BIKER-SHIELD™

Motorcycle Protection

SafeDirection
CRASH BARRIER SOLUTIONS

safedirection.com.au

Table of Contents

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 sliding rider impacting at 60km/h

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

Flexible Design

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

Compatibility

Designed for attachment to RamShield® W-Beam and RamShield® High Containment

Can be attached to State Road Agency guardrail designs (subject to approval)

Fast Assembly

Mounting bracket connects directly to the guardrail panel

No connection at the post required

No dismantling of the barrier required for retrofit

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

Panel section lengths:	4.0m (Australia)
	3.81m (NZ)
Mounting bracket spacing:	2.0m (Australia)
	1.9m (NZ)
System mass:	5.9 kg/m
Panel Material:	350Mpa yield steel
System Finish:	Hot dip galvanised

3.0 How BikerShield™ Works

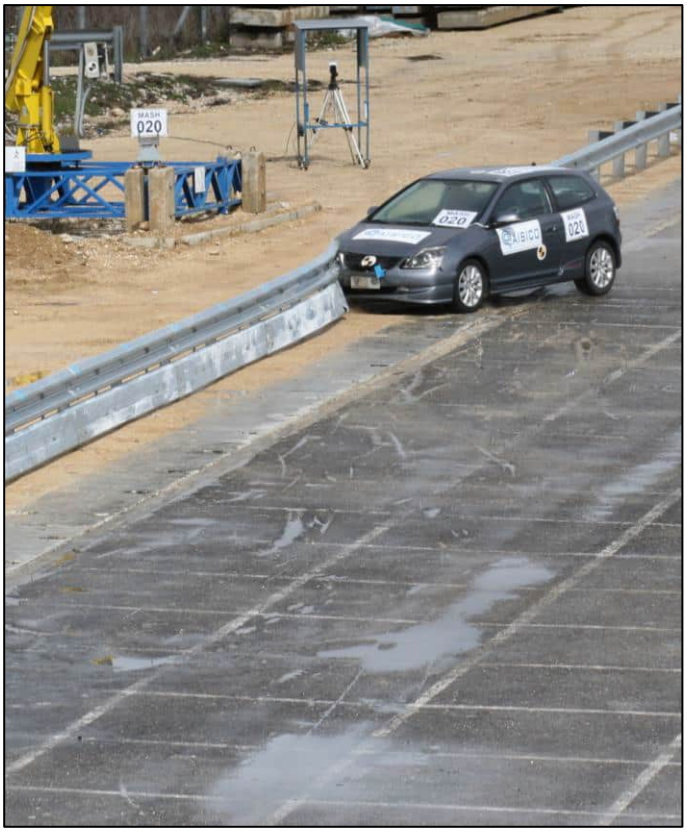
BikerShield™ may be installed as part of a new RamShield® W-Beam or RamShield® High Containment (HC) installation or retrofitted to an existing installation as determined by the road asset owner.

BikerShield™ 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.

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 86kg dismounted rider sliding into the barrier as follows;

- Impact at the post at 60km/h and 30°, and
- Impact mid-span between the posts at 60km/h and 30°.

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

- 1100kg car travelling at 100km/h and 25°.

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

5.0 Design Considerations

5.1 Site Grading

It is recommended that the area in advance of the barrier be limited to a grading of 10H:1V and free of undulations that may adversely affect the trajectory of a dismounted rider.

5.2 Kerbs

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

5.3 Retrofitting

Unlike systems which attach to the guardrail post, the BikerShield™ mounting bracket connection to the guardrail panel vertically aligns the BikerShield™ panel with the guardrail beam. This alignment reduces the potential for rider snagging.

Attachment of BikerShield™ does not require any dismantling of the existing guardrail barrier. This reduces installation time and avoids problems where debris and/or vegetation can accumulate around the post.

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.

It is recommended that BikerShield™ is not installed within the guardrail end terminal section.

5.5 End Termination

A specially designed bullnose is available for attachment to BikerShield™.

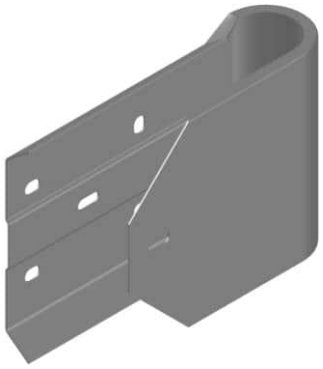
It is a requirement that the BikerShield™ bullnose be installed on the leading and trailing end of the system.

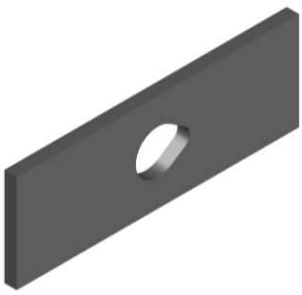
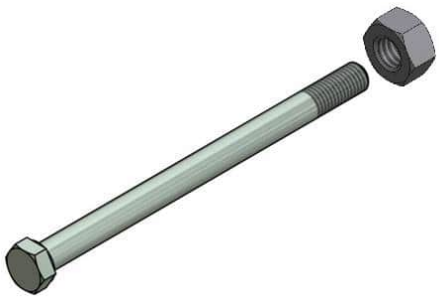
5.6 Ground Clearance

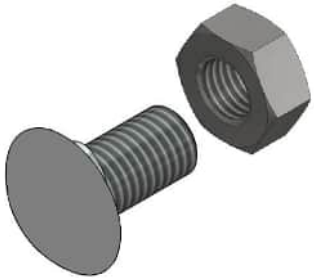
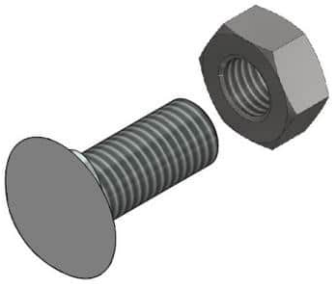
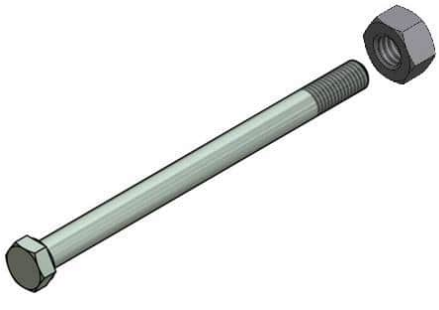
It is recommended that a nominal 30mm gap be provided under the BikerShield™ panel to facilitate drainage.

6.0 BikerShield™ Component Identification


BikerShield™ Panel

		
Mounting Bracket	**Bullnose (rear view)**	**Bullnose (front view)**

		
End Post Bracket	**Rectangular Plate Washer**	**M16 x 200mm Bolt/Nut**

		
M16 x 32mm Bolt/Nut	**M16 x 50mm Bolt/Nut**	**M16 x 250mm Bolt/Nut**

7.0 Tools Required

Tools required for the installation of BikerShield™ includes;

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

7.1 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; and
- High visibility clothing.

8.0 Site Establishment

8.1 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.

8.2 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.

8.3 Unloading Exclusion Zone

Only appropriate load-rated slings or chains should be used for safe unloading. 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.

9.0 Installation Sequence

The assembly sequence of BikerShield™ and the materials required are identical for connection to either RamShield® W-Beam or RamShield® High Containment (HC).

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; and
- Installing the approach and departure bullnose.

9.1 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 BikerShield™ mounting bracket is secured to the rear of the guardrail beam mid-span between posts. For new installations, Safe Direction w-beam and thriebeam guardrail panels are pre-punched at this position to accommodate the attachment of the mounting bracket.

When retrofitting to an existing installation it will be necessary to drill an 18mm diameter hole through the guardrail panel.

Position the mounting bracket behind the guardrail beam. Secure using a M16 x 50mm 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 thriebeam, the mounting bracket is bolted through the lower hole as shown in Figure 2.

