

DETAIL SHEET

FLEXFENCE TL4 4 WIRE ROPE BARRIER SYSTEM - PERMANENT

VicRoads Requirements

Refer to Austroads - Safety Barrier System Acceptance Conditions for the Flexfence TL4 4 Wire Rope Barrier System. 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 Flexfence TL4 4 Wire Rope Barrier System on the Victorian declared road network including:

- Installation of Flexfence TL4 4 Wire Rope Barrier System must conform with requirements of VicRoads Road Design Notes, VicRoads Standard Drawings, VicRoads Standard Sections and VicRoads Supplements as listed in references below.
- Terminal anchor dimensions:
 - Where no geotechnical investigation is undertaken to determine an approved alternative anchor, the manufacturer's nominated default anchor, the TYPE 3 anchor, shall be used.
(dimensions (mm) 800Wx3000Lx1100D).
 - Where poor soil conditions are present, Type 1 anchor should be considered. Refer to manufacturers manual.
 - NOTE: pier anchor WR-STD-55 NOT ACCEPTED FOR USE IN VICTORIA.
- Terminal not designed to release cables, catch ropes can be omitted.
- VARIANT: Driven Post Sleeve
Due to its nature, necessary assessments and soil tests must be undertaken prior to installation of the Driven Post Sleeve system.



All Locations;

- Dynamic Cone Penetration Testing (DCPT) requirements; shall be undertaken at 500m intervals. Within 1m below the finished surface, test shall be 10 blows or greater per 100mm penetration. All tests shall be undertaken in accordance with AS1289.6.3.2. Test results shall be provided to the Superintendent for review 7 days prior to installation. The Superintendent may request additional testing if any of the test sites fail the DCPT test at no cost to the Principal.
- Full compliance of Specification 711 shall be practiced.

Where new earthworks (greenfield) is required;

- Driven post sleeves must be installed in granular fill constructed in accordance with VicRoads Specification 204- Type A material.
- Installation shall not commence until approval from the Superintendent has been obtained.

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 06-02 The Use of Wire Rope Safety Barriers (WRSB)
- VicRoads Standard Drawing SD3573- guidance on the verge and permissible slopes
- VicRoads Standard Drawing SD2001-kerb types
- VicRoads Standard Section 204 – Earthworks
- VicRoads Standard Section 711 – Wire Rope Safety Barrier
- VicRoads Supplement to Austroads Guide to Road Design – Part 6


For further information please contact:

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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

