RAMSHIELD HIGH CONTAINMENT STEEL RAIL BARRIER

REVISION REGISTER

Revision	Description	Date
1	Issued for use.	21/01/2022
2	MASH TL4 Point of Redirection corrected	28/11/2023
3	MASH TL4 trailing Point of Redirection corrected	10/10/2024
3 A	Minimum length corrected. Product Manual updated.	19/06/2026

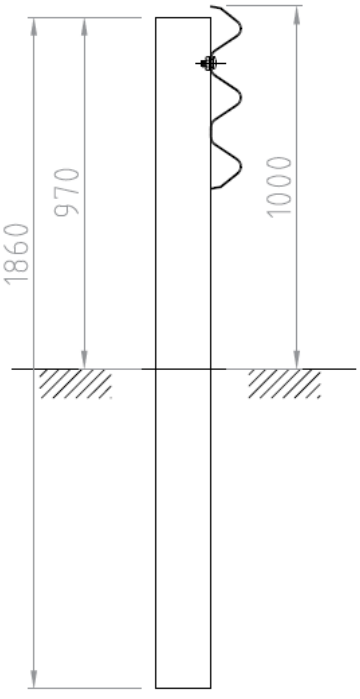
RAMSHIELD High Containment is a semi-rigid steel rail barrier system which is accepted for use by Main Roads.

Identification Photographs:

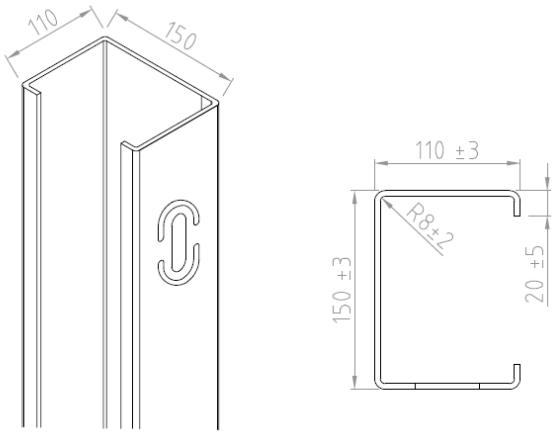
Front View

Rear View

Drawings:



Typical Cross Section



RAMSHIELD Post Detail and Section

RAMSHIELD HIGH CONTAINMENT STEEL RAIL BARRIER

Ownership: Safe Direction Pty Ltd

Supplier: Safe Direction Pty Ltd
Unit 2, 5 Simpson Close, Smeaton Grange, NSW 2567
Ph: (02) 4648 0394
Website - http://www.safedirection.com.au/

Test Level:
MASH TL 3 (2,270kg vehicle)
MASH TL 4 (10,000kg vehicle).

Configuration:
The RAMSHIELD High Containment steel rail barrier consists of Thrie beam rail, which is attached to RAMSHIELD High Containment posts at 2000 mm centres. The system does not have blockouts, but a release tab is incorporated into the post to control the release of the rail from the posts during impacts.

The RAMSHIELD Posts are 1860 mm long and driven into the ground so that the height of the top of post is 970 mm above ground. The top of the Thrie beam rail is at a height 1000 mm above ground.

Unless stated in this document the installation shall be in accordance with the RAMSHIELD High Containment Product Manual (Version 030/03) available on the Safe Direction Pty Ltd website.

Design Considerations:

Test Deflection:
1.00 m under MASH TL 3 conditions (2,270 kg vehicle at 100 km/hr at 25^{o} impact angle)
1.10 m under MASH TL 4 conditions (10,000 kg vehicle at 90 km/hr at 15^{o} impact angle)

Note that this deflection was measured in a crash test performed under controlled conditions. The deflection measured is the horizontal offset between the face of the W-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:
1.10 m under MASH TL 3 conditions (2,270 kg vehicle at 100 km/hr at 25^{o} impact angle)
2.20 m under MASH TL 4 conditions (10,000 kg vehicle at 90 km/hr at 15^{o} impact angle)

Minimum Length:
The minimum length of RAMSHIELD High Containment barrier is 48 m (full terminal lengths not included). That is, the minimum length does not include the length of public domain W-beam required for transition to end treatments.

Point of Redirection:
The MASH TL 3 point of redirection (leading and trailing) is at the interface between the barrier and end treatment.

The MASH TL 4 point of redirection (leading) is 9.5 m from the first full height RAMSHIELD High Containment post, excluding any transition, terminal or connecting lower containment level barrier.

The MASH TL 4 point of redirection (trailing) is 40 m from the last full height RAMSHIELD High Containment post, excluding any transition, terminal or connecting lower containment level barrier.

Offset from Kerbing:
As the RAMSHIELD High Containment barrier does not include a blockout, a greater offset than public domain W-beam is required. The face of RAMSHIELD barrier is to be placed 300 mm 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 3 m 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:
MSKT (MASH Sequential Kinking Terminal) - refer to drawing GR-TB-003 in the RAMSHIELD High Containment Product Manual (Version 030/03).

Transitions:
RAMSHIELD High Containment barrier can transition to RAMSHIELD Steel Rail Barrier - refer to drawing GR-TB-002 in the RAMSHIELD High Containment Product Manual (Version 030/03).

RAMSHIELD High Containment barrier can transition to public domain w-beam and Thrie beam - refer to drawings GR-TB-004 and GR-TB-005.

Limitations:

- The installation of RAMSHIELD High Containment barrier is restricted to soils equivalent to an AASHTO standard soil or stronger (i.e. CBR ≥ 60).
- Transitions from RAMSHIELD High Containment barrier to concrete barrier are not approved.
- When installed in embankment conditions in soils equivalent to AASHTO standard soil or stronger (i.e. CBR ≥ 60) the hinge point shall be offset a minimum of 1.10 m from the rear of RAMSHIELD High Containment barrier post.
- 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.
- RAMSHIELD High Containment barrier is not to be used for repairs of damaged sections of public domain thrie-beam or modified thrie-beam barrier systems.

References:

RAMSHIELD High Containment Product Manual (Version 030/03).

Website - http://www.safedirection.com.au/

Refer to Main Roads WA file 22/475