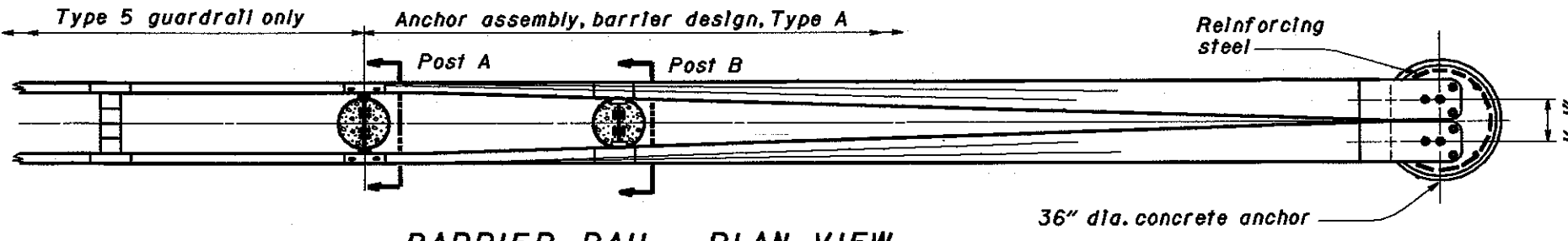
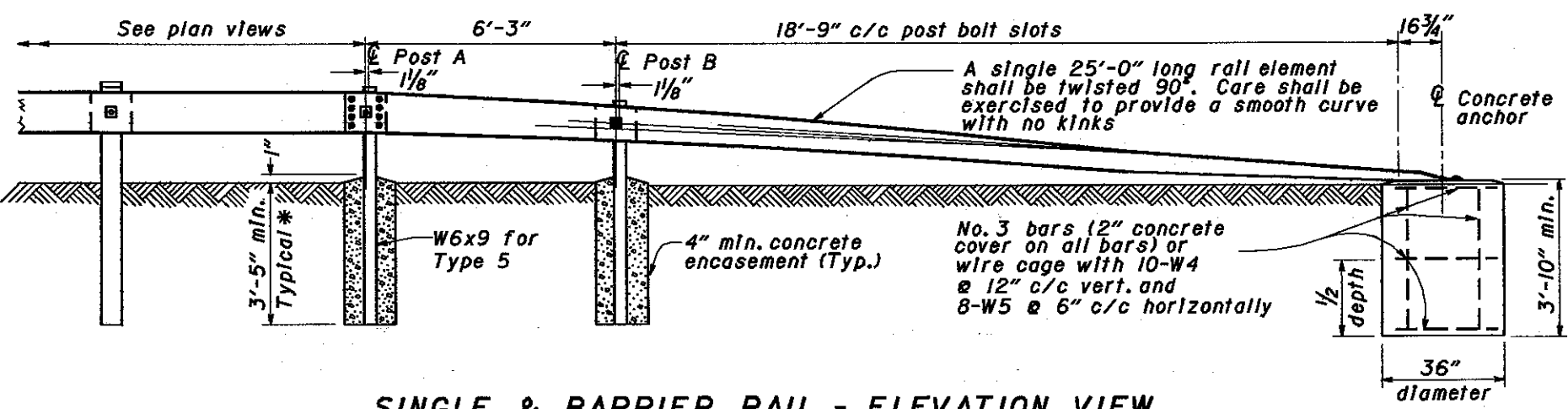


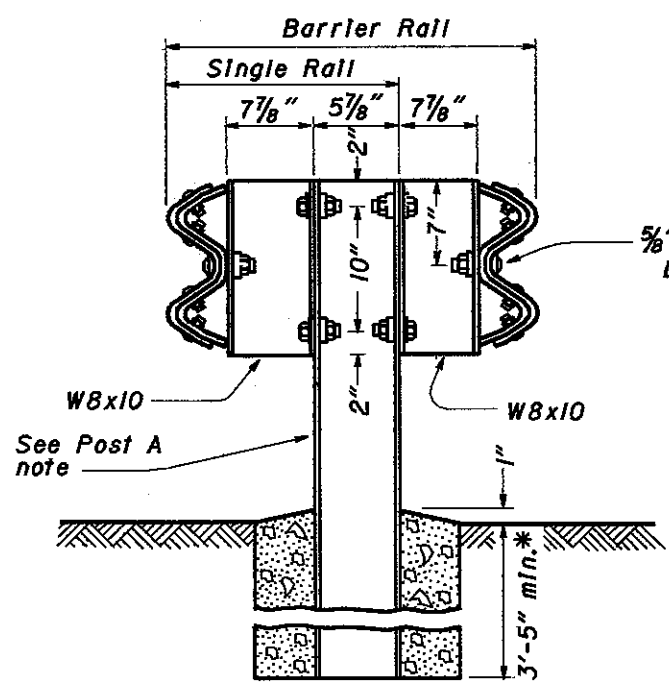
SINGLE RAIL - PLAN VIEW



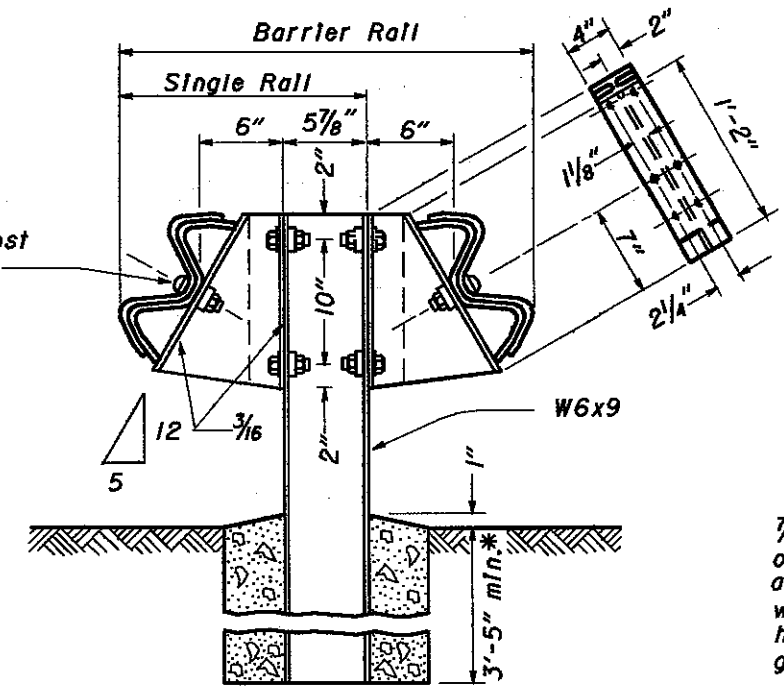
BARRIER RAIL - PLAN VIEW



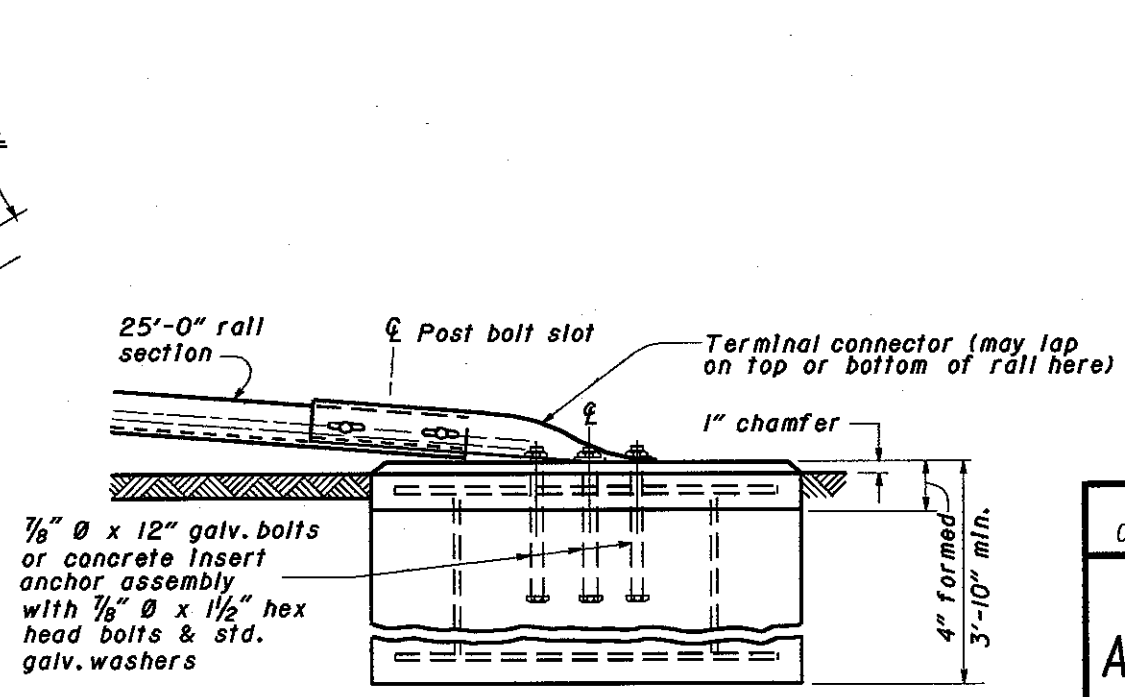
SINGLE & BARRIER RAIL - ELEVATION VIEW



POST A



POST B



CONCRETE ANCHOR

NOTES

**GENERAL:** For details not shown, see Std. Const. Dwgs. GR-1.1, GR-1.2 and other Standard Construction Drawings pertaining to specific guardrail type. All steel parts shall be galvanized.

