

# BikerShield™

Motorcycle Protection Barrier



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Version	Date	Revisions
02	February 2026	Updated format, Inclusion of attachment to RamShield® guardrail variants.



## Leading Safety

Complies with the recommendation for testing of Motorcyclist Protection Devices as documented in AS/NZS 3845.1:2015 Road safety barrier systems and devices

Crash tested in accordance with MASH Test Level 3 (3-10)

Crash tested in accordance with European Technical Specification EN1317-8

Crash tested to simulate a sliding, dismounted rider impacting at 60 km/h

The face of BikerShield™ aligns with the face of the guardrail panel reducing the potential for rider pocketing and/or snagging

The flexible mounting bracket absorbs rider impact energy providing a forgiving impact

## Simplified Installation

The BikerShield™ mounting bracket connects directly to the rear of the guardrail panel

All guardrail panels manufactured by Safe Direction are pre-punched to facilitate attachment of the BikerShield™ mounting bracket

No disturbance of the guardrail post

Can be retrofitted to legacy guardrail systems

The BikerShield™ panel will always align with the face of guardrail beam regardless of post geometry and whether a blocking piece is installed on the guardrail system

## Compatibility

Suitable for attachment to all RamShield® guardrail variants including:

- RamShield® W-Beam Guardrail
- RamShield® Low Deflection
- RamShield® Median W-Beam
- RamShield® High Containment
- RocketBloc®



## 1.0 Introduction

BikerShield™ is a motorcyclist safety barrier system designed to reduce the impact severity for riders when colliding with a roadside guardrail barrier.

BikerShield™ is positioned below the guardrail beam and prevents a dismounted motorcyclist from contacting the supporting posts of the guardrail barrier system.

## 2.0 Specifications

<b>Crash Test Compliance</b>	European Technical Specification EN1317-8
<b>BikerShield™ Panel Length</b>	4.0 m
<b>Mounting Bracket Spacing</b>	2.0 m
<b>Panel Width</b>	370 mm
<b>System Mass</b>	5.9 kg per metre
<b>System Finish</b>	Hot dip galvanised in accordance with AS/NZS 4680

## 3.0 How the BikerShield™ Works

BikerShield™ motorcycle protection rail provides safe rider containment and redirection through the combination of spring mounting brackets and lightweight, corrugated panels. The spring brackets attach directly to the guardrail beam mid-span between posts and absorbs the impact energy of the sliding rider.

BikerShield™ may be installed as part of a new RamShield® barrier installation or retrofitted to an existing installation as determined by the road asset owner.

The position of BikerShield™ beneath the guardrail beam prevents rider contact with the posts and provides forgiving containment and redirection.

The BikerShield™ mounting bracket position is an important design consideration as vertical alignment with the face of the guardrail beam reduces the potential for rider snagging.

## 4.0 Crash Test Performance

BikerShield™ has been crash tested and evaluated in accordance with the European Technical Specification EN1317-8. This crash test procedure is nominated in AS/NZS 3845.1:2015 Road safety barrier systems and devices.

Crash testing simulates an 86 kg dismounted rider sliding into the barrier as follows:

- Impact at the post at 60 km/h and an angle of 30 degrees, and
- Impact mid-span between the posts at 60 km/h and an angle of 30 degrees.

In addition, BikerShield™ has been crash tested in accordance with MASH Test Level 3 when attached to RamShield® Guardrail as follows:

- 1100 kg car travelling at 100 km/h and an angle of 25 degrees.

The vehicle impact demonstrates that the attachment of BikerShield™ to RamShield® Guardrail does not adversely affect safe vehicle containment and redirection.



Figure 1: BikerShield™ Sliding Rider Impact.



## 5.0 Design Considerations

### 5.1 Advance Grading

It is recommended that the area in advance of a BikerShield™ installation be limited to a grading of 10H:1V to ensure that the vehicle's suspension is neither extended nor compressed at the moment of impact with the barrier.

### 5.2 Kerbs

Placing kerbs in front of BikerShield™ is not recommended. As an alternative subsurface grated drainage should be considered.

### 5.3 Retrofitting to Existing Guardrail Barriers

A design benefit of BikerShield™ is the attachment of the mounting bracket to the rear of the guardrail beam. This ensures that the BikerShield™ panel will always vertically align with the face of the guardrail beam regardless of the guardrail post geometry and whether a blocking piece is installed.

Retrofitting of BikerShield™ does not require any dismantling of the existing guardrail barrier. The attachment of the mounting bracket mid-span between posts requires the onsite drilling of one (1) 18 mm diameter hole into the existing guardrail beam.

### 5.4 Placement within Guardrail End Terminals

The end terminals of guardrail barriers are designed to reduce the severity of a vehicle impact near or at the end of the system. These terminals may incorporate yielding posts, energy-absorbing impact heads or a combination of both.

