SPLICE BOLT
(TYP.)

8"

7"

22"

6'-0"

3'-7"

POST BOLT WITH
ROUND WASHER
UNDER NUT

GROUND LINE

6" x 8"
WOOD LINE POST

WOOD POST

SPLICE BOLT
(TYP.)

6"

7"

22"

6'-0"

3'-7"

POST BOLT WITH
ROUND WASHER
UNDER NUT

GROUND LINE

W6 x 9 OR W6 x 8.5
STEEL LINE POST

STEEL POST

12'-6"
EFFECTIVE BEAM ELEMENT LENGTH
AND TYPICAL POST SPACING

* 28"

OPTIONAL

GROUND LINE

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

GUARDRAIL, TYPE A

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)	01/29/2024	R-60-J	SHEET
FHWA APPROVAL	PLAN DATE		1 OF 16

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

NORMAL SHOULDER

** 5'-0" OR AS SPECIFIED ON PLANS

2'-0" ***

SPLICE BOLT (TYP.)

8" 8"

7"

14"

22"

6'-0" ***

3'-7" ***

TOE NAIL WOOD BLOCK TO WOOD POST WITH A MINIMUM 3" LONG HOT-DIP ZINC COATED NAIL

DOUBLE SIDED SHOWN FOR TYPE BD ONLY

POST BOLT WITH ROUND WASHER UNDER NUT

GROUND LINE

SHOULDER HINGE POINT

EMBANKMENT (OR MEDIAN) SLOPE

6" x 8" WOOD LINE POST

TYPE BD

8" 8" 8"

6" x 8" WOOD OFFSET BLOCK

POST BOLT WITH ROUND WASHER UNDER NUT

TOE NAIL WOOD BLOCK TO WOOD POST WITH A MINIMUM 3" LONG HOT-DIP ZINC COATED NAIL

12'-6" EFFECTIVE BEAM ELEMENT LENGTH

6'-3" TYPICAL POST SPACING

* 28"

GROUND LINE

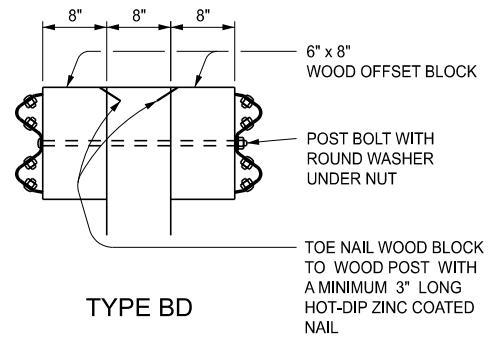ELEVATION SHOWING POST SPACING

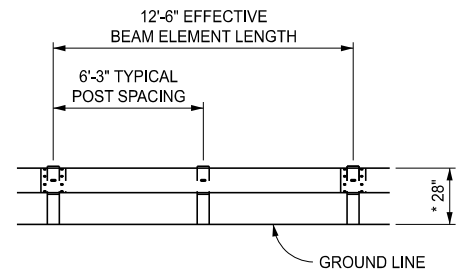* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

