SENTRY TL4 THRIE BEAM STEEL RAIL BARRIER

REVISION REGISTER

Revision	Description	Date
1	Issued for use.	13/01/2022
1 A	RiderPro connection added.	04/04/2022
1 B	Supplier updated.	12/01/2024

Sentry TL4 Thrie Beam Barrier is a semi-rigid steel rail barrier system which is accepted for use by Main Roads.

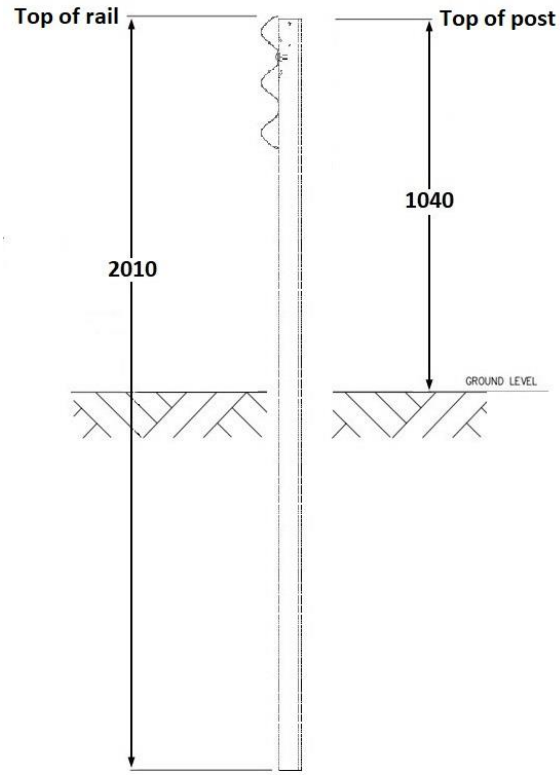
Identification Photographs:

Front View

Rear View

SENTRY TL4 THRIE BEAM STEEL RAIL BARRIER

Drawings:



Typical Cross Section

Ownership: Safe Direction Pty Ltd

Supplier: Safe Direction Pty Ltd
5 Simpson Close, Smeaton Grange, NSW 2567
Ph: (02) 4648 0394
Website - http://www.safedirection.com.au/

Test Level:
MASH TL3 (2,270 kg)
MASH TL4 (10,000 kg)

Configuration:
The Sentry TL4 Thrie Beam steel rail barrier consists of Thrie beam rail, which is attached to C-Section posts (that include a welded plate) at 2000mm centres. The system does not have blockouts, but a bolt and washer connection to control the release of the rail from the posts during impacts.

The posts are 2000mm long and driven into the ground so that the height of the top of post is 1040mm above ground. The top of the Thrie Beam rail is at a height 1050mm above ground.

Unless stated in this document the installation shall be in accordance with the Sentry Barrier TL-4 ThrieBeam Product and Installation Manual v1.3 (November 2020) available on the ACP website.

The RiderPro Continuous Motorcyclist Protection System may be connected to the Sentry TL4 Thrie Beam barrier. Refer to the RiderPro design sheet for conditions.

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Design Considerations:

Test Deflection:
1.45m under MASH TL3 conditions (2,270 kg vehicle at 100 km/h and 25°)
1.53m under MASH TL4 conditions (10,000 kg vehicle at 90 km/h and 15°)

Note that these deflections were measured in crash tests performed under controlled conditions. The deflection measured is the horizontal offset between the face of the thrie beam rail measured prior to and following vehicle impact. Designers should be aware that the deflection figure published as a test result may not be the deflection value achieved in the field for all impacts by errant vehicles.

Working Width:
1.53m under MASH TL3 conditions (2,270 kg vehicle at 100 km/h and 25°)
2.80m under MASH TL4 conditions (10,000 kg vehicle at 90 km/h and 15°)

Minimum Length:
The minimum length of Sentry TL4 Thrie Beam Barrier is 86m (full terminal lengths & transitions not included).

Point of Redirection
The MASH TL3 point of redirection (leading and trailing) is at the interface between the barrier and end treatment.

The MASH TL4 point of redirection (leading and trailing) is 18.67m from the first full height Sentry TL4 Thrie Beam post, excluding any transition, terminal or connecting lower containment level barrier.

Offset from Kerbing:
The face of Sentry TL4 Thrie Beam Barrier is to be placed 300mm from the face of the kerb to minimise nuisance impacts and allow driving of posts to be clear of the kerb.

Locations offset further from the kerb are not preferred because of the possibility of vehicle either vaulting the barrier or not being redirected by the barrier.

Approach to barrier:
The approach to the barrier should be a trafficable running surface at a slope of 1 in 10 or flatter clear of objects and grade changes to allow an errant vehicle to hit the barrier at an appropriate height.

Height Correction:
If placed less than 3m from the face of the kerb the mounting height is measured from the pavement surface. At greater offsets the mounting height is measured from the adjacent finished surface levels.

End Treatments:
MAX-Tension terminal as per drawings GA-TR21 and GA-TR22 on the Australian Construction Products (ACP)website.

Transitions:
Sentry TL4 Thrie Beam can transition to Sentry W-Beam & public domain W-Beam using the asymmetric transition beam, refer drawing GA-TR20 on the Australian Construction Products (ACP)website.

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Limitations:

- The Sentry TL4 Thrie Beam barrier configuration utilising post spacing other than what is stated above is not approved for use.
- The installation of the Sentry TL4 Thrie Beam barrier is restricted to soils equivalent to an AASHTO standard soil (i.e. CBR ≥ 60).
- The Sentry TL4 Thrie Beam barrier configuration using posts on base plates is available. However, approval is required from MRWA Road & Traffic Engineering Branch prior to specifying this configuration.
- The offset from the back of the barrier post to the batter hinge point shall be a minimum of 1.5m as per the Product Manual based on AASHTO standard soil.
- Should not be installed behind kerbs if possible. If kerbing is required then the preferred kerbing is mountable Type A 100 mm. Semi-mountable is acceptable in some situations (speeds < 70 km/hr) but not preferred. Barrier kerbing shall not be used in front of barrier. Refer to Main Roads Standard Drawing 9331-0376 for kerb types.
- Sentry TL4 Thrie Beam barrier is not to be used for repairs of damaged sections of public domain thrie-beam or modified thrie-beam barrier systems.
- During crash tests detached component were expelled behind the barrier. This may be hazardous to vulnerable road users such as pedestrians and cyclists. Designers should take this into consideration when determining appropriate locations for this barrier.

References:

Sentry Barrier TL-4 ThrieBeam Product and Installation Manual v1.3 (November 2020)

Refer to website: http://www.acprod.com.au/

Refer to Main Roads WA file 22/275