BikerShield™ should not be installed within the guardrail end terminal section.

### 5.5 End Termination

A specially designed bullnose is available for attachment to the BikerShield™ panel. It is a requirement that the BikerShield™ bullnose be installed on the leading and trailing end of the system.

### 5.6 Ground Clearance

It is recommended that a nominal 30 mm gap be provided under the BikerShield™ panel to facilitate drainage.

## 6.0 Connections & Attachments

BikerShield™ is compatible with all RamShield guardrail variants. All w-beam and thrie-beam guardrails manufactured by Safe Direction are pre-punched at 1 m centres facilitating attachment of the BikerShield™ mounting bracket mid-span between posts.

### 6.1 Connection to RamShield® W-Beam

RamShield® W-Beam features direct connection of the guardrail to the RamShield® posts. The post measures just 100 mm wide providing a narrow width system.

The separation of the rail from the post is achieved by a release tab incorporated into the post. The tab is designed to pull forward and tear from the post and remains connected to the rail to ensure there is no debris from the system that may otherwise present as a danger to other motorists.

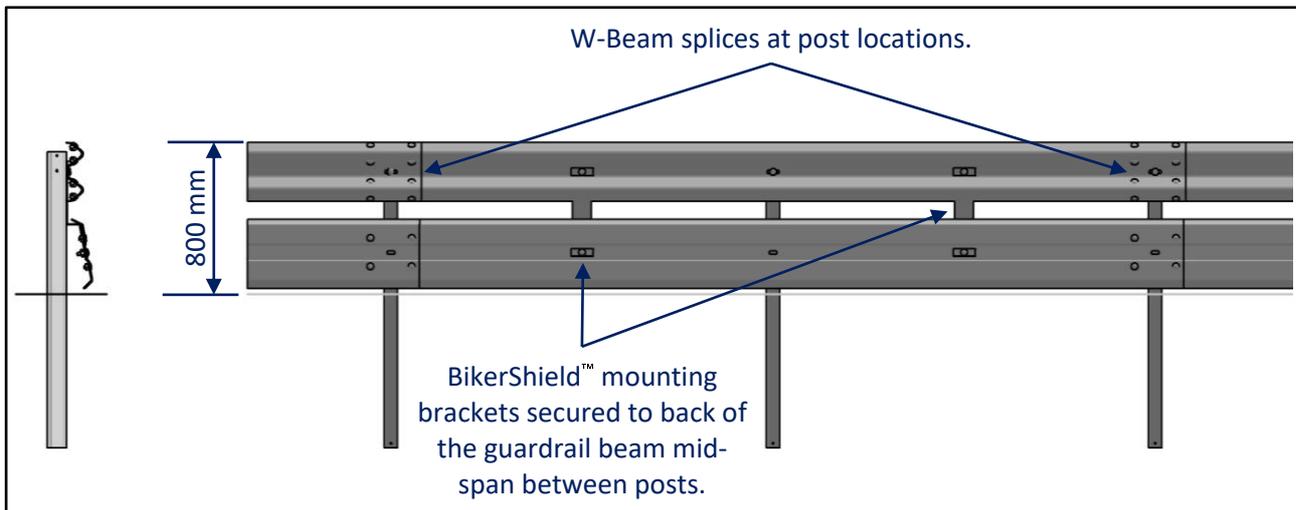


Figure 2: BikerShield™ Connection to RamShield® W-Beam.



## 6.2 Connection to RamShield® Low Deflection

RamShield® Low Deflection is a stiffer version of RamShield® W-beam featuring a 150 mm wide C-post. The sectional strength of the C-post limits barrier deflection, an important design consideration for shielding roadside hazards and steep embankments located within close proximity to the edge of the travelled way.

RamShield® Low Deflection may be installed with the w-beam rail connected directly to the C-post, reducing the width of the system. This is an important design consideration for sites with a narrow formation.

In addition, RamShield® Low Deflection may be installed with the RamBloc®, a steel RHS spacer positioned between the C-post and w-beam guardrail. The RamBloc® allows the face of rail to be offset from the C-post, an important design consideration when accommodating the alignment of drainage or asphalt beneath the barrier system.

RamShield® Low Deflection uses standard w-beam guardrail, however the rail splices are positioned mid-span between C-posts.