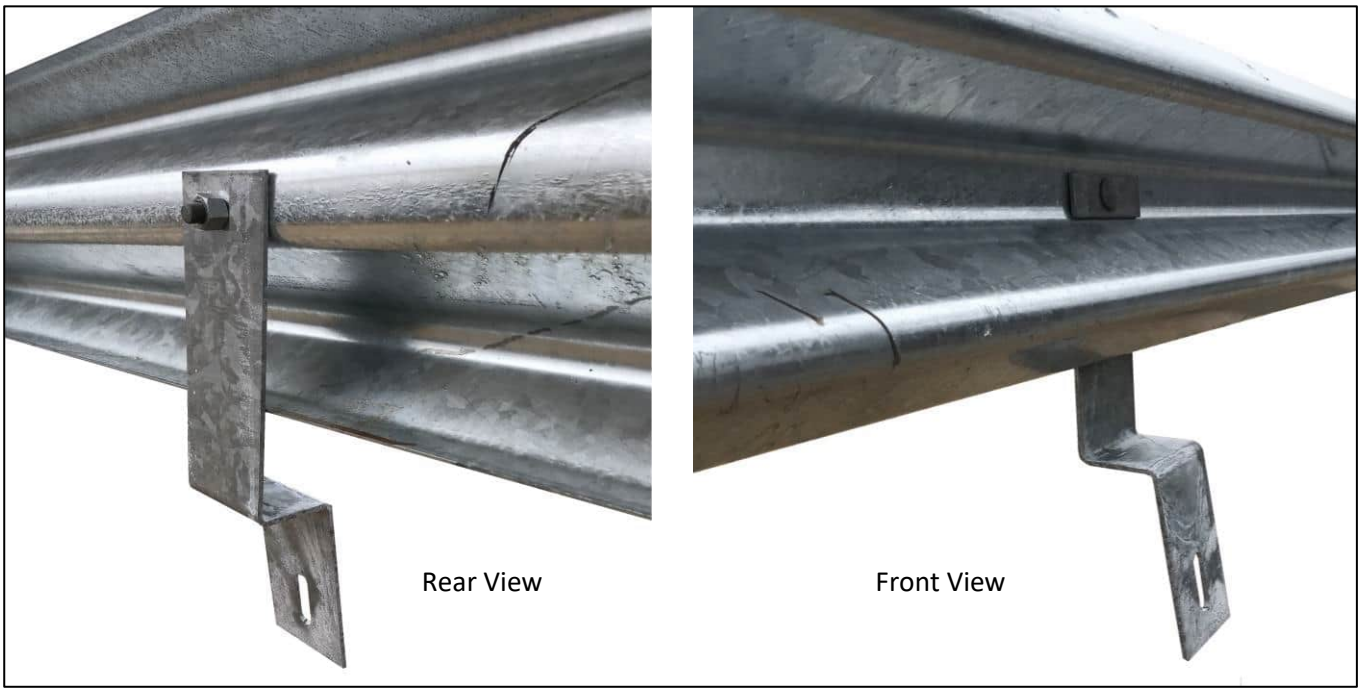


Figure 1: Attachment of BikerShield™ Mounting Bracket to W-Beam

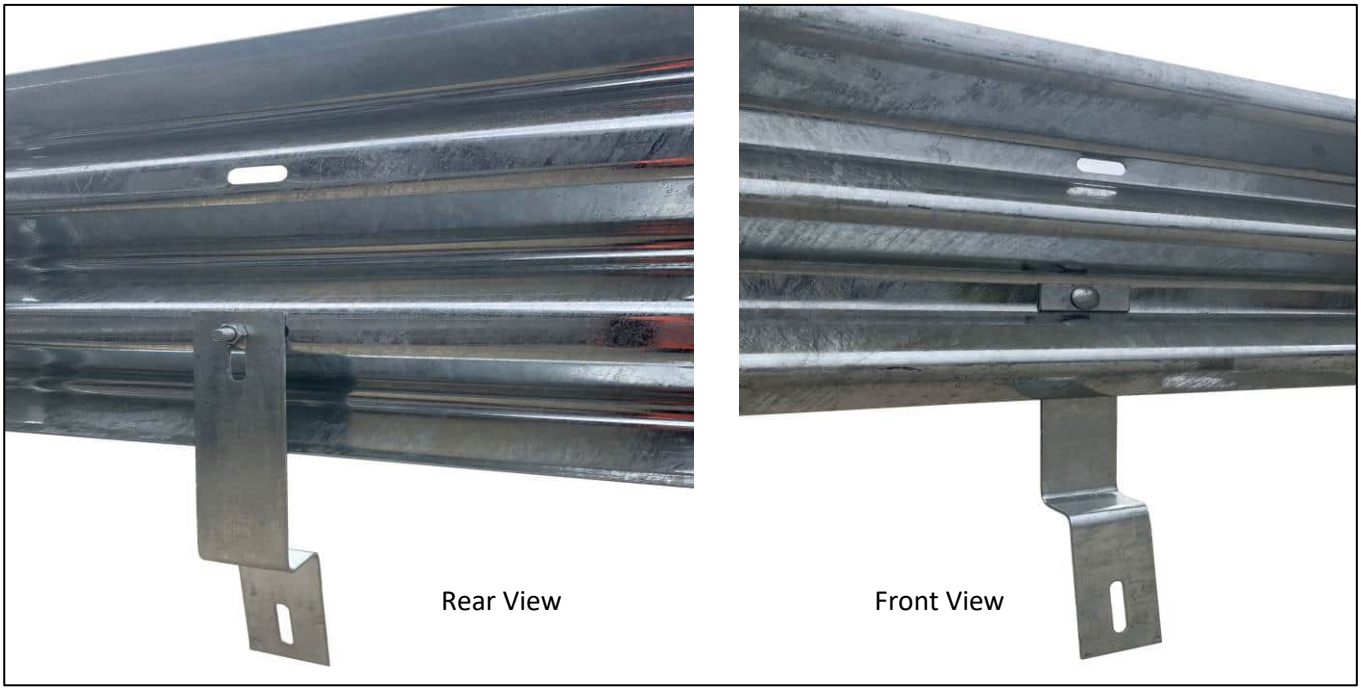


Figure 2: Attachment of BikerShield™ Mounting Bracket to Thriebeam

9.2 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 50mm 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 32mm mushroom head bolts and oversize nuts.

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 30mm gap is recommended between road level and the bottom of the BikerShield™ panel to facilitate drainage.

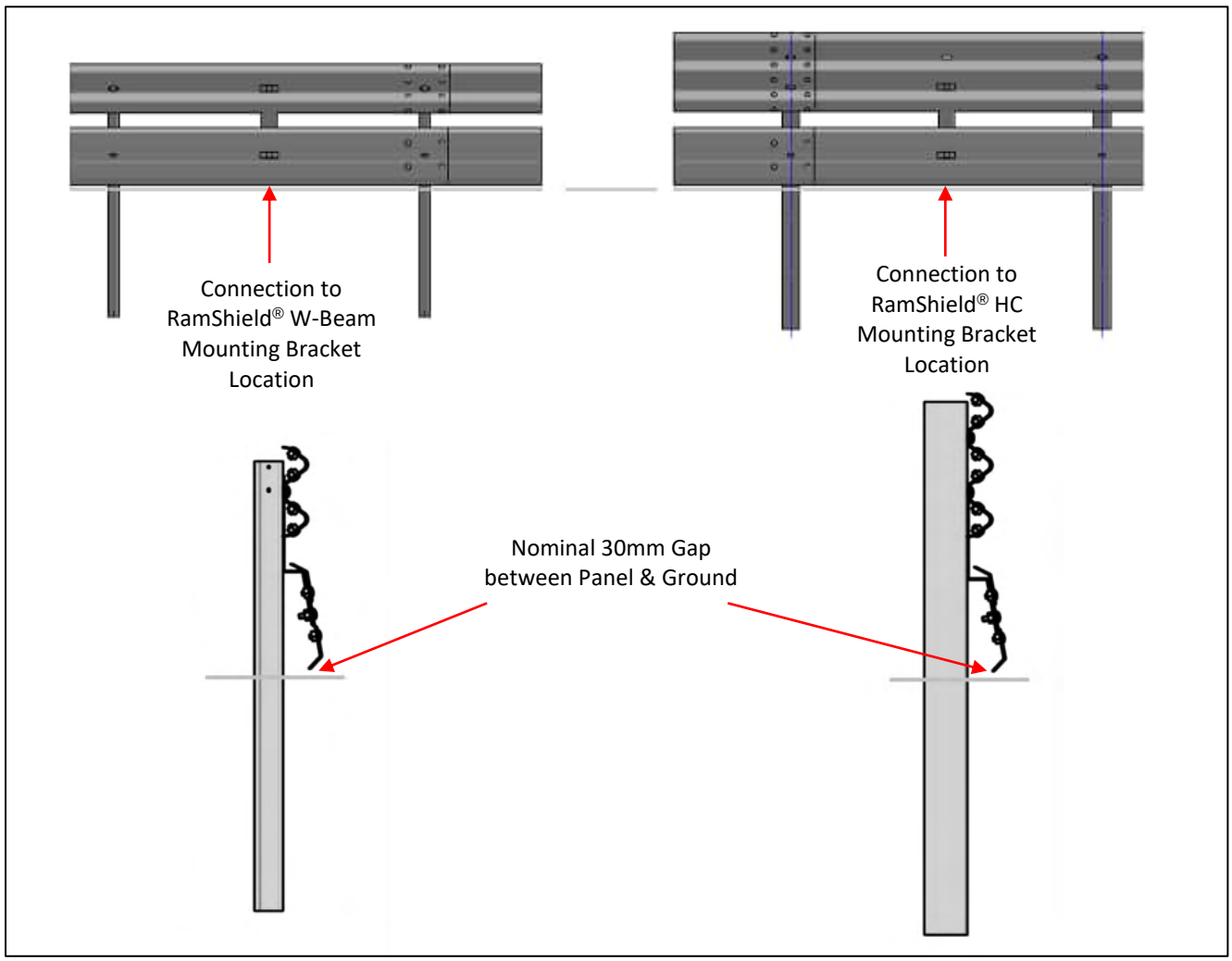


Figure 3: Attaching the BikerShield™ Panels

9.3 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/first guardrail post. Align the 18mm hole pre-punched in the end post bracket with the 18mm x 42mm centre slot of the BikerShield™ panel.

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

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

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

The bullnose will wrap around the last/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 4: Termination of BikerShield™ in advance of Guardrail End Terminal Posts

Figure 5: Attachment of Bullnose (rear views)

BikerShield™ Inspection Form

Inspection Date	
Client	
Project Reference	
Name of Inspector	
Company	

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

Comments/Notes

10.0 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; and
- Bullnoses are fitted to the leading and trailing end of the BikerShield™ system.

11.0 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.

Similar to the installation sequence, it is recommended that the guidelines contained in Section 8.0 be observed in the establishment of traffic control and an unloading exclusion zone in addition to investigation for underground services and overhead obstructions.

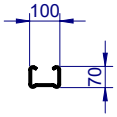
Table 1: Damage Assessment Guidelines

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 180cm^2 (0.5% of the total surface area) and no individual damaged area exceeds 40cm^2.	An organic zinc rich paint is to be applied to the repair area in two coats.
	The sum total of the damaged exceeds 180cm^2 (0.5% of the total surface area) and no individual damaged area exceeds 40cm^2.	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.	

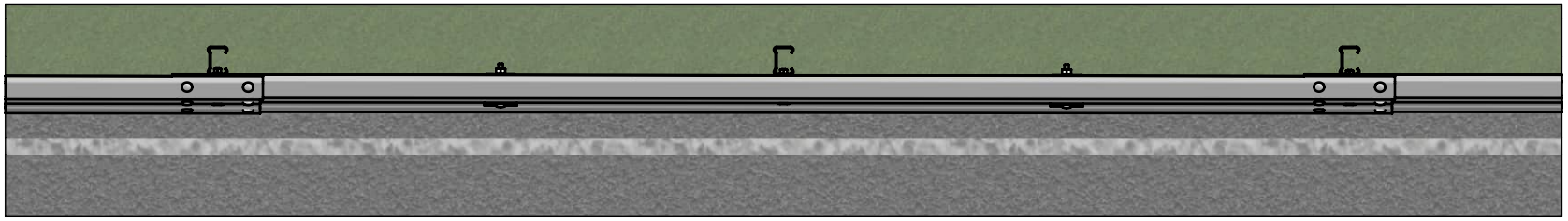
NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-01000.

