



MAX-Tension™

Tangent, redirective non-gating, guardrail terminal
with Sabertooth™ Technology

Training and Product Installation Manual

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SMARTER SAFETY SOLUTIONS



ACP

AUSTRALIAN CONSTRUCTION PRODUCTS



Product & Installation Manual: MAX-Tension™

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Limited Warranty

Australian Construction Products (ACP) has tested the impact performance of its barrier systems and crash cushion systems, and other highway safety hardware under controlled conditions, however, ACP does not represent nor warrant that the results of those controlled conditions would necessarily avoid injury to persons or property.

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Any claim by the Buyer with reference to Products sold hereunder for any cause shall be deemed waived by the Buyer unless ACP is notified in writing, in the case of defects apparent on visual inspection, within ninety (90) days from the delivery date, or, in the case of defects not apparent on visual inspection, within twelve (12) months from the said delivery date. Products claimed to be defective may be returned prepaid to ACP's plant for inspection in accordance with return shipping instructions that ACP shall furnish to the Buyer forthwith upon receipt of the Buyer's notice of claim. If the claim is established, ACP will reimburse that Buyer for all carriage costs incurred hereunder.

The forgoing warranty benefits shall not apply to (i) any Products that have been subject to improper storage, accident, misuse or unauthorised alterations, or that have not been installed, operated and maintained in accordance with approved procedures and (ii) any components manufactured by the Buyer.



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System Overview

The MAX-Tension™ Guardrail Terminal System (MAX™) is a re-directive, gating tension-based end terminal for corrugated W-Beam barrier systems in tangent configurations. The MAX system has been tested and evaluated per the recommendations set forth in the Manual for Assessing Safety Hardware (MASH) Test Level 3 tests at 100 km/h. The system utilizes tensioned cables and a cutting tooth to absorb kinetic energy and safely contain or redirect an impacting vehicle.

The system is comprised of a friction-based energy-absorbing impact head, two tensioned cables, a releasable Post 1, a ground anchor assembly and an energy-absorbing coupler with integrated cutting tooth used in conjunction with standard W-Beam guardrail panels, post, blockouts, and hardware.

The MAX is applied directly to W-Beam guardrail systems at, or transitioned to, 787mm with panels and post spacing configured at mid-span splice. Transitions to strong post W-Beam guardrail systems or other barriers where the splice is not mid-span can be accomplished using a 1.00m panel after the MAX system (minimum of 15.25m downstream of the first post) in accordance with Federal, State, and Local standards. Transitions to other barrier systems such as thrie beam or rigid bridge or roadside barriers shall be in accordance with Federal, State, and Local requirements and attached after the MAX system (minimum 15.25m downstream of the first post).





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Recommended Tools

NOTE: The list of tools, safety equipment, and traffic control is a general recommendation and should not be considered a comprehensive list. Depending on the specific characteristics of the job site and the complexity of the repair or assembly, more or less tools may be necessary.

- > Post Driver/Auger
- > Soil Tamper
- > Tape Measure
- > String Line
- > Chalk Line
- > Marking Paint
- > Level
- > Hammer
- > Crescent/Spud Wrench
- > Pry Bar (recommended minimum 6' length)
- > Vice Grips or Clamps
- > 42mm Wrench
- > 1/2" Ratchet
- > 32mm Socket
- > 24mm Socket
- > 10mm Hex Socket
- > Pipe Wrench or Large Pliers
- > Impact Wrench (Optional)

Safety Equipment

- > Safety Glasses
- > Hearing Protection
- > Gloves
- > Steel Toe Boots
- > Hard Hat
- > Safety Vest

Traffic Control

- > Traffic Control Equipment
- > Traffic Control Plan

Documentation

Prior to installation and assembly of the MAX-Tension™ system, ensure you have read and understand the installation and assembly instructions. The following items should be reviewed and understood prior to installation.

- > Installation and Assembly Manual (Current Revision)
- > Installation and Assembly Video, Mobile App - The Lindsay Guide App is available as a free download from the Apple Store® and Google Play™.
- > Installation and Assembly Video, Online - Full installation videos can be viewed online at <http://lindsay.guide.com>.
- > System Drawing (Current Revision)

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Preparation

The MAX-Tension™ Guardrail Terminal System (MAX™) is a re-directive, gating tensioned-based end terminal for corrugated W-Beam barrier systems in tangent configurations. The MAX is applied directly to W-Beam guardrail systems at, or transitioned to, 787mm with panels and post spacing configured at mid-span splice. Transitions to strong post W-Beam guardrail systems or other barriers where the splice is not mid-span can be accomplished using a 1.00m panel after the MAX system (minimum of 15.25m downstream of the first post) in accordance with Federal, State, and Local standards. Transitions to other barrier systems such as thrie beam or rigid bridge or roadside barriers shall be in accordance with Federal, State, and Local requirements and attached after the MAX system (minimum 15.25m downstream of the first post).

Before installing the MAX system, ensure that all the materials required for the system are on site and have been identified.

Soil Conditions

The MAX-Tension™ system has been designed to be installed in soil that meets or exceeds the AASHTO “standard soil” specification. If the specific site soil conditions differ from those specified in the AASHTO standard soil specification, the installation should be reviewed and approved by the Project Engineer. If rock or stiff soil is encountered, the posts and soil anchor may be installed by auguring and backfilling the hole. Extra care must be taken to prevent settlement and lateral displacement of the posts. Backfill material should be compacted to optimum compaction using a tamper, per Local requirements.

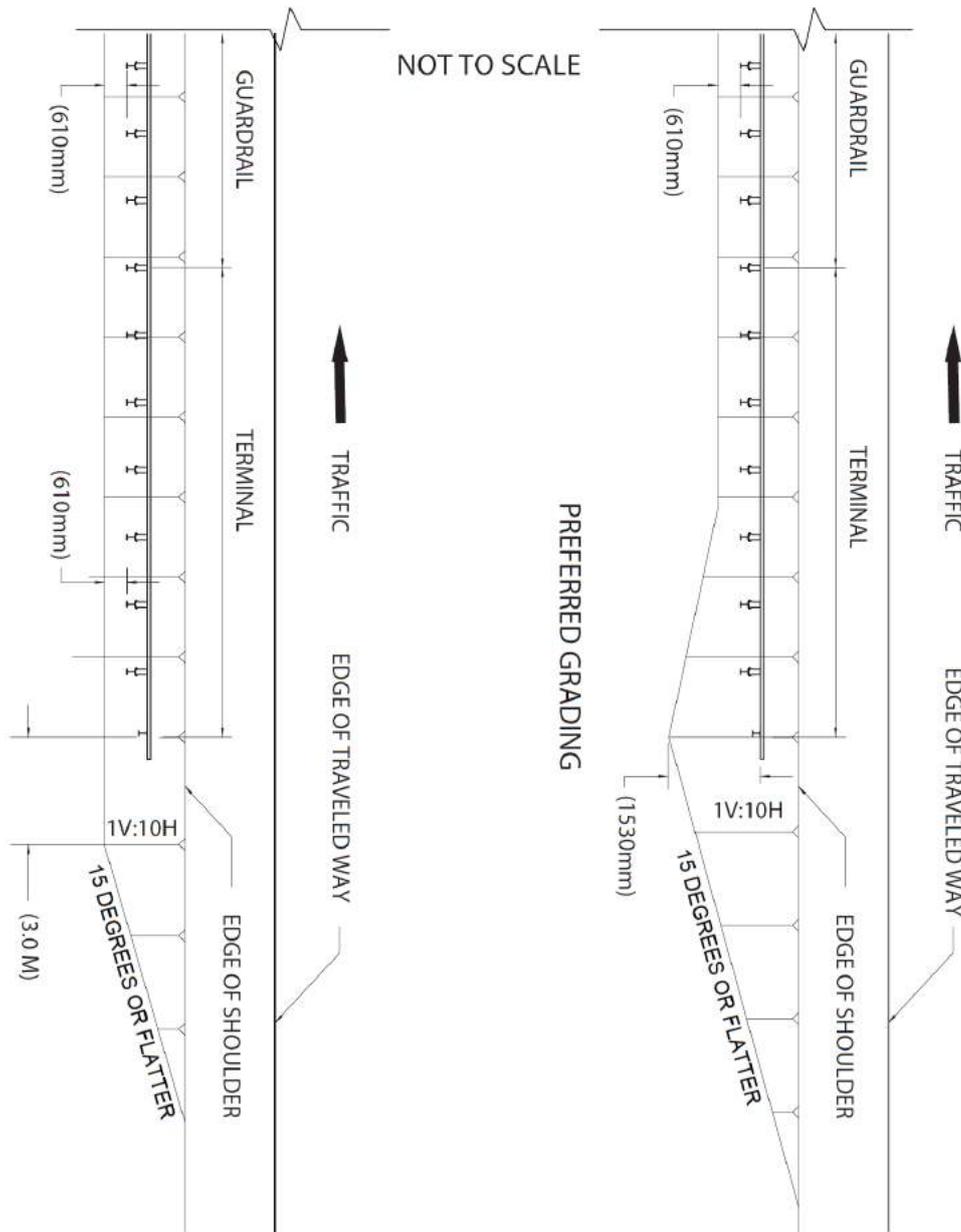
IMPORTANT NOTES:

- > Ensure the MAX-Tension™ system is properly transitioned in accordance with Federal, State, and Local standards when attaching any other type of barrier system other than corrugated W-Beam.
- > Do not attach the MAX-Tension™ system directly to a rigid barrier (e.g. concrete barrier, steel barrier, concrete structure) without proper transition.

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Site Grading

All testing was completed on a relatively flat and controlled testing environment. Ensure proper site grading prior to installation of the MAX-Tension™ system in accordance with Federal, State and Local specifications, in addition to the AASHTO Roadside Design Guide.



Source: AASHTO Roadside Design Guide, 4th Edition 2011, page 8-6



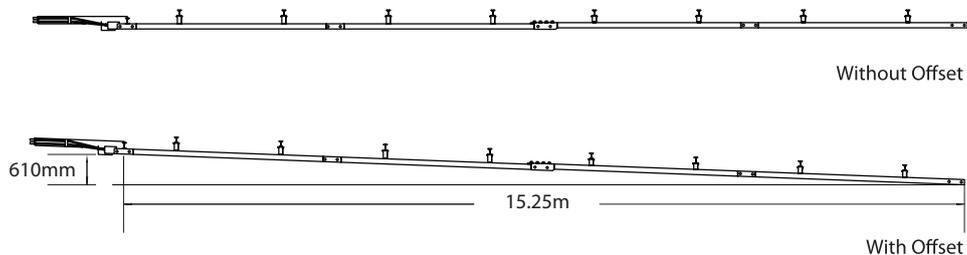
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System Offset Requirements

The MAX-Tension™ system is a tangent terminal that shall be installed parallel to the edge of the roadway. The system may be installed offset away from the roadway if specified and approved by the Project Engineer. If off-set, the system shall be offset over the entire length of the system from the center of the last splice to the Soil Anchor.