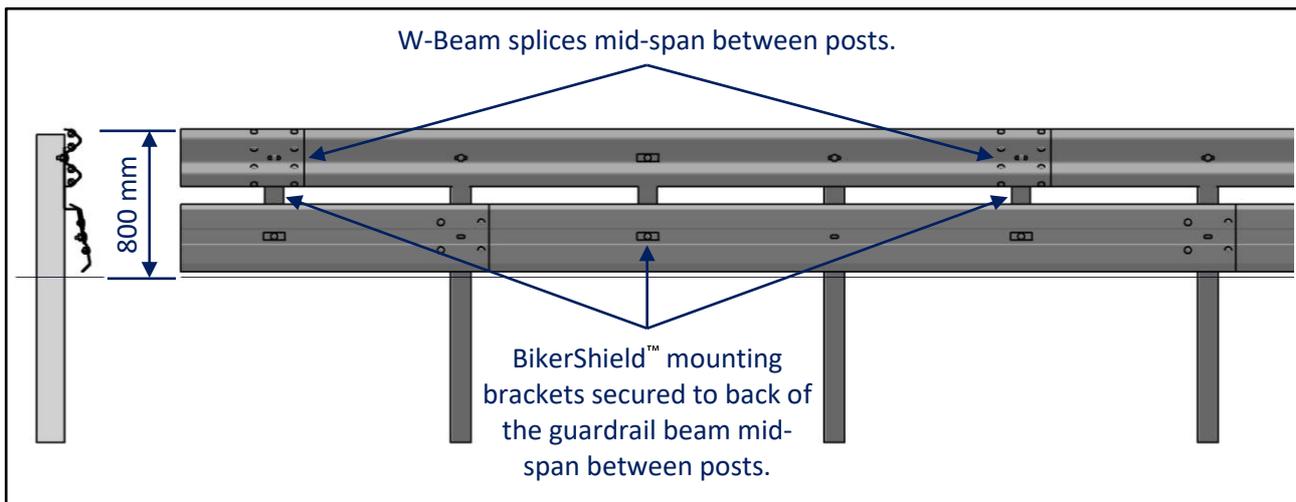


Figure 3: BikerShield™ Connection to RamShield® Low Deflection without Blocks.

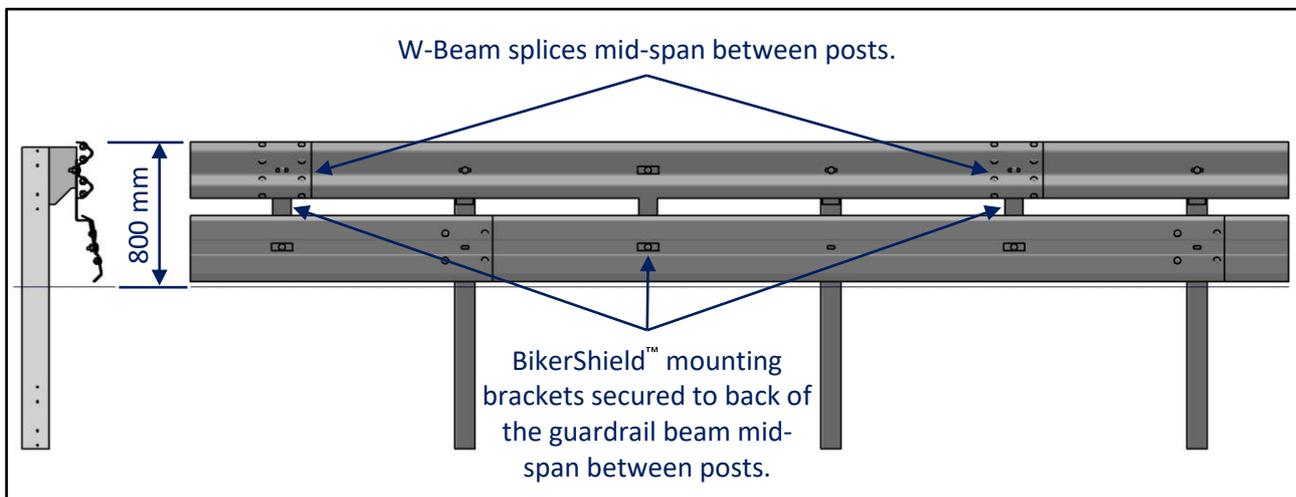


Figure 4: BikerShield™ Connection to RamShield® Low Deflection with RamBlocs®.

### 6.3 Connection to RamShield® Median W-Beam

RamShield® Median features strong section C-posts supporting back-to-back w-beam, providing safe vehicle containment and redirection when impacted from either side of the system. Designed for narrow medians and the prevention of dangerous head-on collisions, RamShield® Median features direct connection of the w-beam guardrail to each side of the C-post.

RamShield® Median uses standard w-beam guardrail, however the rail splices are positioned mid-span between C-posts providing ease of access for installation contractors and facilitating rapid assembly.