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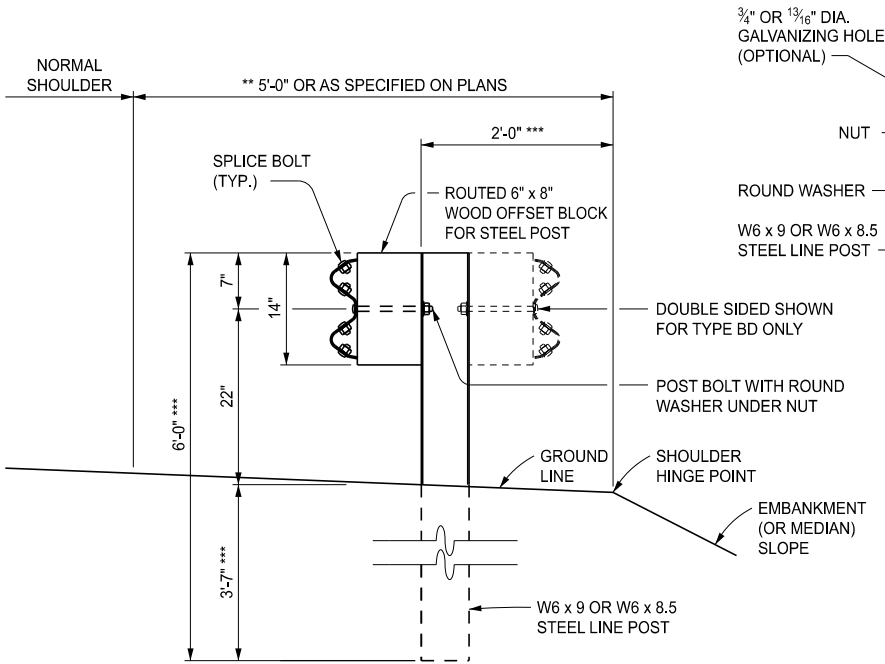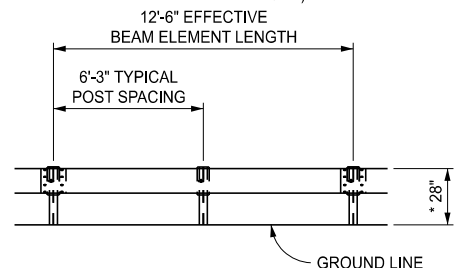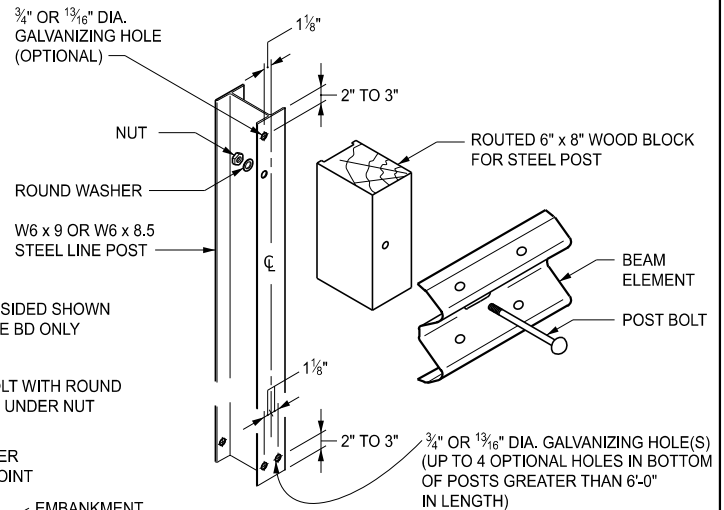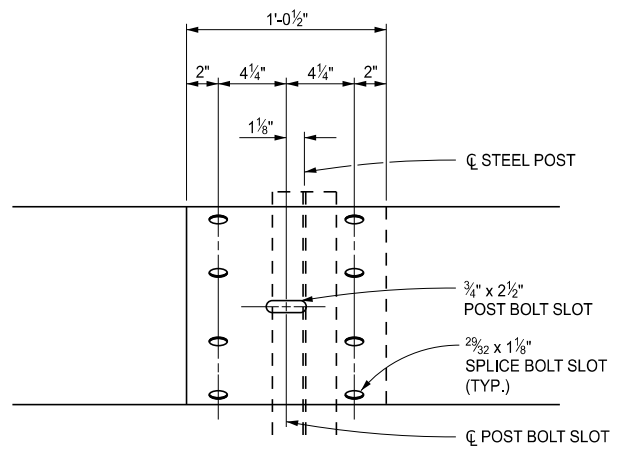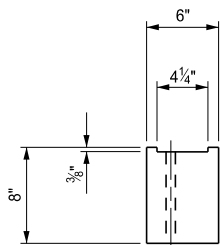
GUARDRAIL, TYPE B (OR BD)
(WOOD POST)

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

NORMAL SHOULDER

** 5'-0" OR AS SPECIFIED ON PLANS

2'-0" ***

SPLICE BOLT (TYP.)