Test Level 3

610mm



Curve Installations

The MAX-Tension™ system **SHALL NEVER** be installed within a curved section of guardrail. It is recommended that the guardrail be extended past the curve before the installation of the MAX-Tension™ system. The MAX-Tension™ system should always be installed in a straight line over the length of the system.

Panel Lapping

The MAX-Tension™ system is a tension-based system that slides backwards upon impact. For the panels to slide properly, panel 1 must lap over panel 2, panel 2 must lap over panel 3, panel 3 must lap over panel 4 and panel 4 must lap over the existing rail system. This applies to both approach end and trailing end terminals, no matter the direction of traffic. Failure to follow this lapping pattern can result in serious injury or death.



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Parts Identification

WARNING Use only ACP parts that are specified by ACP for use with the MAX-Tension™ Guardrail Terminal System. Do not use or co-mingle parts from other systems, as such configurations have not been tested nor have they been approved for use. The use of unspecified parts is prohibited and could result in severe personal injury or death.



Soil Anchor
UTGSG, Qty. 1



Ground Strut
UTGAG, Qty. 1



Impact Head
MAXHDG, Qty. 1



I-Beam Post (Post 1)
MAXP1G, Qty. 1



Traffic Side Slider Panel
MAXTSSG, Qty. 1



Inner Side Slider Panel
MAXISSG, Qty. 1



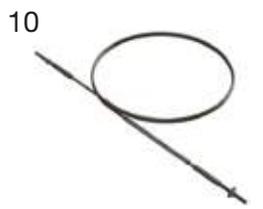
Tooth
BSI-1610066-00, Qty. 1



Rear Side Slider Plate
MAXRSSG, Qty. 1



Friction Plate
[INCL. IN MAXHDG], Qty. 1



TL-2 Cable Assembly
MAXTL2CAG, Qty. 2



Line Post
UTLPG, Qty. 8



Blockout
B090534, Qty. 8

Highlighted in blue above denotes shipped with Kit

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Parts Identification (Cont.)



MASH W-Beam Guardrail
W122G, Qty. 4



Square Washer
FW923, Qty. 1



M16X200 Galv Hex Head
F123, Qty. 1



M20X75 Galv Hex Head
[INCL. IN MAXHDG], Qty. 4



M16X32MM Galv Splice Bolt
F1002, Qty. 56



M16X240 Galv Cup Head
F124, Qty. 8



M16 Galv Round Washer
FW900, Qty. 2



Guardrail Nut - 5/8
4001116, Qty. 1



M16X50mm Galv Post Bolt
F1012, Qty. 1



Delineation Bracket
MAXBDG, Qty. 1



12-24 X 32mm Self Hex SDS
F174, Qty. 3



Guardrail Washer, Rect.
FW903, Qty. 1



1.0m NLL W-Beam Rail
W113G, Qty. 1



Plastic Nut Cover
X350NC, Qty. 25



Yellow Plastic Nose Housing
MAXYN, Qty. 1

Highlighted in blue above denotes shipped with Kit



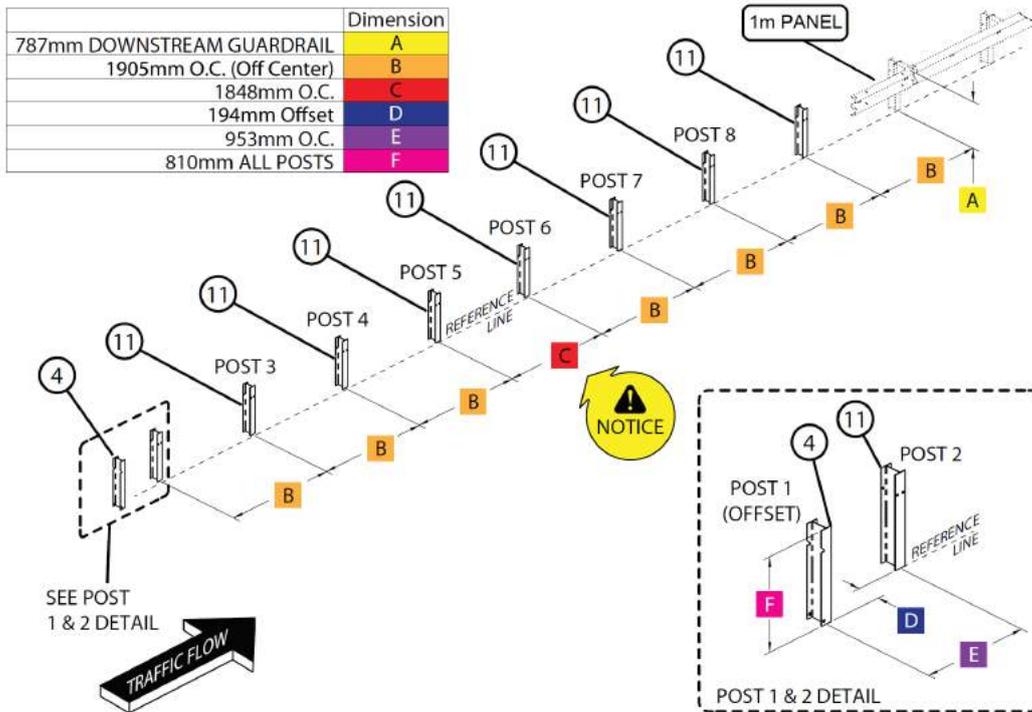
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Bill of Materials

Item #	Part #	Description	Description 2	Quantity
1	UTGAG	MAXTENSION GROUND ANCHOR GALV		1
2	UTGSG	MAXTENSION GROUND STRUT		1
3	MAXHDG	MAXTENSION IMPACT HEAD GALV		1
4	MAXP1G	MAXTENSION POST 1 1830MM GALV		1
5	MAXTSSG	MAXTENSION TS SLIDER GALV	Traffic Side Slider Panel	1
6	MAXISSG	MAXTENSION INSIDE SLIDER GALV		1
7	BSI-1610066-00	TOOTH, GEOMET MAX-TENSION		1
8	MAXRSSG	MAXTENSION REAR SIDE SLIDER	Galvanised	1
9	[incl. in MAXHDG]	MAXTENSION CABLE FRICTION PLATE		1
10	MAXTL2CAG	MAXTENSION TL2 CABLE ASSEMBLY		2
11	UTLPG	MAXTENSION LINE POST 1830MM	Galv	8
12	B090534	COMPOSITE BLOCK - X350		8
13	W122G	3.81M MAXTENSION W-BEAM GALV		4
14	FW923	50 X 50 X 3MM GALV SQUARE	Washer	1
15	F123	M16X200 GALV HEX HEAD	Bolt & Nut	1
16	[incl. in MAXHDG]	M20X75 GALV HEX HEAD		4
17	F1002	M16X32MM GALV SPLICE BOLT	& Nut GR 8.8	56
18	F124	M16X240 GALV CUP HEAD	Bolt & Nut	8
19	FW900	M16 GALV ROUND WASHER		2
20	4001116	Guardrail Nut Recessed 5/8-11		1
21	F1012	M16X50MM GALV POST BOLT	& Nut GR 4.6	1
22	MAXBDG	MAX BRACKET DELINEATION	(optional)	1
23	F174	12- 24 X 32MM SELF HEX SDS	500 Series Gal	3
24	FW903	RECTANGULAR WASHER GALV	(75x45x5)	1
25	W113G	1.0M NLL W-BEAM RAIL		1
26	X350NC	PLASTIC NUT COVER		25
27	MAXYN	YELLOW PLASTIC NOSE HOUSING	(optional)	1

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Step 1 - Post Assembly and Installation



Item #	Part #	Description	Qty
4	MAXP1G	MAXTENSION POST 1 1830MM GALV	1
11	UTLPG	MAXTENSION LINE POST 1830MM	8

The MAX-Tension™ guardrail end terminal is designed to attach to 787mm W-Beam guardrail systems. If the existing rail system is not 787mm in height, ensure the guardrail end terminal is properly transitioned per Federal, State, and Local standards.

1.1 Assemble posts (items 11 & 4) in the configuration shown. Ensure post height and post spacing follow the dimensions above.

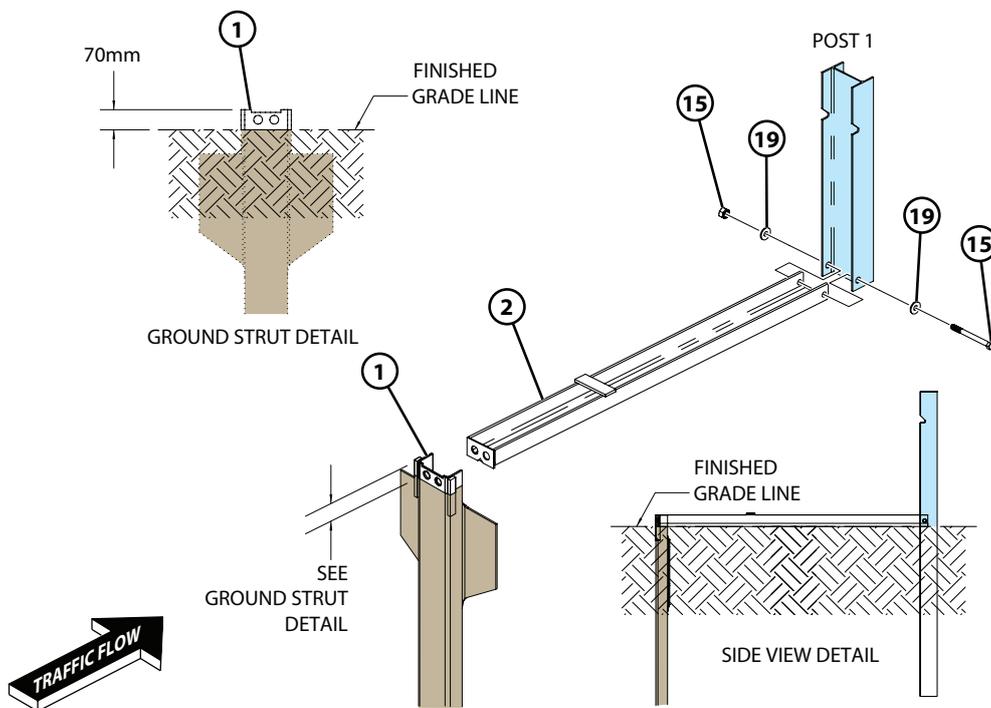
NOTE: The spacing between post 5 and post 6 is unique.

NOTE: The spacing between post 1 and post 2 is unique.

