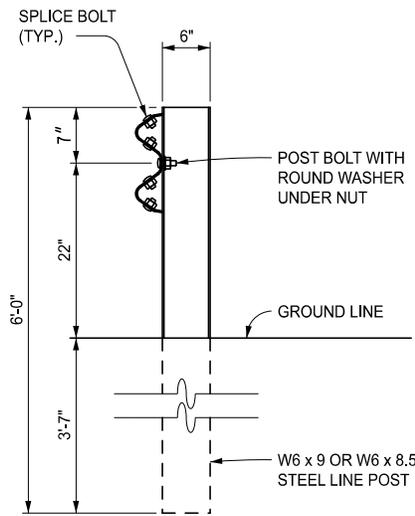
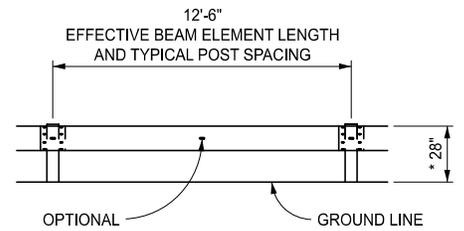


WOOD POST



STEEL POST



ELEVATION SHOWING POST SPACING  
\* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

GUARDRAIL, TYPE A

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

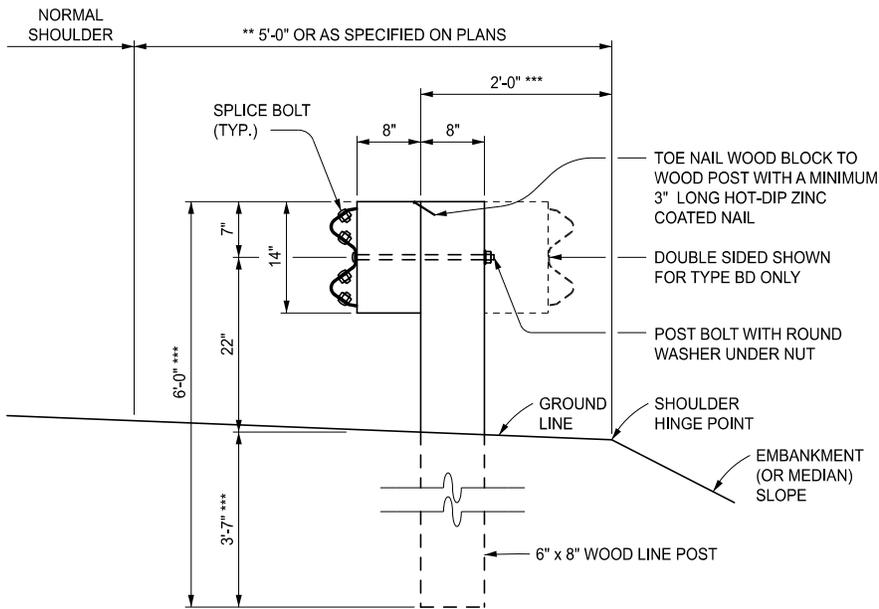
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

08/15/2023  
PLAN DATE

R-60-J

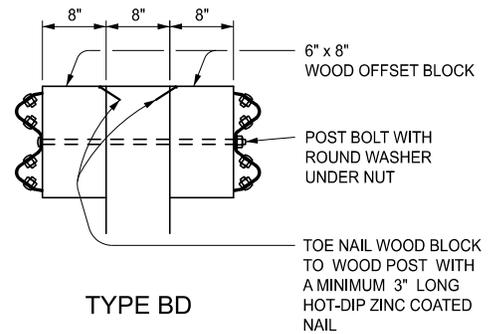
SHEET  
1 OF 16



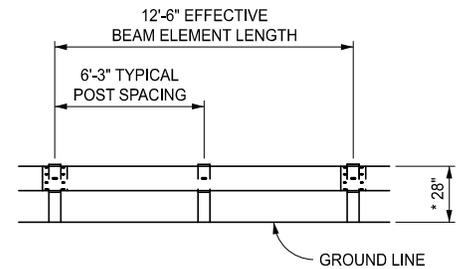
\*\* FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-0'.

\*\*\* IF THE OFFSET FROM THE FACE OF POST TO THE SHOULDER HINGE POINT IS LESS THAN 2'-0" AND THE EMBANKMENT (OR MEDIAN) SLOPE IS STEEPER THAN 1:10, USE 8'-0" POST WITH THE ADDITIONAL LENGTH EMBEDDED.

**GUARDRAIL, TYPE B (OR BD)  
(WOOD POST)**

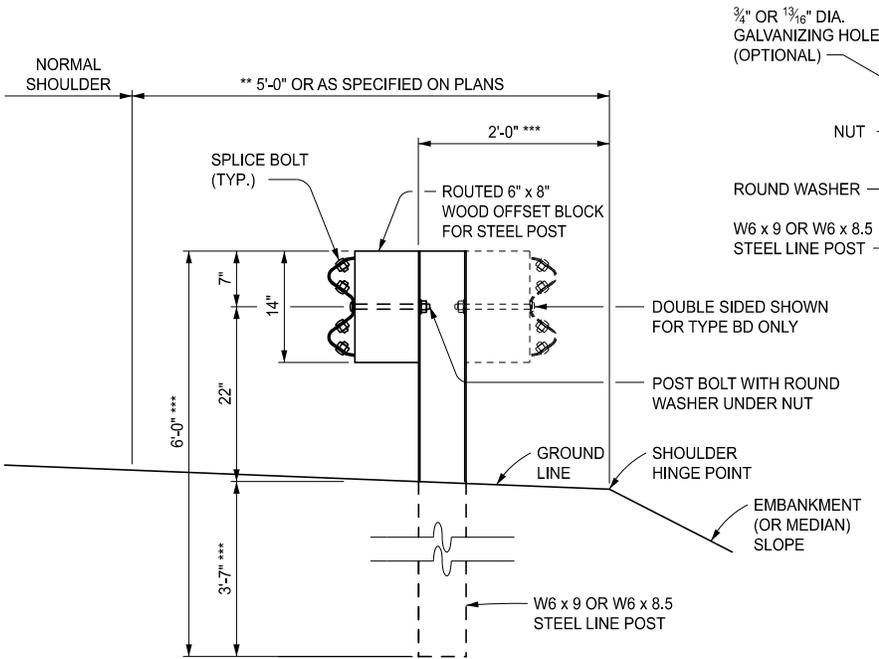


**TYPE BD**



**ELEVATION SHOWING POST SPACING**

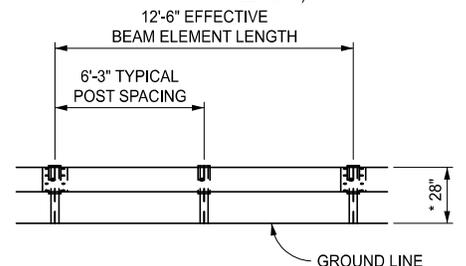
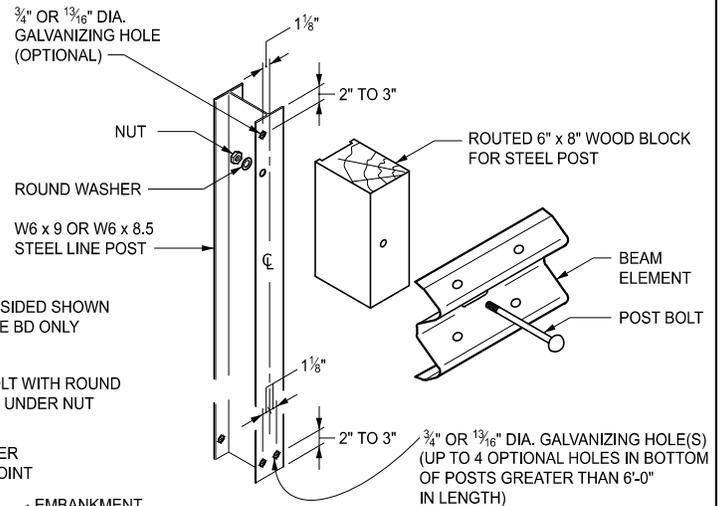
\* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB



\*\* FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-0'.

\*\*\* IF THE OFFSET FROM THE FACE OF POST TO THE SHOULDER HINGE POINT IS LESS THAN 2'-0" AND THE EMBANKMENT (OR MEDIAN) SLOPE IS STEEPER THAN 1:10, USE 8'-0" POST WITH THE ADDITIONAL LENGTH EMBEDDED.