ROUTED 6" x 8" WOOD OFFSET BLOCK FOR STEEL POST

7"

14"

22"

6'-0" ***

3'-7" ***

DOUBLE SIDED SHOWN FOR TYPE BD ONLY

POST BOLT WITH ROUND WASHER UNDER NUT

GROUND LINE

SHOULDER HINGE POINT

EMBANKMENT (OR MEDIAN) SLOPE

W6 x 9 OR W6 x 8.5 STEEL LINE POST

¾" OR ¹³⁄₁₆" DIA. GALVANIZING HOLE (OPTIONAL)

1⅛"

2" TO 3"

NUT

ROUND WASHER

W6 x 9 OR W6 x 8.5 STEEL LINE POST

C_L

1⅛"

2" TO 3"

ROUTED 6" x 8" WOOD BLOCK FOR STEEL POST

BEAM ELEMENT

POST BOLT

¾" OR ¹³⁄₁₆" DIA. GALVANIZING HOLE(S) (UP TO 4 OPTIONAL HOLES IN BOTTOM OF POSTS GREATER THAN 6'-0" IN LENGTH)

12'-6" EFFECTIVE BEAM ELEMENT LENGTH

6'-3" TYPICAL POST SPACING

* 28"

GROUND LINE

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)

BEAM ELEMENT SPLICE DETAILS

1'-0½"
2" | 4¼" | 4¼" | 2"

¾" x 2½" POST BOLT SLOT

²⁹⁄₃₂ x 1⅛" SPLICE BOLT SLOT (TYP.)

℄ POST BOLT SLOT AND ℄ WOOD POST

WOOD POST

1'-0½"
2" | 4¼" | 4¼" | 2"

1⅛"

℄ STEEL POST

¾" x 2½" POST BOLT SLOT

²⁹⁄₃₂ x 1⅛" SPLICE BOLT SLOT (TYP.)

℄ POST BOLT SLOT

STEEL POST

6"
4¼"
⅜"
8"

TOP

6"
3" | 3"
8"

TOP

℄
1⅛" ± ⅛"
7"
7"
¾" DIA. HOLE

FRONT

14"

SIDE

FOR USE ON STEEL POSTS

3"
7"
7"
¾" DIA. HOLE

FRONT

14"

SIDE

FOR USE ON WOOD POSTS
(SEE NOTES ON SHEET 16 OF 16)

WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE B AND TYPE BD

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
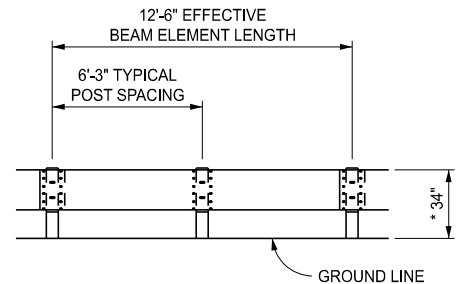
(SPECIAL DETAIL)	01/29/2024	R-60-J	SHEET
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GUARDRAIL, TYPE T (OR TD)
(WOOD POST)
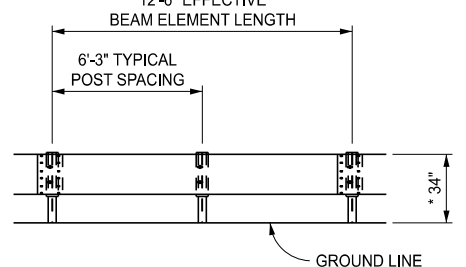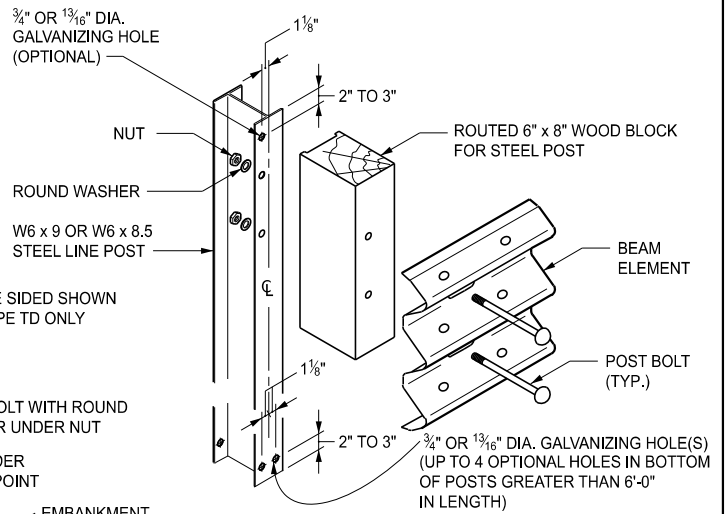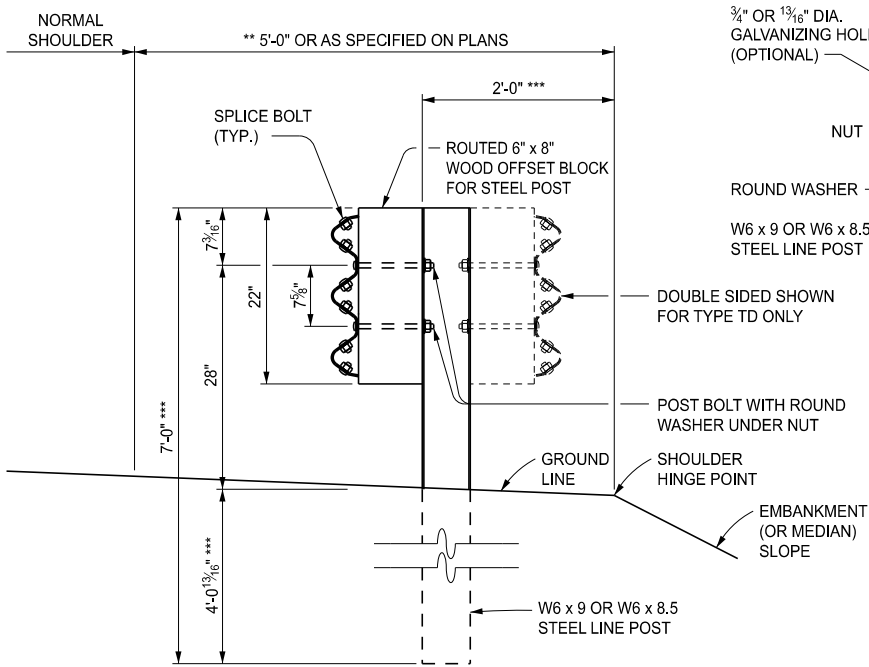
NORMAL SHOULDER