NOTE: The detail above depicts a tangent system without an offset. If applying an allowable offset of 0-610mm, modify the post offsets accordingly.

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Step 2 - Ground Strut and Soil Anchor Installation



Item #	Part #	Description	Qty
1	UTGAG	MAXTENSION GROUND ANCHOR GALV	1
2	UTGSG	MAXTENSION GROUND STRUT	1
15	F123	M16X200 GALV HEX HEAD	1
19	FW900	M16 GALV ROUND WASHER	2

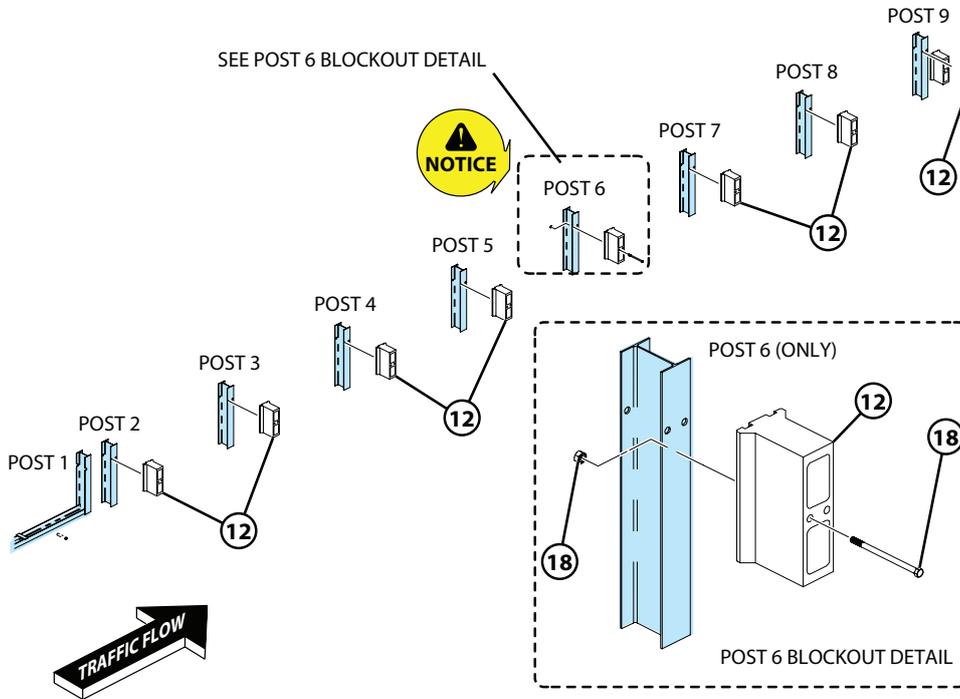
NOTE: To facilitate placement of the soil anchor (item 1), place the ground strut (item 2) in place prior to driving the soil anchor.

2.1 Assemble the ground strut (item 2) flush to the soil anchor (item 1) with hardware (items 15 & 19) in configuration shown.

2.2 Tighten all hardware.

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Step 3 - Blockout Installation



Item #	Part #	Description	Qty
12	B090534	COMPOSITE BLOCK - X350	8
18	F124	M16X240 GALV CUP HEAD	1

NOTE: Only posts 2-9 require a blockout. Do not install blockout on post 1.

3.1 Install the blockouts (item 12) in the configuration shown.

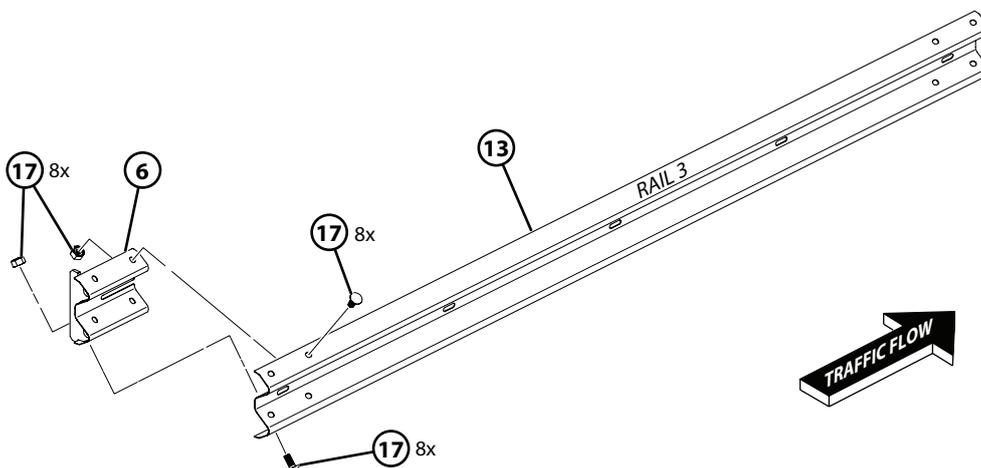
3.2 Secure blockout (item 12) on post 6 with hardware (item 18) as shown.

3.3 Tighten all hardware.

NOTE: The blockout must be secured to post 6 before hanging the rail using hardware items 18 as listed in the table above.

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Step 5 - Assemble Inner Side Slider (ISS) Panel on Rail 3



Item #	Part #	Description	Qty
6	MAXISSG	MAXTENSION INSIDE SLIDER GALV	1
13	W122G	3.81M MAXTENSION W-BEAM GALV	1
17	F1002	M16X32MM GALV SPLICE BOLT	8

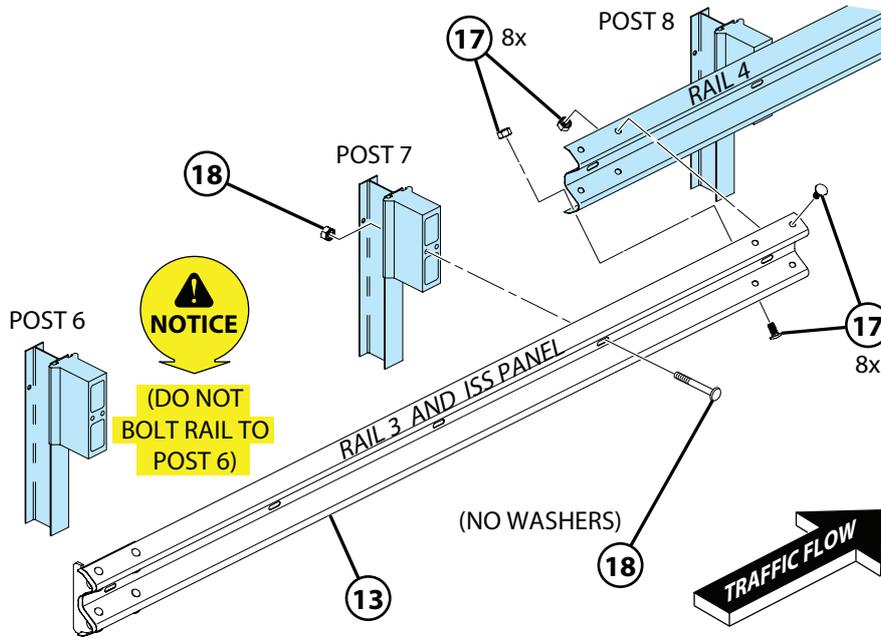
5.1 Prior to installing rail 3 (item 13), secure the inner side slider (ISS) panel (item 6) on upstream end of rail 3 (item 13) using the supplied hardware (item 17).

NOTE: Bolts shall be installed with the bolt heads on the traffic side and nuts on the non-traffic side.

5.2 Tighten all hardware.

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Step 6 - Install Rail 3



Item #	Part #	Description	Qty
17	F1002	M16X32MM GALV SPLICE BOLT	8
18	F124	M16X240 GALV CUP HEAD	1

RAIL 3 IS LAPPED OVER TOP OF RAIL 4. THIS IS DONE REGARDLESS OF AN UPSTREAM OR DOWNSTREAM END SYSTEM POSITION.

6.1 Install the preassembled rail 3 with attached inner side slider (ISS) panel in configuration shown in Step 5.

6.2 Splice rails 3 and 4 using hardware (item 17).

NOTE: Bolts shall be installed with the bolt heads on the traffic side and nuts on the non-traffic side.

6.3 Secure rail 3 to post 7 using hardware (item 18).

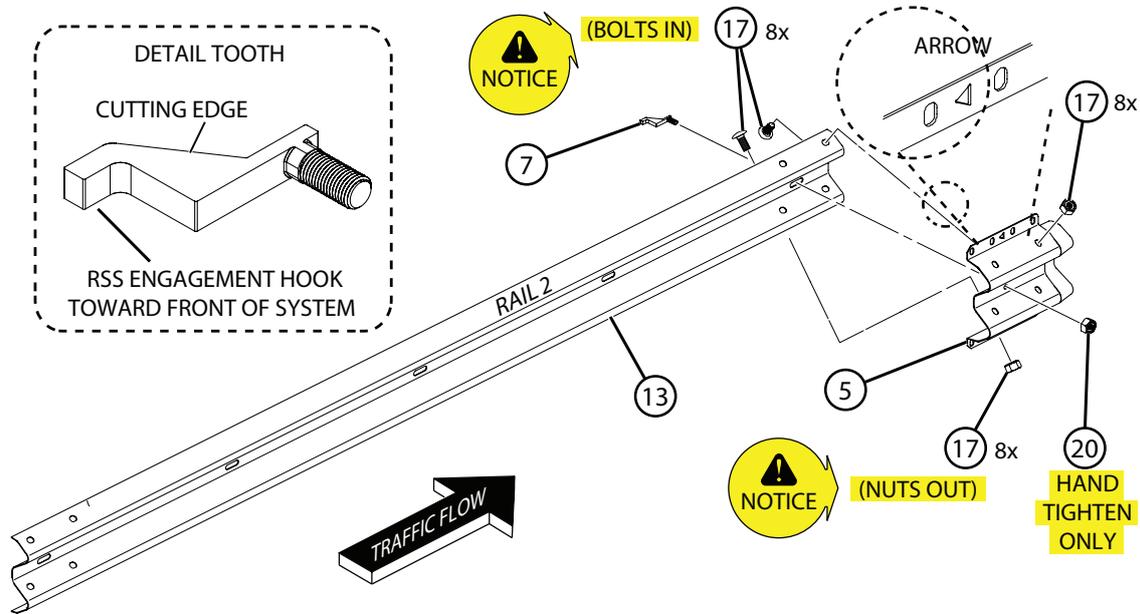
NOTE: Do not install any type of washer (e.g., rectangular washer) or delineator between the post bolt head and the guardrail.

NOTE: Rail 3 is not bolted at post 6. Ensure that the blockout on post 6 has already been secured with a bolt (See Step 3).

