

Sheet Contents

- 1 Overall Plan View of SRGS
- 2 Intended Use, Eligibility, References, Contact Information
- 3 Components (SRGS)
- 4 Components (Transition & Anchor Section)
- 5 Main Road Section–Transition Details
- 6 Curved Section Details
- 7 Side Road Section Details
- 8 Side Road Section–Trailing End Anchor Details
- 9 Side Road Section–Line Post Anchor Details

NOTES:

1. For bi-directional traffic, Side Road anchor system must add additional w-beam if warranted and/or a crashworthy terminal. When this Trailing End Anchor System is not used, the first adjacent standard line guardrail post may be used as the lower cable anchor post.
2. For Main Road, any crashworthy three-beam or w-beam transition to rigid barrier can be used. The Backrail is part of the SRGS and must be added to any crashworthy transition.

See Note 1. This Anchor is not part of the SRGS.

SIDE ROAD SECTION

5 @ 75"
[5 @ 1905]

47'-7"
[14.5m]
Reference

OVERALL PLAN VIEW
AS TESTED

CURVED SECTION

37-1/2"
[952]

See Note 2. The Backrail is part of the SRGS.

8'-0" Radius
[2438]
4@37-1/2"
[4@952]

Post Spacing Dimensions

11-1/2" [292]
5 @ 18-3/4" [5 @ 476]
5 @ 37-1/2" [5 @ 952]

33'-0" [10.1m] Reference

Concrete Barrier, Vertical Face

MAIN ROAD SECTION

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)



SEW33a

SHEET NO.

DATE

1 of 9

7/31/2024

INTENDED USE

Short Radius W-Beam Guardrail System (SEW33a) is a non-proprietary system for shielding roadside areas where a main road and a side road intersect in close proximity to a bridge or at other locations where this design may be warranted. The overall system shown on Sheet 1 consists of three (3) sections: a Thrie-Beam Transition section with W-Beam Back Rail; an 8' [2.44m]-Radius W-Beam Curved section; and, a W-Beam Trailing-End Anchor. The SEW33a system was developed, evaluated, and crash-tested as part of National Cooperative Highway Research Program (NCHRP) Project 15-53. Crash Testing was conducted in accordance with the AASHTO Manual for Assessing Safety Hardware (MASH) 2016, Test Level 3 (TL-3).

ELIGIBILITY

Federal Highway Administration (FHWA) Eligibility has not been pursued.

REFERENCES

NCHRP Project 15-53, Roadside Barrier Designs Near Bridge Ends with Restricted Rights of Way.

CONTACT INFORMATION

Center for Collision Safety and Analysis (CCSA)
College of Science, George Mason University,
4087 University Drive
Fairfax, VA 22030
Phone (703) 993-4694
<https://www.ccsa.gmu.edu/>

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)

SEW33a

SHEET NO.

DATE

2 of 9

7/31/2024



COMPONENTS

NOTE: Component quantities shown are totals for the “As-Tested” system.

Short Radius Guardrail System (SRGS)

<u>Designator</u>	<u>Component Description</u>	<u>Quantity</u>
FBB01	Guardrail Splice Bolt, 1-1/4” [32] long, & Recessed Nut	53
FBB02	Guardrail Bolt, 2” [51] long, & Recessed Nut	2
FBB03	Guardrail Post Bolt, 10” [254] long, & Recessed Nut	11
FBE01a	Eye Bolt, 5/8”x8” [16x203] with 2 Nuts & 2 Washers	37
FBX16a	Hex Bolt & Nut, 5/8”x1-1/2” [16x38]	12
FPA01a	Short Guardrail Anchor Bracket	3
FPB01	BCT Bearing Plate	1
FWC16a	Plain Round Washer, 5/8” [16]	28
PDB01b	W-Beam Timber Blockout, Routed	11
PWE01	Wide-Flange Guardrail Post	11
RCE03*	Cable End Fitting	4
RCM01	Wire Rope, 3/4” [19] diameter, 3x7, 59’ [18m] long	2
RWE03a	Rounded End Section, 12 gauge	1
RWM01b	W-Beam Spacer Guardrail, 6’-3” [1905] long, 10 gauge	1
RWM08b	8-Space W-Beam Guardrail, 10 gauge	1
RWM23b	W-Beam Spacer Guardrail, w/Holes, 6’-3” [1905] long, 10 gauge	1
RWM24b	4-Space W-Beam Guardrail, 90° Curve, w/Holes, 10 gauge	1
RWM25b	4-Space W-Beam Guardrail, Straight w/Holes, 10 gauge	1
RWM26b	4-Space W-Beam Guardrail, Straight w/Holes & Slot, 10 gauge	1

*The product provided by the vendor will be shipped with three (3) washers and two (2) nuts. Note that only one (1) washer and one (1) nut may be used (as tested) if there is interference.