**GUARDRAIL, TYPE B (OR BD)  
(STEEL POST)**



**ELEVATION SHOWING POST SPACING**

\* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

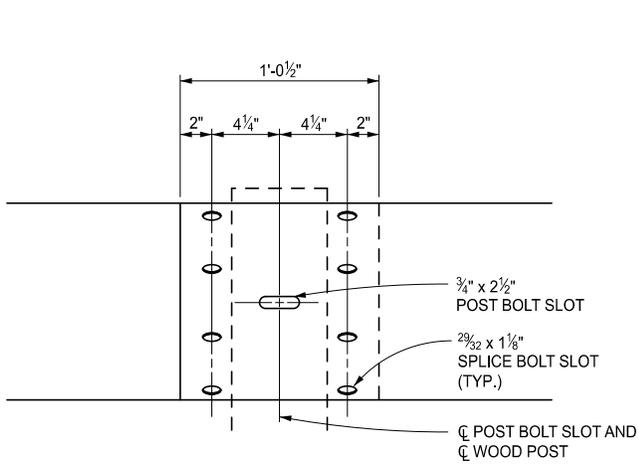
STANDARD PLAN FOR  
**GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D**

(SPECIAL DETAIL)  
FHWA APPROVAL

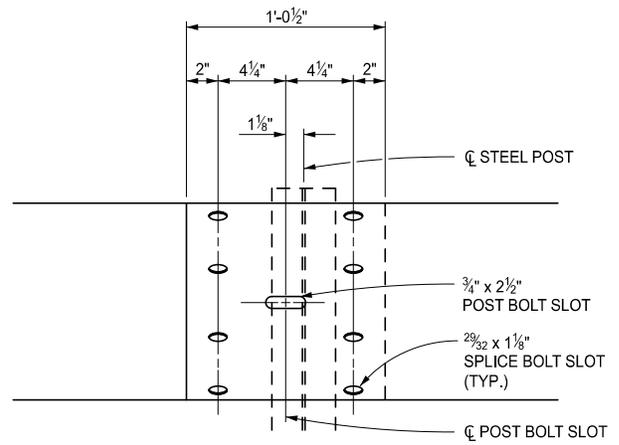
08/15/2023  
PLAN DATE

**R-60-J**

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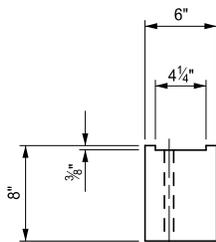


WOOD POST

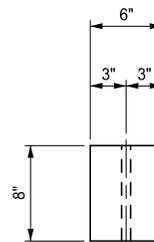


STEEL POST

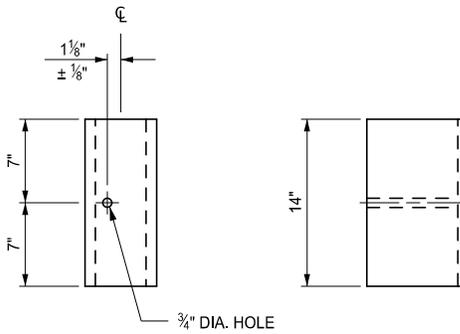
BEAM ELEMENT SPLICE DETAILS



TOP



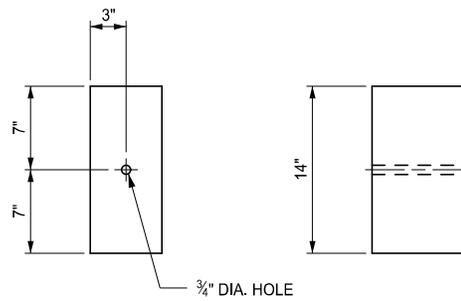
TOP



FRONT

SIDE

FOR USE ON STEEL POSTS



FRONT

SIDE

FOR USE ON WOOD POSTS

(SEE NOTES ON SHEET 16 OF 16)

WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE B AND TYPE BD



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

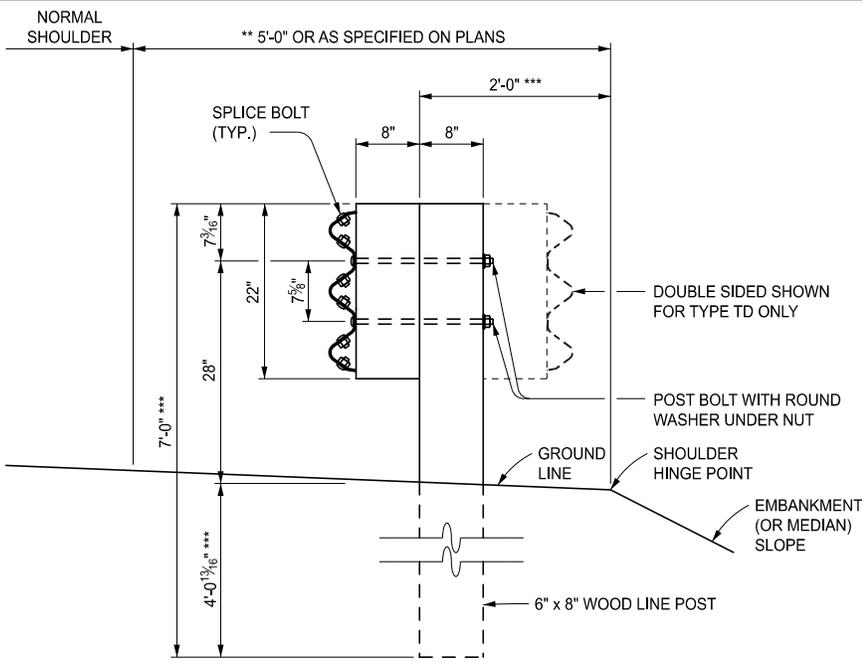
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

08/15/2023  
PLAN DATE

R-60-J

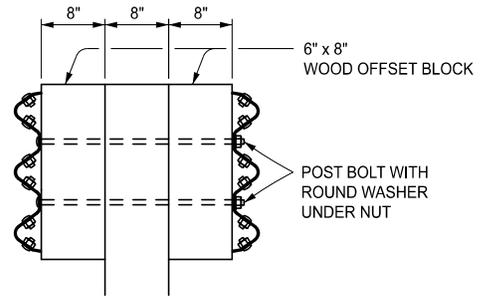
SHEET  
3 OF 16



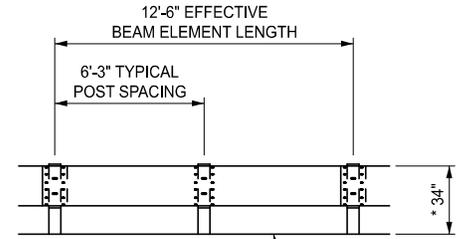
\*\* FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-0'.

\*\*\* IF THE OFFSET FROM THE FACE OF POST TO THE SHOULDER HINGE POINT IS LESS THAN 2'-0" AND THE EMBANKMENT (OR MEDIAN) SLOPE IS STEEPER THAN 1:10, USE 8'-0" POST WITH THE ADDITIONAL LENGTH EMBEDDED.

**GUARDRAIL, TYPE T (OR TD)  
(WOOD POST)**

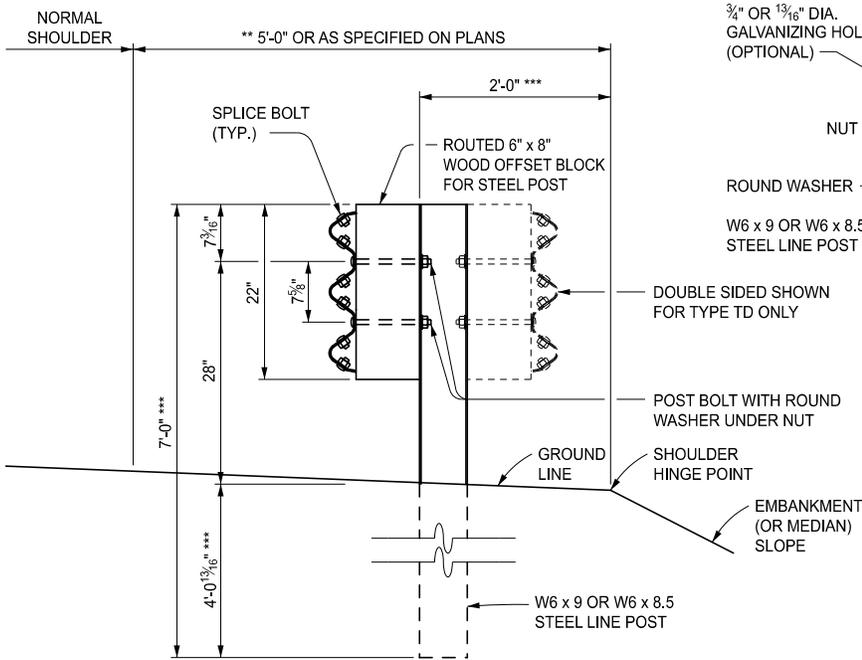


**TYPE TD**



**ELEVATION SHOWING POST SPACING**

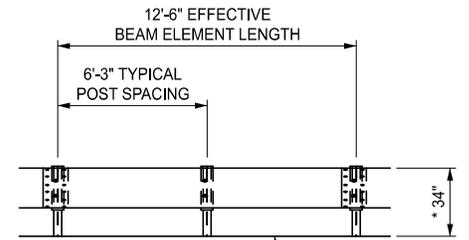
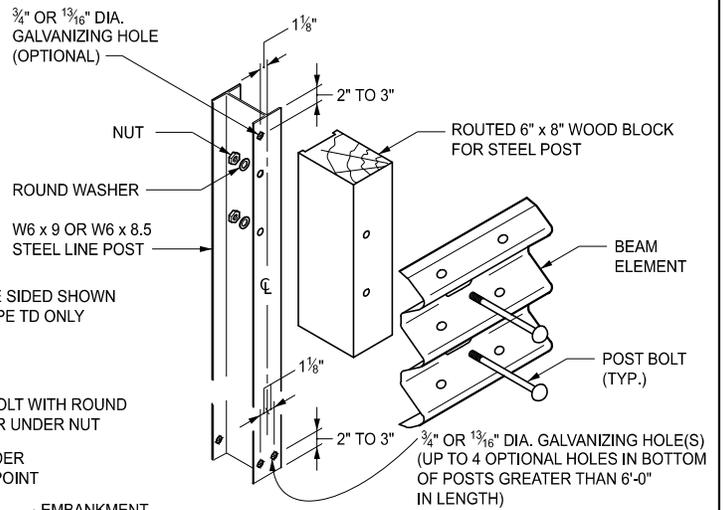
\* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB



\*\* FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-0'.

\*\*\* IF THE OFFSET FROM THE FACE OF POST TO THE SHOULDER HINGE POINT IS LESS THAN 2'-0" AND THE EMBANKMENT (OR MEDIAN) SLOPE IS STEEPER THAN 1:10, USE 8'-0" POST WITH THE ADDITIONAL LENGTH EMBEDDED.