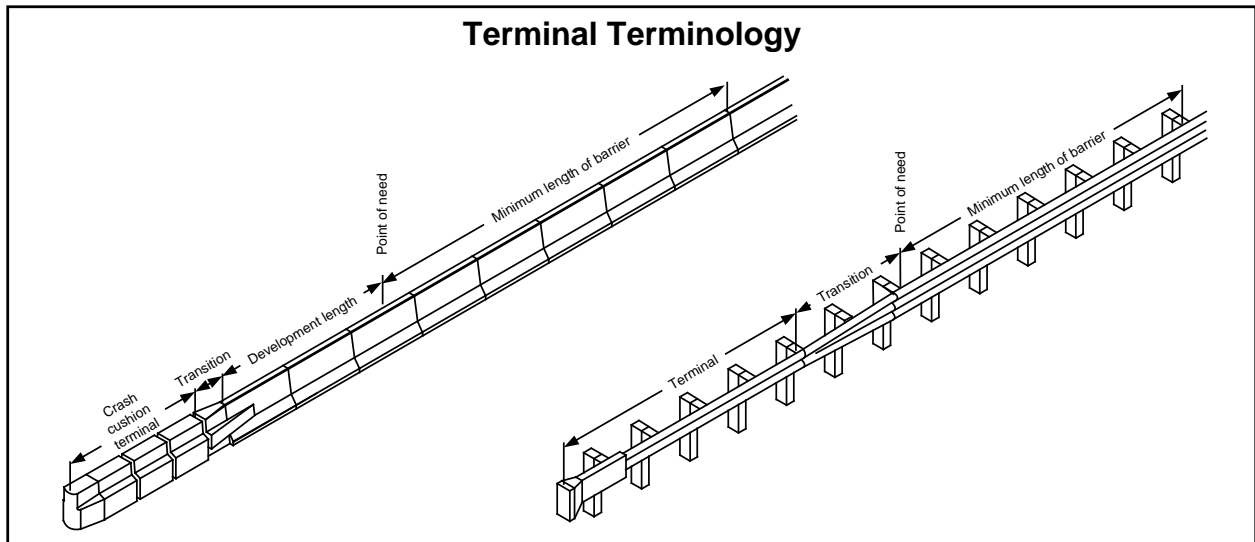
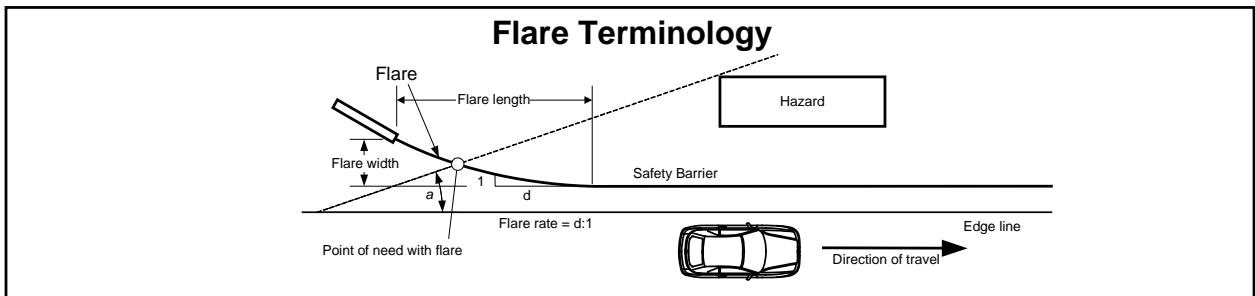
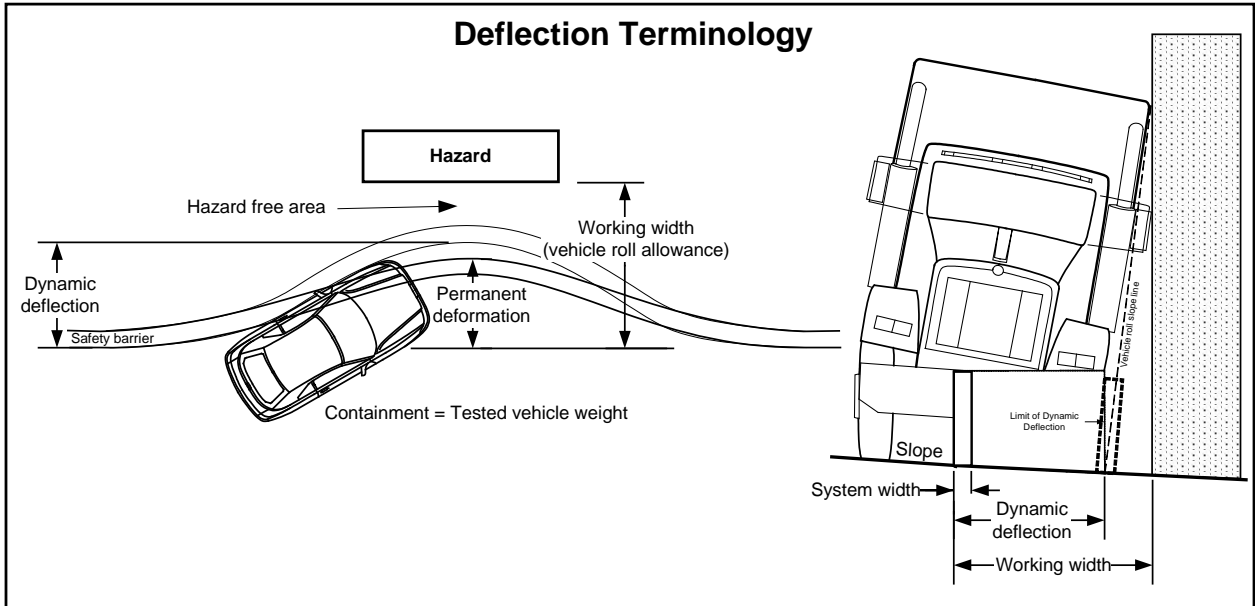
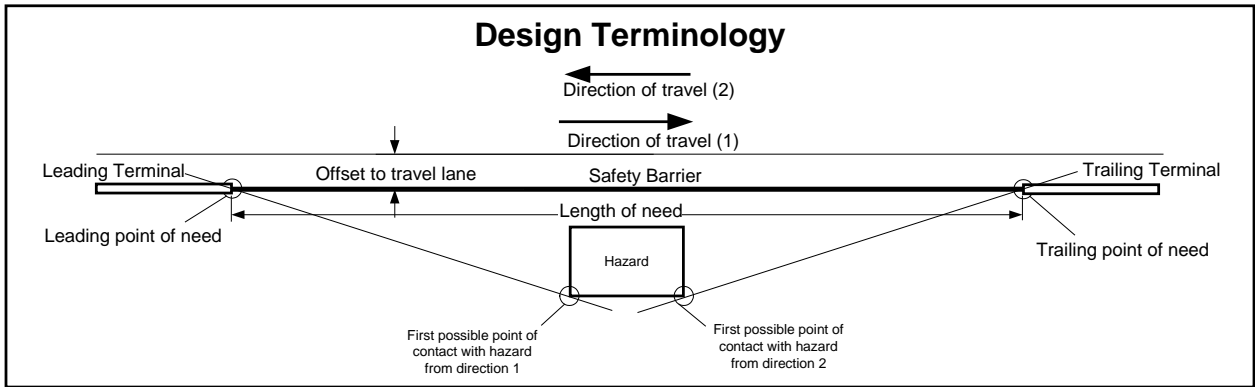
FLEXFENCE TL4 4 Wire Rope Barrier System - Permanent