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)

SEW33a

SHEET NO.

DATE

3 of 9

7/31/2024



COMPONENTS (continued)

NOTE: Component quantities shown are totals for the “As-Tested” system.

Transition to Rigid Barrier (Main Road)

<u>Designator</u>	<u>Component Description</u>	<u>Quantity</u>
FBB01	Guardrail Splice Bolt, 1-1/4" [32] long, & Recessed Nut	24
FBB03	Guardrail Post Bolt, 10" [254] long, & Recessed Nut	8
PDB01b	W-Beam Timber Blockout, Routed	8
PWE01	Wide-Flange Guardrail Post	8
RTE01b	Thrie-Beam Terminal Connector, 10 gauge	1
RTM20b	8-Space Thrie-Beam Guardrail, w/Holes & Slot, 10 gauge	1
RWT02	Asymmetrical W-Thrie Beam Transition Section, 10 gauge	1

Trailing End Anchor (Side Road)

<u>Designator</u>	<u>Component Description</u>	<u>Quantity</u>
FBB01	Guardrail Splice Bolt, 1-1/4" [32] long, & Recessed Nut	12
FBB03	Guardrail Post Bolt, 10" [254] long, & Recessed Nut	1
FBB04	Guardrail Post Bolt, 18" [457] long, & Recessed Nut	1
FBX16a	Hex Bolt & Nut, 5/8"x1-1/2" [16x38]	8
FBX16a	Hex Bolt, 5/8"x7-1/2" [16x191] with Nut	2
FBX16a	Hex Bolt, 5/8"x10" [16x254] with Nut	2
FCA01	Cable Anchor Assembly	1
FPA01	Guardrail Anchor Bracket	1
FPB01	BCT Bearing Plate	1
FWC16a	Plain Round Washer, 5/8" [16]	10
PDB01a	W-Beam Timber Blockout	1
PDF04	BCT Timber Post for MGS	2
PTE06	Foundation Tube for MGS	2
RWE03a	Rounded End Section, 12 gauge	1
RWM27a	4-Space W-Beam Anchor Guardrail, w/Holes, 12 gauge	1

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)