**GUARDRAIL, TYPE T OR TD  
(STEEL POST)**



**ELEVATION SHOWING POST SPACING**

\* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

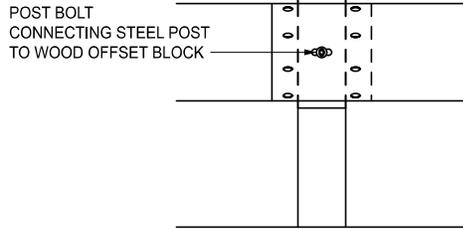
STANDARD PLAN FOR  
**GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D**

(SPECIAL DETAIL)  
FHWA APPROVAL

08/15/2023  
PLAN DATE

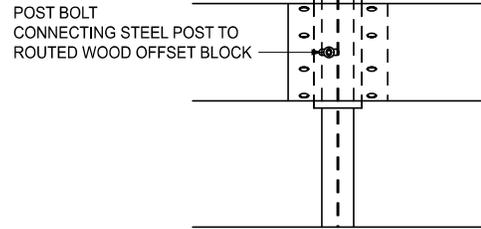
**R-60-J**

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4 OF 16



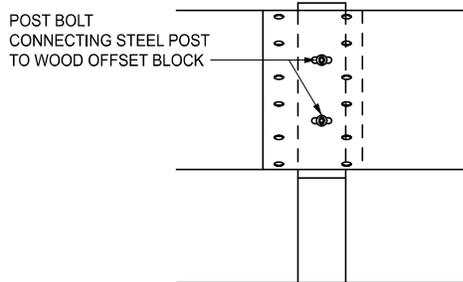
GUARDRAIL, TYPE B

WOOD POST



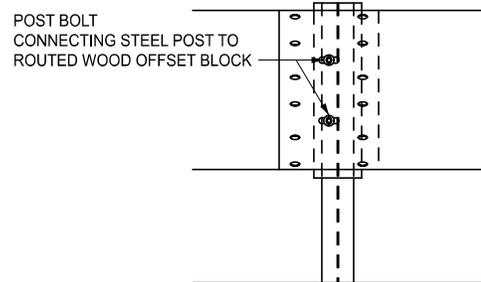
GUARDRAIL, TYPE B

STEEL POST



GUARDRAIL, TYPE T

WOOD POST



GUARDRAIL, TYPE T

STEEL POST

BLOCK AND POST CONNECTION DETAILS



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

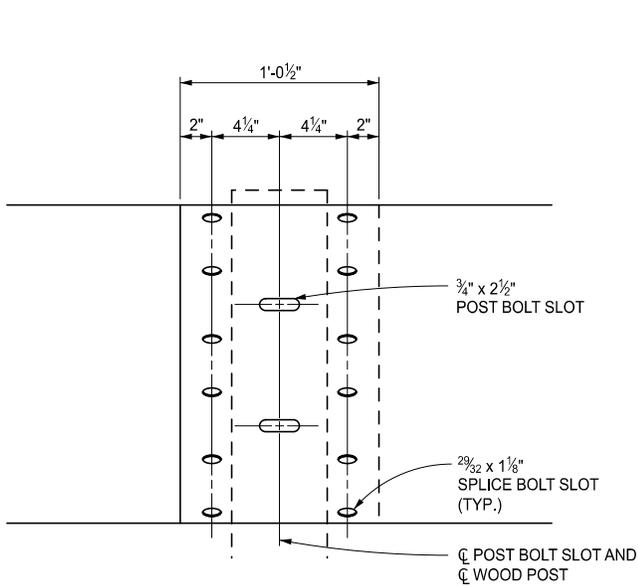
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

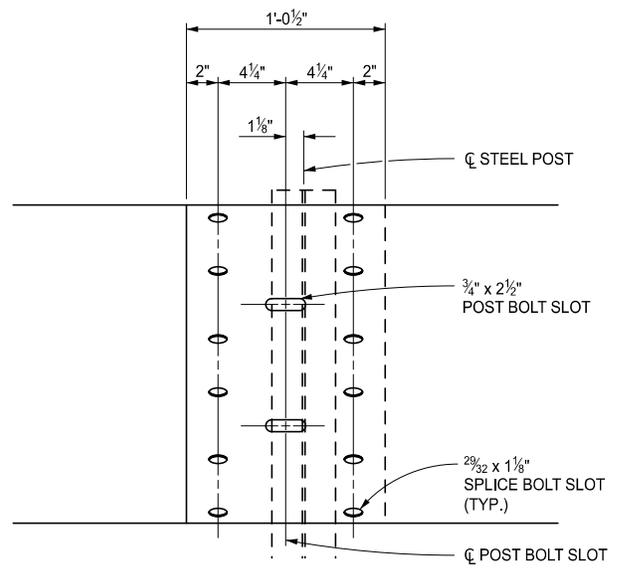
08/15/2023  
PLAN DATE

R-60-J

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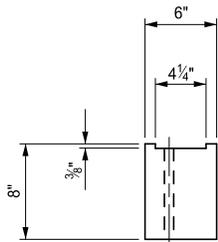


WOOD POST

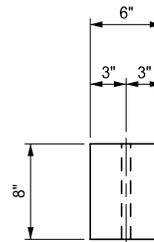


STEEL POST

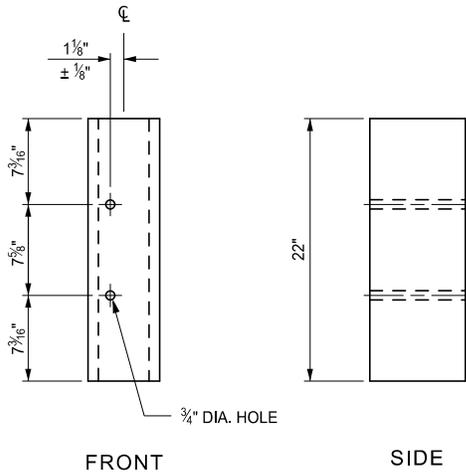
THREE BEAM ELEMENT SPLICE DETAILS



TOP



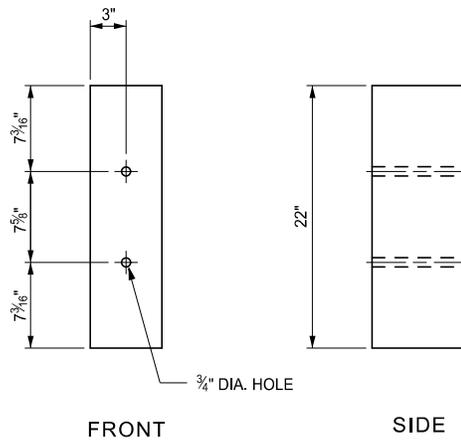
TOP



FRONT

SIDE

FOR USE ON STEEL POSTS



FRONT

SIDE

FOR USE ON WOOD POSTS

(SEE NOTES ON SHEET 16 OF 16)

WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE T AND TYPE TD



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

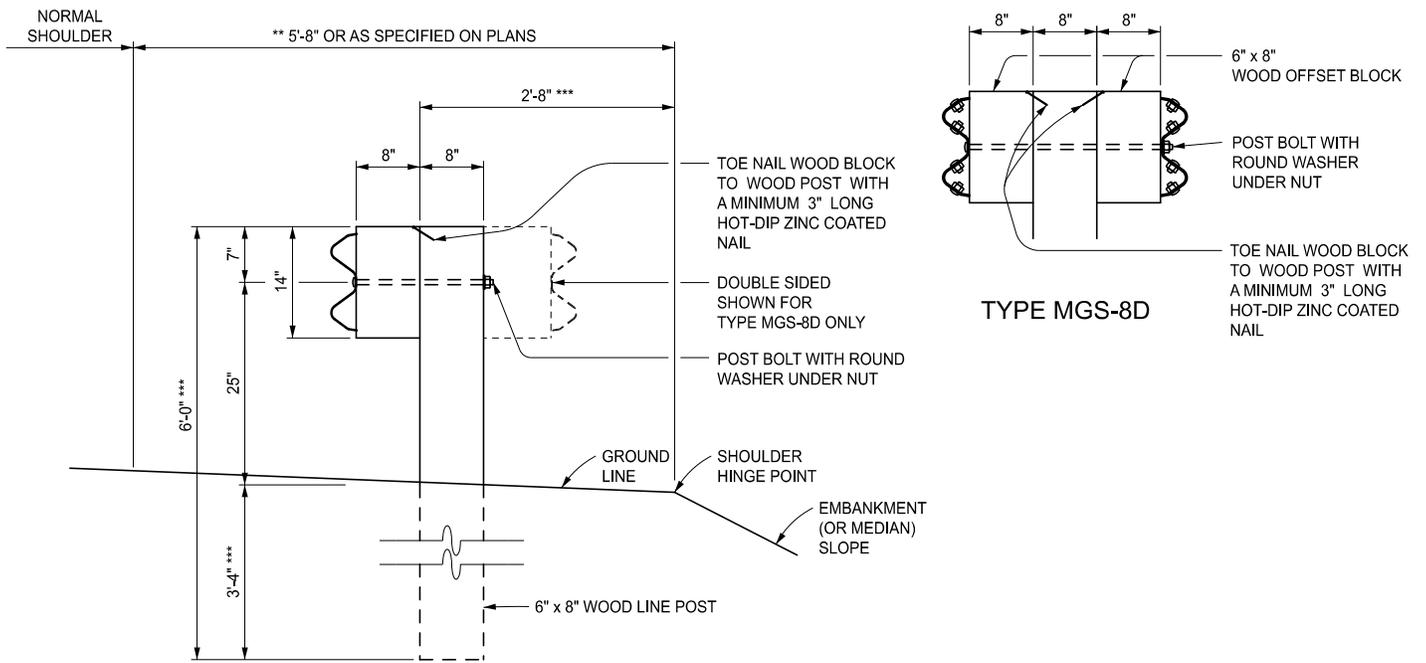
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