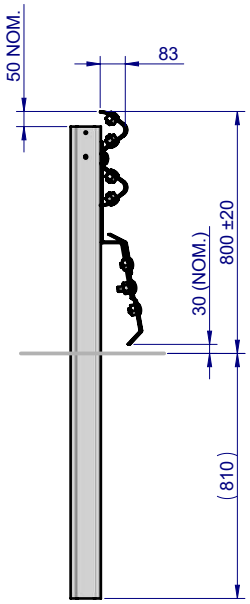
REVISIONS				
REV.	ZONE	DESCRIPTION	DATE	APPV'D
A		Initial Issue, supersedes GR-WB-121	24/05/2022	HW
B		REVISION UPDATED	18/10/2022	HW



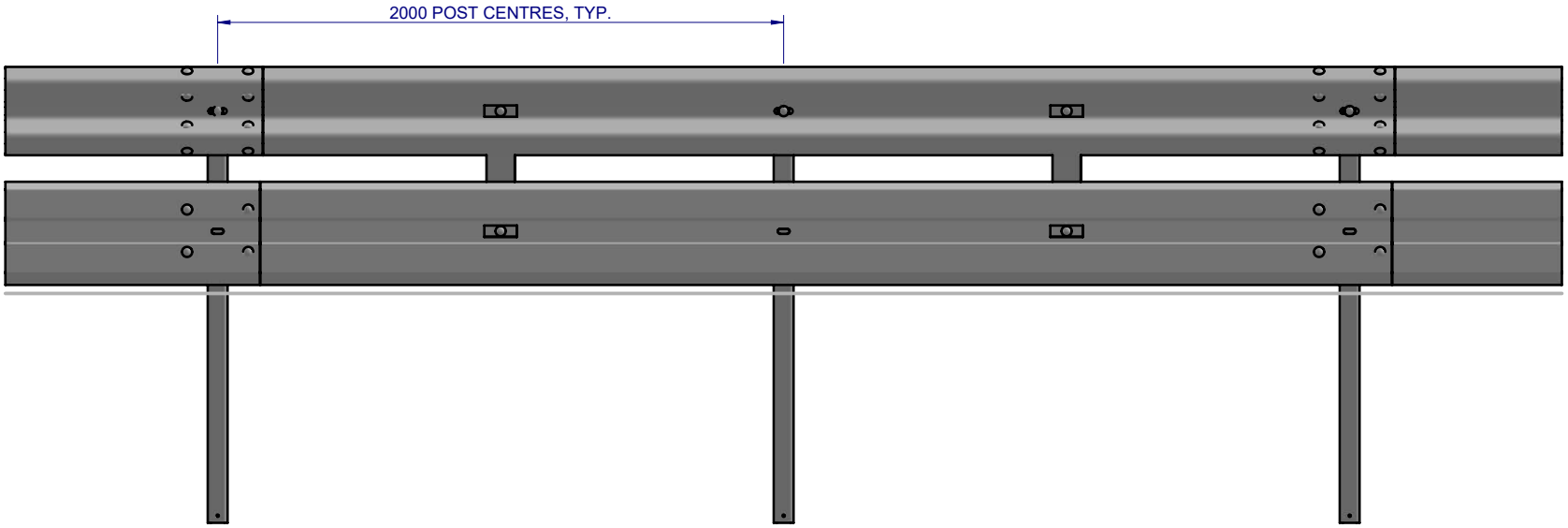
POST PLAN



PLAN VIEW



SIDE ELEVATION



FRONT ELEVATION

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	23/05/2022
CHK'D	T. Colquhoun	18/10/2022
APPV'D	H. Wallace	18/10/2022

SafeDirection CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O. TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: **APPROVED**

TITLE: Road Barriers - RamShield® W-Beam
RamShield® W-Beam, 2m Ctrs, 1560 Posts with Biker-Shield™
General Arrangement

DWG NO. **SD-RB-01022**

REVISION: **B**

SHEET SIZE: A4

WEIGHT: 144.9kg

DO NOT SCALE DRAWING

SCALE: **1:25**

SHEET **1** of **3**

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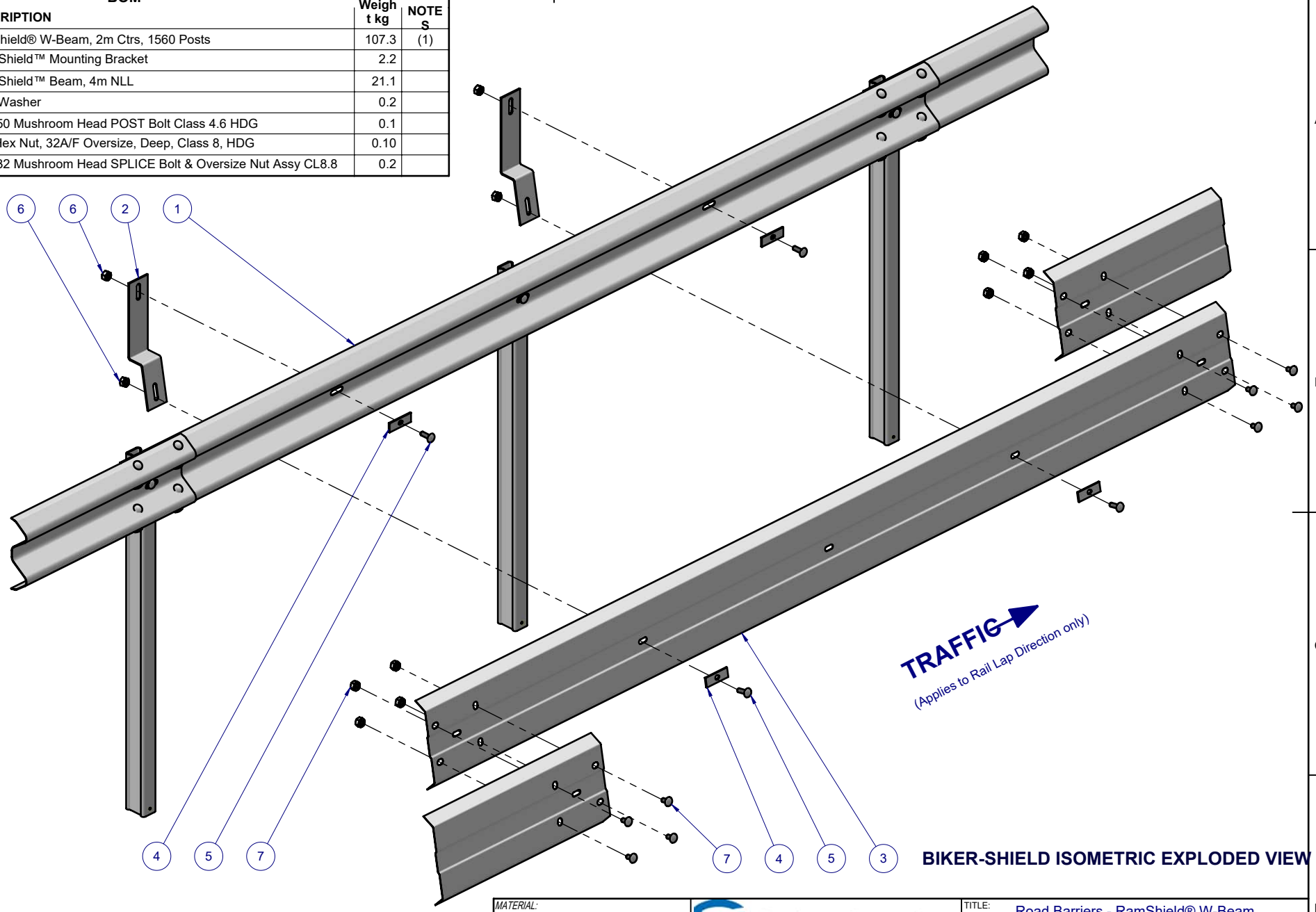
BOM

ITEM NO.	PART NUMBER	DESCRIPTION	Weight kg	NOTES
1	SD-RB-01000	RamShield® W-Beam, 2m Ctrs, 1560 Posts	107.3	(1)
2	GR-MP-BR-0586-AG	Biker-Shield™ Mounting Bracket	2.2	
3	GR-MP-SR-4000-AG	Biker-Shield™ Beam, 4m NLL	21.1	
4	GR-MP-FS-0000-AG	Plate Washer	0.2	
5	GR-FS-16-0050-MZ	M16x50 Mushroom Head POST Bolt Class 4.6 HDG	0.1	
6	GR-FS-16-0000-HG	M16 Hex Nut, 32A/F Oversize, Deep, Class 8, HDG	0.10	
7	GR-FS-16-0032-MG	M16x32 Mushroom Head SPLICE Bolt & Oversize Nut Assy CL8.8	0.2	



BIKER-SHIELD ISOMETRIC EXPLODED VIEW

NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-01000.

MATERIAL:

FINISH:

STATUS	NAME	DATE
DRAWN	W. Rogulski	23/05/2022
CHK'D	T. Colquhoun	18/10/2022
APPV'D	H. Wallace	18/10/2022

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

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STATUS: **APPROVED**

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Road Barriers - RamShield® W-Beam
RamShield® W-Beam, 2m Ctrs, 1560 Posts with Biker-Shield™
General Arrangement