SEW33a

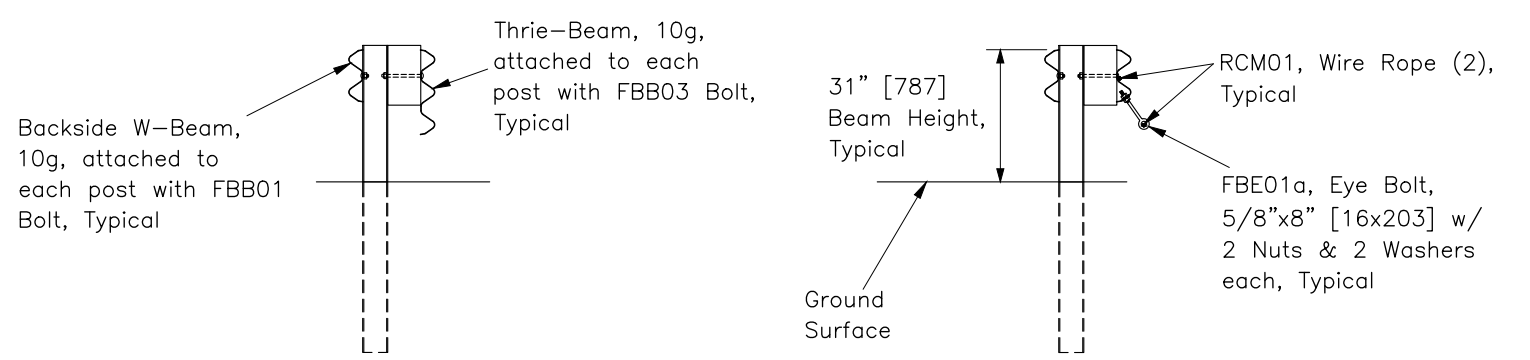
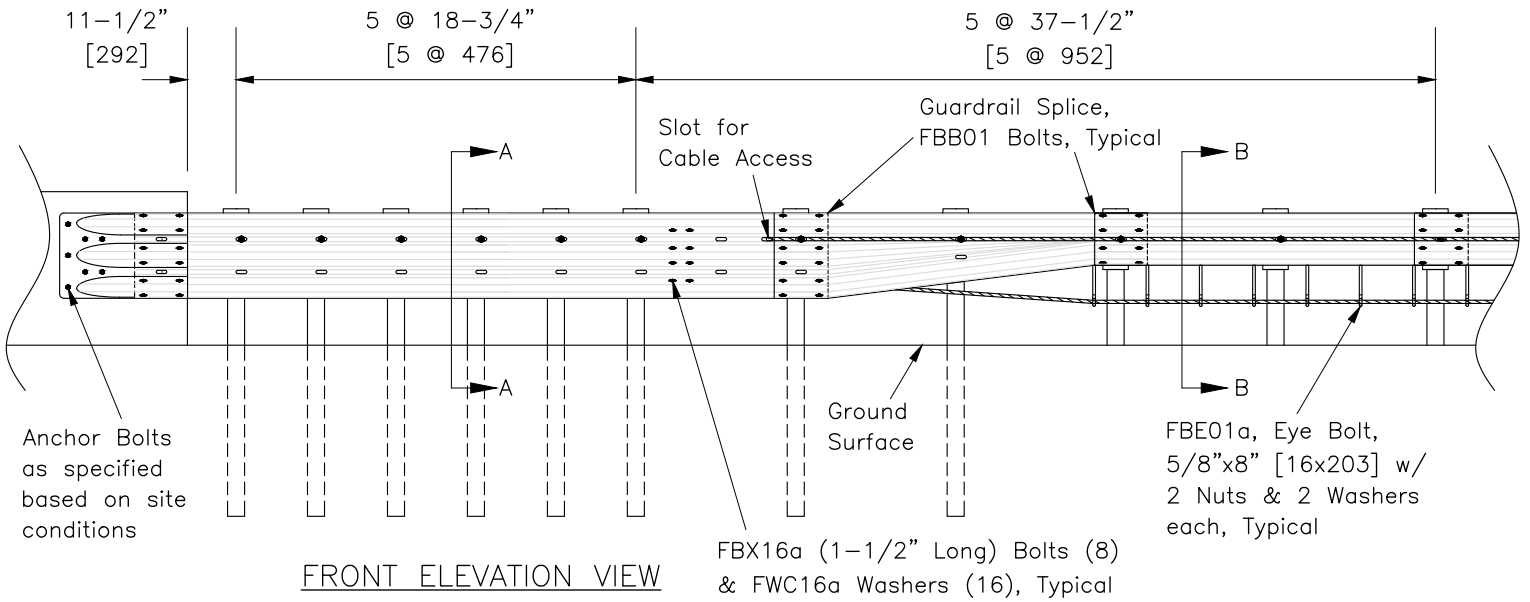
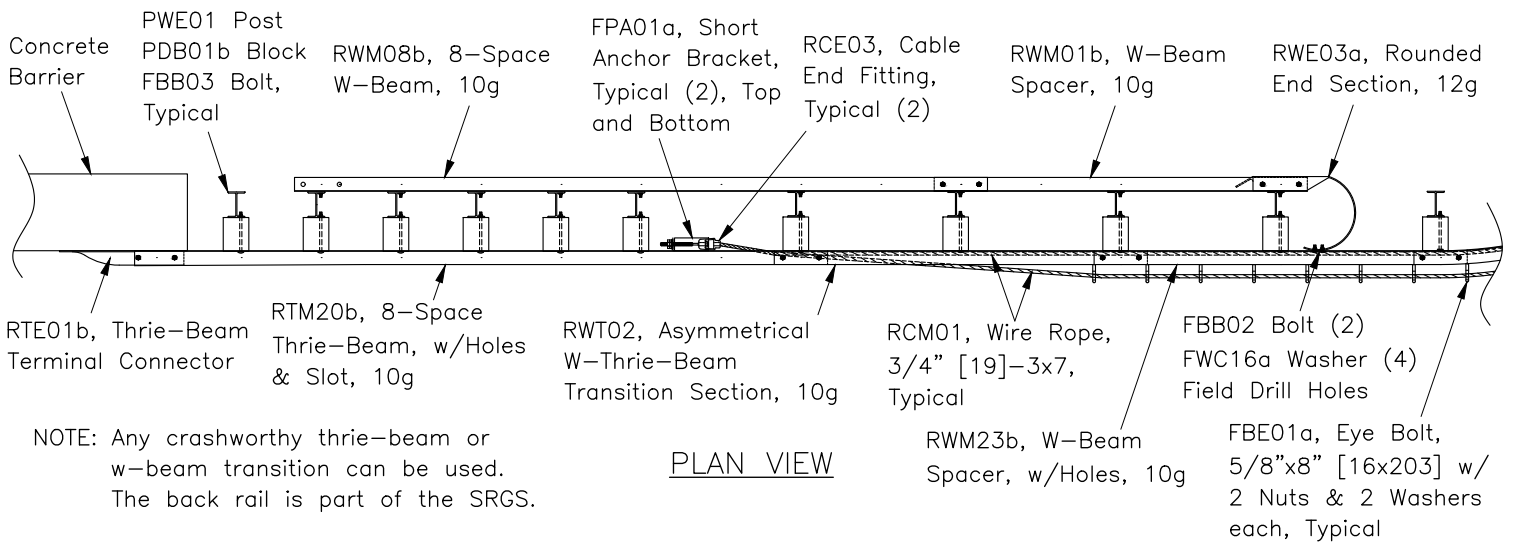
SHEET NO.