08/15/2023  
PLAN DATE

R-60-J

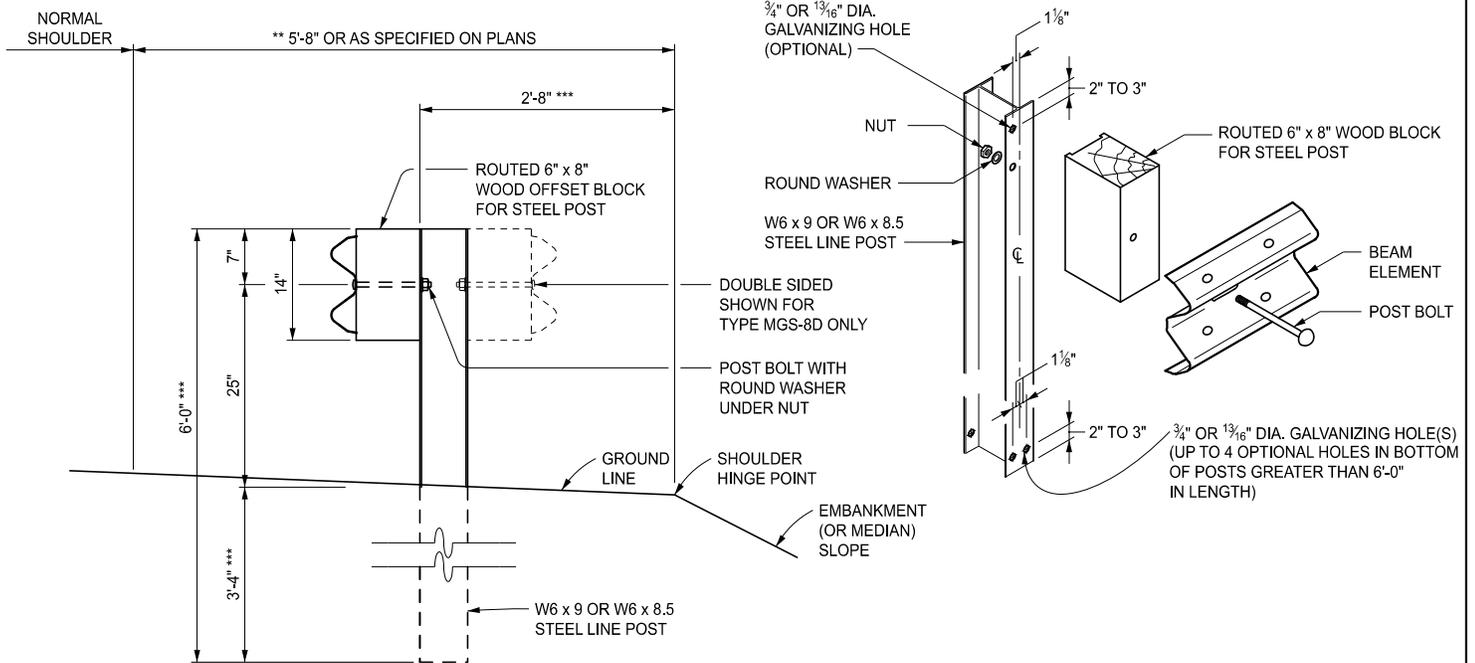
SHEET  
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\*\* FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-8".

\*\*\* IF THE OFFSET FROM THE FACE OF POST TO THE SHOULDER HINGE POINT IS LESS THAN 2'-8" AND THE EMBANKMENT (OR MEDIAN) SLOPE IS STEEPER THAN 1:10, USE 9'-0" POST WITH THE ADDITIONAL LENGTH EMBEDDED.

**GUARDRAIL, TYPE MGS-8 (OR MGS-8D)**  
(WOOD POST)



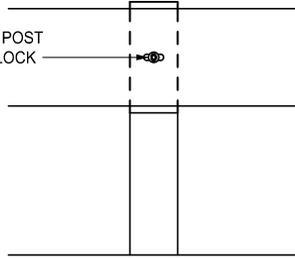
\*\* FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-8".

\*\*\* IF THE OFFSET FROM THE FACE OF POST TO THE SHOULDER HINGE POINT IS LESS THAN 2'-8" AND THE EMBANKMENT (OR MEDIAN) SLOPE IS STEEPER THAN 1:10, USE 9'-0" POST WITH THE ADDITIONAL LENGTH EMBEDDED.

**GUARDRAIL, TYPE MGS-8 (OR MGS-8D)**  
(STEEL POST)

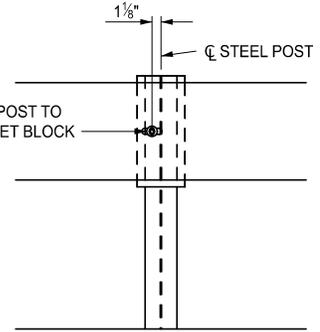
<p>DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE</p>	STANDARD PLAN FOR <b>GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, &amp; MGS-8D</b>		<b>R-60-J</b>	SHEET 7 OF 16
	(SPECIAL DETAIL) FHWA APPROVAL	08/15/2023 PLAN DATE		

POST BOLT  
CONNECTING WOOD POST  
TO WOOD OFFSET BLOCK



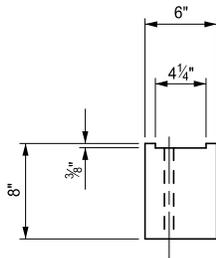
WOOD POST

POST BOLT  
CONNECTING STEEL POST TO  
ROUTED WOOD OFFSET BLOCK

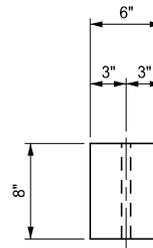


STEEL POST

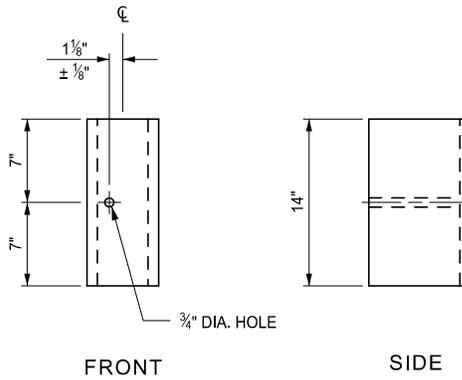
**BLOCK AND POST CONNECTION DETAILS**



TOP



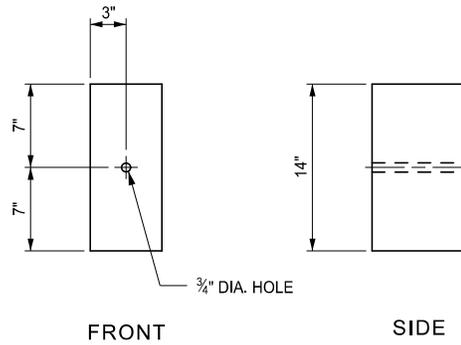
TOP



FRONT

SIDE

FOR USE ON STEEL POSTS



FRONT

SIDE

FOR USE ON WOOD POSTS

(SEE NOTES ON SHEET 16 OF 16)

**WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE MGS-8 AND TYPE MGS-8D**



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

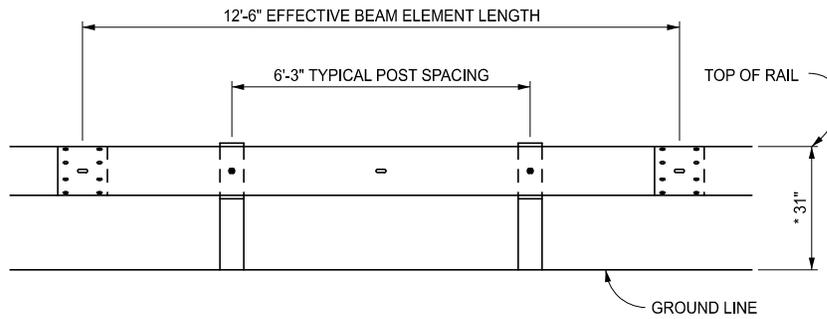
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