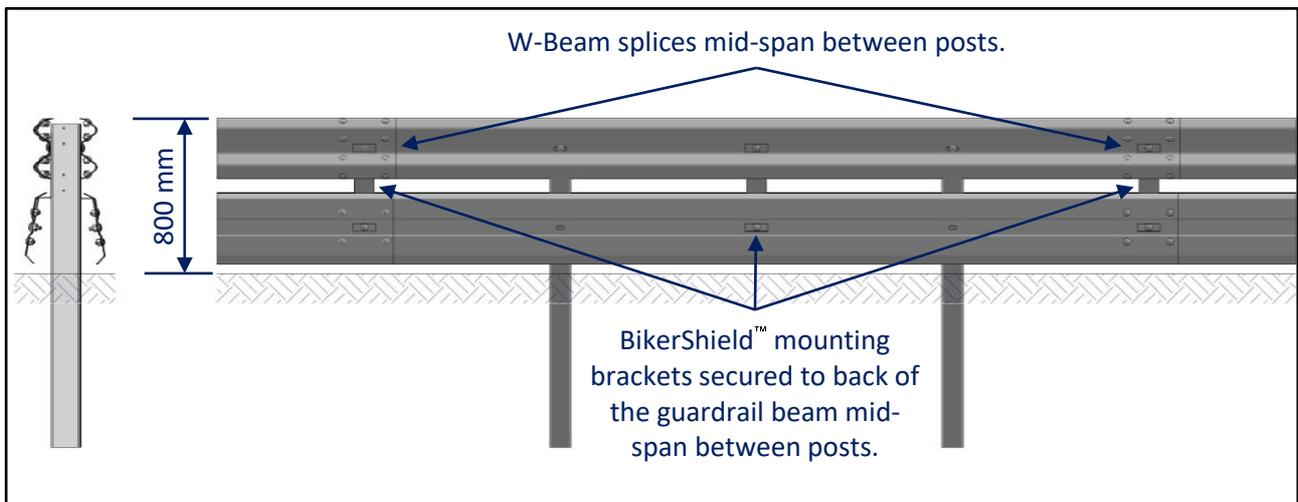


Figure 5: BikerShield™ Connection to RamShield® Median W-Beam.

### 6.4 Connection to RocketBloc®

RocketBloc® replaces the C-blocking piece of the G4 w-beam system, elevating compliance to MASH TL3. The attachment of RocketBloc® leaves the existing C-posts undisturbed and allows the w-beam guardrail to be lifted to a height of 800 mm.

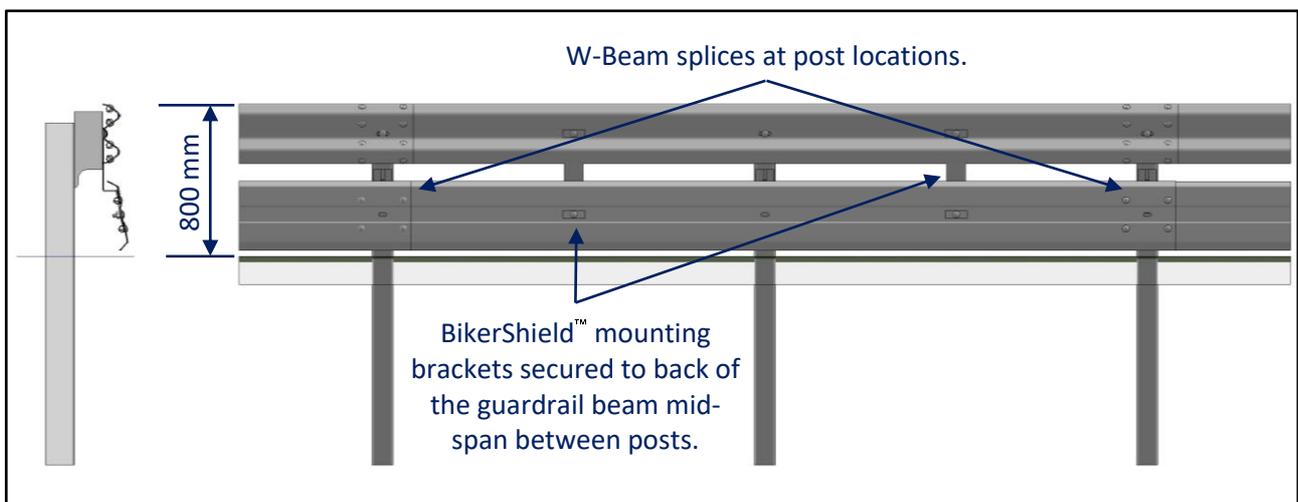


Figure 6: BikerShield™ Connection to RocketBloc®.

## 6.5 Connection to RamShield® High Containment

RamShield® High Containment (HC) featuring thrie-beam guardrail is a stronger version of w-beam guardrail systems. The additional corrugation in the rail combined with the higher mounting height, stiffens the barrier and improves its ability to contain larger vehicles.

RamShield® HC features direct connection of the thrie-beam rail to the RamShield® C-posts.