6.4 Tighten all hardware.

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Step 7 - Assemble Traffic Side Slider (TSS) and Tooth on Rail 2



Item #	Part #	Description	Qty
5	MAXTSSG	MAXTENSION TS SLIDER GALV	1
7	BSI-1610066-00	TOOTH, GEOMET MAX-TENSION	1
13	W122G	3.81M MAXTENSION W-BEAM GALV	1
17	F1002	M16X32MM GALV SPLICE BOLT	8
20	4001116	Guardrail Nut Recessed 5/8-11	1

7.1 Prior to installing rail 2 (item 13), assemble the traffic side slider (TSS) panel (item 5) and tooth (item 7) on the trailing end of rail 2 (item 13) in the configuration shown.

7.2 Secure the traffic side slider (TSS) panel (item 5) to the outside of rail 2 (item 13) using hardware (item 17). The arrow shall point toward the front of the system.

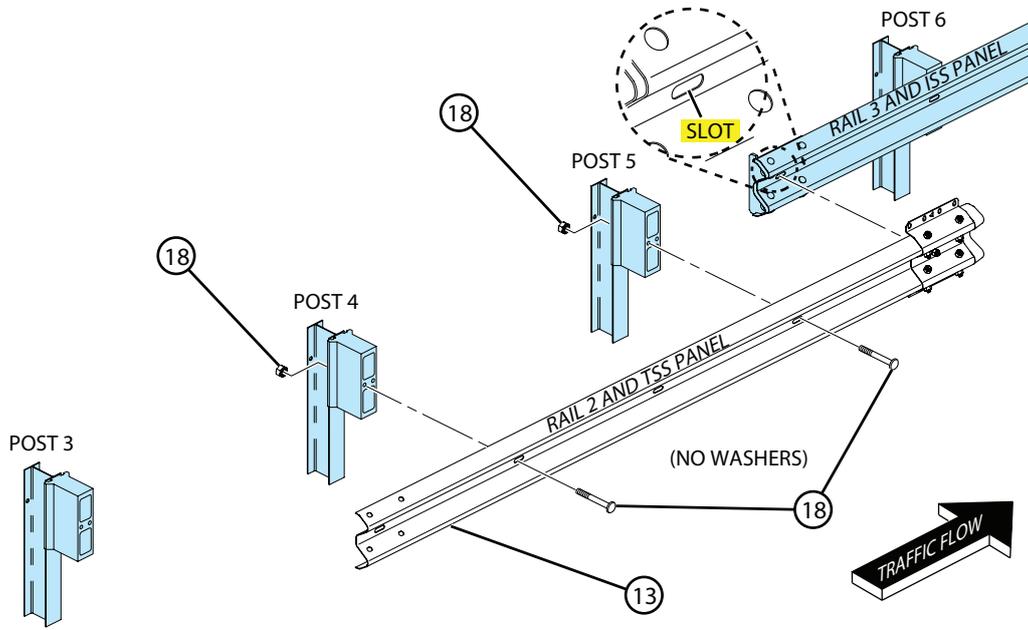
NOTE: Bolts shall be installed with the bolt heads on the non-traffic side and nuts on the traffic side.

7.3 Secure the tooth (item 7) using nut (item 20). Only hand tighten at this time. The flat edge of the tooth shall point toward the front of the system.

7.4 Tighten all hardware except the nut (item 20) on the tooth (item 7). The nut will be tightened during Step 14.

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Step 8 - Install Rail 2



Item #	Part #	Description	Qty
18	F124	M16X240 GALV CUP HEAD	2

RAIL 2 IS LAPPED OVER TOP OF RAIL 3. THIS IS DONE REGARDLESS OF AN UPSTREAM OR DOWNSTREAM END SYSTEM POSITION.

NOTE: Rails 2 and 3 will not be spliced together. When installing rail 2 over rail 3, ensure the tooth goes through elongated slot on rail 3.

8.1 Install the preassembled rail 2 with attached traffic side slider (TSS) panel and tooth in configuration shown.

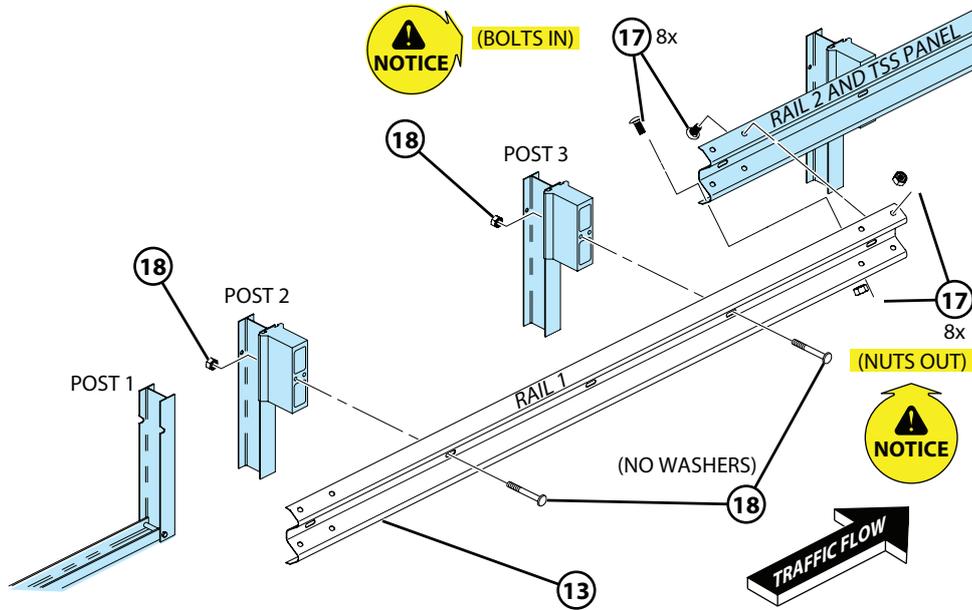
8.2 Secure rail 2 to post 5 and post 4 using hardware (item 18).

NOTE: Do not install any type of washer (e.g., rectangular washer) or delineator between the post bolt head and the guardrail.

8.3 Tighten all hardware.

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Step 9 - Install Rail 1



Item #	Part #	Description	Qty
13	W122G	3.81M MAXTENSION W-BEAM GALV	1
17	F1002	M16X32MM GALV SPLICE BOLT	8
18	F124	M16X240 GALV CUP HEAD	2

RAIL 1 IS LAPPED OVER TOP OF RAIL 2. THIS IS DONE REGARDLESS OF AN UPSTREAM OR DOWNSTREAM END SYSTEM POSITION.

9.1 Install rail 1 (item 13) in configuration shown.

9.2 Splice rails 1 and 2 using hardware (item 17).

NOTE: Bolts shall be installed with the bolt heads on the non-traffic side and nuts on the traffic side.

9.3 Secure rail 1 to post 3 and post 2 using hardware (item 18).

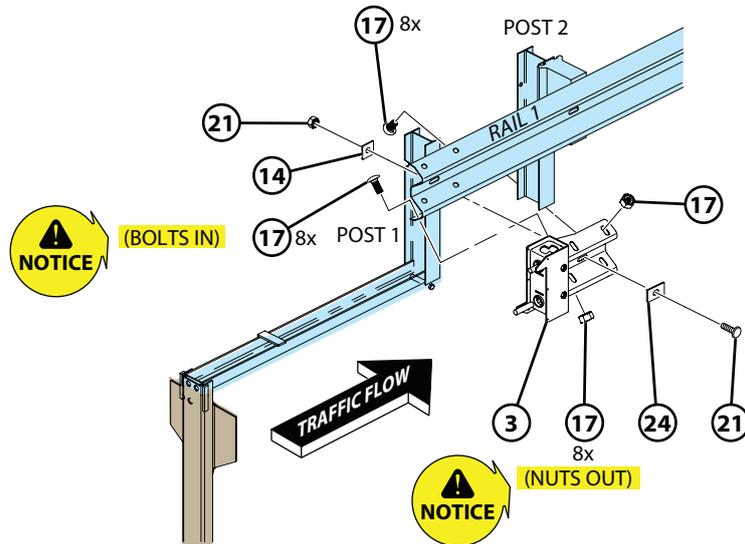
DO NOT secure the rail at post 1 at this time.

NOTE: Do not install any type of washer (e.g., rectangular washer) or delineator between the post bolt head and the guardrail.

9.4 Tighten all hardware.

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Step 10 - Install Impact Head



Item #	Part #	Description	Qty
3	MAXHDG	MAXTENSION IMPACT HEAD GALV	1
14	FW923	50 X 50 X 3MM GALV SQUARE	1
17	F1002	M16X32MM GALV SPLICE BOLT	8
21	F1012	M16X50MM GALV POST BOLT	1
24	FW903	RECTANGULAR WASHER GALV	1

ALWAYS LAP THE IMPACT HEAD OVER RAIL 1.

10.1 Install the impact head (item 3) in configuration shown.

10.2 Splice the impact head (item 3) to rail 1 using hardware (item 17).

NOTE: Bolts shall be installed with the bolt heads on the non-traffic side and nuts on the traffic side.

10.3 Secure the impact head (item 3) and rail 1 to post 1 in the configuration shown.

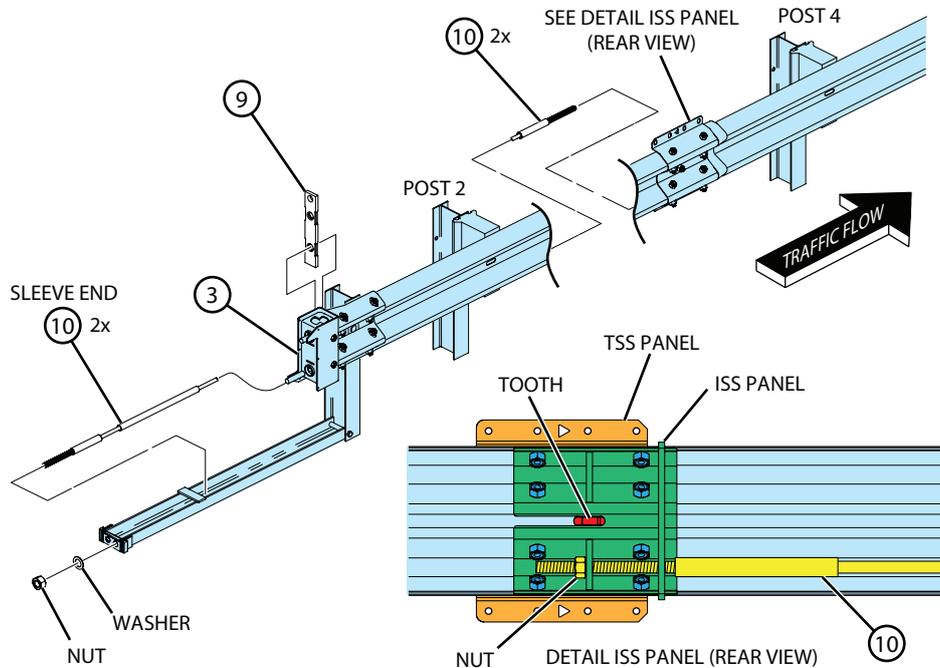
10.4 Ensure that the rectangular washer (item 24) is placed between the post bolt head (item 21) and the impact head (item 3) and that the square washer (item 14) is used on the backside between post 1 and the nut (item 21).