The 1'-6" flare offset from normal face of rail, shown in the plan view (for single rail installations), will be utilized only where shoulder width is insufficient for providing standard offsets.

**SPACERS** for Post B shall be made of 3/16" steel plate as per 710.15, or two sections of W6 x 9 or W8 x 10 cut in the web (see dashed line) and welded together on both sides.

All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed.

Spacers shall be fastened to their posts with two 5/8" hexhead bolts and nuts with standard washers on both sides.

**ALL WASHERS INDICATED** on this drawing are standard galvanized steel of the appropriate size.

**CONCRETE ANCHOR:** Form top 4" of anchor and slope the top to conform to slope of the adjacent ground. The 36" diameter anchor may be replaced by a 2'-6" square anchor at the contractor's option.

**POST A:** Rail details are shown for Type 5 guardrail. Where anchor assembly is attached to Type 4 guardrail, Post A shall be a standard Type 4 line post set in concrete, and the spacer block shall be omitted. Post bolt shall be 5/8" diameter.

\* **FOR SINGLE RAIL INSTALLATIONS,** see Standard Construction Drawing GR-1.2 for additional post embedment details.

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

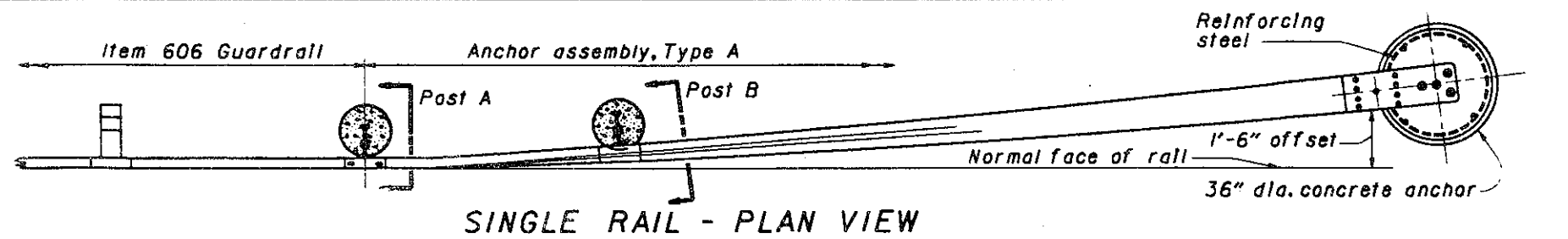
DATE  
1-1-71  
11-9-71  
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2-5-81

**TYPE A  
ANCHOR ASSEMBLY**

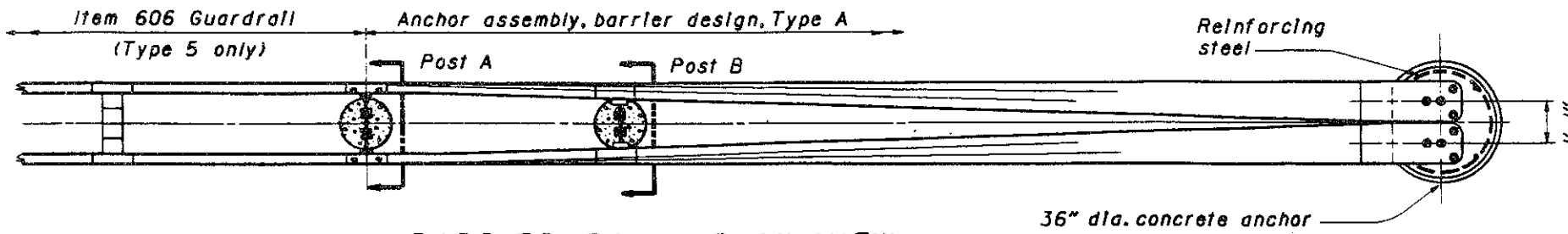
STANDARD  
CONSTRUCTION  
DRAWING

**GR-4.1**

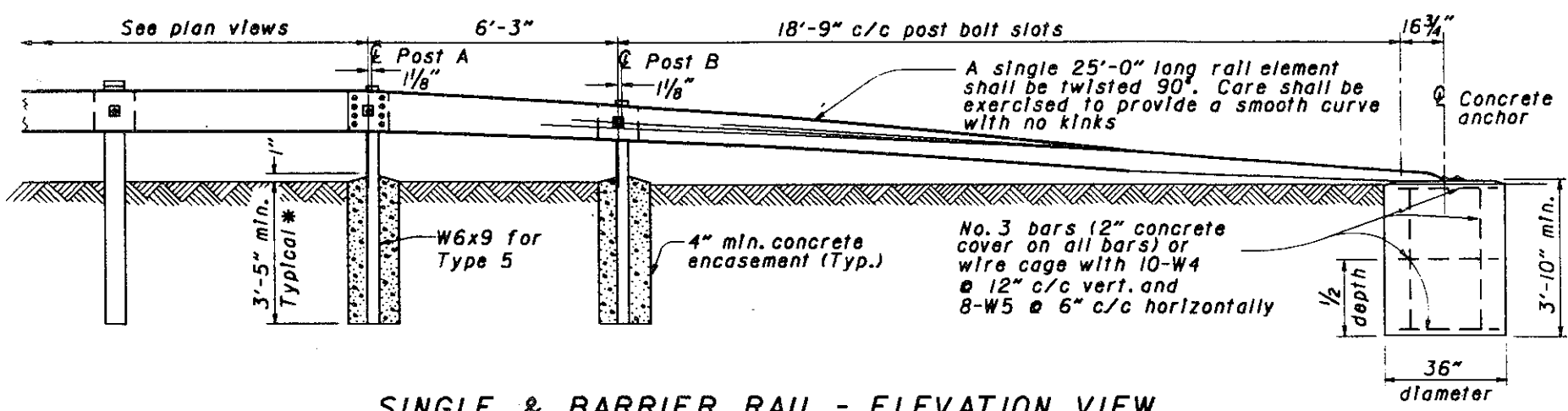
APPROVED \_\_\_\_\_ ENGR., L. & D.



