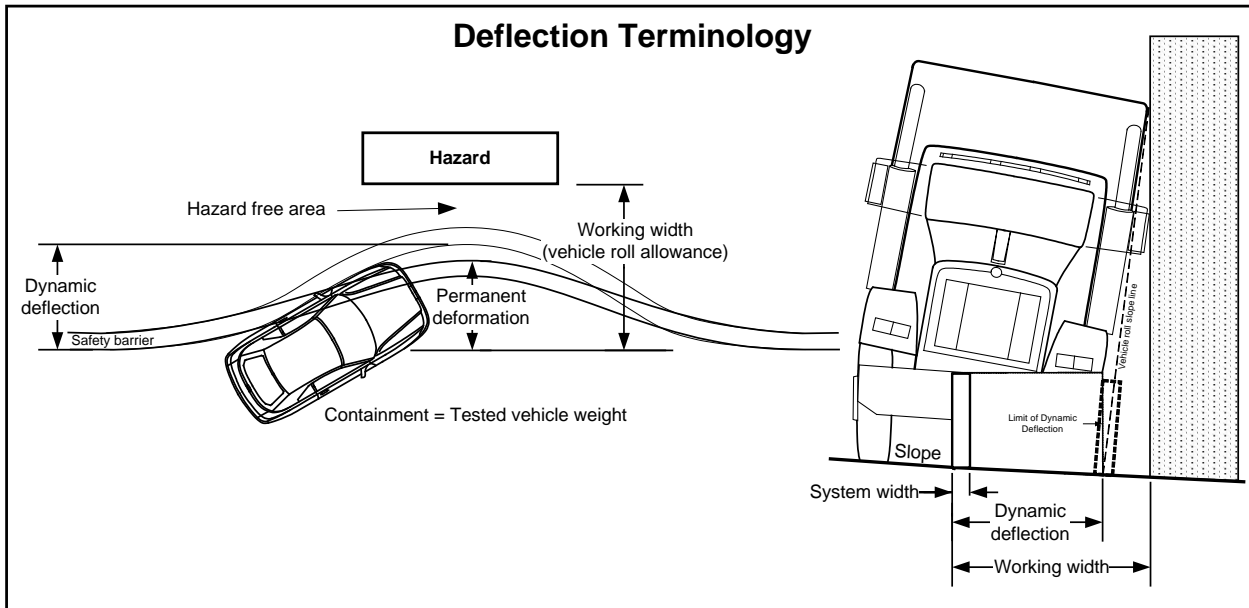
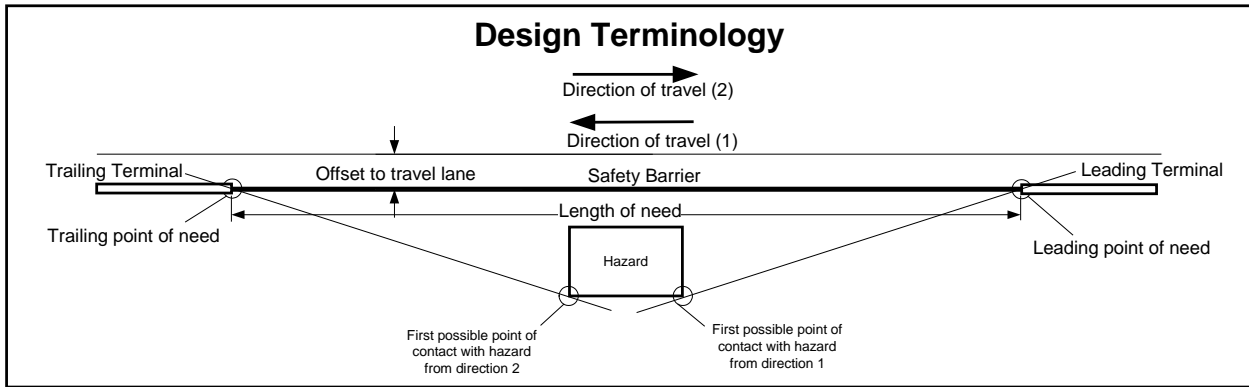
Speed limit (km/h)	Tested at 100 km/h. May be used in 110 km/h speed zones (permanent installations only).	
Tested containment	NCHRP 350 Test Level 3 (2,000 kg at 100 km/h and 20°).	
Tested dynamic deflection	100 km/h	1.0 metres.
	Note that deflections are measured in crash tests performed under controlled conditions. Designers should be aware that the deflection figures published as a test result may not be the deflection values achieved in the field for all impacts by errant vehicles dependent upon foundation conditions and roadside geometry.	
Working width		Not specified for this system.
	Working width may be determined following a site specific risk assessment based upon type and speed of vehicles on the adjacent roadway. Working width (refer diagram) is the minimum width that is required to prevent an impacting vehicle from colliding with an object behind a road safety barrier system and includes both the dynamic deflection of the road safety barrier and the extra width to allow for vehicle roll.	
Point of need	600mm downstream of Post 1.	
Development length	Not applicable.	
Minimum length of barrier between terminals	Not applicable.	
System width (m)	0.48 metres (straight) 0.76 metres (median)	

System conditions	Not specified.	
Terminals and connections	W-Beam guardrail	Permitted.
	Thrie-Beam guardrail	Permitted.

	Type F Concrete Safety Barrier	Not Permitted.
	Proprietary product	See barrier conditions.
	Other	1. A 2 metre wide hazard free area must be provided immediately behind and parallel to the full length of the terminal. 2. Installation on top of 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.	
Flare rate (See Explanation of Terms diagram)	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers Table 6.5 for design advice.	
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 X-TENSION 350 Steel Rail Terminal - Permanent 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	1 metre minimum distance between the edge of the barrier and the edge of an excavation. (Being the largest adopted dynamic deflection).	
Slope limit	Side slope limit: 15 Horizontal to 1 Vertical (7%).	
Foundation pavement conditions	Concrete	Permitted with coring holes.
	Deep lift Asphaltic Concrete	Permitted with coring holes.
	Asphaltic concrete over granular pavement	Permitted.
	Flush seal over granular pavement	Permitted.
	Unsealed compacted formation	Permitted.
	Natural surface	Permitted.
	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 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	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>Traceability must be in a form that will not be erased with use.</p>
Notes	This is a gating terminal.
	Conditions are based on drawings in the Product Manual supplied by the Proponent, dated January 2015. 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 X-TENSION 350 Steel Rail Terminal - Permanent 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 X-TENSION 350 Steel Rail Terminal - Permanent. 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.



Safety Barrier terminology.vsd

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