	Australian Distributor	Ingal Civil Products
	New Zealand Distributor	Ingal Civil Products NZ (Safence)
	Date Issued	30 May 2017

Status	<p>Accepted – May be used on the Australian/New Zealand classified road network.</p> <p>These acceptance conditions take precedence over any instructions in the Product Manual.</p>		
Product	<ul style="list-style-type: none"> FLEXFENCE TL4 4 Wire Rope Barrier System - Permanent consisting of 4 x 19mm, pre-stretched wire rope cables supported on a slotted post. Wire rope heights are 480, 560, 640 and 720mm. A wire rope hook is used with the top rope at each post. The 1,230mm long Sigma posts are set into sockets in a 600mm deep concrete footing, 300mm in diameter. A post stiffener is required for each socket. Rope tension is 25 kN. Post spacing is 2.5 metres. Colour of posts to be determined by local Road Agency. <p><u>Options</u></p> <ul style="list-style-type: none"> Type 3 Anchor Block. Driven post sleeve (To be installed in soil conditions that meet or exceed AASHTO standards). 		
Product Manual reviewed	Release 12/16.		
Variants NOT accepted	<ul style="list-style-type: none"> FLEXFENCE TL4 4 Wire Rope Barrier System - Permanent with no wire rope hooks or post stiffeners. FLEXFENCE TL4 4 Wire Rope Barrier System - Permanent with rope tension below 25 kN. 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 4 (8,000 kg at 80 km/h and 15°).		
Tested dynamic deflection	<table border="1"> <tr> <td>100 km/h</td> <td>1.41 metres.</td> </tr> </table> <p>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.</p>	100 km/h	1.41 metres.
100 km/h	1.41 metres.		
Working width	<table border="1"> <tr> <td>100 km/h</td> <td>2.0 metres.</td> </tr> </table> <p>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</p>	100 km/h	2.0 metres.
100 km/h	2.0 metres.		

	deflection of the road safety barrier and the extra width to allow for vehicle roll.	
Point of redirection	Point of redirection is the interface between the terminal and the barrier. 12.6 metres from the anchor point.	
Minimum length of barrier between terminals	40 metres. Minimum length is the tested article length.	
System width (m)	<ul style="list-style-type: none"> • 0.3 metres at post. • 1.0 metres at terminal. 	
System conditions	<ol style="list-style-type: none"> 1. Anchor spacing greater than 1,000 metres is NOT permitted. 2. Installation on top of a kerb is not recommended, however if installed on top of a kerb, all system components must be free to operate. 	
Terminals and connections	W-Beam guardrail	Not permitted.
	Thrie-Beam guardrail	Not permitted.
	Proprietary product	<ol style="list-style-type: none"> 1. FLEXFENCE TL3 4 WIRE ROPE TERMINAL SYSTEM – PERMANENT <ul style="list-style-type: none"> • Permitted for use with FLEXFENCE TL4 4 Wire Rope Barrier System - Permanent. • Permitted as a terminal on a flare. • This is a gating terminal.
	Other	A terminal must be fitted to both ends of the barrier.
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	Not permitted.	
Remote location	Not permitted.	
Median use	Permitted.	
Flare (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 FLEXFENCE TL4 4 Wire Rope Barrier System - 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	1.41 metres 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: 10 Horizontal to 1 Vertical (10%). Side slopes must be considered to minimise manual handling risks and site conditions.	
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	<p>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.</p> <p>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.</p> <p>Screens must not have horizontal members that present a risk of impaling errant vehicles that impact the product.</p>	
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	Conditions are based on drawings in the Product Manual supplied by the Proponent, dated February 2014 (Release 02/14). 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 FLEXFENCE TL4 4 Wire Rope Barrier System - 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 FLEXFENCE TL4 4 Wire Rope Barrier System - 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