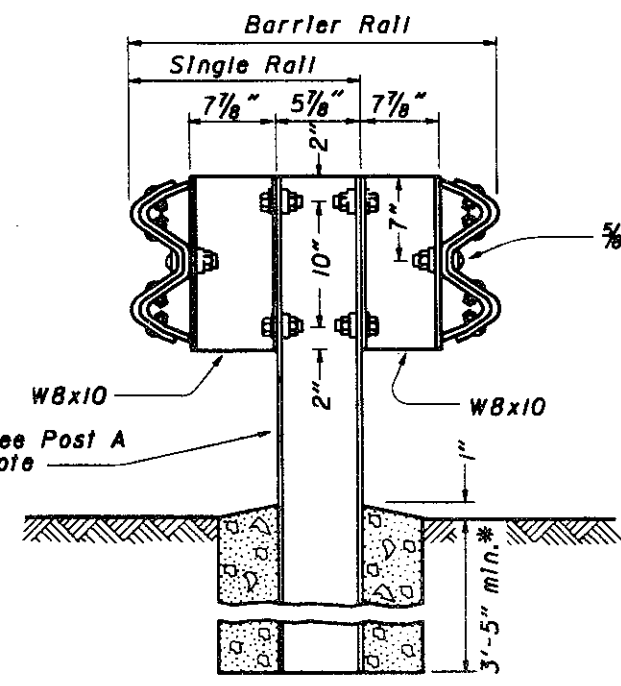
SINGLE RAIL - PLAN VIEW



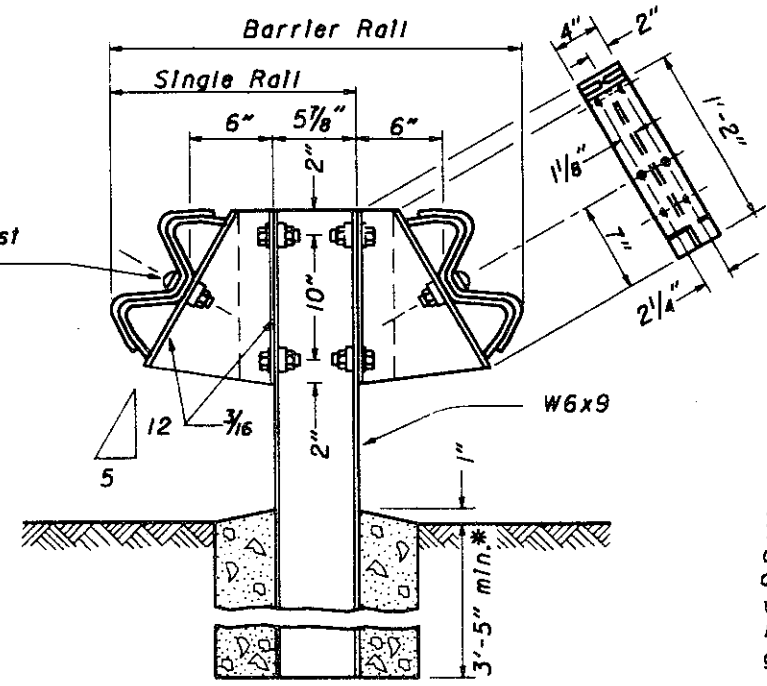
BARRIER RAIL - PLAN VIEW



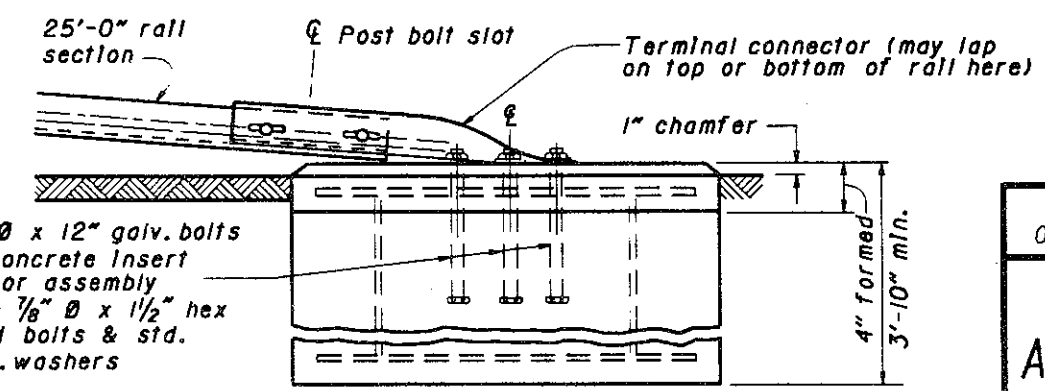
SINGLE & BARRIER RAIL - ELEVATION VIEW



POST A



POST B



CONCRETE ANCHOR

NOTES

GENERAL: For details not shown, see Std. Const. Dwgs. GR-1.1, GR-1.2 and other Standard Construction Drawings pertaining to specific guardrail type. All steel parts shall be galvanized.

The 1'-6" flare offset from normal face of rail, shown in the plan view (for single rail installations), will be utilized only where shoulder width is insufficient for providing standard offsets.

SPACERS for Post B shall be made of 3/16" steel plate as per 710.15, or two sections of W6 x 9 or W8 x 10 cut in the web (see dashed line) and welded together on both sides.

All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed.

Spacers shall be fastened to their posts with two 5/8" hexhead bolts and nuts with standard washers on both sides.

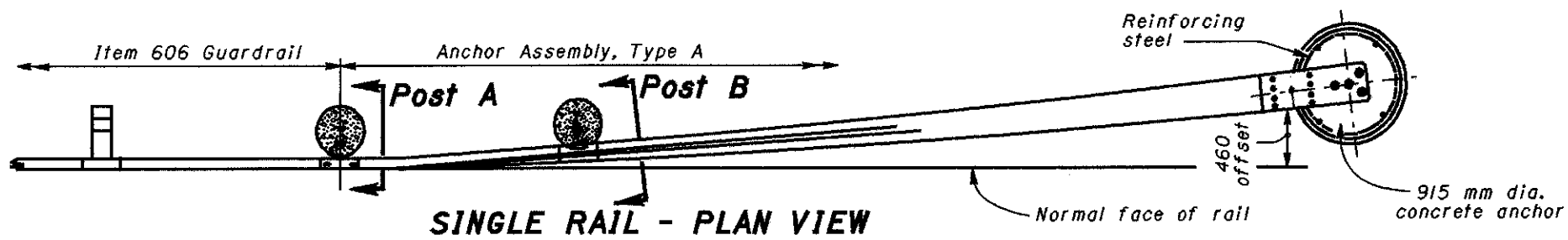
ALL WASHERS INDICATED on this drawing are standard galvanized steel of the appropriate size.

CONCRETE ANCHOR: Form top 4" of anchor and slope the top to conform to slope of the adjacent ground. The 36" diameter anchor may be replaced by a 2'-6" square anchor at the contractor's option.

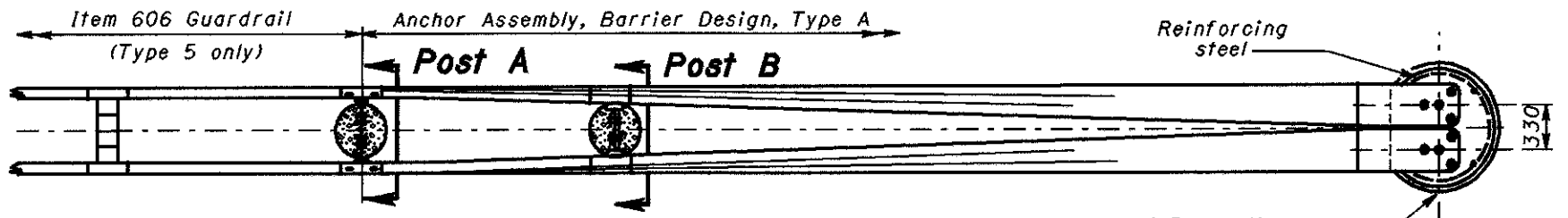
POST A: Rail details are shown for Type 5 guardrail. Where anchor assembly is attached to Type 4 guardrail, Post A shall be a standard Type 4 line post set in concrete, and the spacer block shall be omitted. Post bolt shall be 5/8" diameter.

\* FOR SINGLE RAIL INSTALLATIONS, see Standard Construction Drawing GR-1.2 for additional post embedment details.

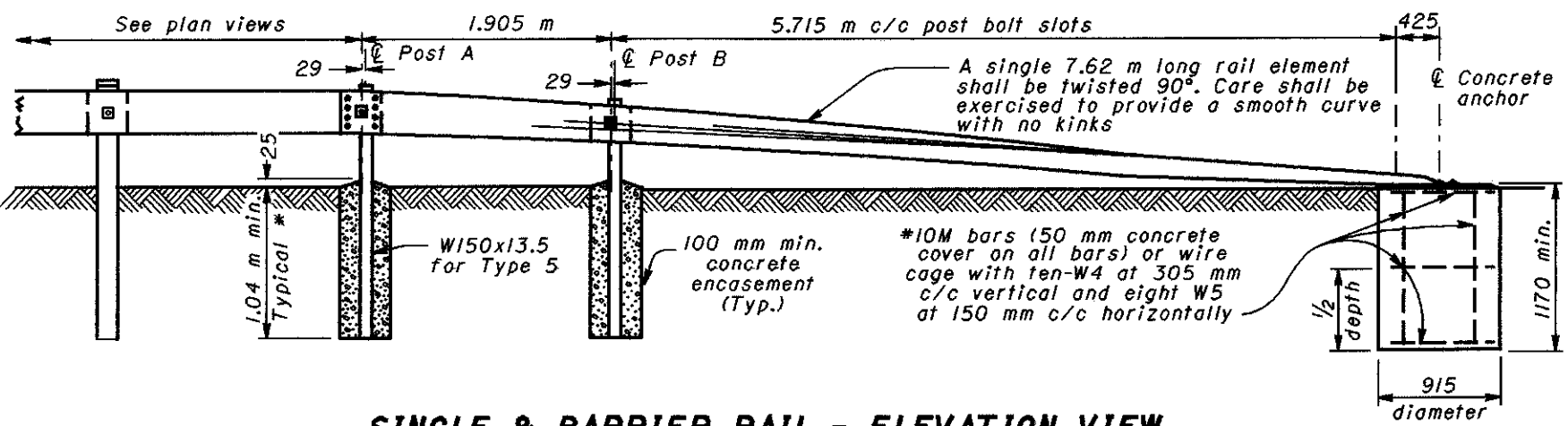
BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
<b>TYPE A ANCHOR ASSEMBLY</b>	
STANDARD CONSTRUCTION DRAWING	<b>GR-4.1</b>
APPROVED: <i>D.K. Hulman</i> ENGR., L. & D.	
DATE 5-6-91	