DATE

4 of 9

7/31/2024





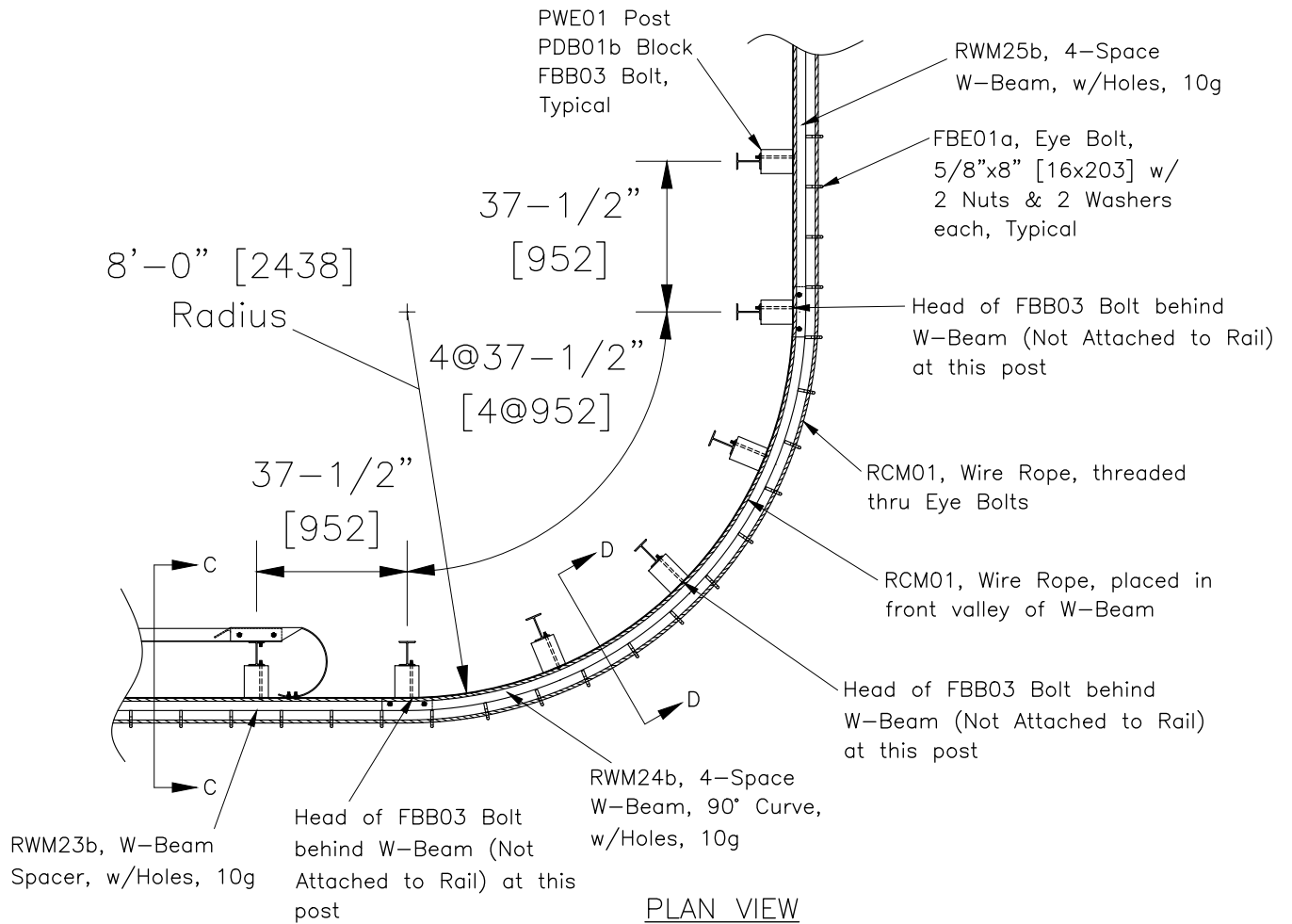
MAIN ROAD SECTION – TRANSITION TO CONCRETE BARRIER

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)



SEW33a

SHEET NO.	DATE
5 of 9	7/31/2024



PLAN VIEW

Backside W-Beam, 10g, attached to each post with FBB01 Bolt, Typical

Ground Surface

SECTION C-C

RCM01, Wire Rope (2), Typical

FBE01a, Eye Bolt, 5/8"x8" [16x203] w/ 2 Nuts & 2 Washers each, Typical

SECTION D-D

RCM01, Wire Rope (2), Typical

FBE01a, Eye Bolt, 5/8"x8" [16x203] w/ 2 Nuts & 2 Washers each, Typical

CURVED SECTION

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)