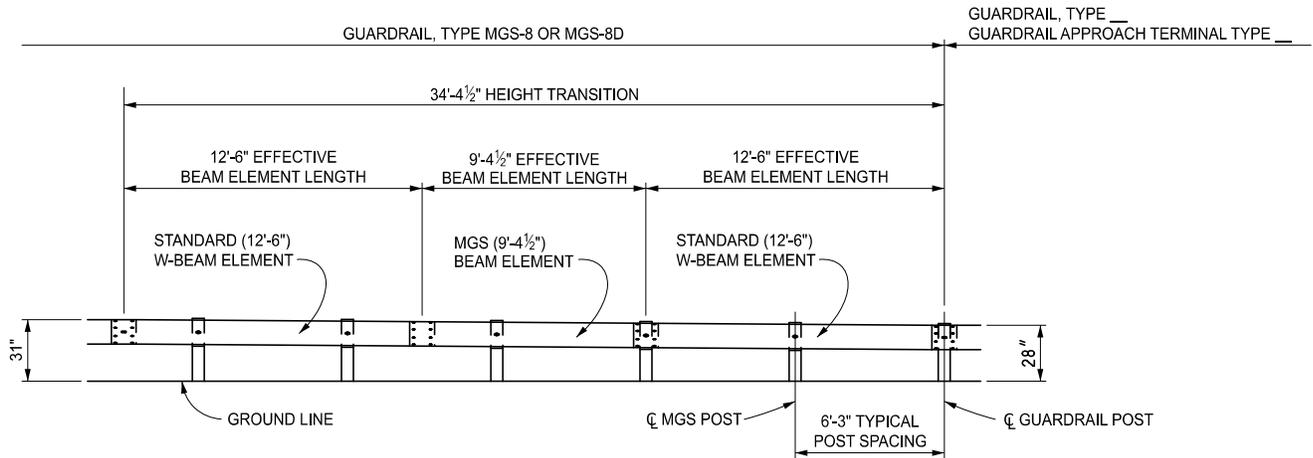
08/15/2023  
PLAN DATE

**R-60-J**

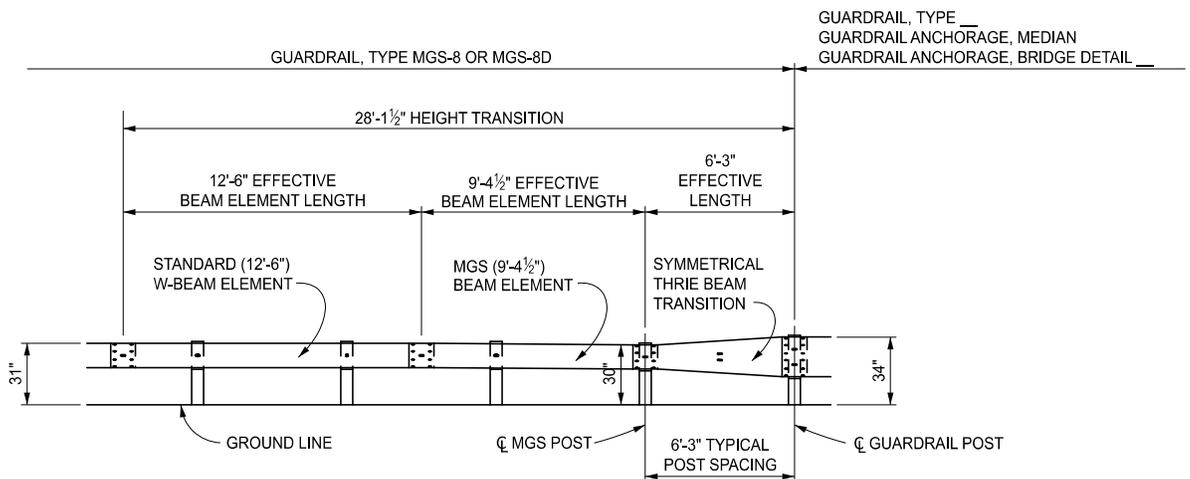
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ELEVATION SHOWING POST SPACING FOR  
 GUARDRAIL, TYPE MGS-8 OR MGS-8D  
 \* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB



ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING  
 GUARDRAIL, TYPE MGS-8 OR MGS-8D TO  
 GUARDRAIL, TYPE B, GUARDRAIL, TYPE BD, OR  
 GUARDRAIL APPROACH TERMINAL TYPE 1B, 2B, OR 3B

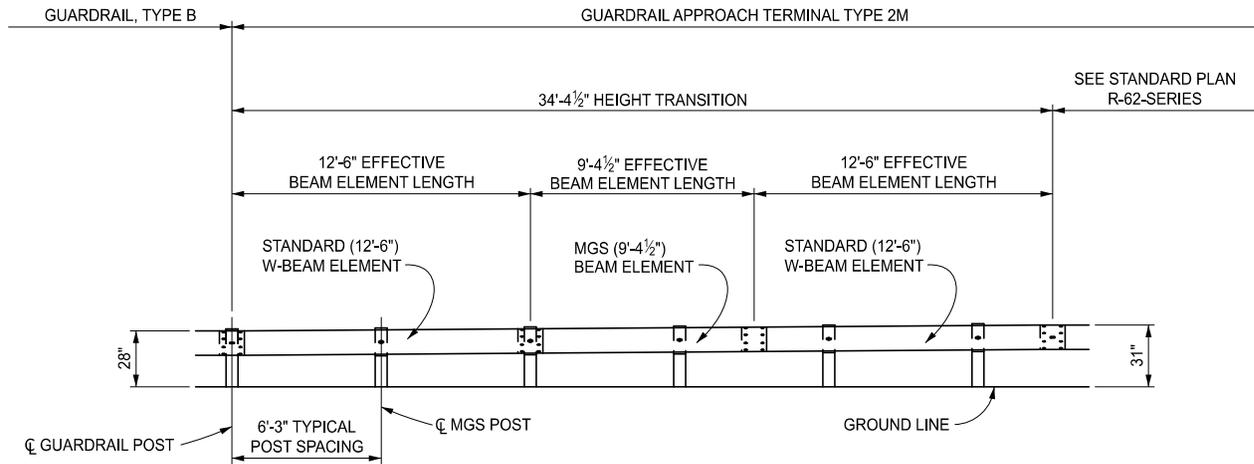


ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING  
 GUARDRAIL, TYPE MGS-8 OR MGS-8D TO  
 GUARDRAIL, TYPE T, GUARDRAIL, TYPE TD,  
 GUARDRAIL ANCHORAGE, MEDIAN,  
 GUARDRAIL ANCHORAGE, BRIDGE DETAIL A1, T1, T4 OR T6

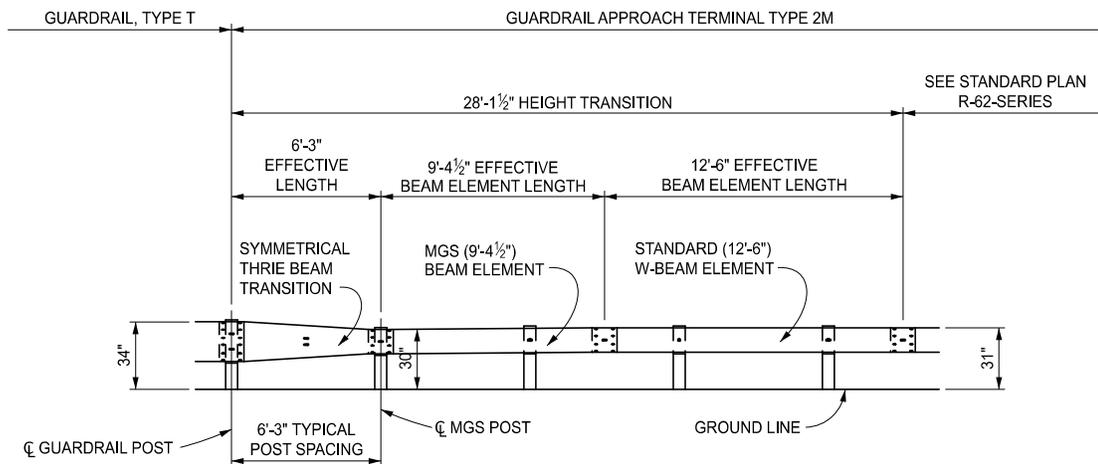
**MDOT**  
 Michigan Department of Transportation

DEPARTMENT DIRECTOR  
 BRADLEY C. WIEFERICH, PE

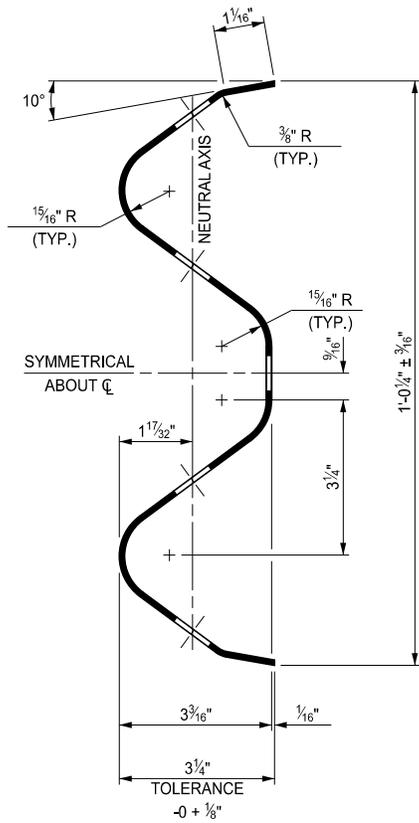
STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D			
(SPECIAL DETAIL)	08/15/2023	<b>R-60-J</b>	SHEET 9 OF 16
FHWA APPROVAL	PLAN DATE		



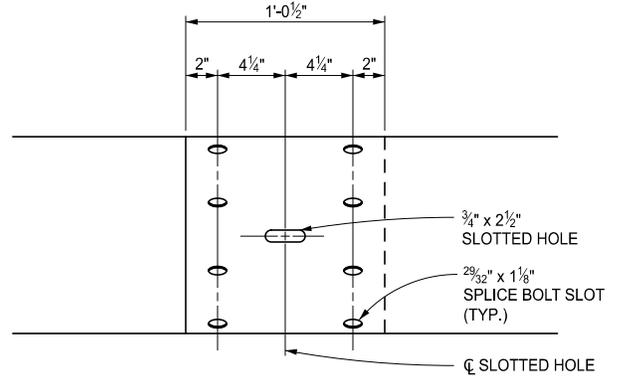
ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING  
 GUARDRAIL, TYPE B TO  
 GUARDRAIL APPROACH TERMINAL TYPE 2M