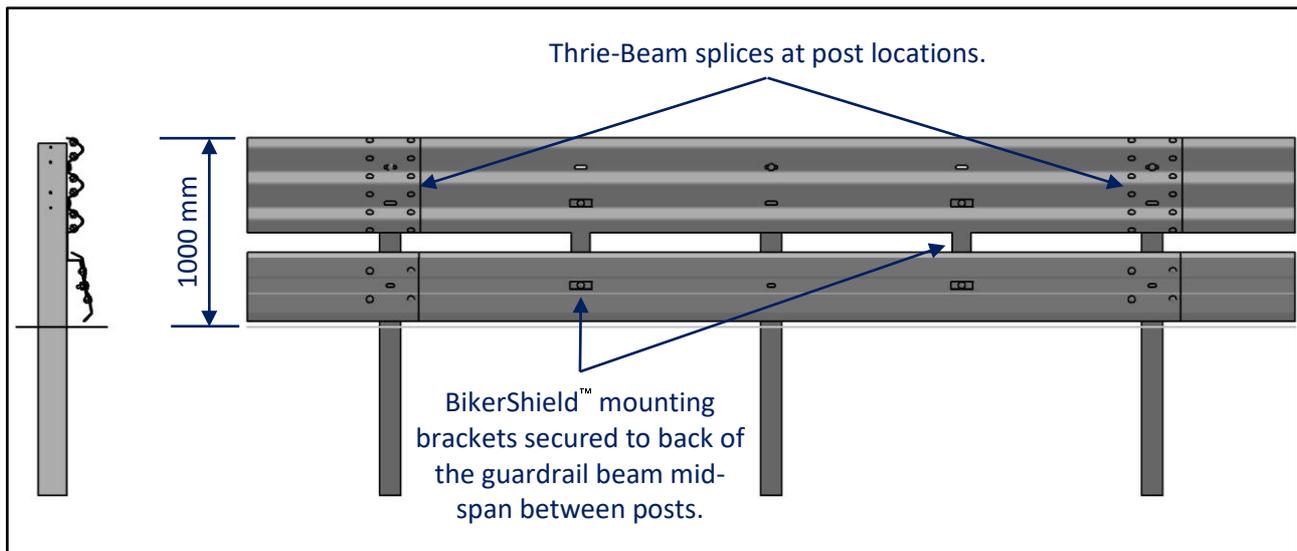
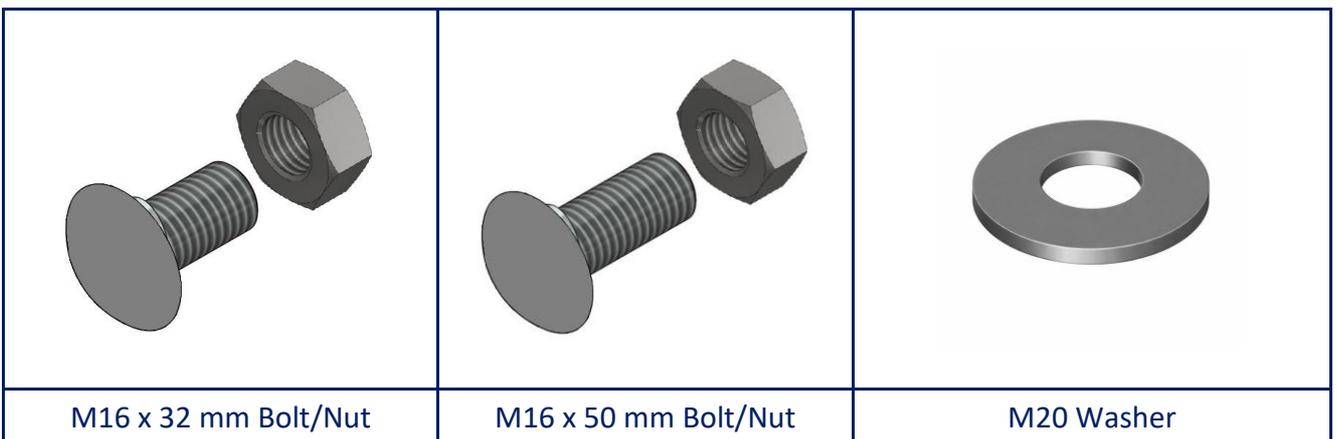
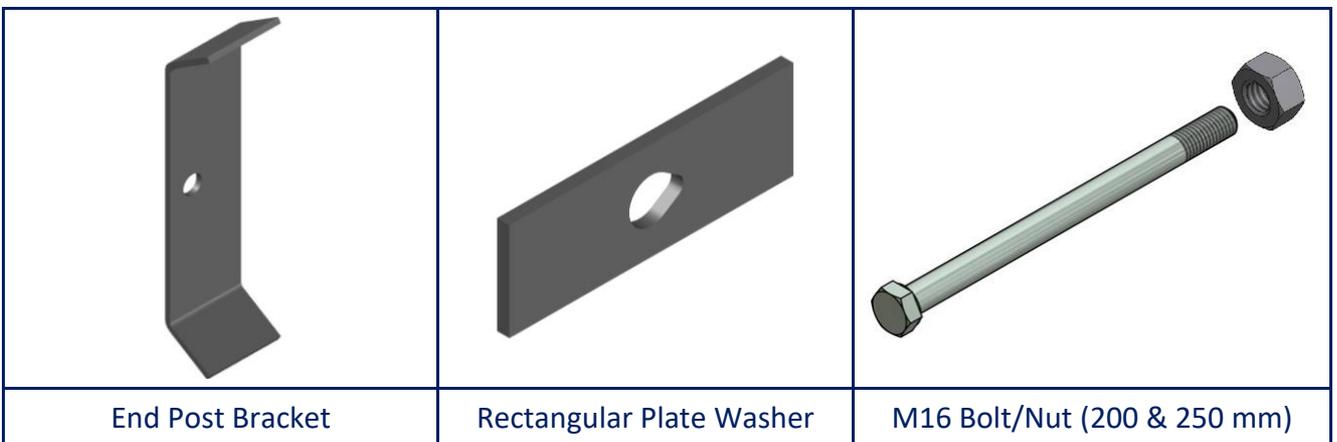