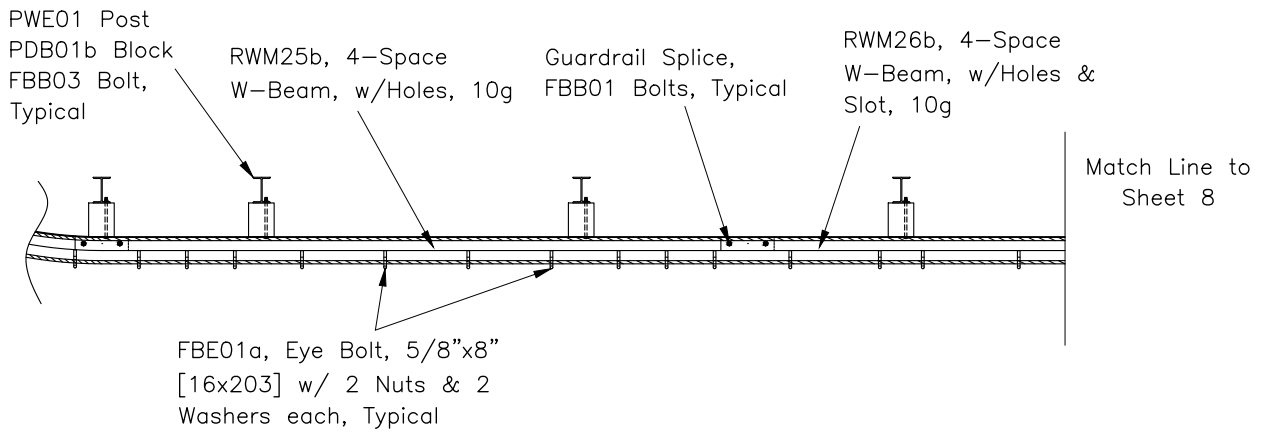
SEW33a

SHEET NO.

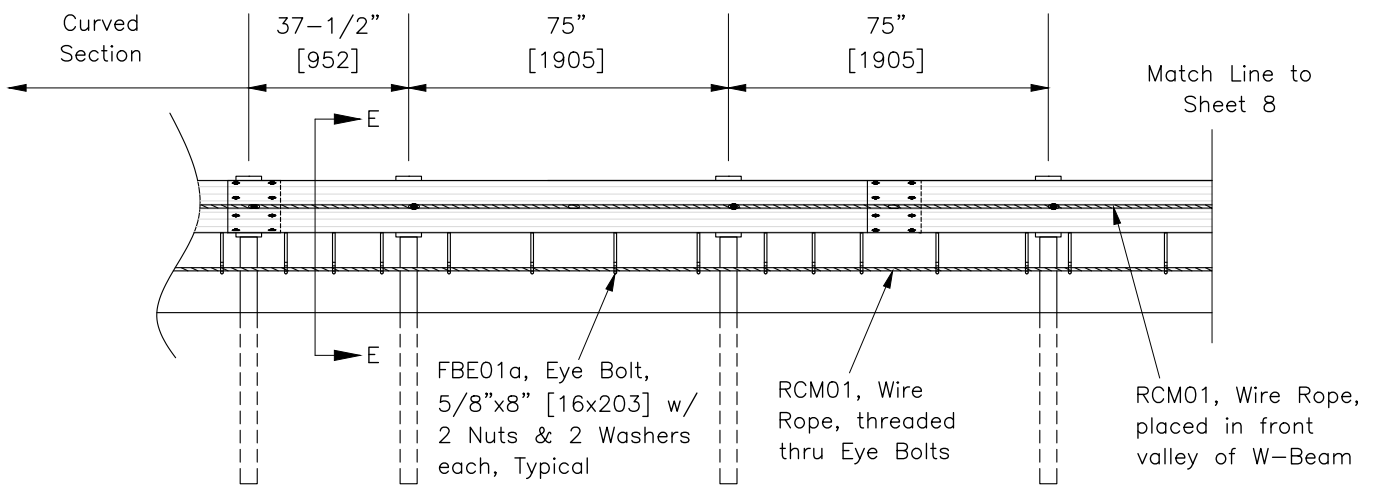
DATE

6 of 9

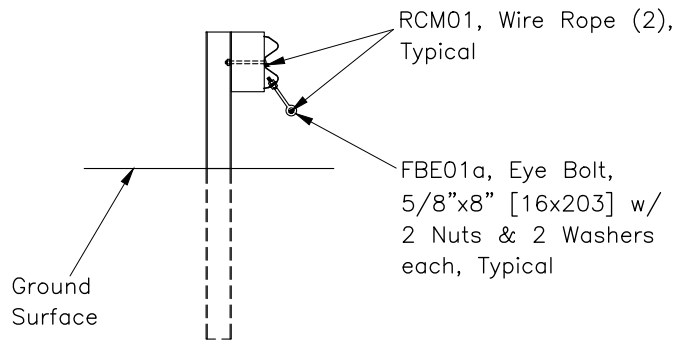
7/31/2024



PLAN VIEW



FRONT ELEVATION VIEW



SECTION E-E

SIDE ROAD SECTION

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)