DWG NO. **SD-RB-01022**

REVISION: **B**

SHEET SIZE: **A4**

WEIGHT: 144.9kg

DO NOT SCALE DRAWING

SCALE: **1:20**

SHEET **2** of **3**

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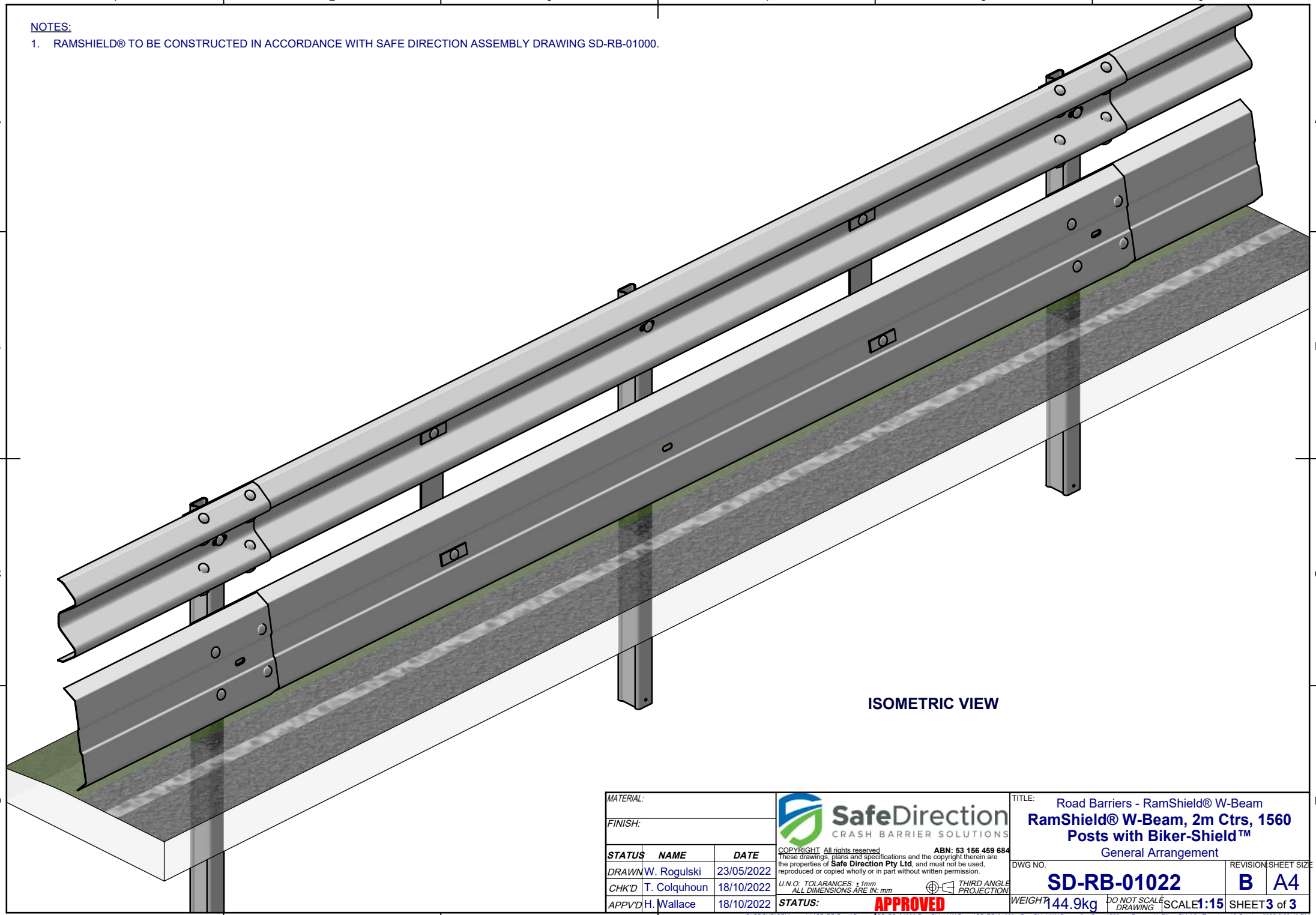
NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-01000.



ISOMETRIC VIEW

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FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	23/05/2022
CHK'D	T. Colquhoun	18/10/2022
APPV'D	H. Wallace	18/10/2022

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O. TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: **APPROVED**

TITLE:
Road Barriers - RamShield® W-Beam
RamShield® W-Beam, 2m Ctrs, 1560 Posts with Biker-Shield™
General Arrangement

DWG NO.	REVISION	SHEET SIZE
SD-RB-01022	**B**	A4

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NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-01022.

REVISIONS				
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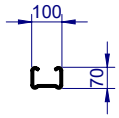
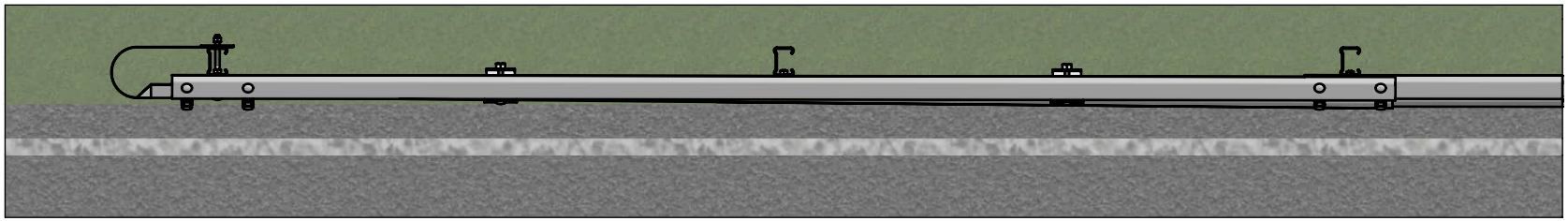
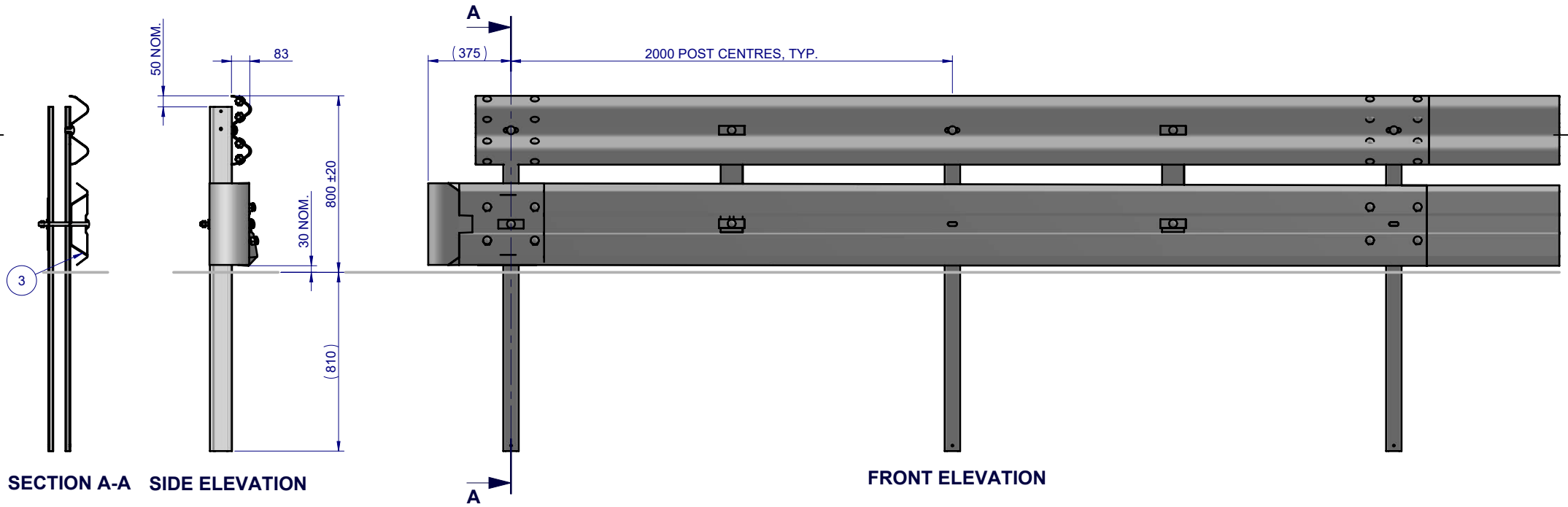
B		REVISION UPDATED	18/10/2022	HW



POST PLAN



PLAN VIEW



SECTION A-A SIDE ELEVATION

FRONT ELEVATION

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	25/05/2022
CHK'D	T. Colquhoun	18/10/2022
APPV'D	H. Wallace	18/10/2022

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STATUS: APPROVED

TITLE: Road Barriers - RamShield® W-Beam
RamShield® W-Beam, with Biker-Shield™ Bullnose Assembly
General Arrangement

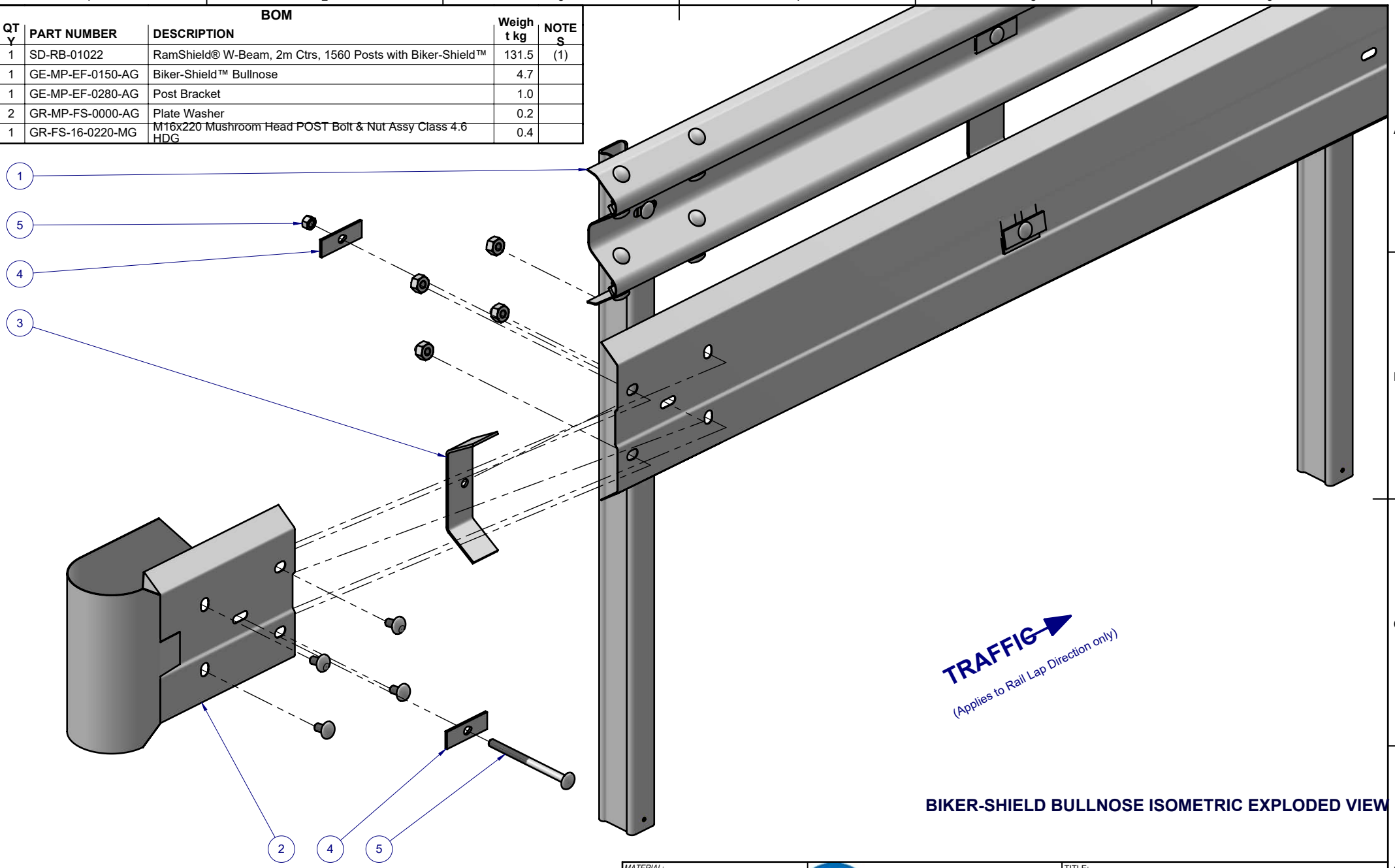
DWG NO. SD-RB-01026 | REVISION B | SHEET SIZE A4