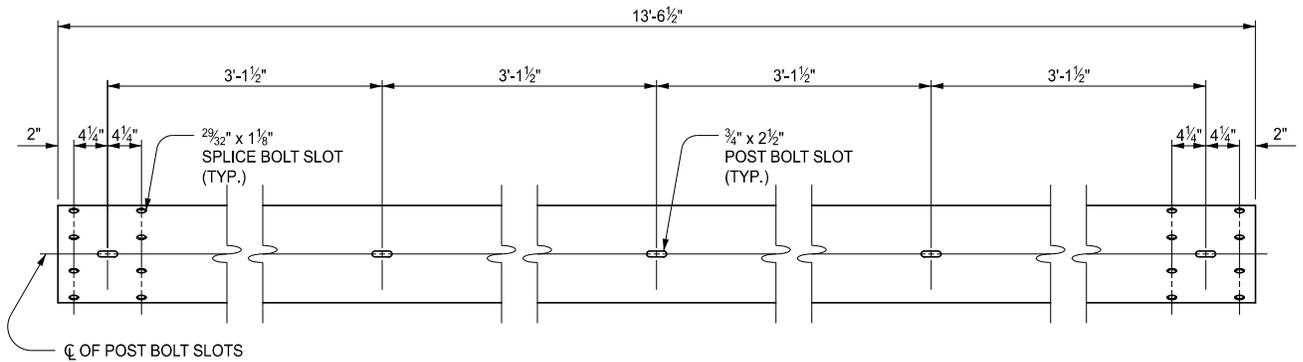
ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING  
 GUARDRAIL, TYPE T TO  
 GUARDRAIL APPROACH TERMINAL TYPE 2M



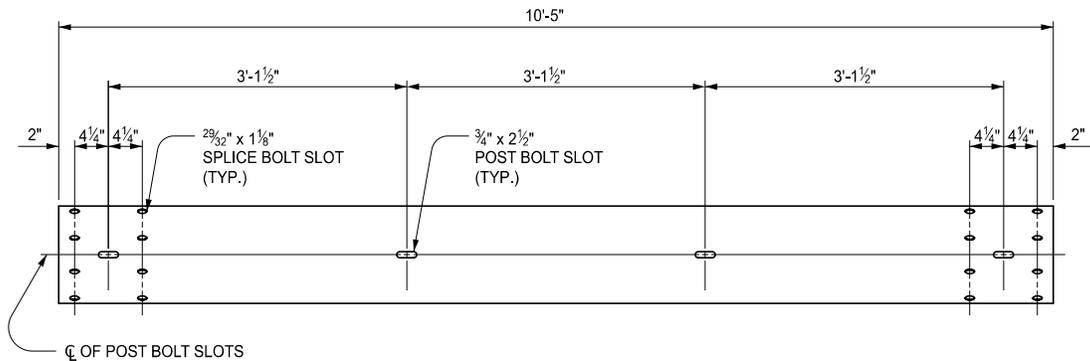
SECTION THROUGH BEAM ELEMENT



BEAM ELEMENT SPLICE DETAILS



FRONT ELEVATION OF BEAM ELEMENT



FRONT ELEVATION OF MGS (9'-4 1/2") BEAM ELEMENT



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

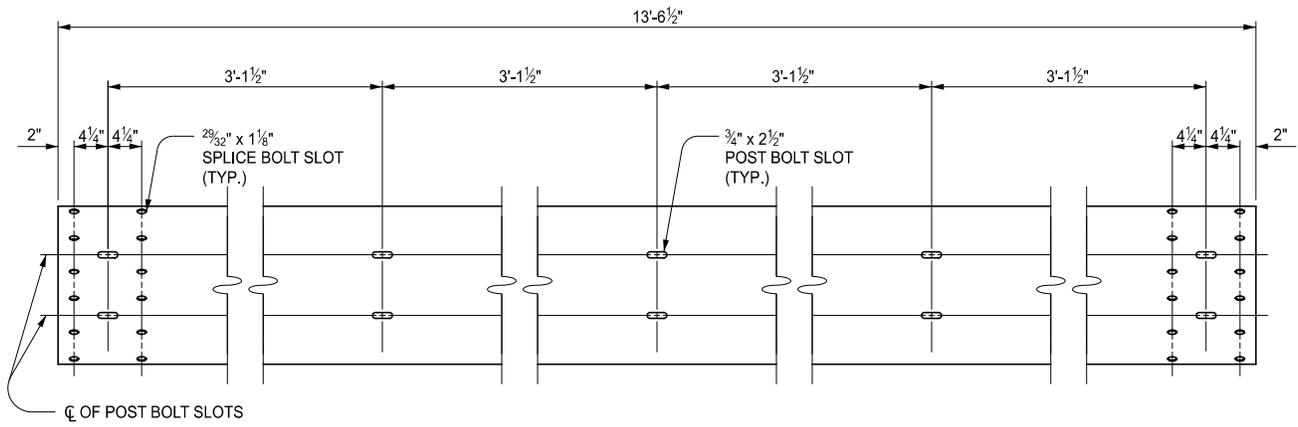
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

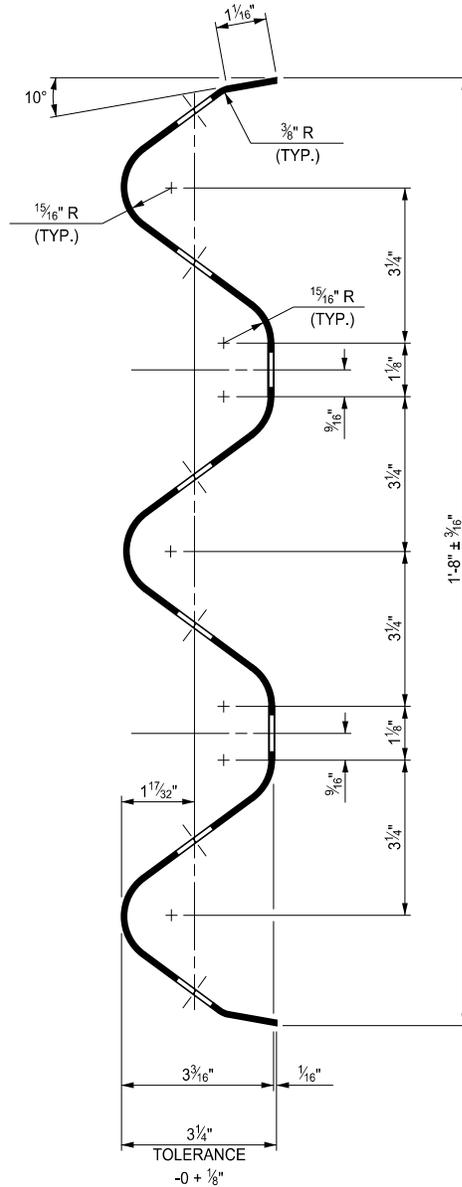
08/15/2023  
PLAN DATE

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FRONT ELEVATION OF THRIE BEAM ELEMENT



SECTION THROUGH THRIE BEAM ELEMENT  
(FOR GUARDRAIL, TYPE T AND TD)



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

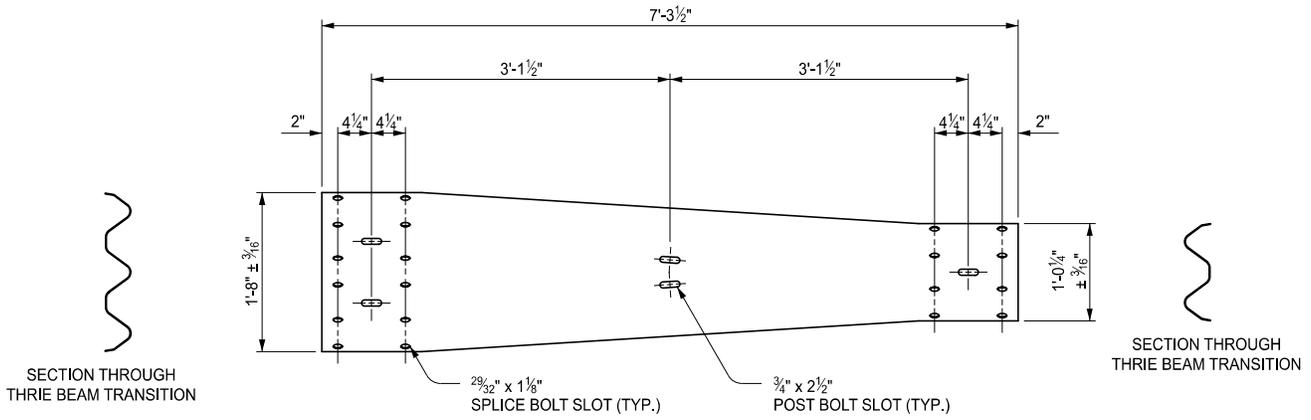
STANDARD PLAN FOR  
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