10.5 Tighten all hardware.



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Step 11 - Install Cables



Item #	Part #	Description	Qty
9	[INCL. IN MAXHDG]	MAXTENSION CABLE FRICTION PLATE	1
10	MAXTL3CAG	MAXTENSION TL3 CABLE ASSEMBNLY	2

11.1 Install the friction plate (9) and cables (10) in configuration shown.

11.2 **IMPORTANT:** Insert the end of the cables with the sleeve into the ground strut one at a time and secure with nut and washer provided with cable. **DO NOT** tighten at this step. The sleeve shall rest between the impact head and tabs on the ground strut. The sleeve shall rest a minimum of 6 inches below the impact head.

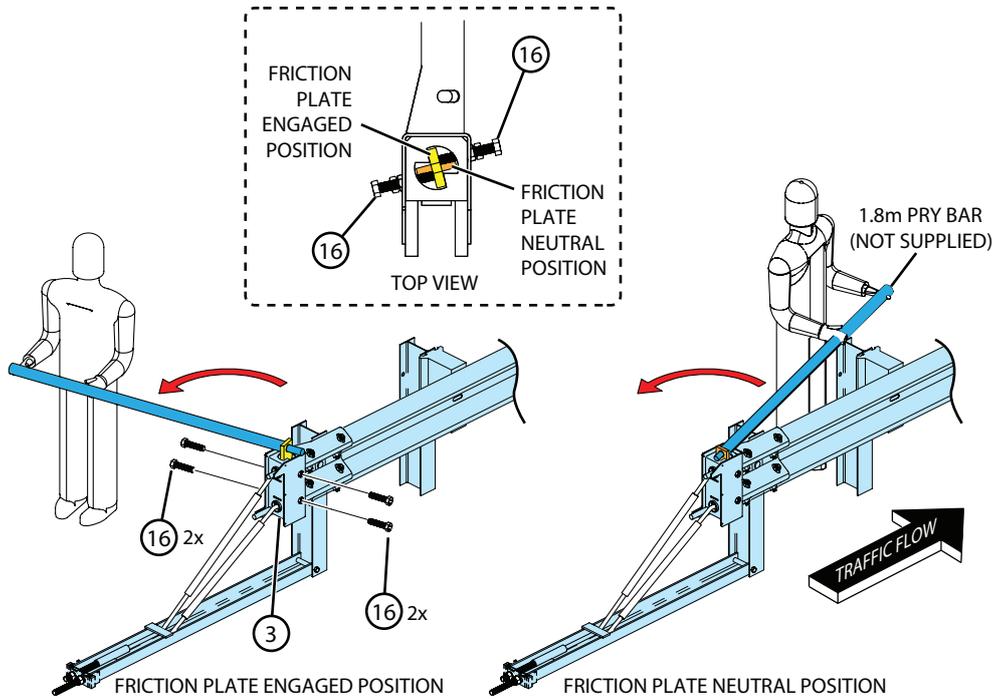
NOTE: The cable closest to the traffic side of the system must pass through the bottom hole of the impact head. The second cable must pass through the top hole.

11.3 Ensure that the friction plate (item 9) is inserted through the top of the impact head (3) while passing the cables (item 10) through the impact head (item 3).

11.4 Pass the cables (item 10) along the backside of rails 1 and 2 until reaching the ISS panel. Ensure that the threads on the cable pass through the holes on the ISS panel and secure cable with nut supplied with cable. **DO NOT** tighten the cables at this time.

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Step 12 - Turn Friction Plate



Item #	Part #	Description	Qty
16	[INCL. IN MAXHDG]	M20X75 GALV HEX HEAD	4

12.1 Install bolts (item 16) on the side of the impact head (item 3) in configuration shown.

12.2 Using a pry bar, turn the friction plate as in configuration shown.

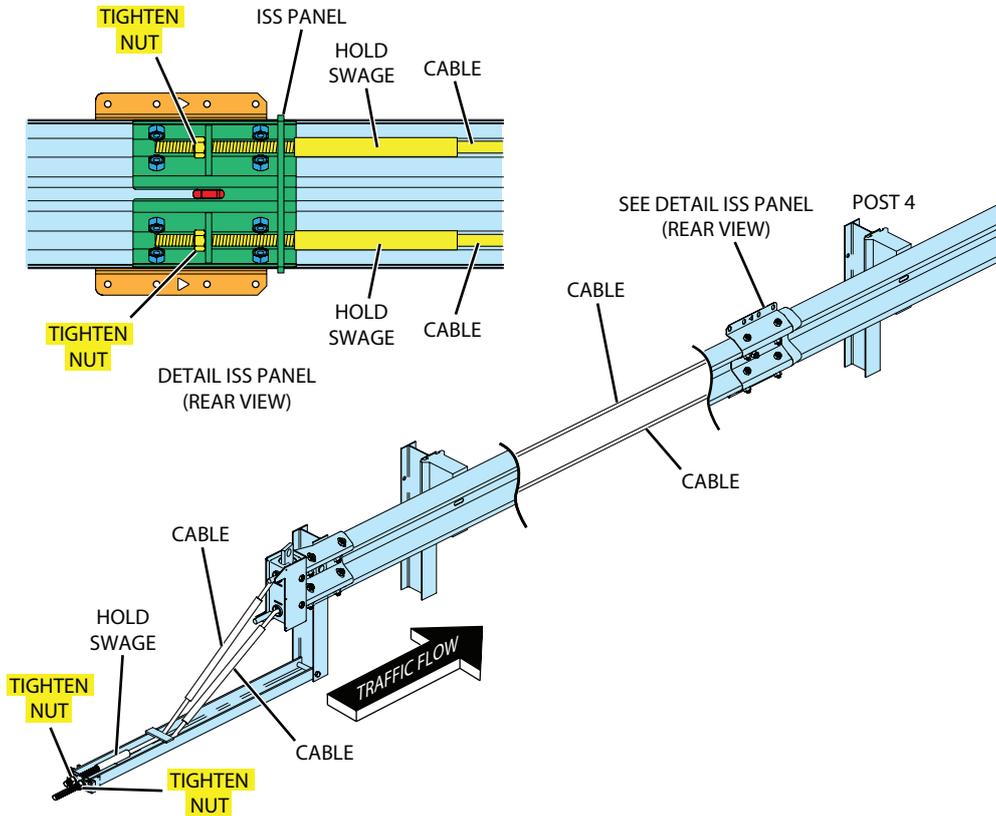
12.3 Tighten the bolts (item 16) on the side of the impact head (item 3) and turn the friction plate simultaneously until the friction plate reaches its engaged position and the bolts are completely tightened.

WARNING Once the friction plate has been turned, the cables cannot be reused.



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Step 13 - Tighten Cables



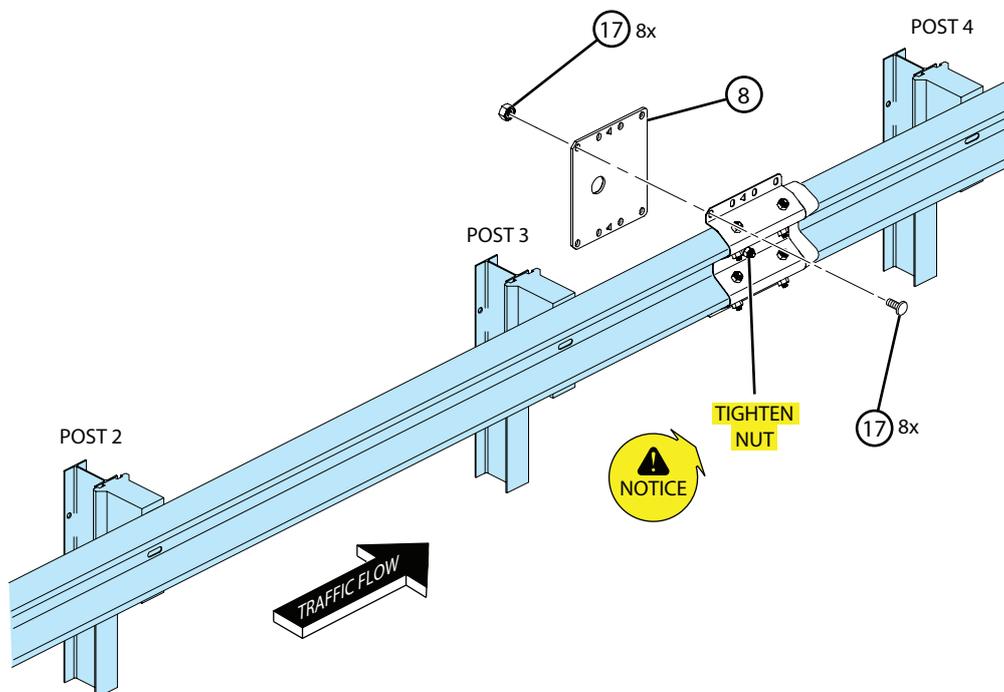
13.1 Tighten cable nuts both front and rear in configuration shown.

13.2 While tightening the cables, ensure that the cable does not spin by holding the swage with large pliers or pipe wrench.