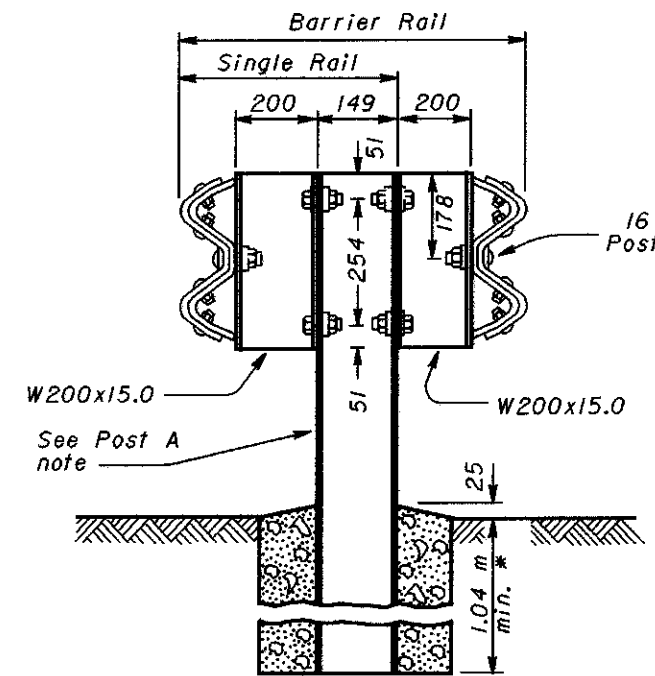
**SINGLE RAIL - PLAN VIEW**



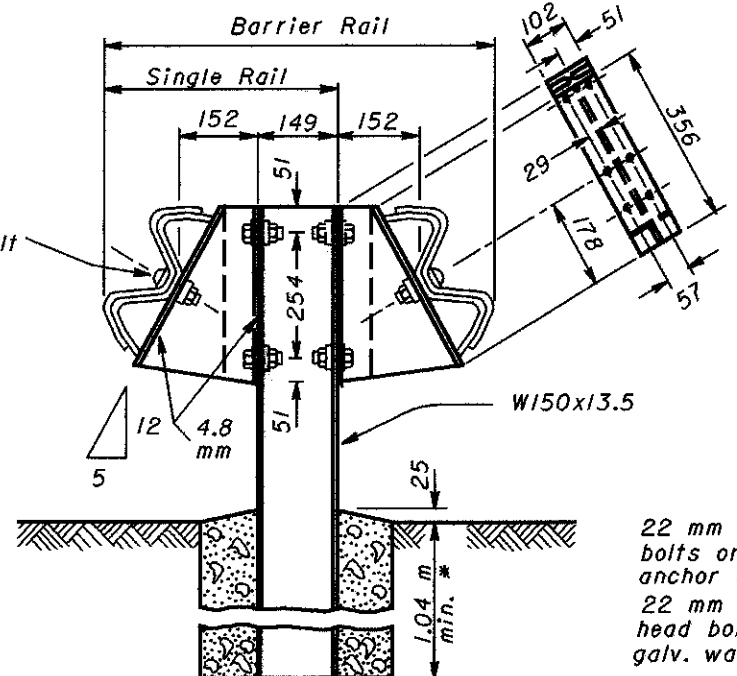
**BARRIER RAIL - PLAN VIEW**



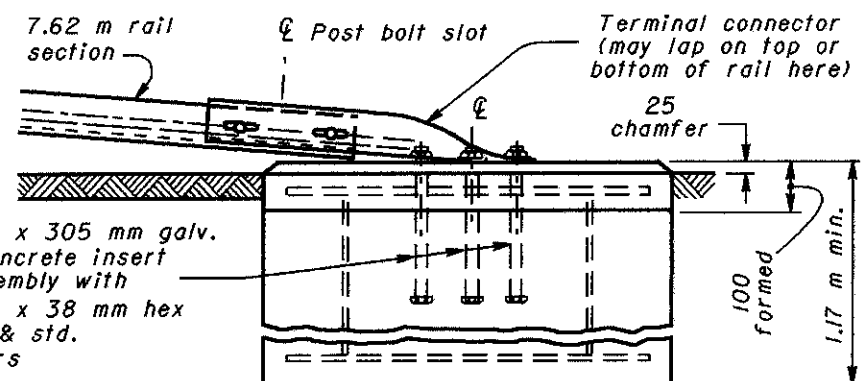
**SINGLE & BARRIER RAIL - ELEVATION VIEW**



**POST A**



**POST B**



**CONCRETE ANCHOR**

22 mm dia. x 305 mm galv. bolts or concrete insert anchor assembly with 22 mm dia. x 38 mm hex head bolts & std. galv. washers

**NOTES**

**GENERAL:** For details not shown, see Std. Constr. Dwgs. GR-1.1M, GR-1.2M and other Drawings pertaining to specific guardrail type. All steel parts shall be galvanized.

The 460 mm flare offset from normal face of rail, shown in the plan view (for single rail installations), will be utilized only where shoulder width is insufficient for providing standard offsets.

**SPACERS:** Post B spacers shall be made of 4.8 mm steel plate as per CMS 710.15 or two sections of W150x13.5 or W200x15.0 cut in the web (see dashed line) and welded together on both sides.

All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed.

Spacers shall be fastened to their posts with two 16 mm hexhead bolts and nuts with standard washers on both sides.

**WASHERS:** All washers indicated on this drawing are standard galvanized steel of the appropriate size.

**CONCRETE ANCHOR:** Form top 100 mm of anchor and slope the top to conform to slope of the adjacent ground. The 915 mm diameter anchor may be replaced by a 760 mm square anchor at the contractor's option.

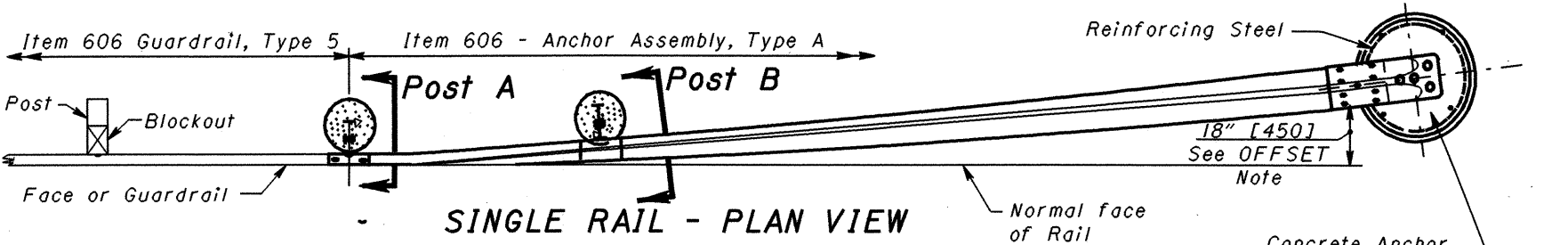
**POST A:** Rail details are shown for Type 5 guardrail. Where anchor assembly is attached to Type 4 guardrail, Post A shall be a standard Type 4 line post set in concrete, and the spacer block shall be omitted. Post bolt shall be 16 mm in diameter.

\* **SINGLE RAIL INSTALLATIONS:** See GR-1.2M for additional post embedment details.

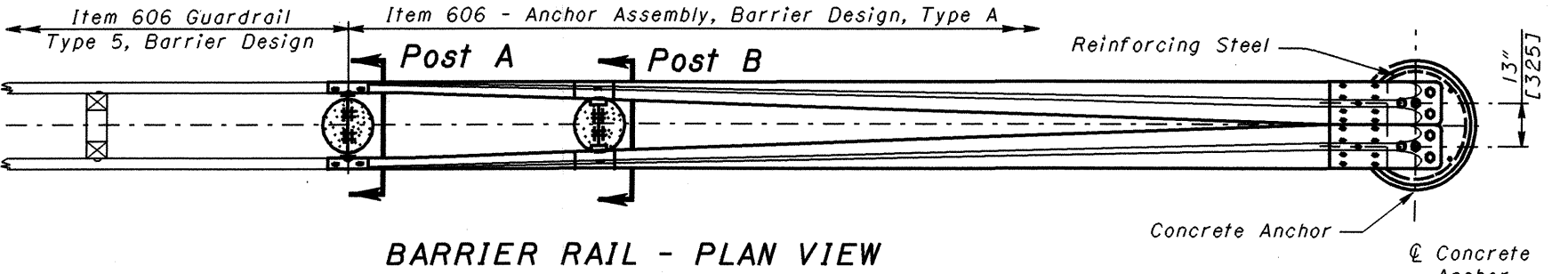
All dimensions are in millimeters unless otherwise noted.



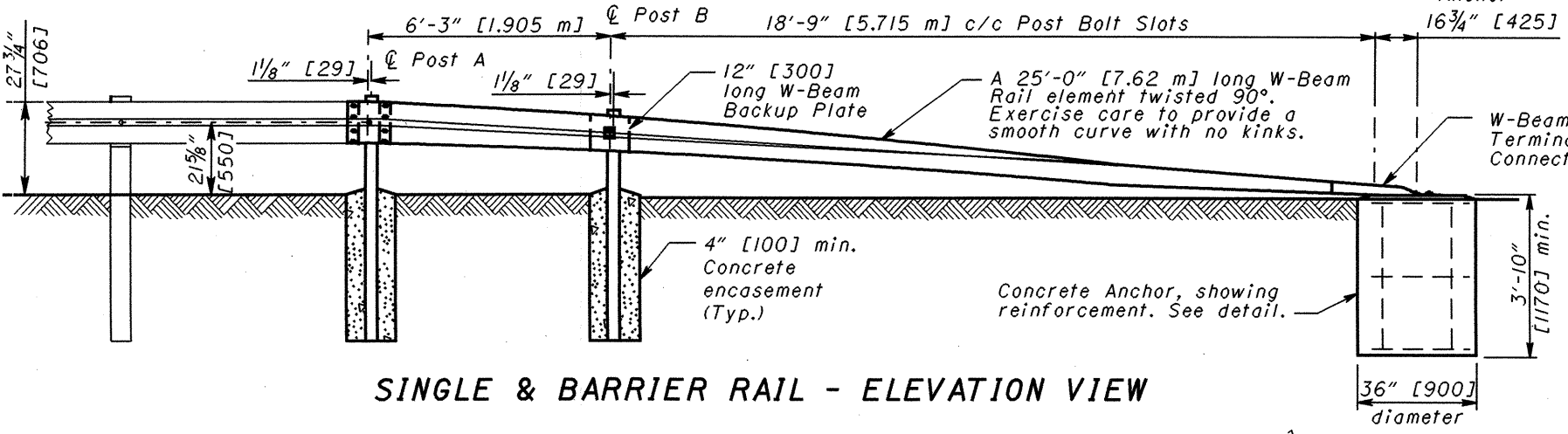
BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
<b>TYPE A ANCHOR ASSEMBLY</b>	DATE 11-30-94
STANDARD CONSTRUCTION DRAWING	<b>GR-4.1M</b>
APPROVED <i>D.K. Hulman</i> ENGR., L & D	