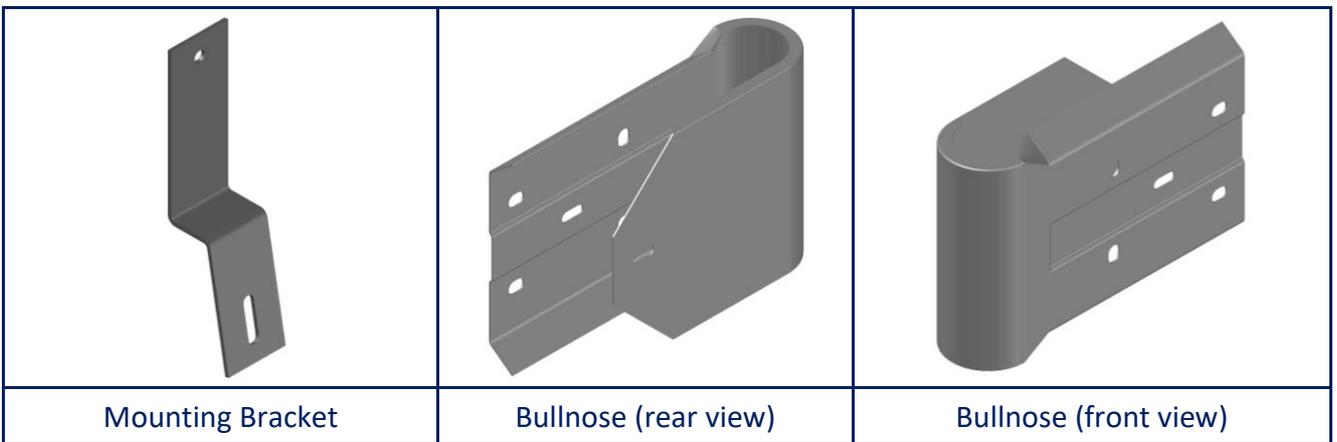
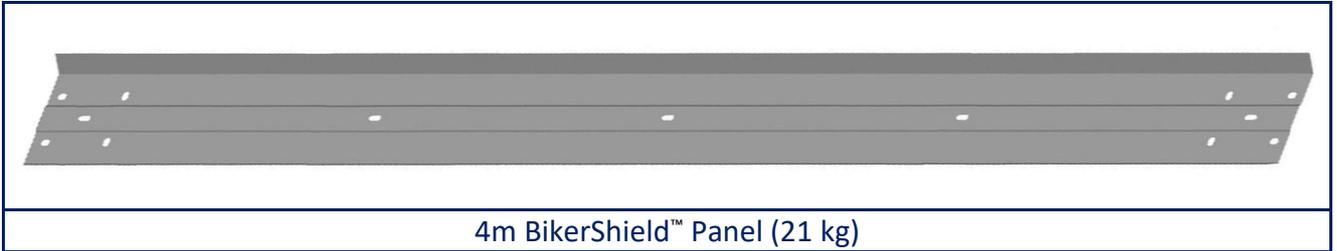