13.3 Tighten until there is no visible sag in the cables.

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Step 14 - Install Rear Side Slider (RSS) Plate and Tighten Tooth



Item #	Part #	Description	Qty
8	MAXRSSG	MAXTENSION REAR SIDE SLIDER	1
17	F1002	M16X32MM GALV SPLICE BOLT	8

14.1 Install rear side slider (RSS) plate (8) in configuration shown using the supplied hardware (item 17).

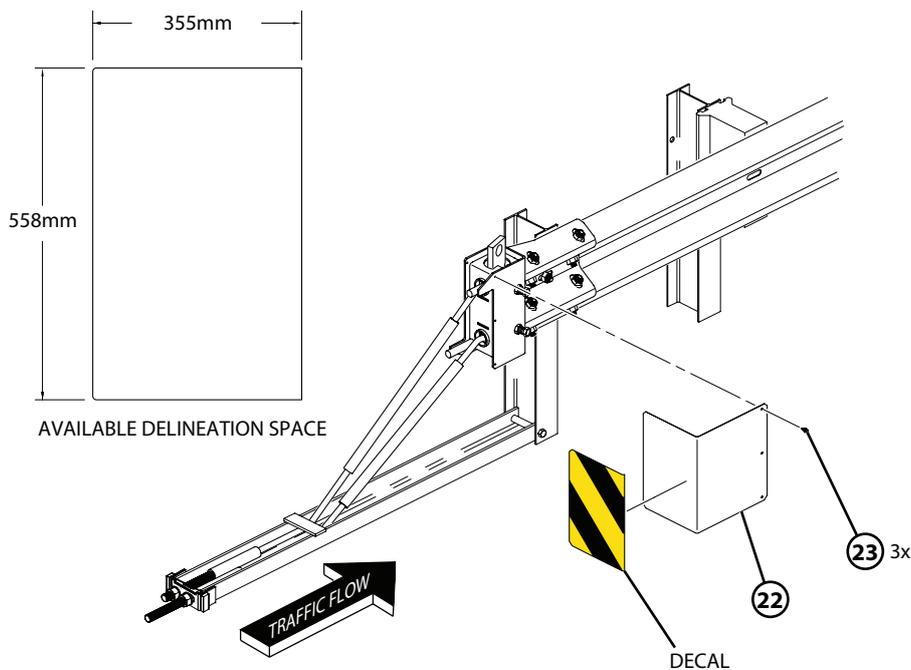
NOTE: Bolts shall be installed with the bolt heads on the traffic side and nuts on the non-traffic side.

14.2 Tighten the nut securing the tooth that was hand tightened in Step 7.

14.3 Tighten all remaining hardware.

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Step 15 - Install Delineation Bracket or Yellow Plastic Housing



Item #	Part #	Description	Qty
22	MAXBDG	MAX BRACKET DELINEATION	1
23	F174	12- 24 X 32MM SELF HEX SDS	3
27	MAXYN	YELLOW PLASTIC NOSE HOUSING	1

15.1 Install delineation bracket (item 22) in configuration shown using screw (item 23). If installing the Yellow Plastic Housing go to the next step.

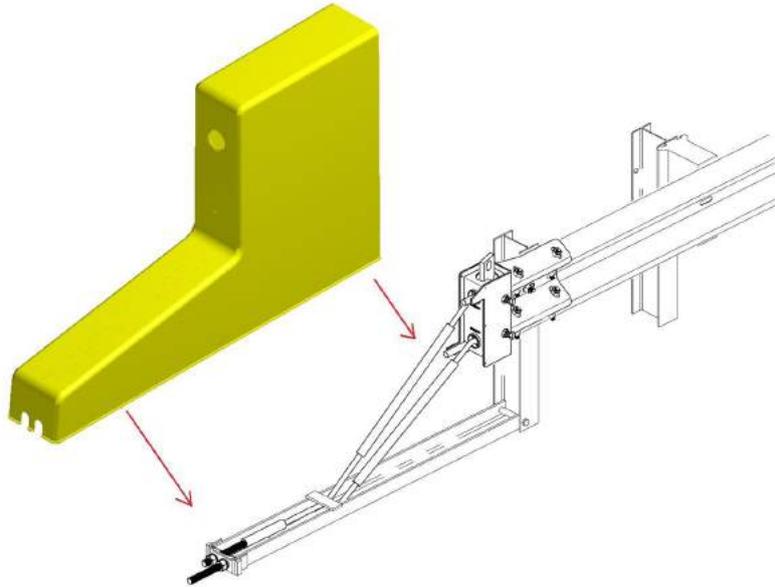
15.2 Apply delineation decal per Federal, State, and Local Standards.

15.3 Follow the following pro-tips to install the Yellow Nose Motorcyclist Delineation Cover on the MAX-Tension™ Terminal (TL-2 & TL-3 Models).



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15.4 Once the installation of the MAX-Tension is complete, loosen the frontal cable assembly nuts slightly to allow space for the Motorcyclist Friendly Cover to slot in place. Now place the cover over the leading section as shown below, covering the ground strut and impact head.



The leading end should appear as shown below.



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15.5 Drive in 3 x 12G x 32mm Self Tapping Series 500 Hex Screws supplied in the MAX-Tension hardware pack in the locations shown in below on the non-traffic side using a portable Drill Driver on high speed setting. The self-tapping screws need to be driven through the ground strut flange until the plastic is secured.



15.6 Re-tighten the frontal cable assembly nuts to secure the plastic to the ground strut. Ensure the washers are on the outside of the plastic.





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15.7 Install a suitable chevron marker according to the local state road controlling authority guidelines.

ACP offers the following chevron markers:

A214	CHEVERON MAX-T VERGE APPROACH	(NSW)
A215	CHEVERON MAX-T VERGE DEPARTURE	(NSW)
A216	CHEVERON MAX-T VERGE APPROACH	(WA)
A217	CHEVERON MAX-T VERGE DEPARTURE	(WA)
A218	CHEVERON MAX-T VERGE APP/DEP	(QLD/VIC/TAS)



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Step 16 - Install Plastic Nut Covers



Item #	Part #	Description	Qty
26	X350NC	PLASTIC NUT COVER	25

16.1 Apply plastic nut covers to all nuts exposed on the traffic side.

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Inspector Checklist

Confirm all items in checklist have been properly completed and hardware is tightened.

Date	By	Item
		Cable closest to the traffic side of the system passes through bottom hole on impact head. (Pg. 23, Step 11)
		Cable sleeves are at the front of the system. The sleeves shall rest a minimum of 6 inches below the impact head. (Pg. 23, Step 11)
		No blockout at post 1. (Pg. 15, Step 3)
		Slot on post 1 is on upstream end of the system. (Pg. 13, Step 1)
		Guardrail nuts on impact head are on the outside. (Pg 22, Step 10)
		Rectangular washer and square washer used at post 1. (Pg 22, Step 10) Friction plate is installed inside impact head. (Pg. 23, Step 11)
		Friction plate is turned to engaged position. (Pg. 24, Step 12)
		Friction plate bolts are completely tightened. (Pg. 24, Step 12)
		Rail 1 and rail 2 are spliced with the guardrail nuts on the outside. (Pg. 21, Step 9)
		Slider Joint - traffic side slider (TSS) should be attached to downstream end of rail 2 with nuts on the traffic side and arrow pointing toward the front of the system. (Pg. 19, Step 7)
		Slider Joint - inner side slider (ISS) should be attached to the upstream end of rail 3 with nuts on the non-traffic side. (Pg. 17, Step 5)
		Slider Joint - rear side slider (RSS) should be attached with the nuts on the non-traffic side and arrow pointing toward the front of the system. (Pg. 26, Step 14)
		Tooth is installed and engaged in the slot at the slider joint. (Pg. 19, Step 7)
		Cables should be taut and not visibly sagging. (Pg. 25, Step 13)
		System installed without offset or with allowable offset of 0-610mm (Pg. 13, Step 1)
		System height shall be 787mm +/- 25mm. (Pg. 13, Step 1)
		All guardrail panels should be lapped with the upstream most rail on the outside. Rail 1 over rail 2, rail 2 over rail 3, rail 3 over rail 4, and rail 4 over rail 5. (Pg. 21, Step 9)
		A delineation yellow housing or bracket is installed with delineation sticker. Plastic nut covers are installed on all exposed traffic side nuts.
Inspector signature		Date

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Maintenance Inspection

Guardrail terminals, like all roadside safety hardware, require inspection to ensure they are in acceptable working condition. Regular inspections of the MAX-Tension™ system are recommended and shall be made by the Local highway authority. Frequency of the inspections shall be made based on site conditions, traffic volumes, and crash history. Please follow the Local guidelines for frequency of inspections to ensure adequate repairs are made to the system. Walk-up inspections are recommended at least twice a year. The MAX-Tension™ system shall be inspected for damage after every impact. Repairs shall be made accordingly using ACP components as specified in the product drawings.

Visual Drive-By Inspections Recommended Frequency – Monthly

Check for:

- > Damage caused by vehicle impacts
- > Minor damage cause by impacts from roadside maintenance equipment
- > Misalignment
- > Missing components
- > Damage from vandalism
- > Loose hardware

Walk-Up Inspections

Recommended Frequency – Twice a Year

Check for:

- > Damage caused by vehicle impacts
- > Minor damage cause by impacts from roadside maintenance equipment
- > Misalignment
- > Missing components
- > Damage from vandalism
- > Sagging cables
- > Clear and dispose of any debris in and around the system
- > Cutting tooth is in correct position
- > Disengaged friction plate
- > Frayed cable
- > Grading around the system
- > Loose hardware
- > The cable sleeves shall rest a minimum of 6 inches below the impact head.

After inspection is complete, ensure all items identified during the inspection process are corrected. The MAX-Tension™ System shall be returned to proper condition as outlined in the installation instructions.



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Maintenance Inspection (Cont.)