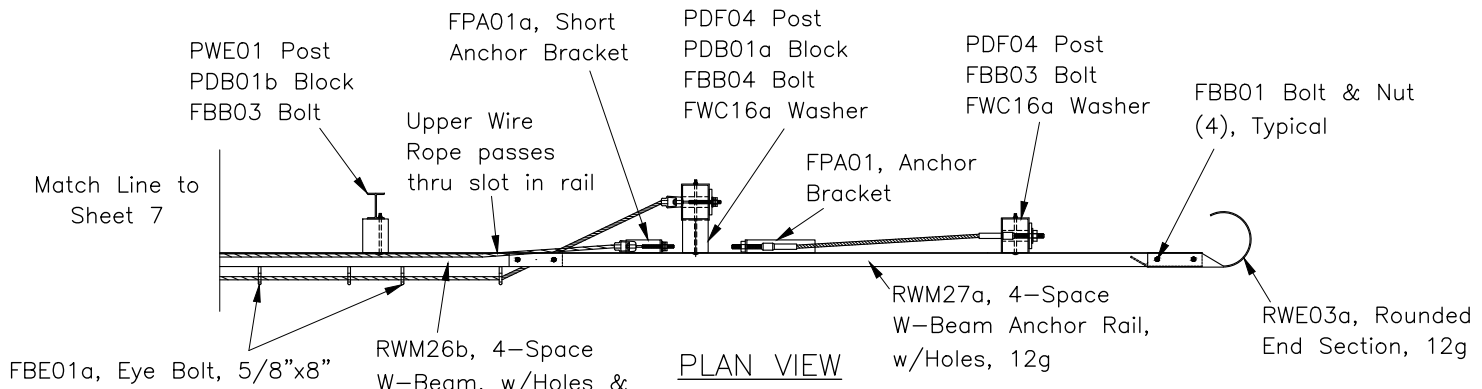
SEW33a

SHEET NO.

DATE

7 of 9

7/31/2024



PLAN VIEW

FBE01a, Eye Bolt, 5/8"x8" [16x203] w/ 2 Nuts & 2 Washers each, Typical

RWM26b, 4-Space W-Beam, w/Holes & Slot, 10g

FBX16a (1-1/2") Long Bolt & Nut (4), FWC16a Washer (8), Typical

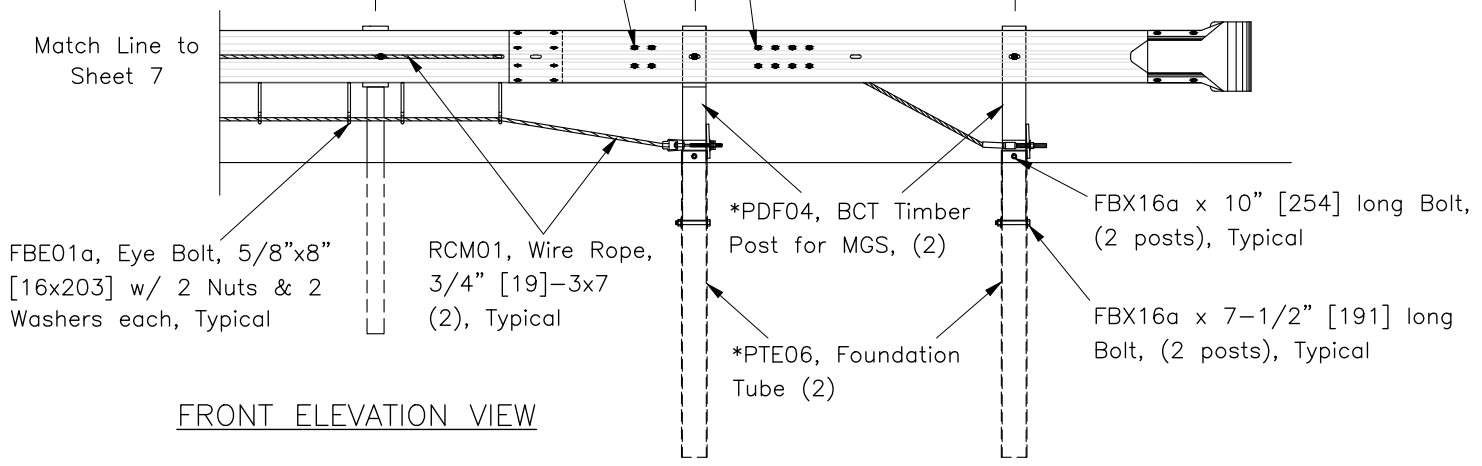
FBX16a (1-1/2") Long Bolt & Nut (8), FWC16a Washer (8), Typical

NOTE: Other anchor configurations, including standard line guardrail posts with a crashworthy terminal must be used for Bi-Directional traffic on the Side Road. Trailing-End Anchor as shown to be used only with One-Way traffic away from Main Road.