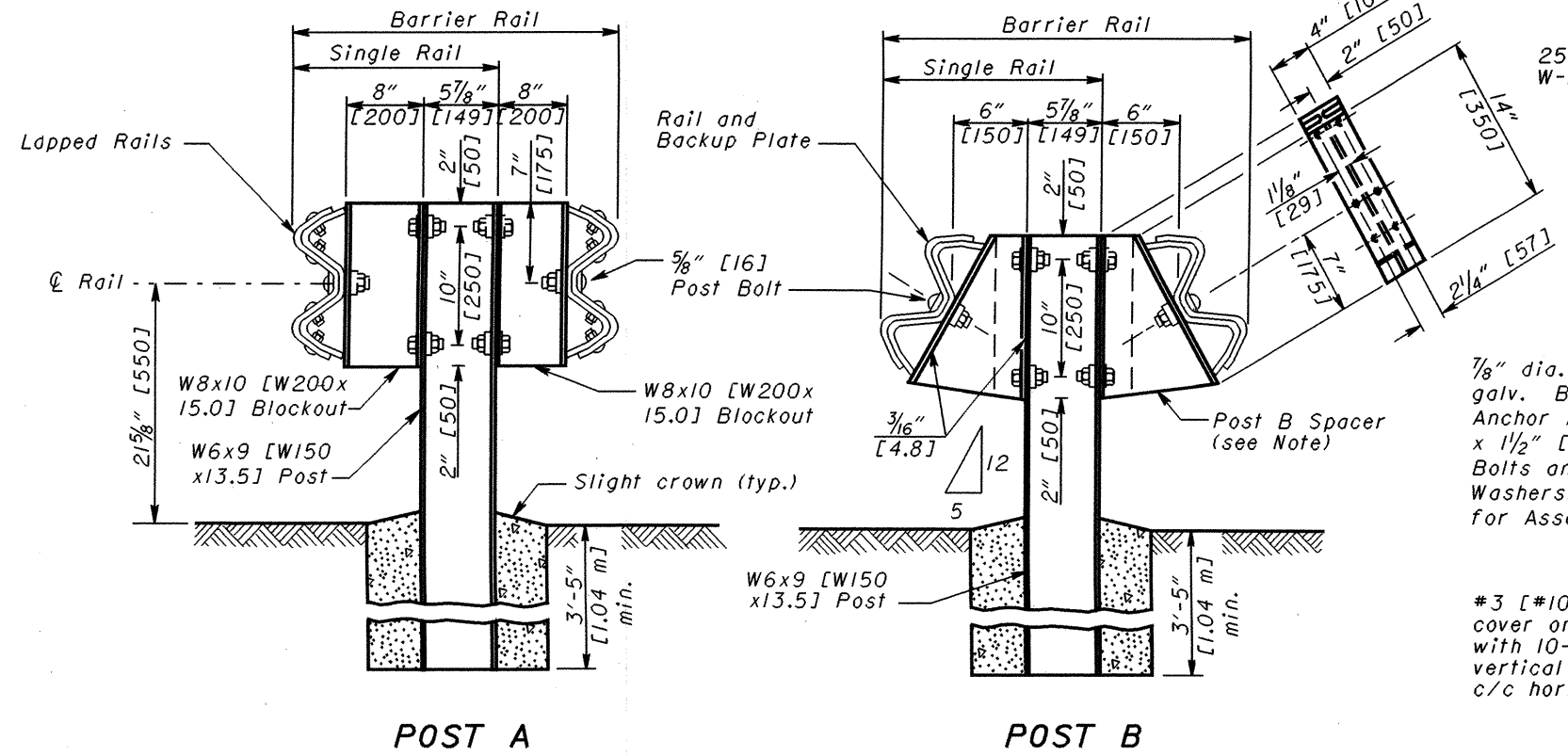
SINGLE RAIL - PLAN VIEW



BARRIER RAIL - PLAN VIEW

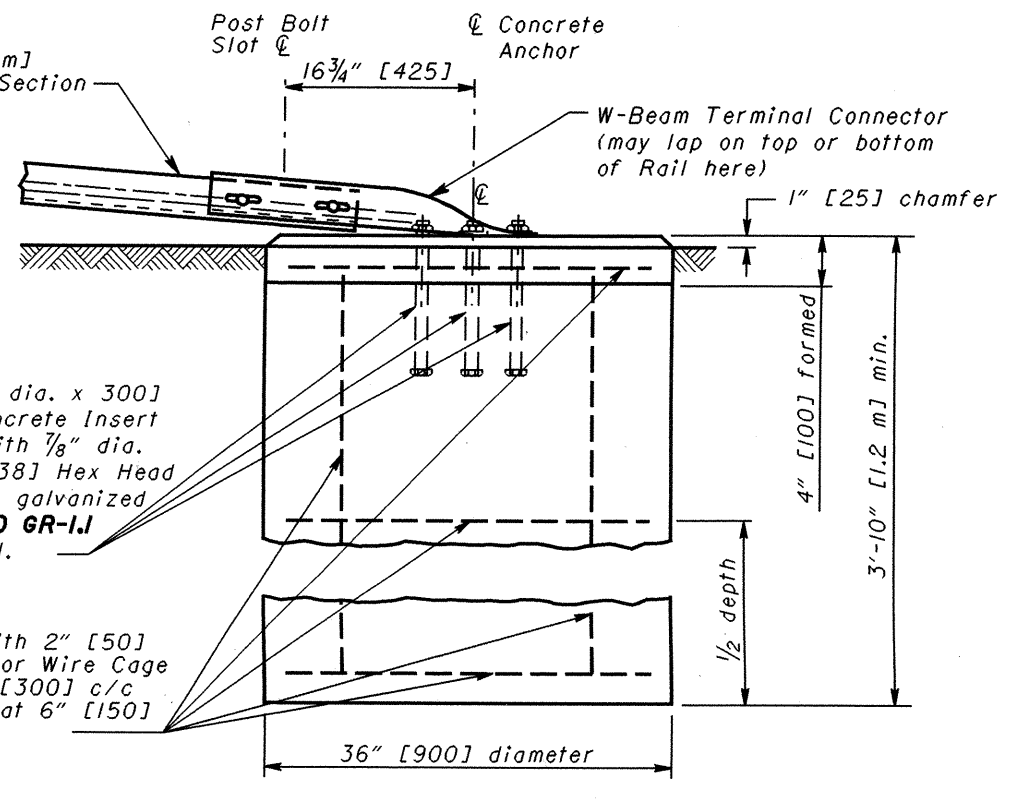


SINGLE & BARRIER RAIL - ELEVATION VIEW



POST A

POST B



CONCRETE ANCHOR

NOTES

**APPLICATION:** Use the Type A Anchor Assembly outside the clear zone on any roadway. On Non-NHS roadways it may be used in the clear zone, with restrictions. See **Location & Design Manual, Volume I, Section 603.**

**GENERAL:** For details not shown, see **SCD GR-1.I** and other Drawings pertaining to specific guardrail type. Galvanize all steel parts.

**OFFSETS:** See **SCD GR-5.I** for Standard Guardrail Flare. The 18" [450] flare offset from normal face of rail, shown in the plan view (for single rail installations) will be utilized only where shoulder is insufficient for providing standard flares.

**POSTS:** Steel posts W6x9 [W150x13.5] are shown, but W6x8.5 [W150x12.6] posts are also permitted. See **SCD GR-1.I** for additional embedment details.

**SPACERS:** Post B Spacers shall be made of 3/16" [5] Steel Plate as specified in CMS 710.15 or two sections of W6x9 [W150x13.5] or W8x10 [W200x15.0] cut in the web (see dashed line on POST B Detail) and welded together on both sides.

All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed. Spacers shall be fastened to Posts with two 5/8" [16] hex head bolts and nuts with standard washers on both sides.

**WASHERS:** All washers indicated on this drawing are standard galvanized steel of the appropriate size.

**CONCRETE ANCHOR:** Form top 4" [100] of anchor and slope the top to conform to slope of the adjacent ground. The 36" [900] diameter anchor may be replaced by a 2'-6" [750] square anchor at the contractor's option.