Figure 7: BikerShield™ Connection to RamShield® High Containment.





## 7.0 Component Identification (not to scale)





## 8.0 Tools Required

Tools required for the installation of BikerShield™ includes:

- Drill with 14 mm and 18 mm drill bit.
- Drill driver with 24 mm attachment.
- Metal snips.
- Tape measure.
- Hammer.
- 12 mm diameter pinch bar.

## 8.1 Recommended PPE

It is recommended that the following personal protective equipment (PPE) be provided for the safe installation of BikerShield™:

- Safety footwear.
- Gloves.
- Hearing protection.
- High visibility clothing.



## 9.0 Site Establishment

### 9.1 Traffic Control

Prior to the commencement of any work, the site should be evaluated for risks to workers, pedestrians and other road users. The establishment of traffic control should provide safe travel for passing vehicles and/or pedestrians and appropriately protect workers near the roadside.

### 9.2 Overhead Obstructions

The site should be evaluated for potential overhead obstructions that may present a risk during the installation process. These obstructions typically include power lines, signage or trees.

### 9.3 Unloading Exclusion Zone

Only appropriate load-rated slings and chains should be used for the safe unloading of product. It is recommended that an exclusion zone be maintained around the unloading process. This provides distance between moving machinery and workers in the event that goods or the machinery move unexpectedly.

Unloading and the storing of the product on a level surface is recommended. Storing product adjacent to the installation area eliminates the requirement for workers to carry items over long distances.



## 10.0 Installation Sequence

The assembly sequence of BikerShield™ and the materials required are identical for connection to all RamShield® guardrail variants.

When supplied as part of a new RamShield® barrier installation, it is recommended that the installation of the RamShield® barrier be completed prior to commencing installation of BikerShield™.

The major steps in the installation of BikerShield™ are as follows:

- Installing the mounting brackets.
- Attaching the BikerShield™ panels.
- Splicing the BikerShield™ panels.
- Installing the approach and departure bullnose.

### 10.1 Attaching the Mounting Brackets

**Potential Hazards:** Injury from movements and posture, hand injury from pinch points, strain to wrists from tightening bolts and excessive noise from use of impact driver.

**Recommended Control Measures:** Observe correct posture, wear gloves, use a pinch bar to align holes, use an impact drill to tighten bolts and wear appropriate hearing protection.

The standard post spacing for new RamShield guardrail installations is 2 m centres. Safe Direction w-beam and thrie-beam guardrail panels are pre-punched at 1 m centres to facilitate positioning of the BikerShield™ mounting bracket mid-span between posts.

If retrofitting to an existing guardrail installation it may be necessary to drill an 18 mm diameter hole through the guardrail panel mid-span between posts.

Position the mounting bracket behind the guardrail beam. Secure using a M16 x 50 mm mushroom head bolt and oversize nut. A rectangular plate washer is located under the bolt head on the traffic side.

There is no torque requirement for the tightening of the bolt. It should be tightened to a snug position.

*Note: When securing to a thrie-beam, the mounting bracket is bolted through the hole in the lower corrugation.*



## 10.2 Attaching the BikerShield™ Panels

**Potential Hazards:** Injury from movements and posture, hand injury from pinch points, strain to wrists from tightening bolts and excessive noise from use of impact driver.

**Recommended Control Measures:** Observe correct techniques when lifting rails (bend at the knees), wear gloves, use a pinch bar to align holes, use an impact drill to tighten bolts and wear appropriate hearing protection.

Position the BikerShield™ panel below and parallel to the guardrail beam. Attach to the mounting bracket with a M16 x 50 mm mushroom head bolt and oversize nut. A rectangular plate washer is located under the bolt head on the traffic side.

The BikerShield™ panel lap is orientated so that the leading edge of the splice is shielded from the nearside approaching traffic. Panels are spliced together using four (4) standard M16 x 32 mm mushroom head bolts and oversize nuts. A M20 washer is positioned under the oversize nut.

The use of a pinch bar will assist in aligning the splice holes as the bolts are inserted. The use of a driving pin to elongate the splice holes is NOT permitted.

There is no torque requirement for the tightening of these bolts. They should be tightened to a snug position.

The finished position of the BikerShield™ panel should be parallel to the guardrail beam. A nominal gap of 30 mm gap is recommended between road level and the bottom of the BikerShield™ panel to facilitate drainage.



**Figure 8: Attachment of BikerShield™ Mounting Brackets.**

### 10.3 Attaching the End Bullnoses

**Potential Hazards:** Injury from movements and posture, hand injury from pinch points, strain to wrists from tightening bolts and excessive noise from use of impact driver.

**Recommended Control Measures:** Observe correct techniques (bend at the knees), wear gloves, use a pinch bar to align holes, use an impact drill to tighten bolts and wear appropriate hearing protection.

Place the end post bracket behind the BikerShield™ panel and position against the last or first guardrail post. Align the 18 mm hole pre-punched in the end post bracket with the 18 mm x 42 mm centre slot of the BikerShield™ panel.

At the location where these holes intersect, drill an 18 mm diameter hole through the guardrail post.

Attach the BikerShield™ bullnose to the panel using four (4) standard M16 x 32 mm mushroom head bolts and oversize nuts.

Attach the BikerShield™ panel with the attached bullnose to the last/first post with a M16 x 200 mm bolt (to suit the RamShield® W-Beam post) or M16 x 250 mm bolt (to suit the RamShield® C-post) and standard nut.

The bullnose will wrap around the last or first post and is secured to the back of the post. A rectangular plate washer is located under the bolt head on the traffic side and under the nut on the backside of the post.