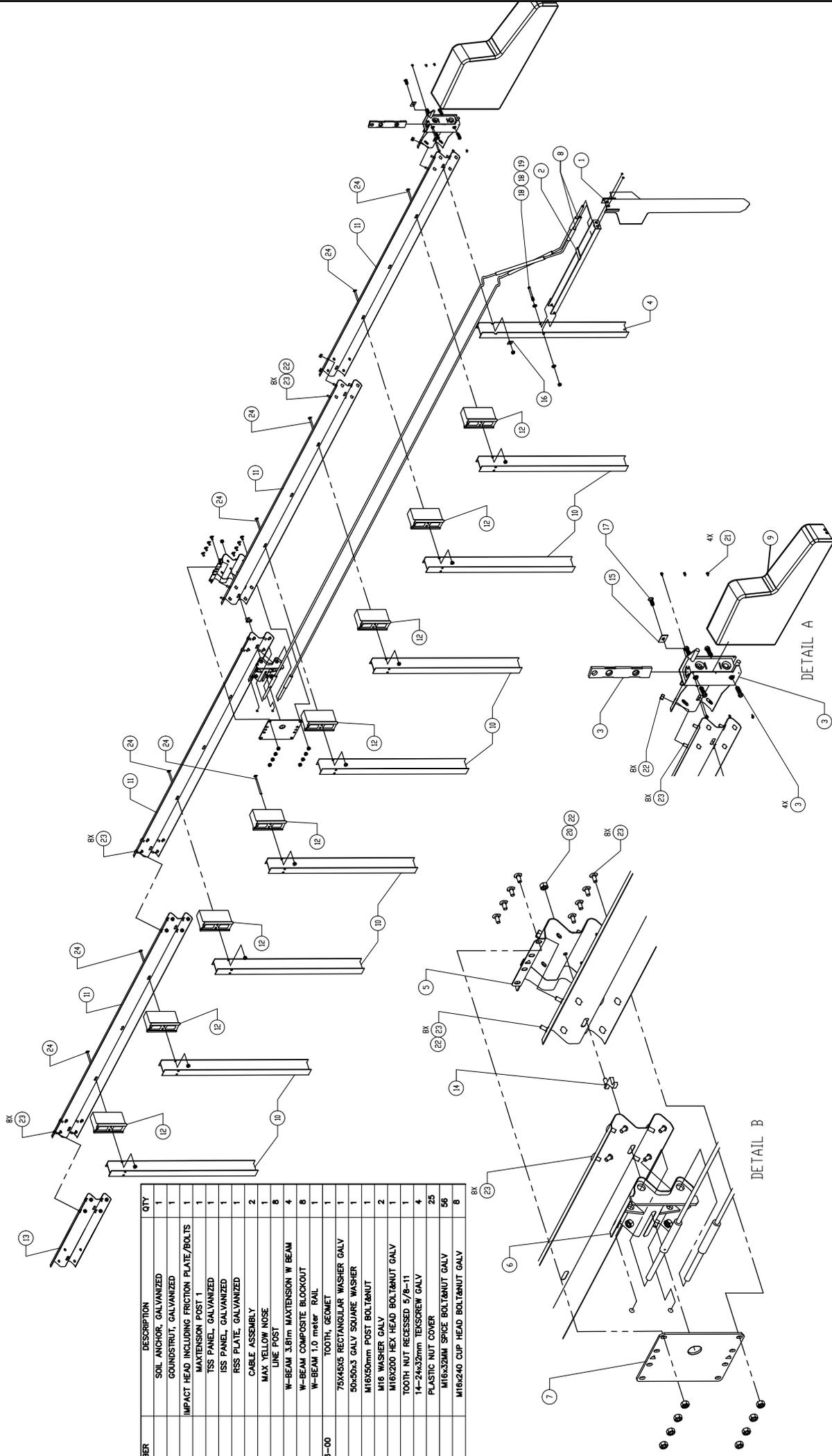
Walk-Up Inspection	
Item	Comment
Damage caused by vehicle impacts	
Minor damage caused by impacts from roadside maintenance equipment	
Misalignment	
Missing components	
Damage from vandalism	
Sagging cables	
Clear and dispose of any debris in and around the system	
Cutting tooth is in correct position	
Disengaged friction plate	
Frayed cable	
Grading around system	
Loose hardware	
The cable sleeves shall rest a minimum of 150mm below the impact head	
Inspector signature	Date
Print Name	Location

If any of the above items are identified during the walk-up inspection, swift action should be taken to repair and return the MAX-Tension™ Guardrail Terminal System (MAX™) to the proper condition as outlined in this manual.

In addition to the items listed above, all items in the Inspector Checklist (Pg. 26) should be checked.

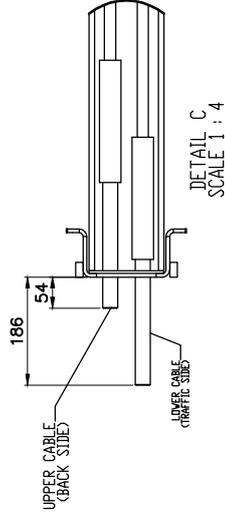
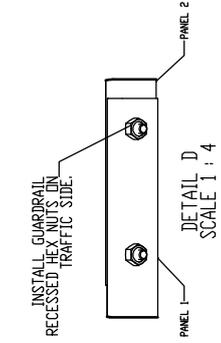
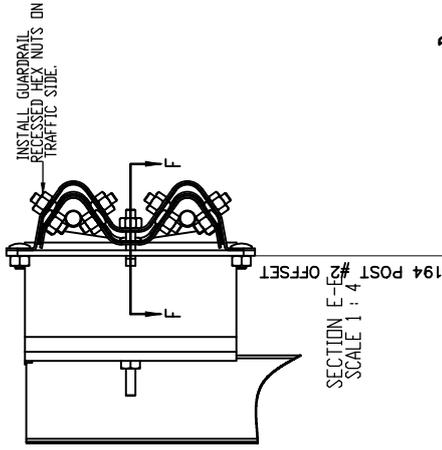
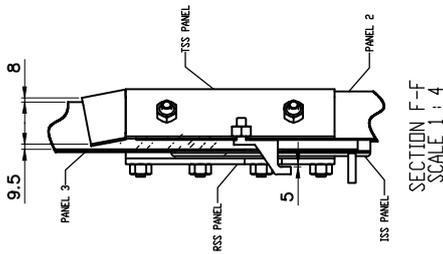
APPENDIX

Drawings

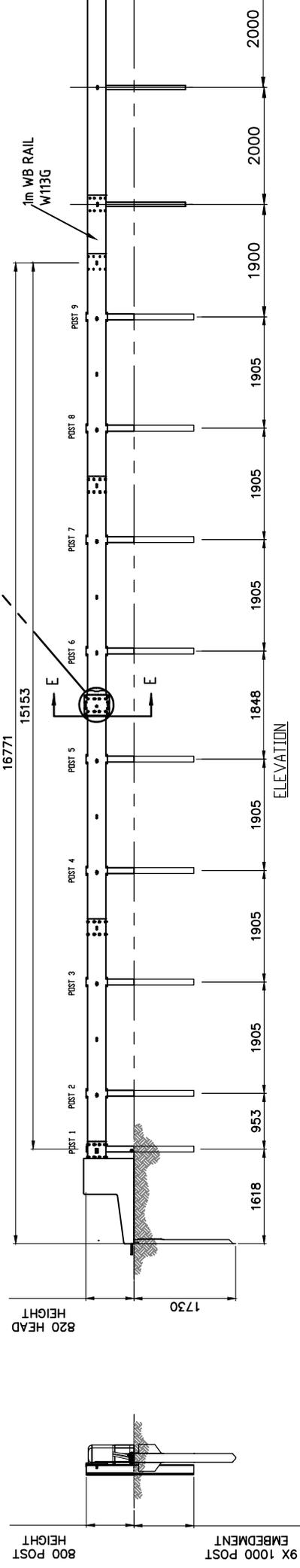
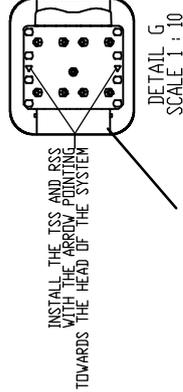
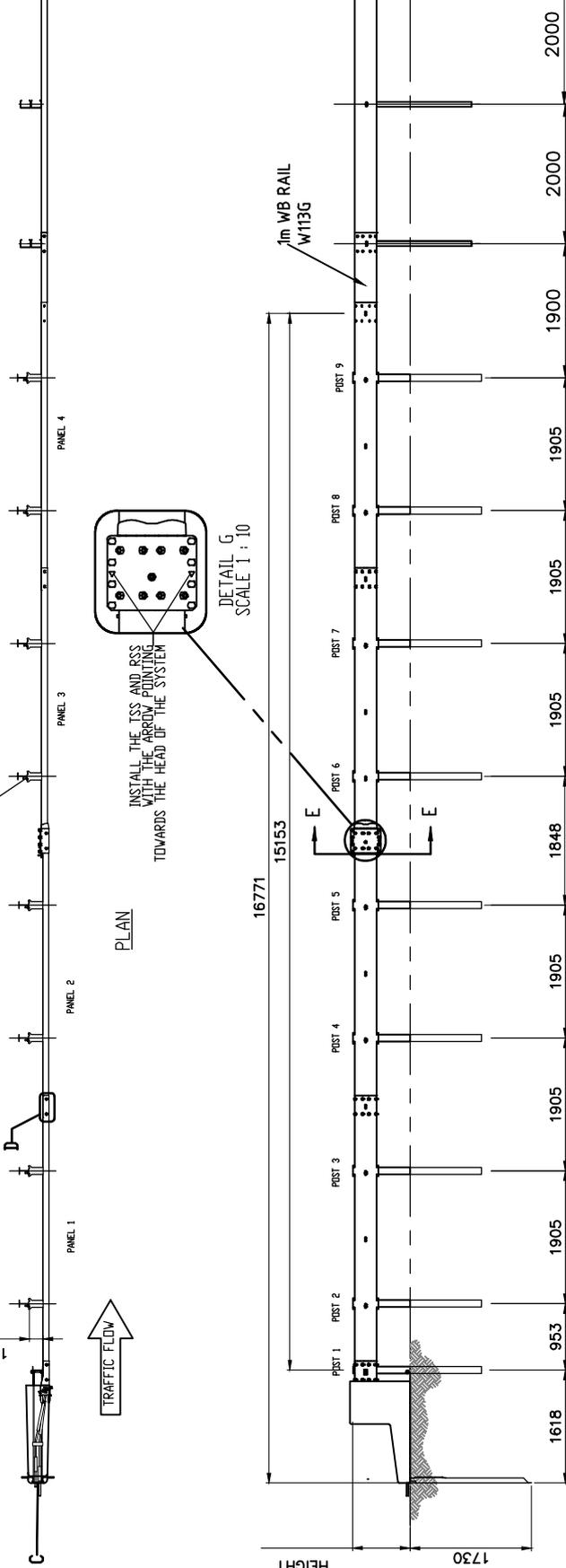


ITEM	PART NUMBER	DESCRIPTION	QTY
1	UTGAG	SOIL ANCHOR, GALVANIZED	1
2	UTGSG	GROUNDSTRUT, GALVANIZED	1
3	MAXHDG	IMPACT HEAD INCLUDING FRICTION PLATE/BOLTS	1
4	MAXPIC	MAXTENSION POST 1	1
5	MAXTSSG	TSS PANEL, GALVANIZED	1
6	MAXRSSG	ISS PANEL, GALVANIZED	1
7	MAXRSSG	RSS PLATE, GALVANIZED	1
8	MAXTL3CAG	CABLE ASSEMBLY	2
9	MAXTYN	MAX YELLOW NOSE	1
10	UTLPG	LINE POST	8
11	W122G	W-BEAM 3.81m MAXTENSION W BEAM	4
12	B060534	W-BEAM COMPOSITE BLOCKOUT	8
13	W113G	W-BEAM 1.0 meter RAIL	1
14	BS-1610066-00	TOOTH, GEOMET	1
15	FW923	75X45X5 RECTANGULAR WASHER GALV	1
16	FW923	50x50x3 GALV SQUARE WASHER	1
17	F1012	M16x50mm POST BOLTNUT	1
18	FW900	M16 WASHER GALV	2
19	F123	M16x200 HEX HEAD BOLTNUT GALV	1
20	400116	TOOTH NUT RECESSED 5/8-11	1
21	F174	14-24x32mm TKSREW GALV	4
22	X350NC	PLASTIC NUT COVER	25
23	F1002	M16x32MM SPICE BOLTNUT GALV	65
24	F124	M16x240 CUP HEAD BOLTNUT GALV	8