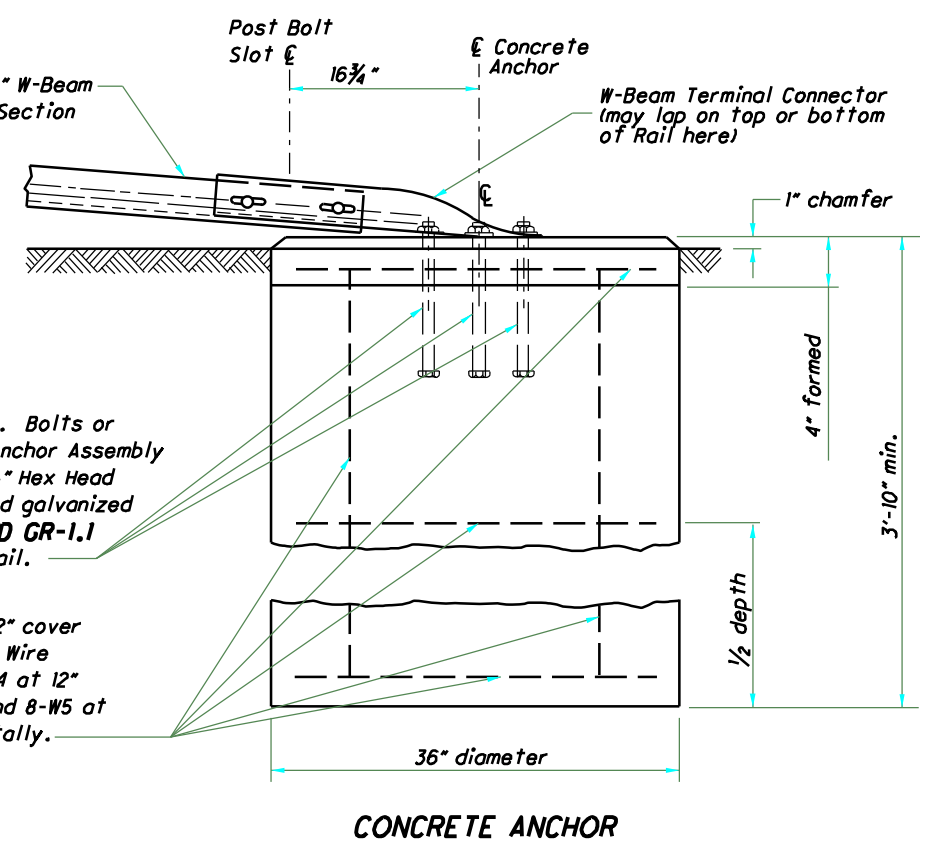
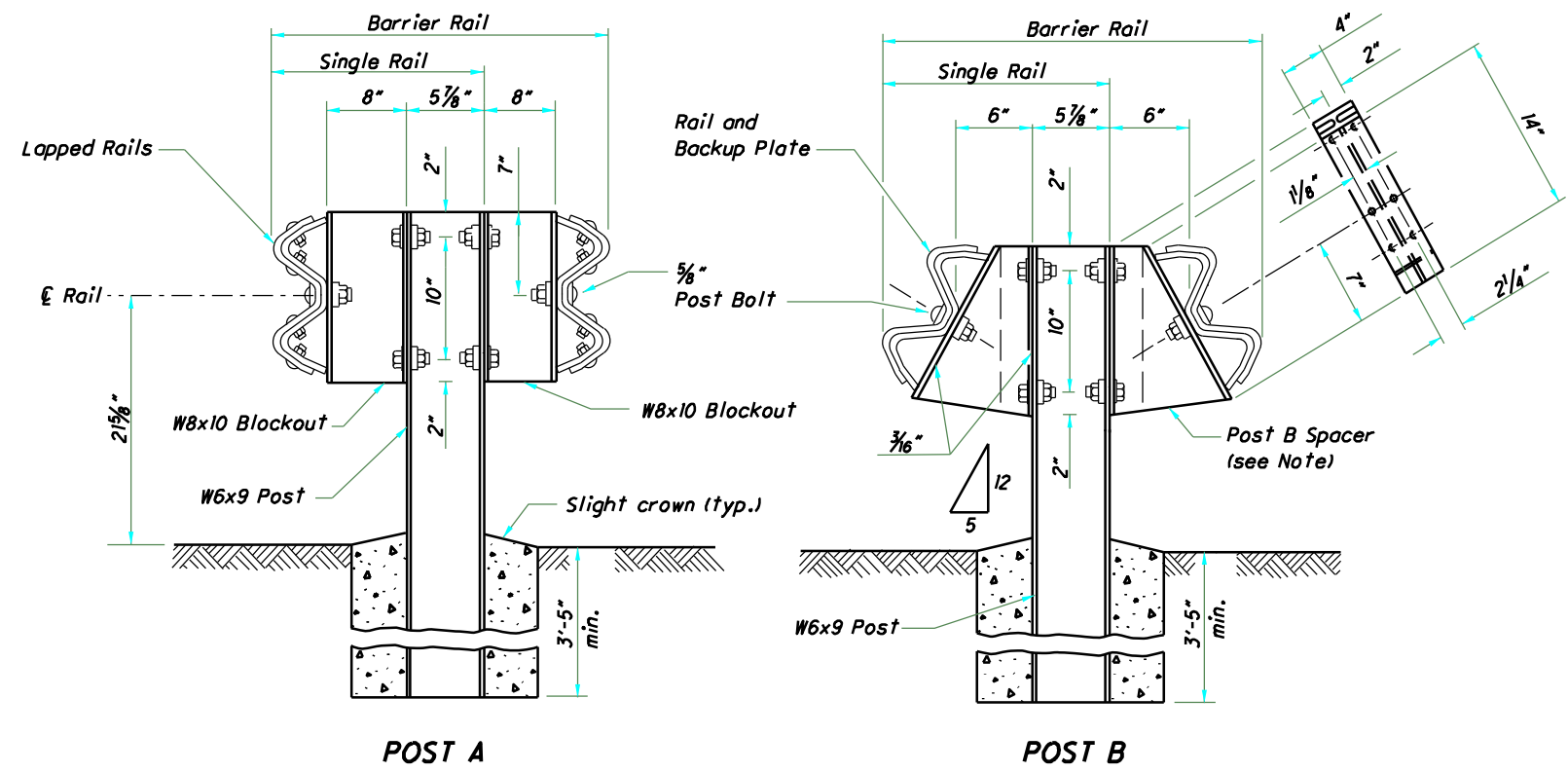
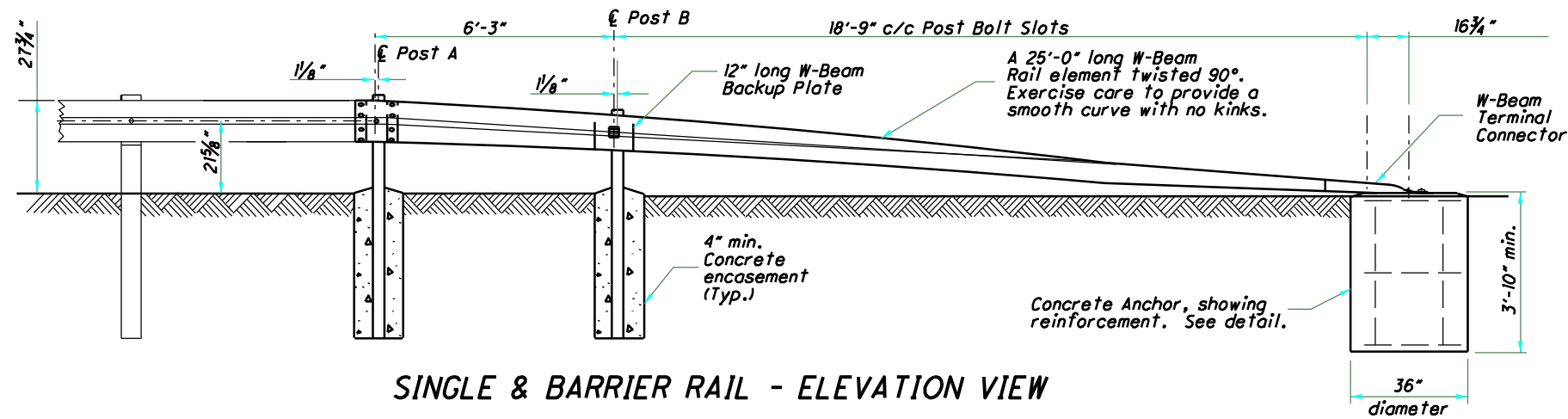
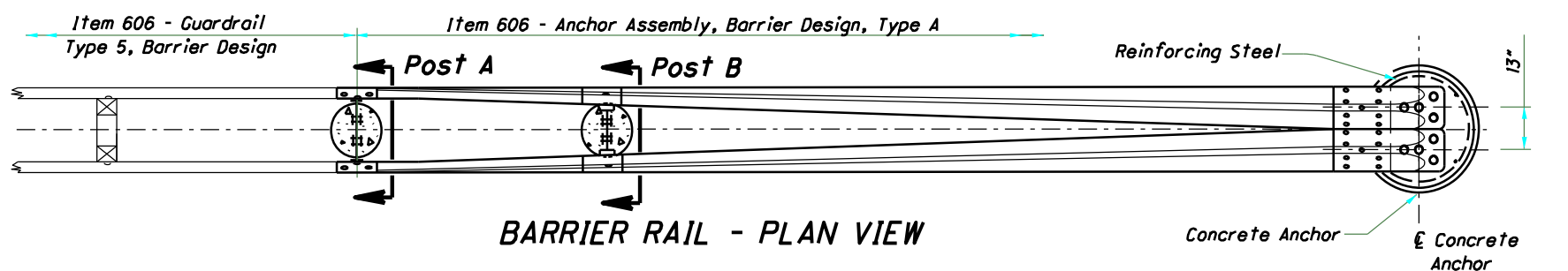
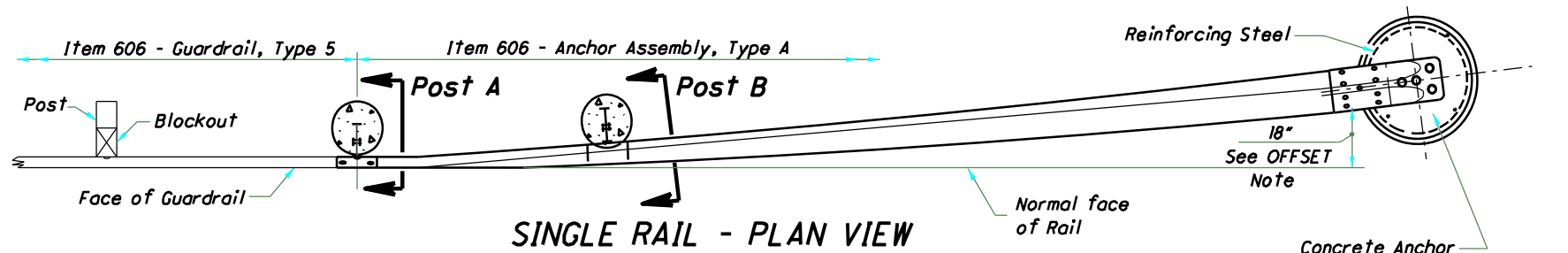
**PAYMENT:** Include all materials and labor for the 25'-0" [7.62 m] Single Rail, Type A Anchor Assembly in the unit price bid for **Item 606 - Anchor Assembly, Type A, Each.** Pay for all materials and labor for the 25'-0" [7.62 m] Barrier Rail under the unit bid price **Item 606 - Anchor Assembly, Barrier Design, Type A, Each.**