(SPECIAL DETAIL)  
FHWA APPROVAL

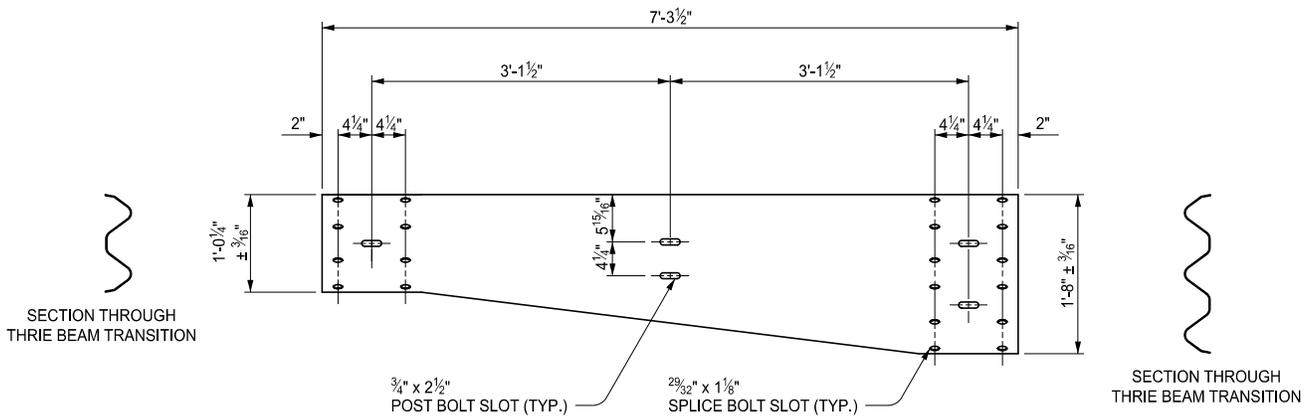
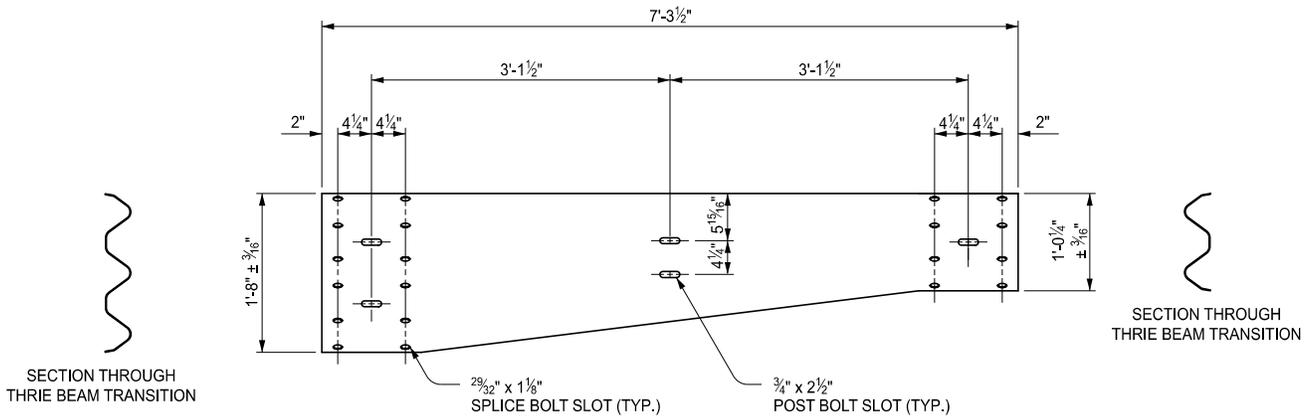
08/15/2023  
PLAN DATE

R-60-J

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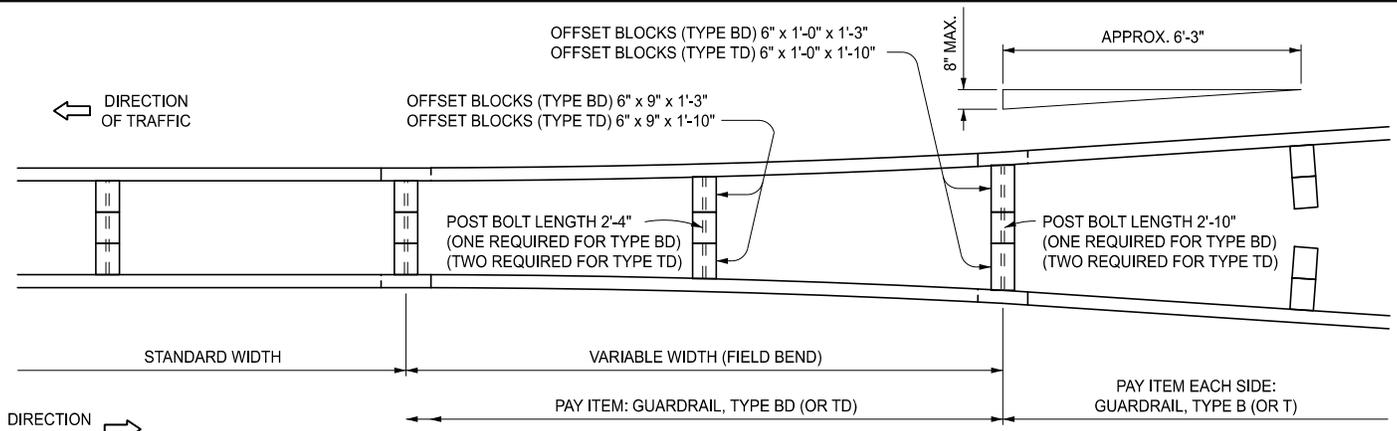
SYMMETRICAL THRIE BEAM TRANSITIONS



ASYMMETRICAL THRIE BEAM TRANSITIONS

NOTE: ASYMMETRICAL TRANSITION TYPE WILL VARY BY LOCATION DEPENDING ON GUARDRAIL LAYOUT

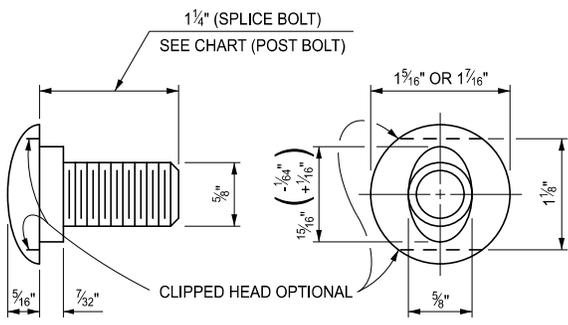
<p>MDOT Michigan Department of Transportation</p> <p>DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE</p>	<p>STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, &amp; MGS-8D</p>		
	<p>(SPECIAL DETAIL) FHWA APPROVAL</p>	<p>08/15/2023 PLAN DATE</p>	<p>R-60-J</p>



**DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T)  
TO GUARDRAIL, TYPE BD (OR TYPE TD)**

POST BOLTS, SPLICE BOLTS AND WASHERS AT BEAM ELEMENT SPLICE POSTS AND AT INTERMEDIATE POSTS						
GUARDRAIL TYPE	POST	OFFSET BLOCK	POST BOLTS		SPLICE BOLTS (1/4" LONG) (NO. REQ'D)	WASHERS (ROUND) (NO. REQ'D)
			NO. REQ'D	LENGTH		
A	WOOD	N/A	1	9 1/2"	8	1
	STEEL	N/A	1	2"		
B	WOOD	WOOD	1	18"	8	1
	STEEL	WOOD	1	9 1/2"		
BD	WOOD	WOOD	1	* 26 1/2"	16	2
	STEEL	WOOD	2	9 1/2"		
T	WOOD	WOOD	2	18"	12	2
	STEEL	WOOD	2	9 1/2"		
TD	WOOD	WOOD	2	* 26 1/2"	24	4
	STEEL	WOOD	4	9 1/2"		

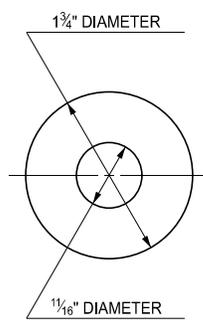
MINIMUM POST BOLT THREAD LENGTH	
BOLT LENGTH	MINIMUM THREAD LENGTH
9 1/2"	1 3/4"
18"	2 1/2"
26 1/2"	3"



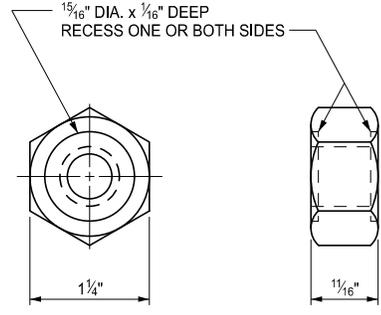
**SPLICE BOLT AND POST BOLT**

THREE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 ON TYPE T END AND 8 ON TYPE B END).

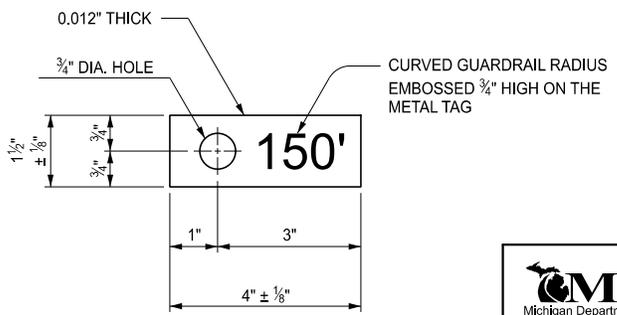
\* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD). POST BOLTS SHALL NOT EXTEND MORE THAN 1/2" BEYOND NUT.



**ROUND WASHER**



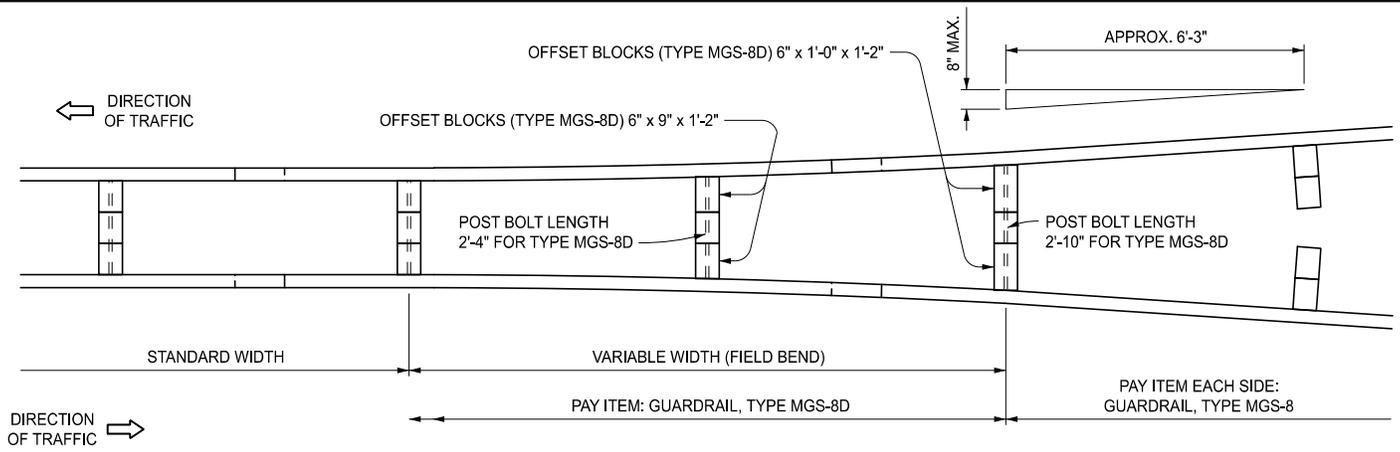
**NUT**



**METAL TAG**

FOR CURVED GUARDRAIL WITH RADIUS OF 150' OR LESS

<p align="center">Michigan Department of Transportation</p> <p align="center">DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE</p>	STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D		
	(SPECIAL DETAIL) FHWA APPROVAL	08/15/2023 PLAN DATE	<b>R-60-J</b>