WEIGHT: 137.9kg | DO NOT SCALE DRAWING | SCALE 1:25 | SHEET 1 of 3

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-01000 RamShield W-Beam\SD-RB-01026 - Biker-Shield Bullnose Assembly\ Tuesday, 18 October 2022 2:08:47 PM

BOM

ITEM NO.	QTY	PART NUMBER	DESCRIPTION	Weight kg	NOTES
1	1	SD-RB-01022	RamShield® W-Beam, 2m Ctrs, 1560 Posts with Biker-Shield™	131.5	(1)
2	1	GE-MP-EF-0150-AG	Biker-Shield™ Bullnose	4.7	
3	1	GE-MP-EF-0280-AG	Post Bracket	1.0	
4	2	GR-MP-FS-0000-AG	Plate Washer	0.2	
5	1	GR-FS-16-0220-MG	M16x220 Mushroom Head POST Bolt & Nut Assy Class 4.6 HDG	0.4	



BIKER-SHIELD BULLNOSE ISOMETRIC EXPLODED VIEW

NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-01022

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	25/05/2022
CHK'D	C.Colquhoun	18/10/2022
APPV'D	H. Wallace	18/10/2022

SafeDirection CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O. TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: **APPROVED**

TITLE: Road Barriers - RamShield® W-Beam
RamShield® W-Beam, with Biker-Shield™ Bullnose Assembly
General Arrangement

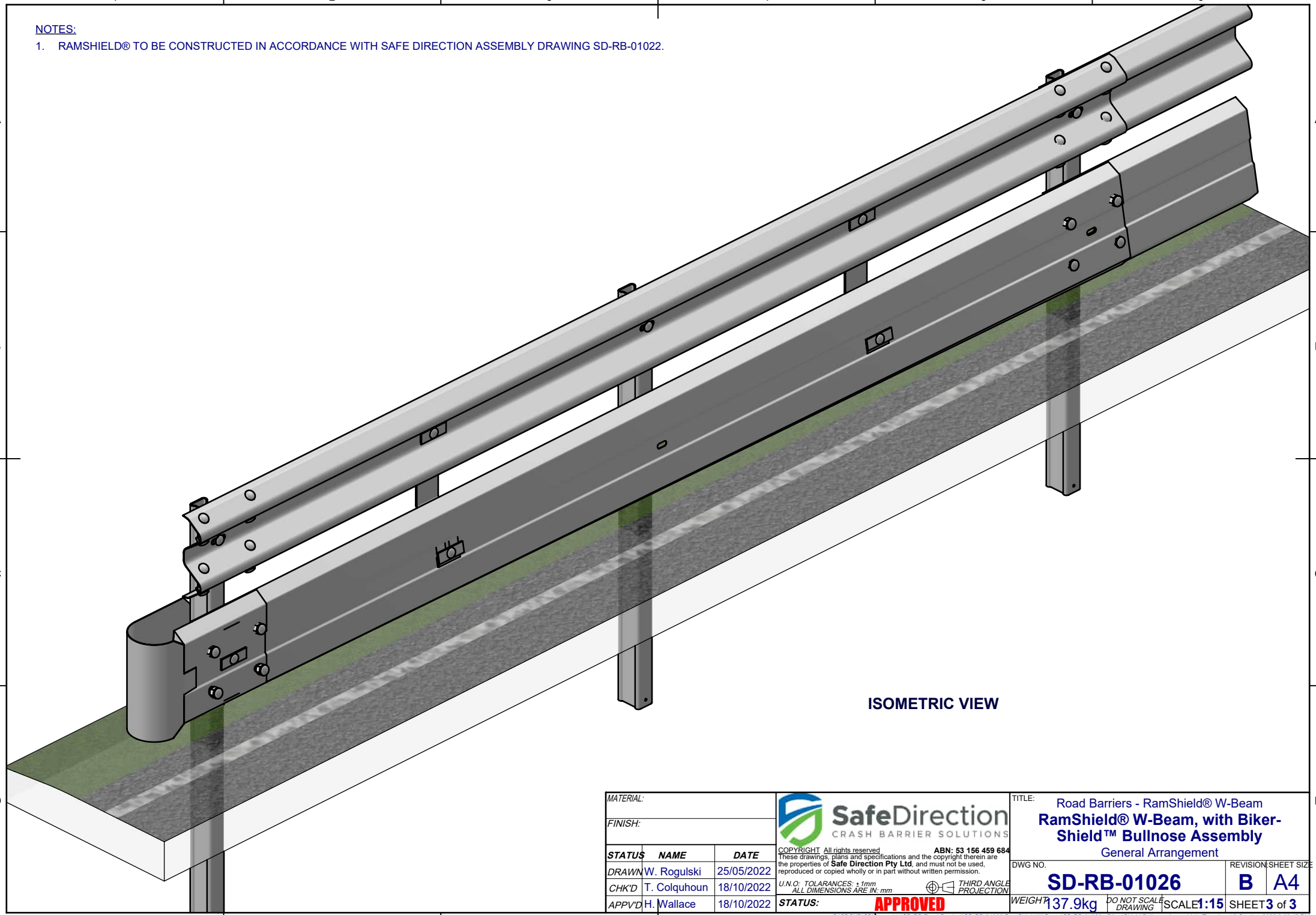
DWG NO. **SD-RB-01026** | REVISION: **B** | SHEET SIZE: **A4**

WEIGHT: 137.9kg | DO NOT SCALE DRAWING | SCALE: **1:10** | SHEET **2** of **3**

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-01000 RamShield W-Beam\SD-RB-01026 - Biker-Shield Bullnose Assembly\ Tuesday, 18 October 2022 2:08:47 PM

NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-01022.



ISOMETRIC VIEW

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	25/05/2022
CHK'D	T. Colquhoun	18/10/2022
APPV'D	H. Wallace	18/10/2022

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O. TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: **APPROVED**

TITLE:
Road Barriers - RamShield® W-Beam
RamShield® W-Beam, with Biker-Shield™ Bullnose Assembly
General Arrangement

DWG NO. **SD-RB-01026**
REVISION: **B**
SHEET SIZE: **A4**

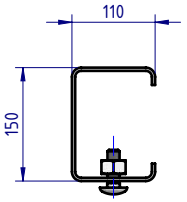
WEIGHT: 137.9kg
DO NOT SCALE DRAWING
SCALE: **1:15**
SHEET **3** of **3**

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-01000 RamShield W-Beam\SD-RB-01026 - Biker-Shield Bullnose Assembly\ Tuesday, 18 October 2022 2:08:47 PM

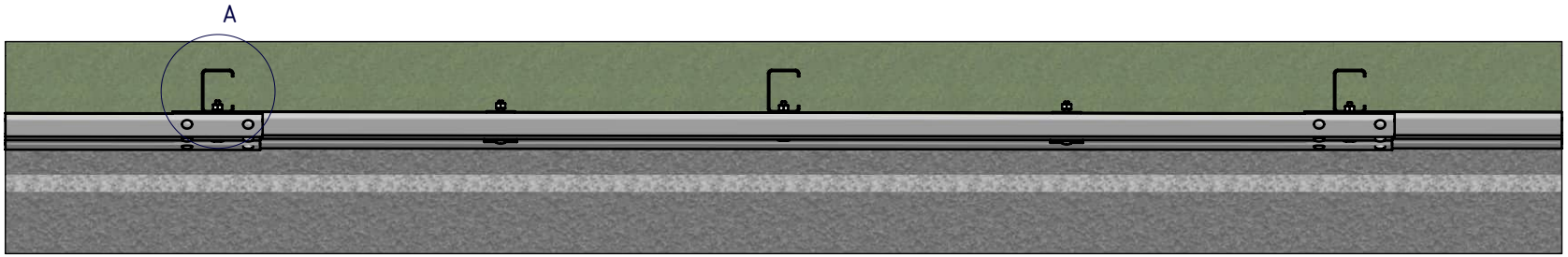
NOTES:

1. RAMSHIELD® HIGH CONTAINMENT (HC) TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-02000.

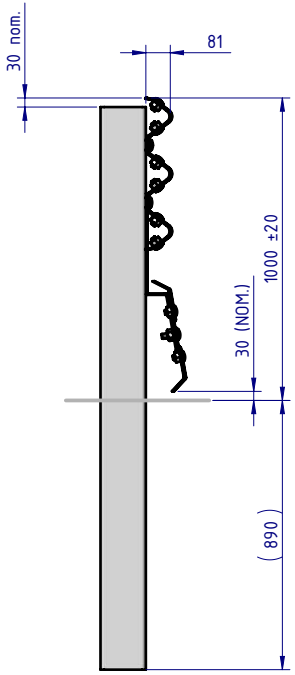
REVISIONS				
REV.	ZONE	DESCRIPTION	DATE	APPV'D
A		Original Issue	8/07/2022	HW