7/8" dia. x 12" [22 dia. x 300] galv. Bolts or Concrete Insert Anchor Assembly with 7/8" dia. x 1 1/2" [22 dia. x 38] Hex Head Bolts and standard galvanized Washers. See **SCD GR-1.I** for Assembly detail.

#3 [#10M] bars with 2" [50] cover on all bars, or Wire Cage with 10-W4 at 12" [300] c/c vertical and 8-W5 at 6" [150] c/c horizontally.

THIS DRAWING REPLACES GR-4.I.M DATED 11-30-94.

DATE	4-18-03
DESIGNER	SAUNDERS
CHECKED	FOCKE
IN CHARGE	FOCKE
SCALE	
PROJECT	ROADWAY DESIGN ENGINEER
DRAWING NUMBER	GR-4.I
DESCRIPTION	TYPE A ANCHOR ASSEMBLY
STANDARD	STANDARD ROADWAY CONSTRUCTION DRAWING
DEPARTMENT	ROADWAY ENGINEERING SERVICES
STATE	OHIO DEPARTMENT OF TRANSPORTATION



3/8" dia. x 12" galv. Bolts or Concrete Insert Anchor Assembly with 1/8" dia. x 1/2" Hex Head Bolts and standard galvanized Washers. See SCD GR-1.1 for Assembly detail.

#3 bars with 2" cover on all bars, or Wire Cage with 10-W4 at 12" c/c vertical and 8-W5 at 6" c/c horizontally.

**NOTES**

**APPLICATION:** On Non-NHS roadways it may be used in the clear zone, with restrictions. See Section 603. **Location & Design Manual, Volume 1.**

**GENERAL:** For details not shown, see SCD GR-1.1 and other Drawings pertaining to specific guardrail type. Galvanize all steel parts.

**OFFSETS:** See SCD GR-5.1 for Standard Guardrail Flare. The 18" flare offset from normal face of rail, shown in the plan view (for single rail installations) will be utilized only where shoulder is insufficient for providing standard flares.

**POSTS:** Steel posts W6x9 are shown, but W6x8.5 posts are also permitted. See SCD GR-1.1 for additional embedment details.

**SPACERS:** Post B Spacers shall be made of 3/16" Steel Plate as specified in CMS 710.15 or tow sections of W6x9 or W8x10 cut in the web (see dashed line on POST B Detail) and welded together on both sides.

All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed.

Spacers shall be fastened to Posts with two 5/8" hex head bolts and nuts with standard washers on both sides.

**WASHERS:** All washers indicated on this drawing are standard galvanized steel of the appropriate size.

**CONCRETE ANCHOR:** Form top 4" of anchor and slope the top to conform to slope of the adjacent ground. The 36" diameter anchor may be replaced by a 2'-6" square anchor at the contractor's option.

**PAYMENT:** include all materials and labor for the 25'-0" Single Rail, Type A Anchor Assembly in the unit price bid for **Item 606 - Anchor Assembly, Type A, Each.** Pay for all materials and labor for the 25'-0" Barrier Rail under the unit bid price **Item 606 - Anchor Assembly, Barrier Design, Type A, Each.**

THIS DRAWING REPLACES GR-4.1 DATED 4-18-03.