**DETAIL SHOWING TRANSITION FROM  
GUARDRAIL, TYPE MGS-8 TO GUARDRAIL, TYPE MGS-8D**

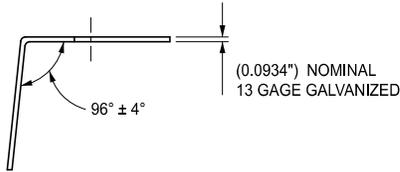
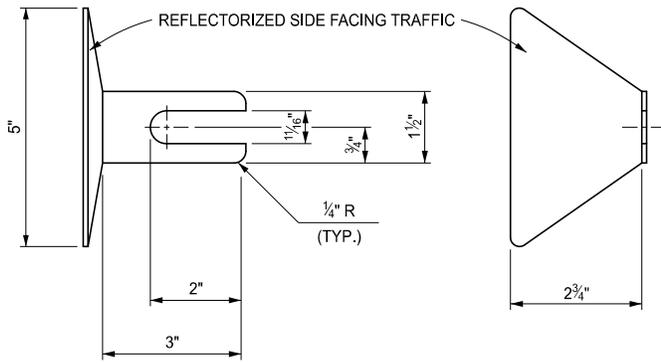
POST BOLTS, SPLICE BOLTS AND WASHERS AT BEAM ELEMENT SPLICE POSTS AND AT INTERMEDIATE POSTS						
GUARDRAIL TYPE	POST	OFFSET BLOCK	POST BOLTS		SPLICE BOLTS (1¼" LONG) (NO. REQ'D)	WASHERS (ROUND) (NO. REQ'D)
			NO. REQ'D	LENGTH		
MGS-8	WOOD	WOOD	1	18"	8	1
	STEEL	WOOD	1	9½"		1
MGS-8D	WOOD	WOOD	1	* 26½"	16	—
	STEEL	WOOD	2	9½"		2

MINIMUM POST BOLT THREAD LENGTH	
BOLT LENGTH	MINIMUM THREAD LENGTH
9½"	1¾"
18"	2½"
26½"	3"

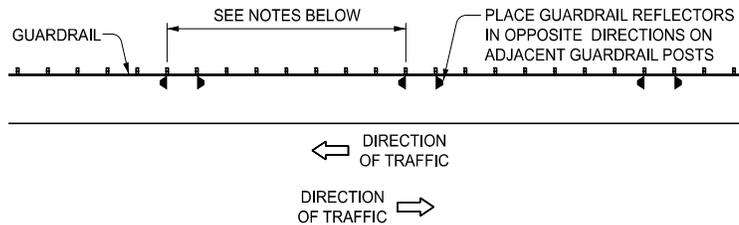
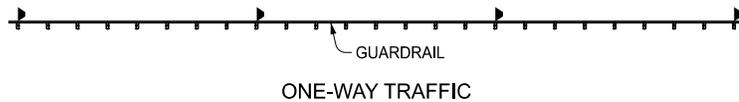
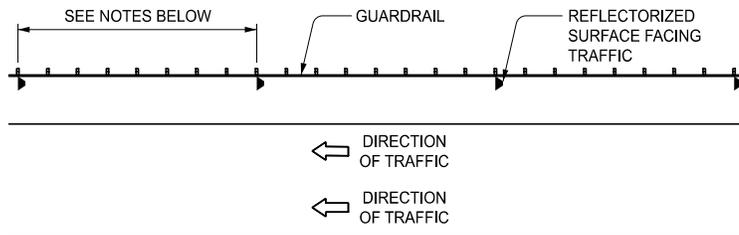
THREE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 ON TYPE T END AND 8 ON TYPE MGS END).

\* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL, TYPE MGS-8D POST BOLTS SHALL NOT EXTEND MORE THAN ½" BEYOND NUT.

 DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR <b>GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, &amp; MGS-8D</b>		
	(SPECIAL DETAIL) FHWA APPROVAL	08/15/2023 PLAN DATE	<b>R-60-J</b>



**GUARDRAIL REFLECTOR**



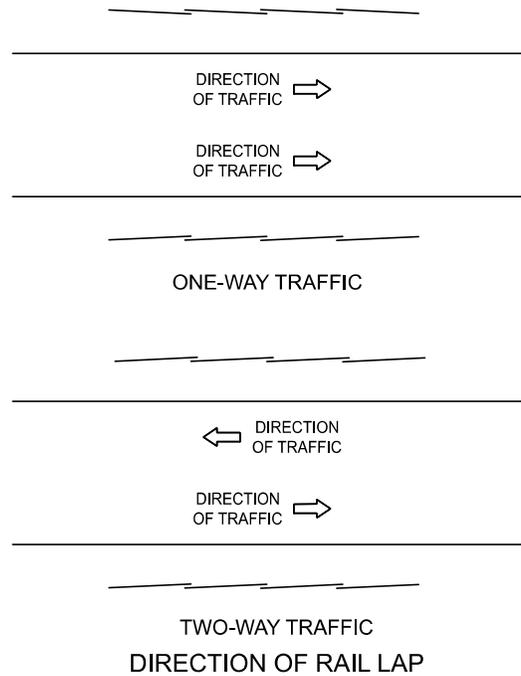
**PLACEMENT OF GUARDRAIL REFLECTORS**

**NOTES GOVERNING THE USE OF GUARDRAIL REFLECTORS**

1. GUARDRAIL REFLECTORS SHALL BE USED ON ALL STANDARD GUARDRAIL RUNS, REGARDLESS OF ROADWAY LIGHTING.
2. GUARDRAIL REFLECTORS ARE TO BE SPACED AT THE FOLLOWING INTERVALS:
  - a) 50'-0" ON TANGENT SECTIONS AND CURVES WITH A RADIUS OF 1150' OR MORE.
  - b) 25'-0" ON CURVES WITH A RADIUS LESS THAN 1150'.
3. FOR GUARDRAIL REFLECTOR PLACEMENT ON APPROACH TERMINALS, SEE THE APPROPRIATE GUARDRAIL APPROACH TERMINAL STANDARD PLAN.
4. A GUARDRAIL REFLECTOR IS TO BE PLACED ON THE SECOND POST FROM THE GUARDRAIL DEPARTING TERMINAL.
5. ON GUARDRAIL, TYPE T AND TYPE TD GUARDRAIL REFLECTORS ARE TO BE PLACED ON THE UPPER POST BOLT.
6. GUARDRAIL REFLECTORS SHALL MATCH COLOR OF EDGE LINE.



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE



**NOTES:**

DETAILS SPECIFIED ON THIS STANDARD ARE ACCORDING TO THE AASHTO-AGC-ARTBA JOINT COMMITTEE, TASK FORCE 13 PUBLICATION TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE."

BEAM ELEMENTS SHALL BE SHOP BENT TO PLAN RADIUS FOR CURVE RADIUS 150' OR LESS. A TAG IDENTIFYING THE CURVATURE OF THE SHOP BENT SECTION WILL BE REQUIRED FOR EACH CURVED ELEMENT.

SEE STANDARD PLAN R-62-SERIES OR R-63-SERIES FOR GUARDRAIL APPROACH TERMINALS, STANDARD PLAN R-66-SERIES FOR GUARDRAIL DEPARTING TERMINALS AND STANDARD PLAN R-67-SERIES FOR GUARDRAIL ANCHORAGE, BRIDGE.

WOOD POSTS WITH 1/2" BEVELS AT THE TOP MAY BE USED IN LIEU OF WOOD POSTS WITHOUT BEVELS SPECIFIED. THE LENGTH, WIDTH AND DEPTH OF THE POST SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT.

WOOD OFFSET BLOCKS WITH 1/2" BEVELS AT THE TOP AND BOTTOM OR A 1" BEVELED TOP MAY BE USED IN LIEU OF WOOD BLOCKS WITHOUT BEVELS SPECIFIED. THE LENGTH (FRONT AND BACK FACE), WIDTH AND DEPTH OF THE BLOCK SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT AND COMPATIBILITY WITH POST HOLES.

WHEN THE FACE OF GUARDRAIL IS PLACED FLUSH WITH FACE OF CURB, THE RAIL HEIGHT SHOULD BE MEASURED FROM THE FRONT EDGE OF THE GUTTER PAN, WHICH IS THE POINT ON THE GUTTER PAN THAT IS CLOSEST TO THE EDGE OF THE TRAVELED LANE. WHEN THE FACE OF THE GUARDRAIL PANEL IS LOCATED BEHIND THE CURB THE RAIL HEIGHT SHOULD BE MEASURED FROM THE GROUND JUST IN FRONT OF THE GUARDRAIL.

STANDARD PLAN FOR  
**GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D**

(SPECIAL DETAIL)	08/15/2023	<b>R-60-J</b>	SHEET 16 OF 16
FHWA APPROVAL	PLAN DATE		