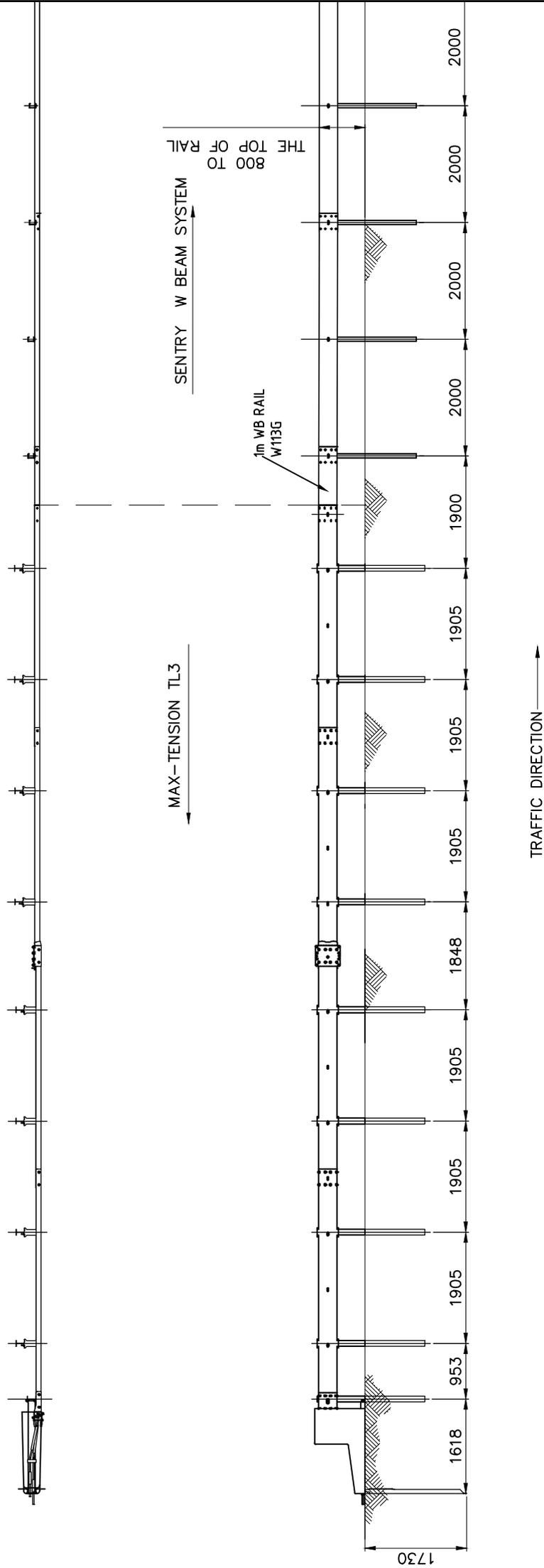
REV	DESCRIPTION	APPD	DATE
C	BOM REVISION	EA	19.06.20
B	BOM REVISION	EA	01.11.19
A	ORIGINAL ISSUE	EA	23.07.18
ITEM	MAX-TENSION TL-3 TANGENT SYSTEM DRAWING 1 OF 2	CLIENT	
DRAWN	E.A.	MATERIAL	STEEL TO AS/NZS 1594
CHECKED		FINISH	PRETREATMENT TO AS 1627 HOT DIP GALVANISE TO AS/NZS 4680
APPROVED		TOLERANCES	Whole Numbers ±2 One Decimal Place ±0.05 Bend Angle : ±2 Straightness : 1.5per1500
		Scale:	N.T.S.
 ACP AUSTRALIAN CONSTRUCTION PRODUCTS Australian Construction Products Pty Ltd 339 Horsley Road Milperra NSW 2214 P.O. Box 565 Panania NSW 2213 Tel: +61 2 9772 4172 Fax: +61 2 9792 6272			



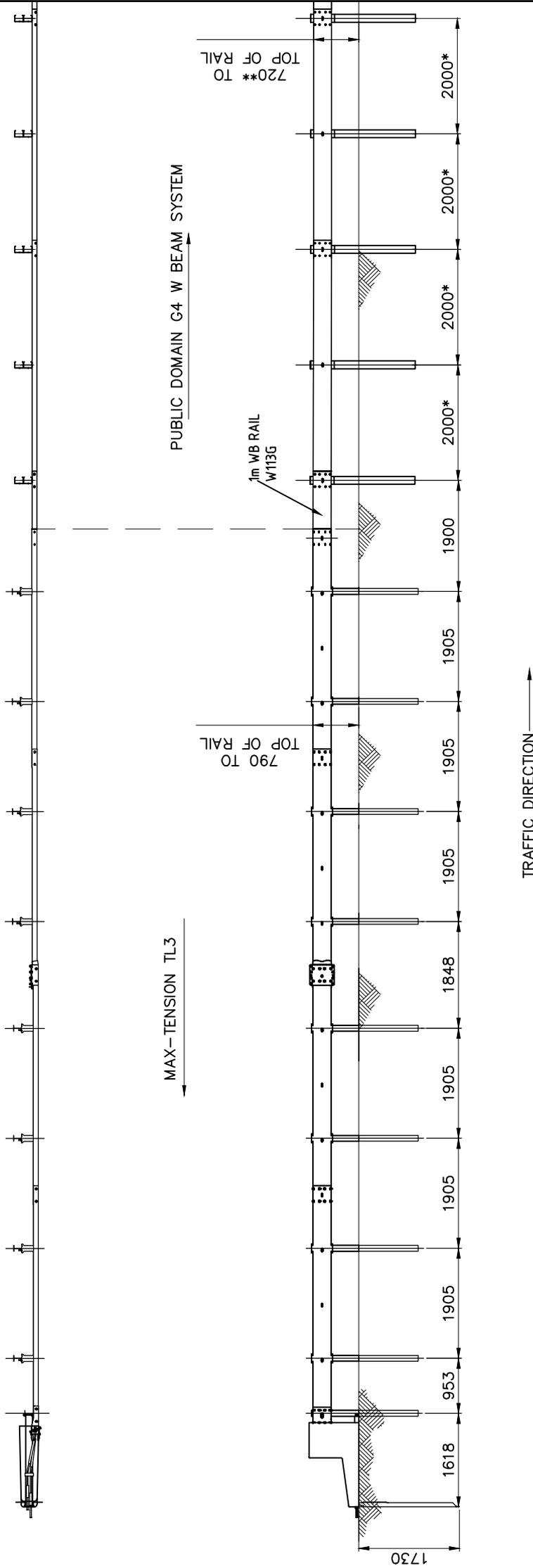
BOLT IS NOT PASSED THROUGH THE GUARDRAIL PANEL AT PIST 6



REV	DESCRIPTION	APPD	DATE	 <p>ACP AUSTRALIAN CONSTRUCTION PRODUCTS Australian Construction Products Pty Ltd 339 Horsley Road Milperra NSW 2214 P.O. Box 565 Panania NSW 2213 Tel: +61 2 9772 4172 Fax: +61 2 9792 6272</p>	<p>CLIENT</p> <p>MATERIAL STEEL TO AS/NZS 1594</p> <p>FINISH PRETREATMENT TO AS 1627 HOT DIP GALVANISE TO AS/NZS 4680</p>	<p>ITEM MAX-TENSION TL-3 TANGENT SYSTEM DRAWING 2 OF 2</p> <p>DRAWING NUMBER MAXTL3-2</p> <p>DRAWN E.A.</p> <p>CHECKED</p> <p>APPROVED</p>
B	MAXYN USED	EA	3.08.21			
A	ORIGINAL ISSUE	EA	23.07.18			
<p>TOLERANCES</p> <p>Whole Numbers ±2</p> <p>One Decimal Place ±0.05</p> <p>Bend Angle : ±2</p> <p>Straightness : 1.5per1500</p>		<p>Scale: N.T.S.</p>				



REV	DESCRIPTION	APPD	DATE
A	ORIGINAL ISSUE	E.A.	25.07.18
B	MOTORCYCLIST PROT. COVER ADDED	W.R.	02.04.20
C	MOTORCYCLIST PROT. COVER AMENDED	W.R.	23.08.21
<p style="text-align: center;">ACP <small>AUSTRALIAN CONSTRUCTION PRODUCTS</small> Australian Construction Products Pty Ltd 339 Horsley Road Milperra NSW 2214 P.O. Box 565 Panania NSW 2213 Tel: +61 2 9772 4172 Fax: +61 2 9792 6272</p>			
TOLERANCES Whole Numbers ± 2 One Decimal Place ± 0.05 Bend Angle : ± 2 Straightness : $1.5 \text{ per } 1500$		CLIENT MATERIAL FINISH	
ITEM MAX-TENSION TL-3 TANGENT SYSTEM TRANSITION TO SENTRY BARRIER W BEAM		DRAWING NUMBER <h1 style="text-align: center;">GA-TR10</h1>	
DRAWN E.A.		CHECKED APPROVED	
Scale: N.T.S.			



* SPACING SHOWN APPLICABLE TO ALL STATES EXCEPT FOR VICTORIA WHICH IS 2500 MM.
 ** RAIL HEIGHT VARIES ACROSS STATES, REFER TO STATE ROAD AUTHORITY W BEAM ARRANGEMENT DETAIL.
 TRANSITION RAIL HEIGHT FROM 790 (MAX-T) TO PUBLIC DOMAIN RAIL HEIGHT OVER TWO RAIL LENGTHS.

REV	DESCRIPTION	APPD	DATE
A	ORIGINAL ISSUE	W.R.	21.01.19
B	MOTORCYCLIST PROT. COVER ADDED	W.R.	02.04.20
C	MOTORCYCLIST PROT. COVER AMENDED	W.R.	23.08.21
<p>ACP AUSTRALIAN CONSTRUCTION PRODUCTS Australian Construction Products Pty Ltd 339 Horsley Road Milperra NSW 2214 P.O. Box 565 Panania NSW 2213 Tel: +61 2 9772 4172 Fax: +61 2 9792 6272</p>			
TOLERANCES		Scale: N.T.S.	
Whole Numbers ±2		One Decimal Place ±0.05	
Bend Angle : ±2		Straightness : 1.5per1500	
CLIENT	MATERIAL	FINISH	
ITEM	MAX-TENSION TL-3 TANGENT SYSTEM TRANSITION TO PUBLIC DOMAIN G4 W BEAM		
DRAWING NUMBER	GA-TR13		
DRAWN	CHECKED	W.R.	APPROVED



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Notes

Long-Term Storage

Store materials under cover in dry, well-ventilated conditions, away from doorways open to the environment.

Provide adequate ventilation between stacked pieces. Elevate and separate articles stacked outdoors with spacers (poplar, ash, spruce).

Incline parts to allow for Maximum Drainage.

Avoid stacking material directly on soil or decaying vegetation.

For crated items, remove the lids to provide better ventilation and drying of the galvanized parts. Customers will need to remove kits packed in cardboard boxes from the crates and store them inside.