



TRAILING-END ANCHORAGE SYSTEM



SEW31

SHEET NO.

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5/11/2015

INTENDED USE

The trailing-end anchorage system is intended for use with any Midwest Guardrail System (SGR20a-c, SGR21a-b, SGR22a-b, SGR23a-b, SGR28a-f, SGR38a-b, SGR39) or equivalent 31" [787] tall W-beam guardrail system. The trailing-end anchorage system has been crash tested under Test Level 3 (TL-3) conditions and deemed acceptable according to the *Manual for Assessing Safety Hardware* (MASH) performance. The trailing-end anchorage system should be used where needed to anchor downstream end of guardrail and (1) end-on impacts will not occur or (2) end terminal is placed outside of clear zone for opposite direction traffic. A length of 150" [3810] upstream from the first PDF01 post must consist of standard (75" [1905]) post spacing guardrail before reduced post spacing may start.

The non-gating, redirective length-of-need of the trailing-end anchorage system is 31'-3" [9525] from the centerline of the last PDF01 post and includes four PWE06 or PDE02 or PDE20 posts contained in a standard Midwest Guardrail System (SGR20a-c). The trailing-end anchorage system should be used in locations where a working width envelope is described as follows:

1. at the last PDF01 post, 125" [3175] of working width recommended;
2. at 225" [5715] upstream from the last PDF01 post, 65" [1651] of working width recommended;
3. linearly interpolate between 125" [3175] and 65" [1651] such that for every 3¾" [95] longitudinally upstream from the last PDF01 post, 1" [25] less of working width recommended (e.g., at 75" [1905] upstream from the last PDF01 post, 105" [2667] of working width is recommended);
4. linearly interpolate between 65" [1651] and 60" [1524] such that for every additional 15" [381] longitudinally upstream from 225" [5715] upstream from the last PDF01 post, 1" [25] less of working width recommended (e.g., at 255" [6477] upstream from the last PDF01 post, 63" [1600] of working width is recommended); and
5. at greater than or equal to 300" [7620] upstream from the last PDF01 post, 60" [1524] of working width recommended.

COMPONENTS

Unit Length = 279 3/8" [7096]

DESIGNATOR	COMPONENT	NUMBER
FBB01	Guardrail Bolt and Nut	12
FBB03	Guardrail Bolt and Nut	2
FBB06	Guardrail Bolt and Nut	1
FBX16a	Hex Head Bolt (10" [254]) and Nut	2
FBX16a	Hex Head Bolt (1 1/2" [38]) and Nut	8
FBX22a	Hex Head Bolt (7 1/2" [191]) and Nut	2
FCA01	BCT Anchor Cable Assembly	1
PDB10	MGS Timber Blockout	1
or PDB11	MGS Timber Blockout	1
PWE06	Wide-Flange Guardrail Post	1
or PDE02	Timber Guardrail Post	1
or PDE20	White Pine Guardrail Post	1
FMM02	BCT Post Sleeve	1
FPA01	Anchor Bracket Assembly	1
FPB01	BCT Bearing Plate	1

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COMPONENTS

Unit Length = 279 3/8" [7096]

DESIGNATOR	COMPONENT	NUMBER
FWC16a	Circular Washer	22
FWC22a	Circular Washer	4
PDF01	BCT Timber Post	2
PTE06	Foundation Tube	2
RWE03a	W-Beam Rounded End Section	1
RWM14a	W-Beam MGS End Section	1
PFP02	Strut and Yoke Assembly	1

ELIGIBILITY

Eligibility will be pursued.

REFERENCES

Mongiardini, M., Faller, R.K., Reid, J.D., Sicking, D.L., Stolle, C.S., and Lechtenberg, K.A., *Downstream Anchoring Requirements for the Midwest Guardrail System*, Final Report to Wisconsin Department of Transportation, Transportation Research Report No. TRP-03-279-13, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, October 28, 2013.

Mongiardini, M., Faller, R.K., Reid, J.D., and Sicking, D.L., *Dynamic Evaluation and Implementation Guidelines for a Non-Proprietary W-Beam Guardrail Trailing End Terminal*, Transportation Research Record No. 2377, Transportation Research Board, National Research Council, Washington, D.C., November 2013, pp. 61-73.

Stolle, C.S., Reid, J.D., Faller, R.K., and Mongiardini, M., *Dynamic Strength of a Modified W-beam BCT Trailing-End Termination System*, International Journal of Crashworthiness, DOI: 10.1080/13588265.2015.1009308, February 2015.

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