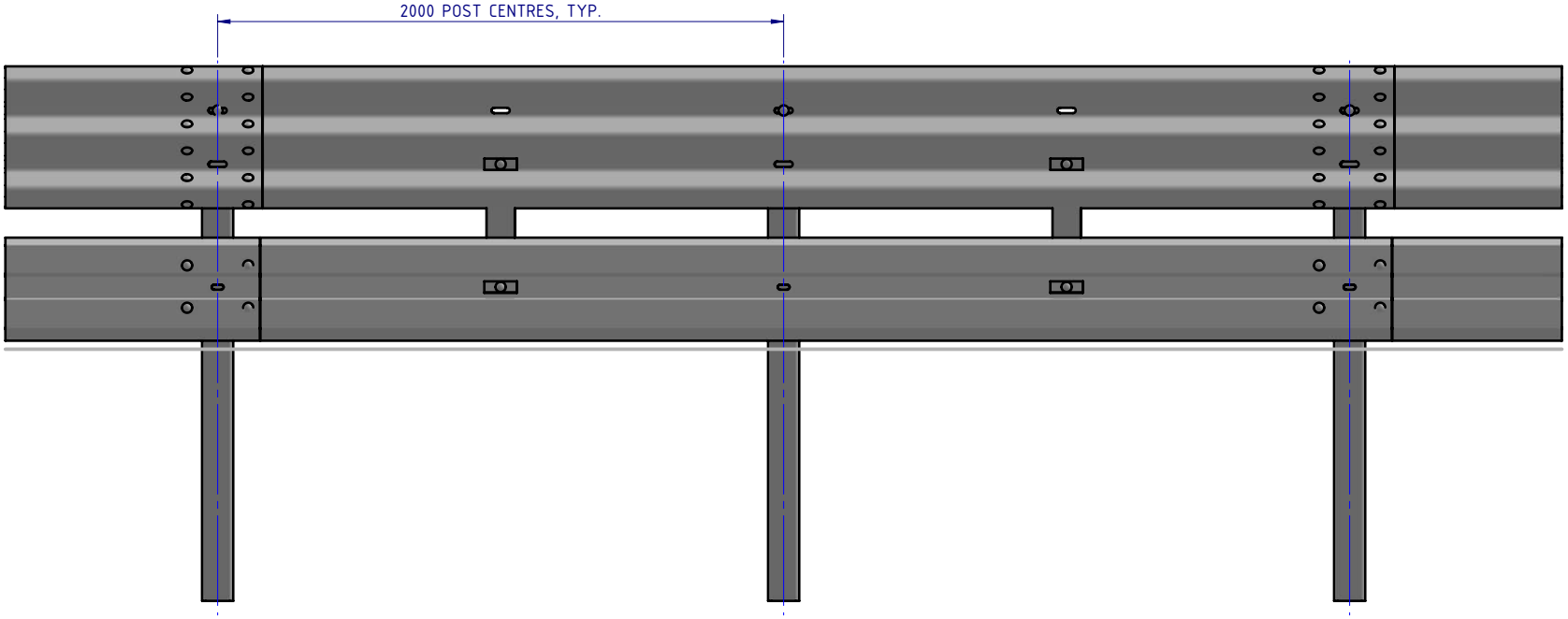
DETAIL A
SCALE 1:10
POST PLAN



PLAN VIEW



SIDE ELEVATION



FRONT ELEVATION

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	8/07/2022
CHK'D	T. Colquhoun	08/07/2022
APPV'D	H. Wallace	

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O: TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: APPROVED

TITLE:
Road Barriers - RamShield® HC
RamShield® HC, 2m Post Ctrs, 1860 Posts with Biker-Shield™
General Arrangement

DWG NO.	REVISION:	SHEET SIZE
SD-RB-02009	A	A4

WEIGHT: 209.8kg | DO NOT SCALE DRAWING | SCALE: 1:25 | SHEET 1 of 3

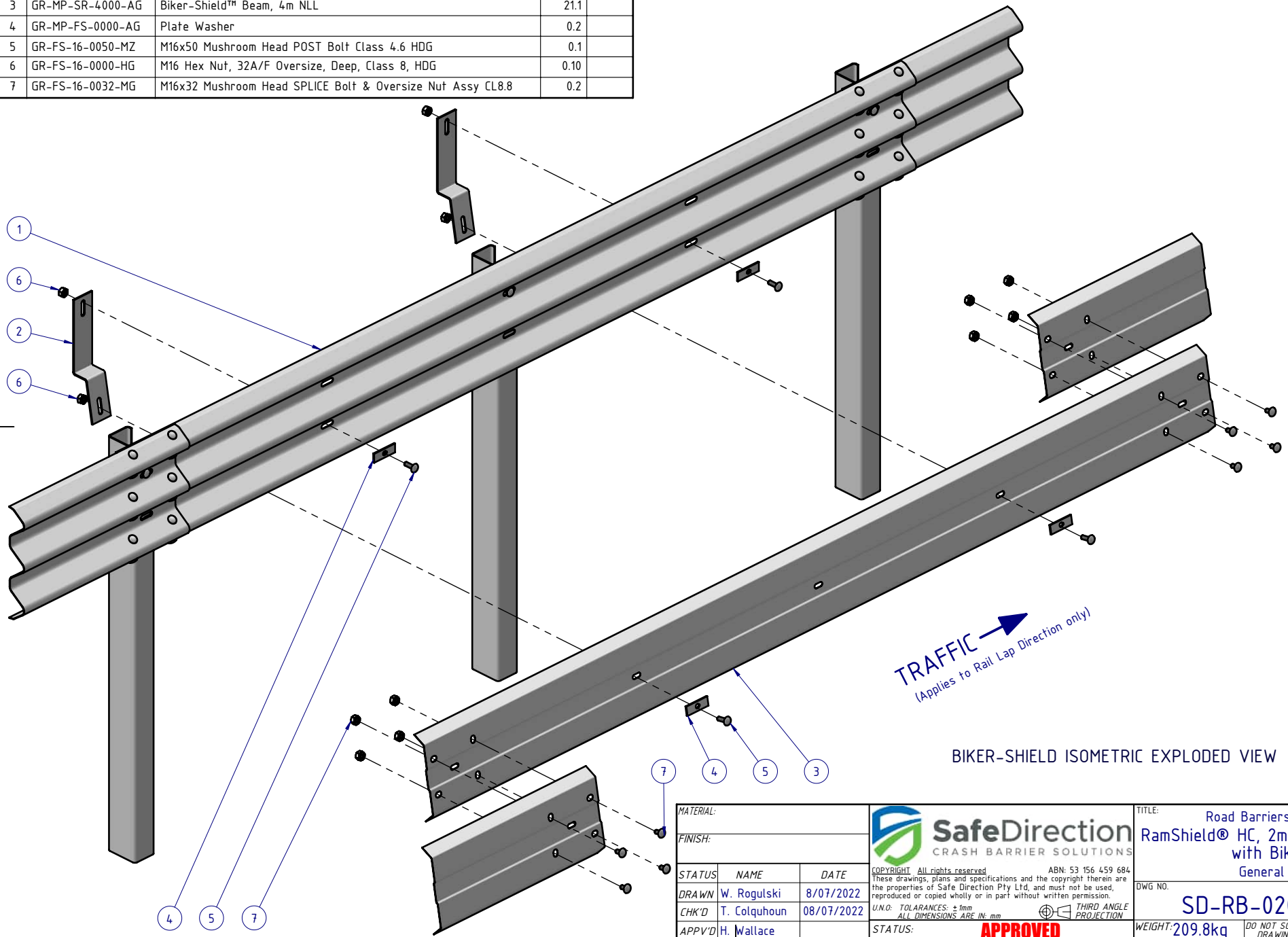
C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-02000 RamShield HC\SD-RB-02009 - RamShield HC, 2m Ctrs, 1860mm Posts with Biker-Shield\ Friday, 8 July 2022 8:53:12 AM

BOM

ITEM NO.	PART NUMBER	DESCRIPTION	Weight kg	NOTES
1	SD-RB-02008	RamShield® HC, 2m Ctrs, 1860mm Posts, 1m Post Hole Ctrs	172.2	(1)
2	GR-MP-BR-0586-AG	Biker-Shield™ Mounting Bracket	2.2	
3	GR-MP-SR-4000-AG	Biker-Shield™ Beam, 4m NLL	21.1	
4	GR-MP-FS-0000-AG	Plate Washer	0.2	
5	GR-FS-16-0050-MZ	M16x50 Mushroom Head POST Bolt Class 4.6 HDG	0.1	
6	GR-FS-16-0000-HG	M16 Hex Nut, 32A/F Oversize, Deep, Class 8, HDG	0.10	
7	GR-FS-16-0032-MG	M16x32 Mushroom Head SPLICE Bolt & Oversize Nut Assy CL8.8	0.2	

NOTES:

1. RAMSHIELD® HIGH CONTAINMENT (HC) TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-02000.



BIKER-SHIELD ISOMETRIC EXPLODED VIEW

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	8/07/2022
CHK'D	T. Colquhoun	08/07/2022
APPV'D	H. Wallace	

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O: TOLARANCES: ± 1mm ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: APPROVED

TITLE:
Road Barriers - RamShield® HC
RamShield® HC, 2m Post Ctrs, 1860 Posts with Biker-Shield™
General Arrangement