There is no torque requirement for the tightening of these bolts. They should be tightened to a snug position.



Figure 9: BikerShield™ Bullnose Attachment.



# BikerShield™ Inspection Form

<b>Inspection Date</b>	
<b>Client</b>	
<b>Project Reference</b>	
<b>Name of Inspector</b>	
<b>Company</b>	

<input type="checkbox"/> Yes <input type="checkbox"/> No	The guardrail system has been installed in accordance with proprietor or state road agency specifications.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The BikerShield™ mounting brackets are positioned on the rear side of the w-beam or thrie-beam guardrail, mid-span between the guardrail posts.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The BikerShield™ mounting brackets have been connected to the guardrail beam with one (1) M16 x 50 mm mushroom head bolt and oversize nut.
<input type="checkbox"/> Yes <input type="checkbox"/> No	Each BikerShield™ mounting bracket is fitted with a rectangular plate washer under the bolt head on the traffic side of the bracket.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The BikerShield™ panels are secured to each mounting bracket with a M16 x 50 mm mushroom head bolt & oversize nut.
<input type="checkbox"/> Yes <input type="checkbox"/> No	Each BikerShield™ panel to mounting bracket connection is fitted with a rectangular plate washer under the bolt head on the traffic side of the bracket.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The BikerShield™ panels are spliced with four (4) M16 x 32 mm mushroom head bolts and oversize nuts. A M20 washer is positioned under the oversize nuts.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The BikerShield™ panels are lapped so that the leading edge of the splice is shielded from approaching traffic.
<input type="checkbox"/> Yes <input type="checkbox"/> No	A BikerShield™ bullnose is secured to the approach and trailing end of the system.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The BikerShield™ system does not extend into the guardrail terminal section.
<input type="checkbox"/> Yes <input type="checkbox"/> No	The front and rear face of the BikerShield™ bullnose is secured to the first or last post with a M16 x 200 mm bolt (to suit a RamShield® W-Beam post) or a M16 x 250 mm bolt (to suit a RamShield® C-post) and standard nut.
<input type="checkbox"/> Yes <input type="checkbox"/> No	A rectangular plate washer is located under the M16 x 200/250 mm bolt head on the traffic side and under the nut on the backside of the post.
<input type="checkbox"/> Yes <input type="checkbox"/> No	All bolts are tightened.

<b>Comments/Notes</b>



## 11.0 Maintenance

BikerShield™ is a low maintenance barrier. Except for repairs due to impacts, it is recommended that an annual inspection be undertaken to assess the following:

- Debris has not accumulated around the barrier which may impede the function of the barrier.
- Vegetation around the barrier is appropriately maintained.
- Nuisance impacts have not gone undetected.
- Bullnoses are fitted to the leading and trailing end of the BikerShield™ system.

### 11.1 Bushfire Damage

BikerShield™ is constructed from hot dip galvanised steel components. The performance of hot dip galvanised components when subjected to a fire depends upon numerous factors such as flame duration, flame intensity and the characteristics of the galvanised finish.

Bushfires can produce high temperatures, however exposure of roadside structures to maximum flame intensity is generally for a short duration as the fire front moves forward. The combination of the reflectivity of the galvanised surface and the heat sink provided by the mass of the steel to which the hot dip galvanising is applied has shown galvanised steel to provide excellent performance during bushfires.

If it is observed that a bushfire has caused damage to the galvanised coating it is recommended that these item(s) be replaced.

## 12.0 Repair

In the event of an impact, damage to the BikerShield™ system is to be assessed in accordance with Table 1. Typically, impacts with BikerShield™ will require replacement of damaged sections of mounting brackets and panels. It is also recommended that new bolts be used where mounting brackets and panels have been replaced.

### 12.1 Material Disposal

BikerShield™ features an all steel construction. Damaged items may be recycled.

**Table 1: Damage Assessment Guidelines.**

Type of Damage	Description of the Damage	Remedial Action
Damage to the galvanised coating on the panels.	The sum total of the damaged area does not exceed 180 cm <sup>2</sup> (0.5 % of the total surface area) and no individual damaged area exceeds 40 cm <sup>2</sup> .	An organic zinc rich paint is to be applied to the repair area in two coats.
	The sum total of the damaged exceeds 180 cm <sup>2</sup> (0.5 % of the total surface area) and no individual damaged area exceeds 40 cm <sup>2</sup> .	The panel is to be replaced.
Damage to the panels.	The panel is dented, twisted or flattened.	The panel is to be replaced.
	There are nicks in any part of the panel.	
	The slots in the panel are distorted.	
Damage to the mounting brackets.	The bracket is bent, twisted or flattened.	The mounting bracket is to be replaced.
Damage to bolts.	The body of the bolt is distorted.	The bolt is to be replaced.
	The thread of the bolt is damaged.	





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