75" [1905] to next post, Sheet 7

75" [1905]

75" [1905]



FRONT ELEVATION VIEW

FBE01a, Eye Bolt, 5/8"x8" [16x203] w/ 2 Nuts & 2 Washers each, Typical

RCM01, Wire Rope, 3/4" [19]-3x7 (2), Typical

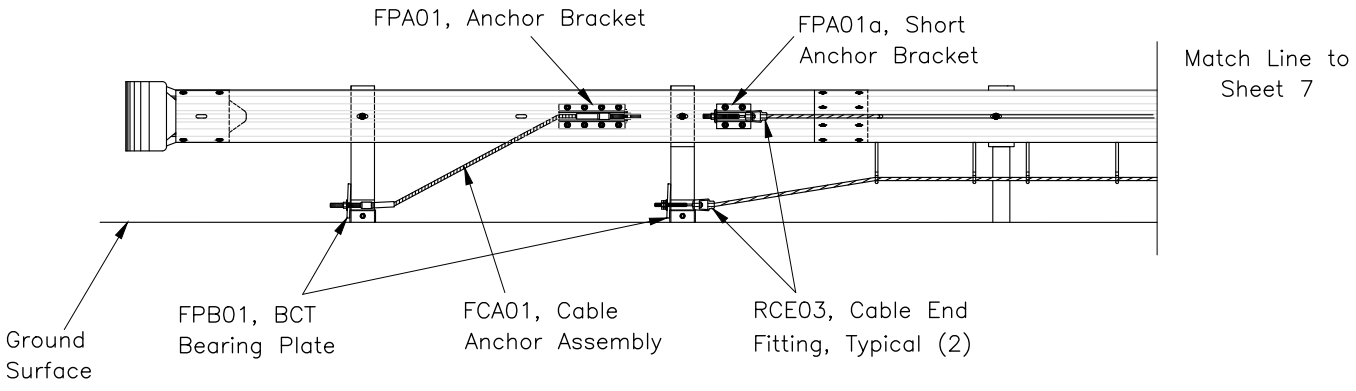
*PDF04, BCT Timber Post for MGS, (2)

FBX16a x 10" [254] long Bolt, (2 posts), Typical

*PTE06, Foundation Tube (2)

FBX16a x 7-1/2" [191] long Bolt, (2 posts), Typical

*When this Trailing-End Anchor is not used, the Timber BCT Posts & Steel Foundation Tubes can be replaced with one (1) Standard Line Guardrail Post to accommodate wire rope termination. See Sheet 9 of 9.



BACK ELEVATION VIEW

SIDE ROAD SECTION – TRAILING END ANCHOR (As Tested)

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)