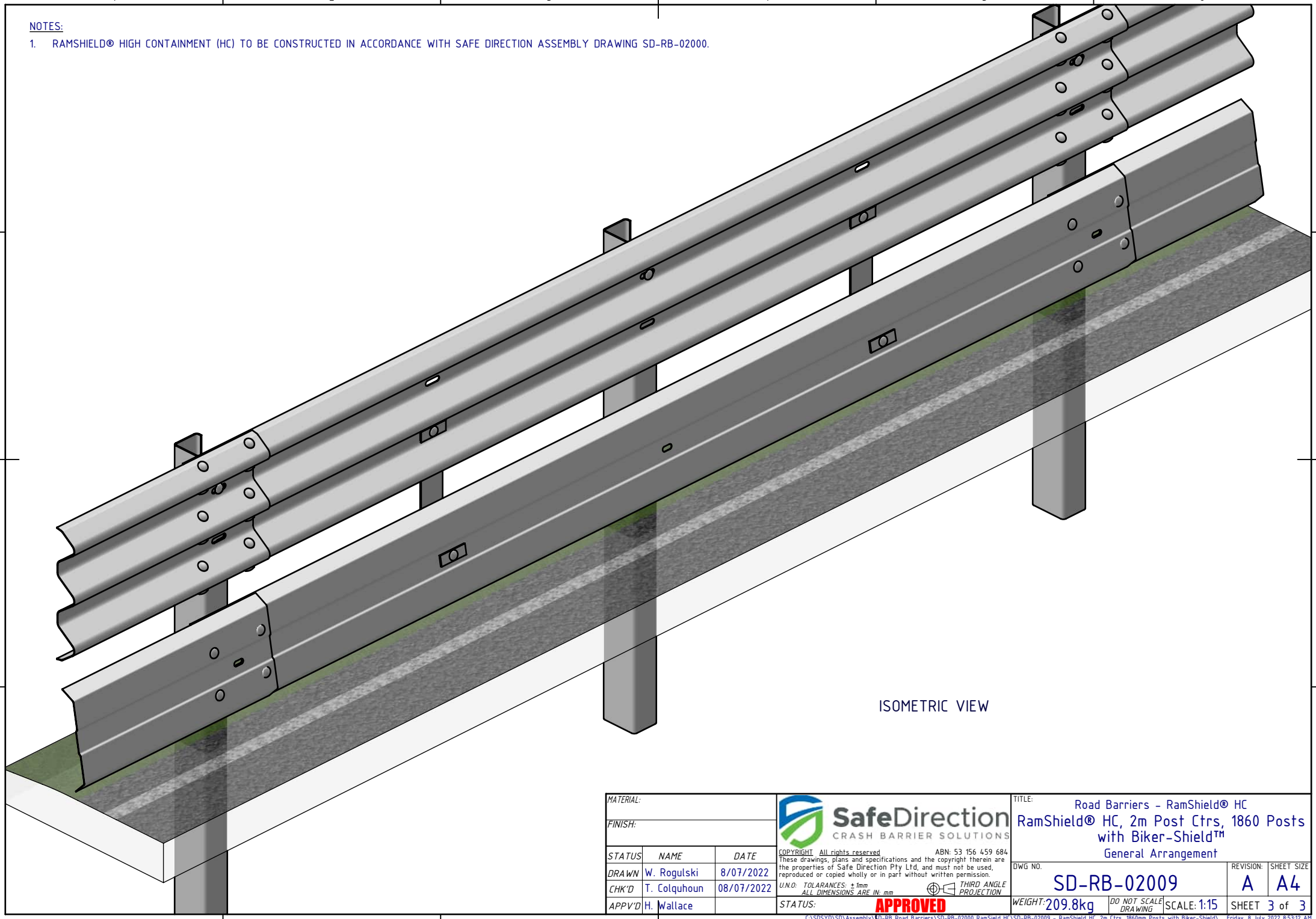
DWG NO.	REVISION:	SHEET SIZE
SD-RB-02009	A	A4

WEIGHT: 209.8kg | DO NOT SCALE DRAWING | SCALE: 1:20 | SHEET 2 of 3

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-02000 RamShield HC\SD-RB-02009 - RamShield HC, 2m Ctrs, 1860mm Posts with Biker-Shield\ Friday, 8 July 2022 8:53:12 AM

NOTES:

1. RAMSHIELD® HIGH CONTAINMENT (HC) TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-02000.



ISOMETRIC VIEW

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	8/07/2022
CHK'D	T. Colquhoun	08/07/2022
APPV'D	H. Wallace	

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O: TOLARANCES: ± 1mm ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: APPROVED

TITLE:
Road Barriers - RamShield® HC
RamShield® HC, 2m Post Ctrs, 1860 Posts with Biker-Shield™
General Arrangement

DWG NO.	REVISION:	SHEET SIZE
SD-RB-02009	A	A4

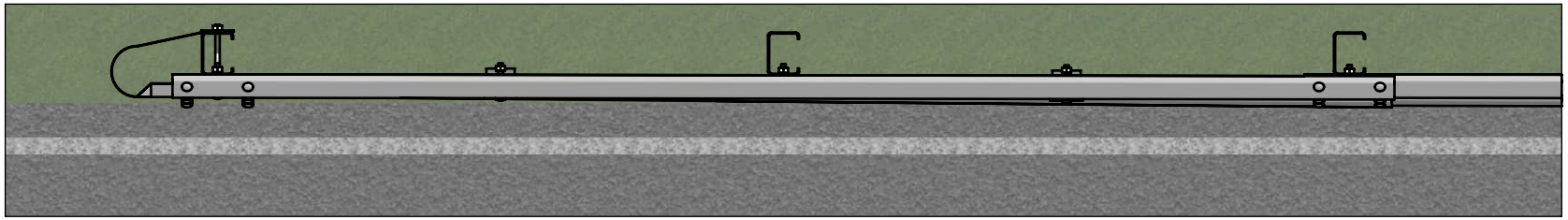
WEIGHT: 209.8kg | DO NOT SCALE DRAWING | SCALE: 1:15 | SHEET 3 of 3

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-02000 RamShield HC\SD-RB-02009 - RamShield HC, 2m Ctrs, 1860mm Posts with Biker-Shield\ Friday, 8 July 2022 8:53:12 AM

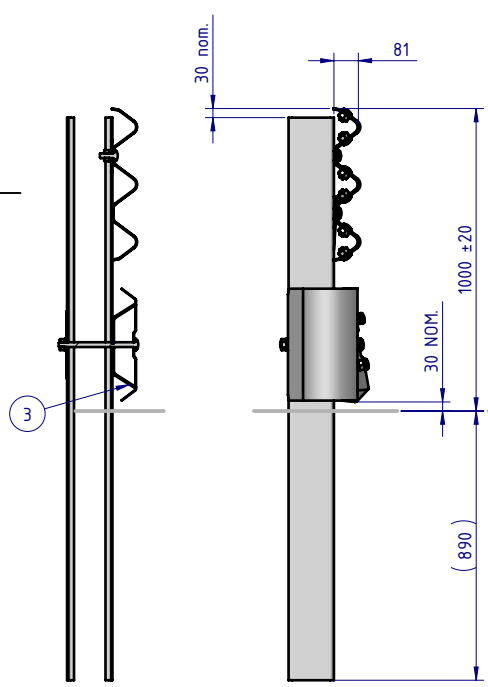
NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-02009.

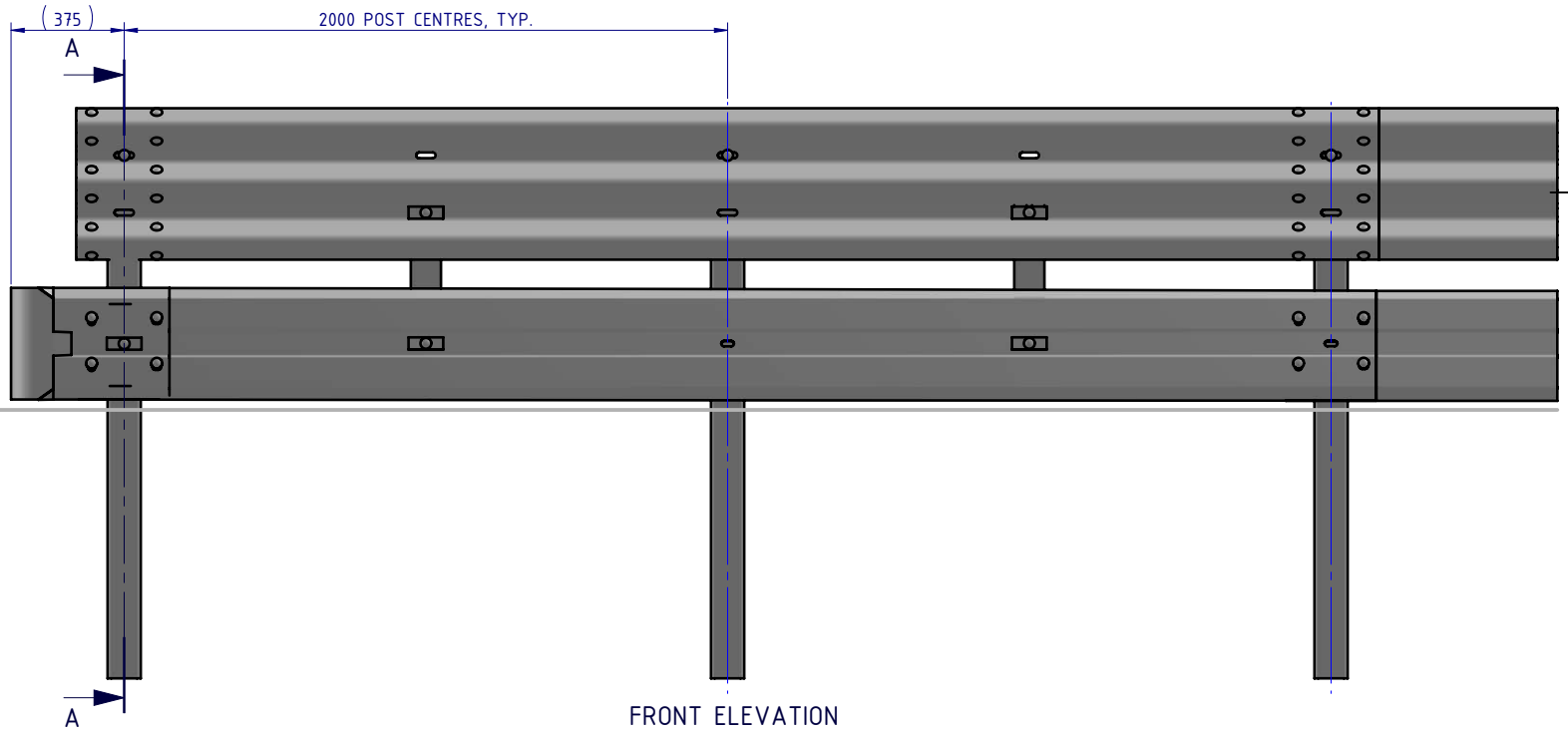
REVISIONS				
REV.	ZONE	DESCRIPTION	DATE	APPV'D



PLAN VIEW



SECTION A-A SIDE ELEVATION



FRONT ELEVATION

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	4/07/2022
CHK'D	T. Colquhoun	25/05/2022
APPV'D	H. Wallace	25/0

SafeDirection CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O: TOLARANCES: ± 1mm ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: Approved

TITLE: Road Barriers - RamShield® HC
RamShield® HC, with Biker-Shield™ Bullnose Assembly
General Arrangement