STANDARD ROADWAY CONSTRUCTION DRAWING

TYPE A ANCHOR ASSEMBLY

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER

M. Blime

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

Administrator

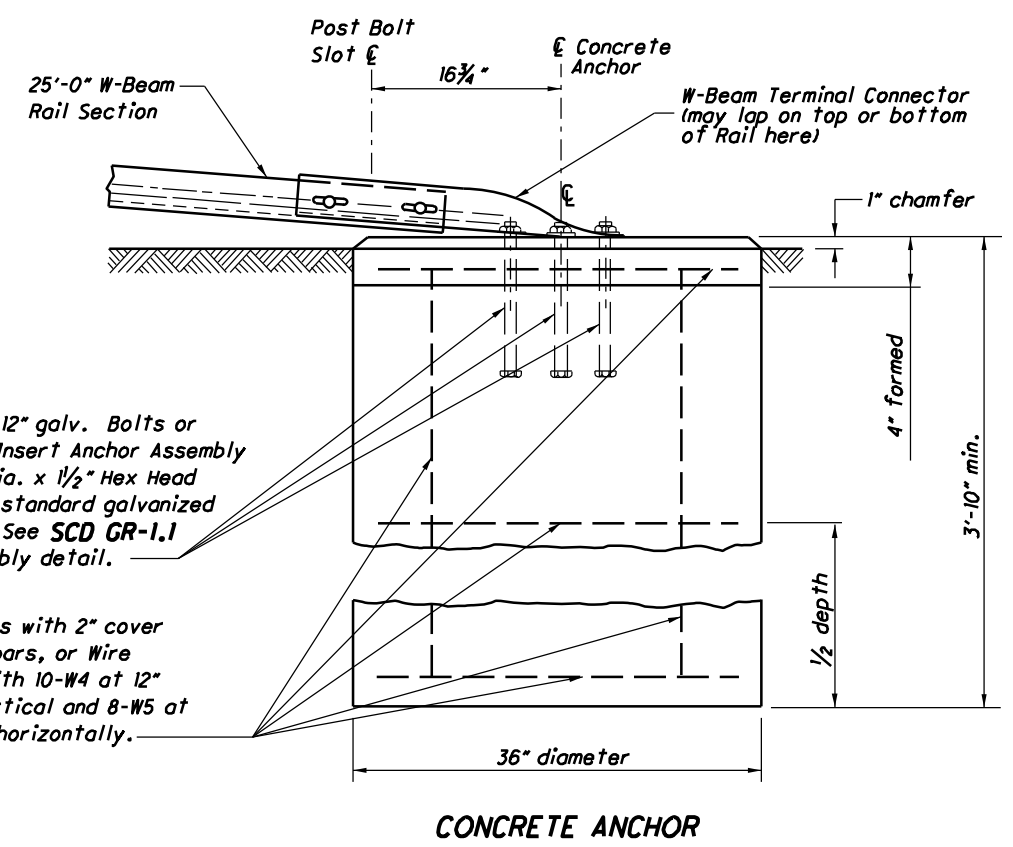
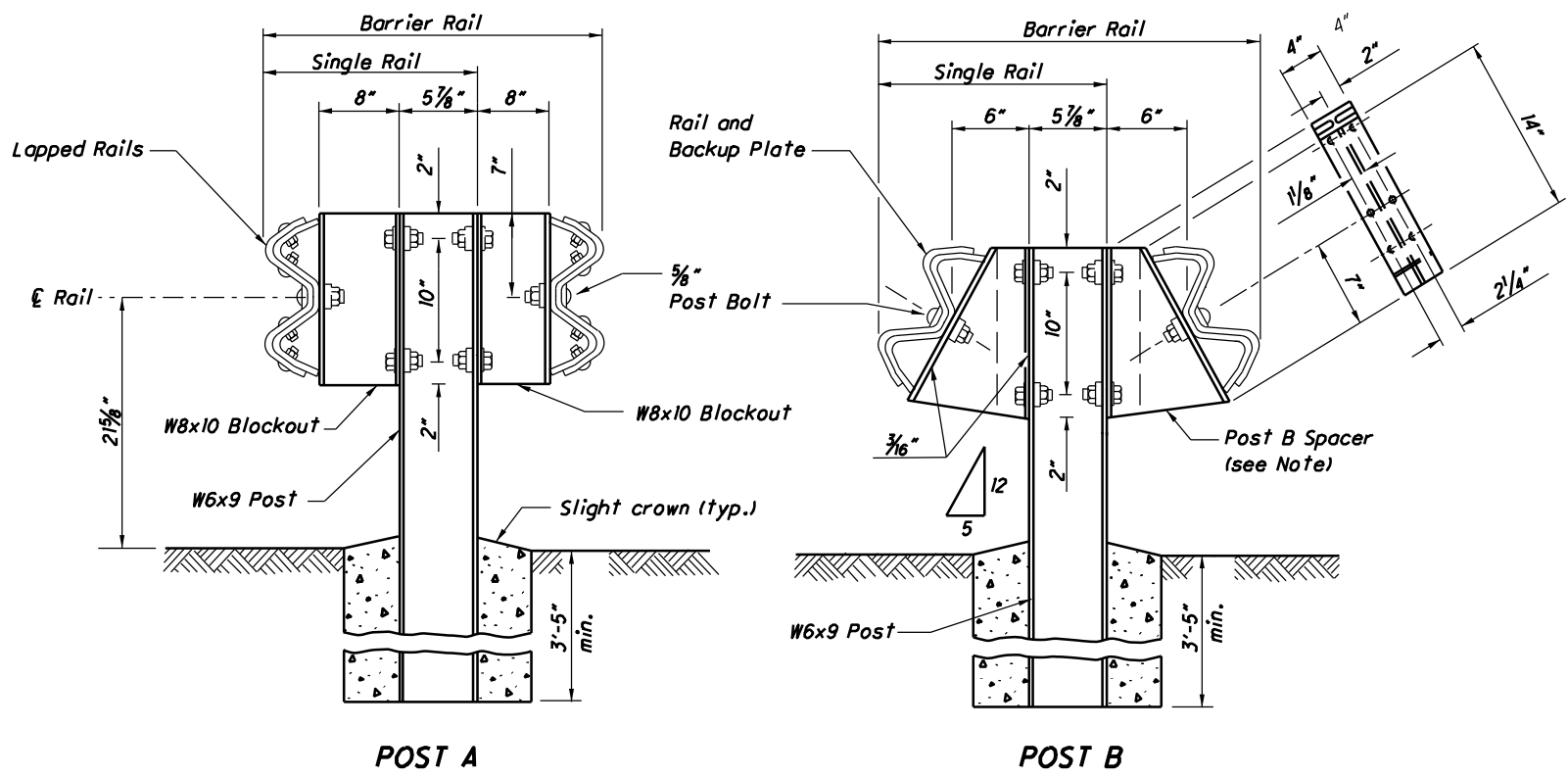
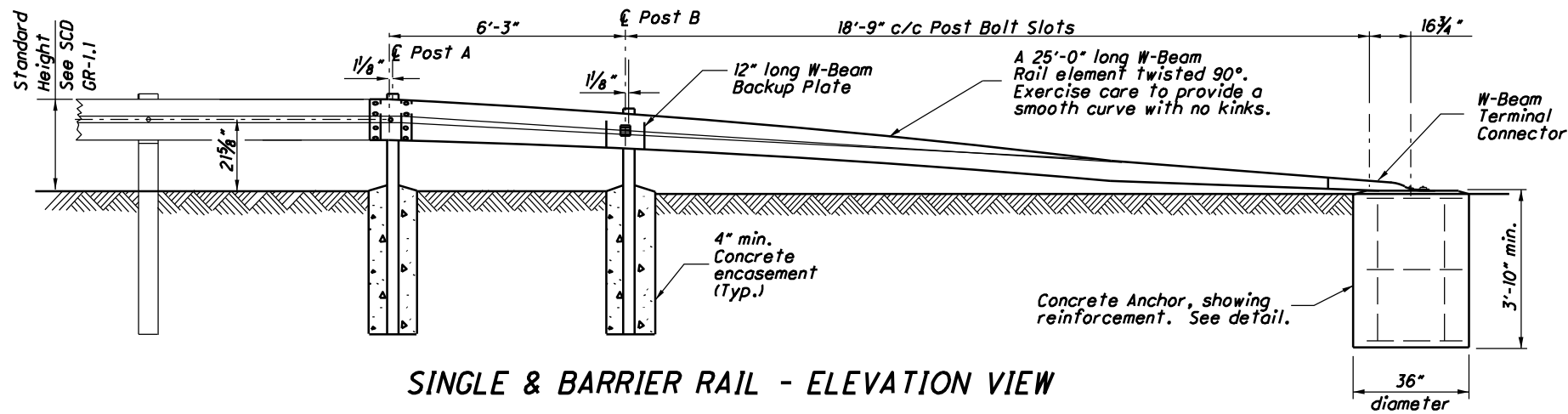
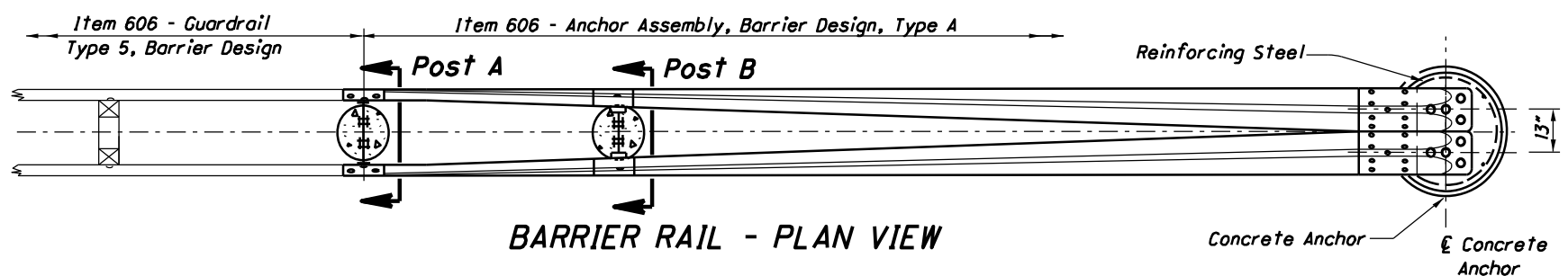
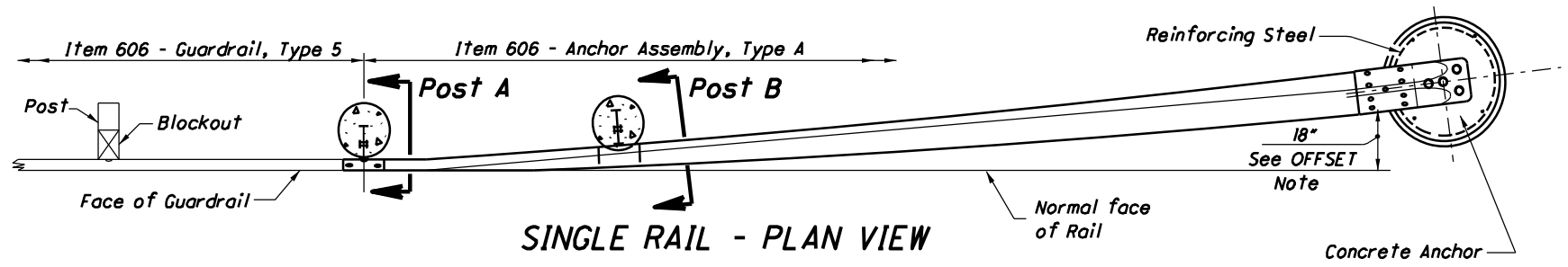
1-21-11

DATE

SCD NUMBER  
GR-4.1

1 / 1





3/8" dia. x 12" galv. Bolts or Concrete Insert Anchor Assembly with 1/8" dia. x 1/2" Hex Head Bolts and standard galvanized Washers. See SCD GR-1.1 for Assembly detail.

#3 bars with 2" cover on all bars, or Wire Cage with 10-W4 at 12" c/c vertical and 8-W5 at 6" c/c horizontally.

**NOTES**

**APPLICATION:** On Non-NHS roadways it may be used in the clear zone, with restrictions. See Section 603. Location & Design Manual, Volume 1.

**GENERAL:** For details not shown, see SCD GR-1.1 and other Drawings pertaining to specific guardrail type. Galvanize all steel parts.

**OFFSETS:** See SCD GR-5.1 for Standard Guardrail Flare. The 18" flare offset from normal face of rail, shown in the plan view (for single rail installations) will be utilized only where shoulder is insufficient for providing standard flares.

**POSTS:** Steel posts W6x9 are shown, but W6x8.5 posts are also permitted. See SCD GR-1.1 for additional embedment details.

**SPACERS:** Post B Spacers shall be made of 3/16" Steel Plate as specified in CMS 710.15 or tow sections of W6x9 or W8x10 cut in the web (see dashed line on POST B Detail) and welded together on both sides.

All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed.

Spacers shall be fastened to Posts with two 5/8" hex head bolts and nuts with standard washers on both sides.

**WASHERS:** All washers indicated on this drawing are standard galvanized steel of the appropriate size.

**CONCRETE ANCHOR:** Form top 4" of anchor and slope the top to conform to slope of the adjacent ground. The 36" diameter anchor may be replaced by a 2'-6" square anchor at the contractor's option.

**PAYMENTS:** include all materials and labor for the 25'-0" Single Rail, Type A Anchor Assembly in the unit price bid for Item 606 - Anchor Assembly, Type A, Each. Pay for all materials and labor for the 25'-0" Barrier Rail under the unit bid price Item 606 - Anchor Assembly, Barrier Design, Type A, Each.

THIS DRAWING REPLACES GR-4.1 DATED 1-21-11.

STANDARD ROADWAY CONSTRUCTION DRAWING

TYPE A ANCHOR ASSEMBLY

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER M. Ruppe

STATE OF OHIO DEPARTMENT OF TRANSPORTATION Michael Blune ADMINISTRATOR

7-20-12 DATE