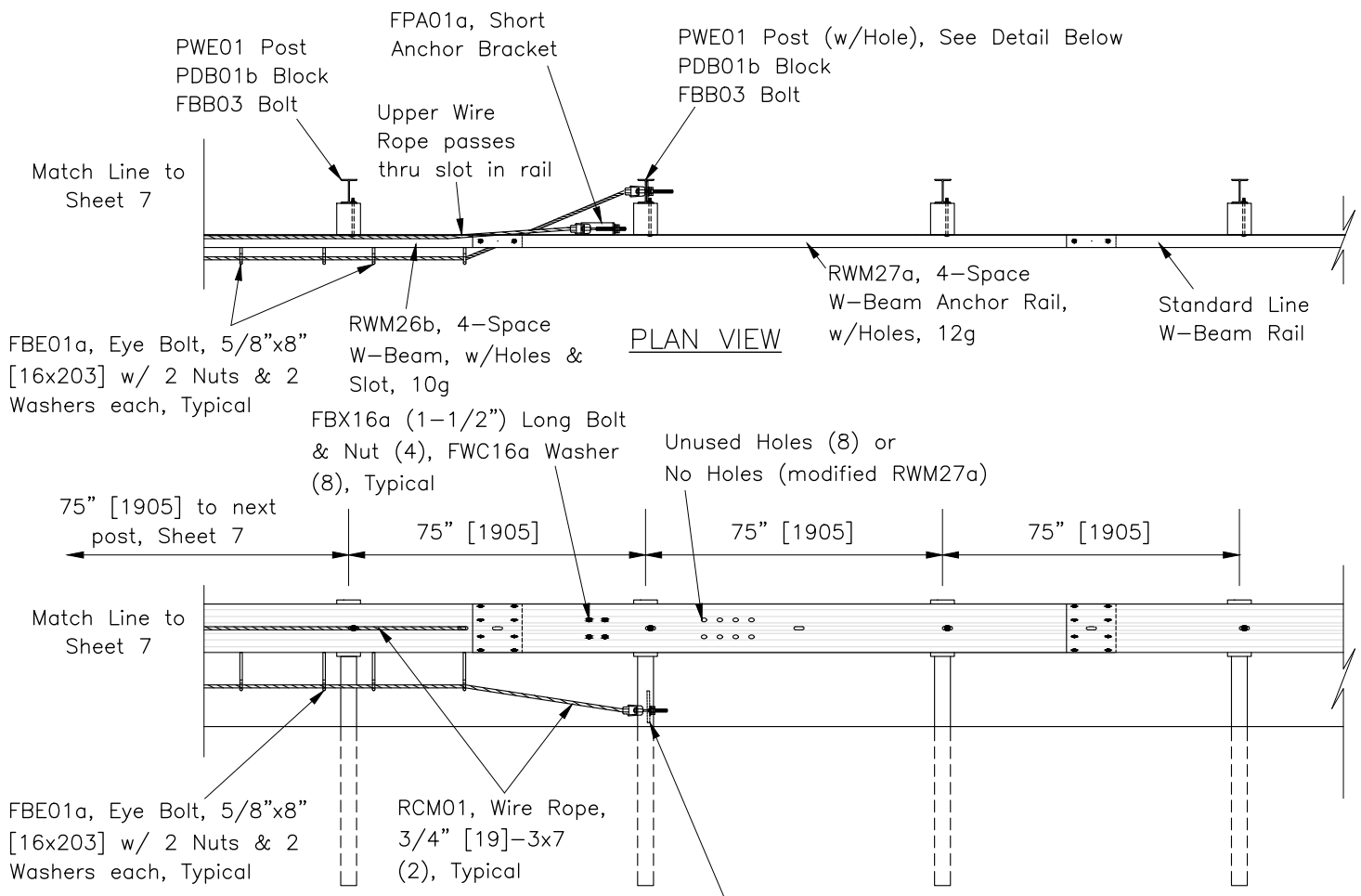
SEW33a

SHEET NO.

DATE

8 of 9

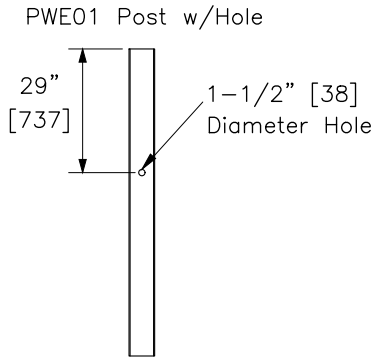
7/31/2024



PLAN VIEW

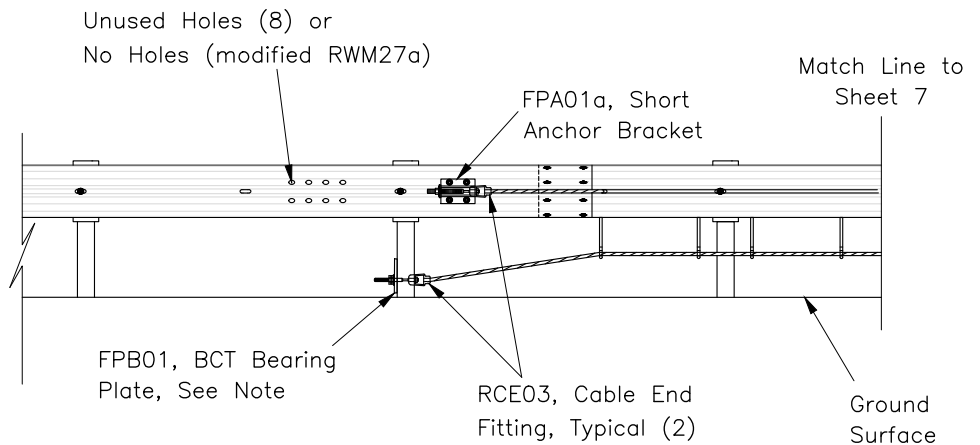
FRONT ELEVATION VIEW

NOTE: It is acceptable to modify the bearing plate width by shrinking it down from 8" [203] to 5-1/2" [140] so that it can sit flush on the web of the 6" [152] W-Beam steel post rather than have the plate sit on the outer edges of the flanges.



SIDE VIEW

ANCHOR POST DETAIL



BACK ELEVATION VIEW

SIDE ROAD SECTION – STANDARD STEEL LINE POST ANCHOR

SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS)



SEW33a

SHEET NO.

DATE

9 of 9

7/31/2024