DWG NO. SD-RB-02010

REVISION: A

SHEET SIZE: A4

WEIGHT: 197.8kg

DO NOT SCALE DRAWING

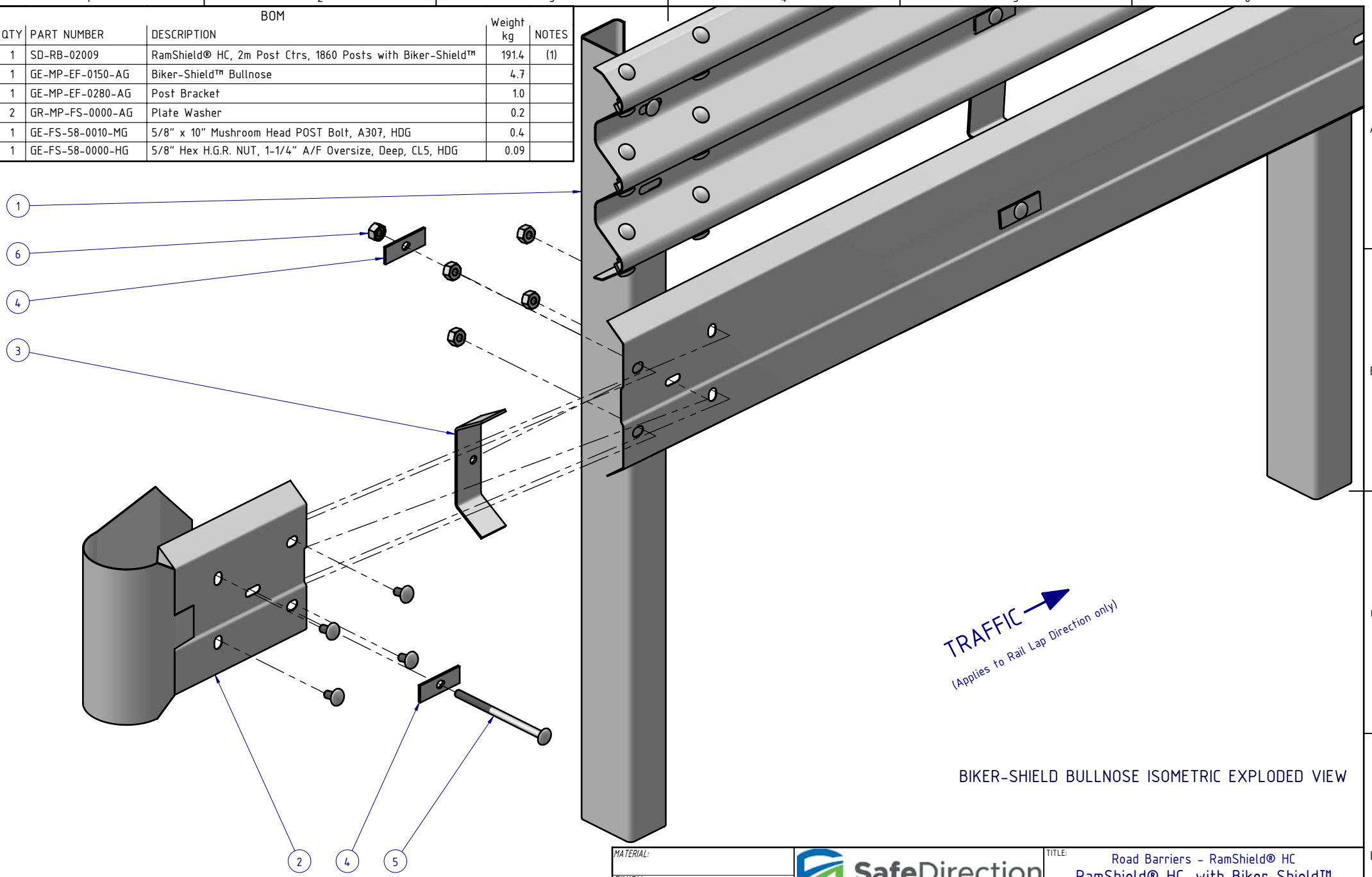
SCALE: 1:25

SHEET 1 of 3

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-02000_RamShield HC\SD-RB-02010 - RamShield HC, with Biker-Shield Bullnose Assembly\ Monday, 4 July 2022 8:33:30 AM

BOM

ITEM NO.	QTY	PART NUMBER	DESCRIPTION	Weight kg	NOTES
1	1	SD-RB-02009	RamShield® HC, 2m Post Ctrs, 1860 Posts with Biker-Shield™	191.4	(1)
2	1	GE-MP-EF-0150-AG	Biker-Shield™ Bullnose	4.7	
3	1	GE-MP-EF-0280-AG	Post Bracket	1.0	
4	2	GR-MP-FS-0000-AG	Plate Washer	0.2	
5	1	GE-FS-58-0010-MG	5/8" x 10" Mushroom Head POST Bolt, A307, HDG	0.4	
6	1	GE-FS-58-0000-HG	5/8" Hex H.G.R. NUT, 1-1/4" A/F Oversize, Deep, CL5, HDG	0.09	



BIKER-SHIELD BULLNOSE ISOMETRIC EXPLODED VIEW

NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-02009.

MATERIAL:

FINISH:

STATUS	NAME	DATE
DRAWN	W. Rogulski	4/07/2022
CHK'D	T. Colquhoun	25/05/2022
APPV'D	H. Wallace	25/05/2022

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O: TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: Approved

TITLE:
Road Barriers - RamShield® HC
RamShield® HC, with Biker-Shield™ Bullnose Assembly
General Arrangement

DWG NO. SD-RB-02010

REVISION: A

SHEET SIZE: A4

WEIGHT: 197.8kg

DO NOT SCALE DRAWING

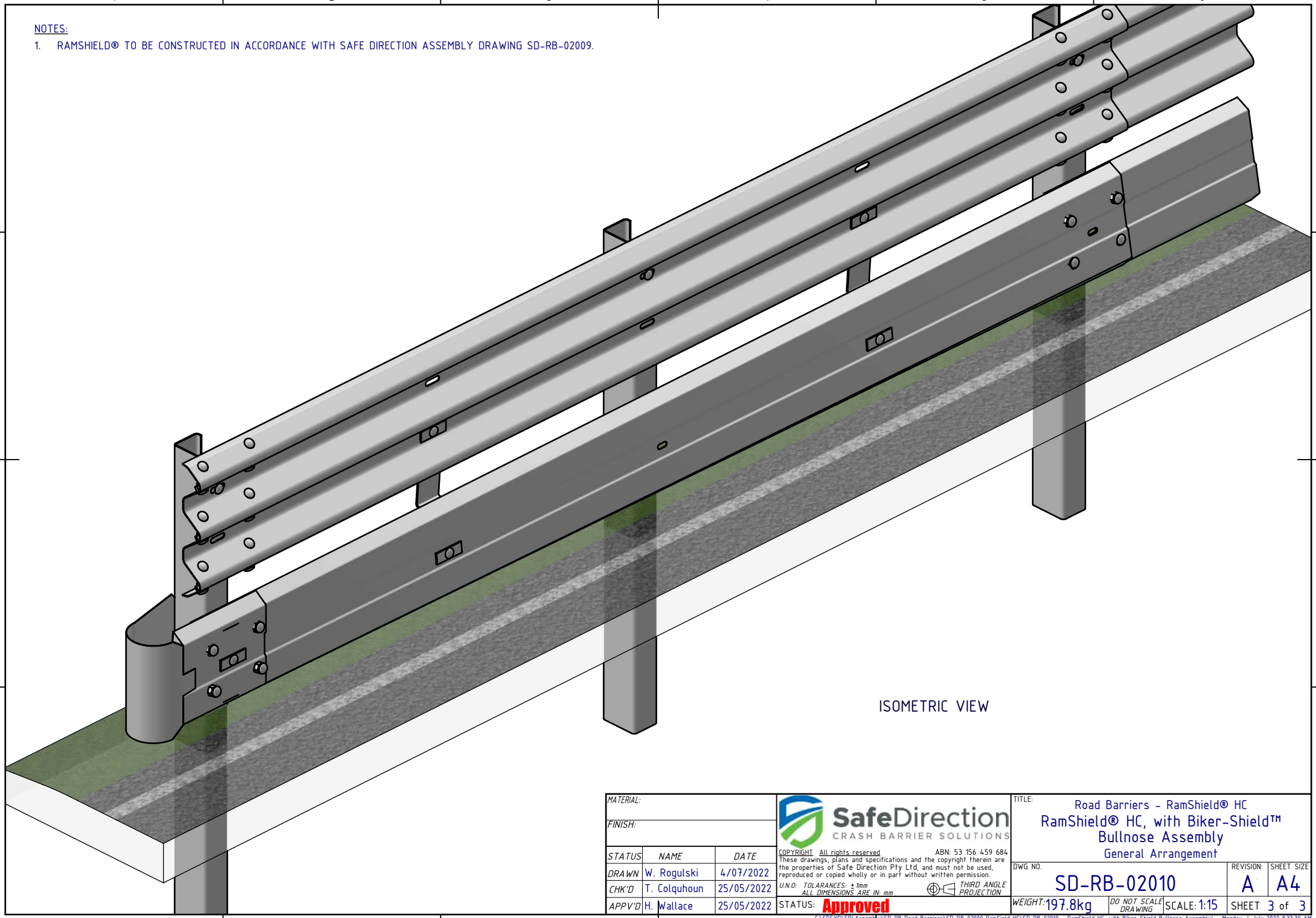
SCALE: 1:10

SHEET 2 of 3

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-02000_RamShield HC\SD-RB-02010 - RamShield HC, with Biker-Shield Bullnose Assembly\ Monday, 4 July 2022 8:33:30 AM

NOTES:

1. RAMSHIELD® TO BE CONSTRUCTED IN ACCORDANCE WITH SAFE DIRECTION ASSEMBLY DRAWING SD-RB-02009.



ISOMETRIC VIEW

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Rogulski	4/07/2022
CHK'D	T. Colquhoun	25/05/2022
APPV'D	H. Wallace	25/05/2022

SafeDirection
CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

U.N.O: TOLARANCES: ± 1mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: Approved

TITLE:
Road Barriers - RamShield® HC
RamShield® HC, with Biker-Shield™ Bullnose Assembly
General Arrangement

DWG NO.	REVISION:	SHEET SIZE
SD-RB-02010	A	A4

WEIGHT: 197.8kg | DO NOT SCALE DRAWING | SCALE: 1:15 | SHEET 3 of 3

C:\SDSYD\SD\Assembly\SD-RB Road Barriers\SD-RB-02000_RamShield HC\SD-RB-02010 - RamShield HC, with Biker-Shield Bullnose Assembly\ Monday, 4 July 2022 8:33:30 AM

SafeDirection

CRASH BARRIER SOLUTIONS

Safe Direction Pty Ltd
5 Simpson Close, Smeaton Grange NSW 2567 Australia
Ph: 1300 063 220 | E: sales@safedirection.com.au
ABN 53 156 459 684