** 5'-0" OR AS SPECIFIED ON PLANS

2'-0" ***

SPLICE BOLT (TYP.)

8" 8"

7³⁄₁₆"

22"

7⁵⁄₈"

28"

7'-0" ***

4'-0¹³⁄₁₆" ***

DOUBLE SIDED SHOWN FOR TYPE TD ONLY

POST BOLT WITH ROUND WASHER UNDER NUT

GROUND LINE

SHOULDER HINGE POINT

EMBANKMENT (OR MEDIAN) SLOPE

6" x 8" WOOD LINE POST

** 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.

TYPE TD

8" 8" 8"

6" x 8" WOOD OFFSET BLOCK

POST BOLT WITH ROUND WASHER UNDER NUT

12'-6" EFFECTIVE BEAM ELEMENT LENGTH

6'-3" TYPICAL POST SPACING

34"

GROUND LINE

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

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

NORMAL SHOULDER

** 5'-0" OR AS SPECIFIED ON PLANS

2'-0" ***

SPLICE BOLT (TYP.)

7³⁄₁₆"

22"

7⁵⁄₈"

28"

7'-0" ***

4'-0¹³⁄₁₆" ***

ROUTED 6" x 8" WOOD OFFSET BLOCK FOR STEEL POST

DOUBLE SIDED SHOWN FOR TYPE TD ONLY

POST BOLT WITH ROUND WASHER UNDER NUT

GROUND LINE

SHOULDER HINGE POINT

EMBANKMENT (OR MEDIAN) SLOPE

W6 x 9 OR W6 x 8.5 STEEL LINE POST
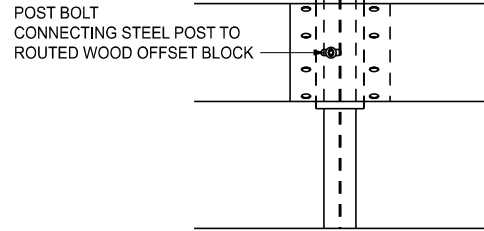
** FOR PAVED SHOULDER WIDTHS OF AT LEAST 12', USE 3'-0".

*** 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.

¾" OR ¹³⁄₁₆" DIA. GALVANIZING HOLE (OPTIONAL)

1⅛"

2" TO 3"

NUT

ROUND WASHER

W6 x 9 OR W6 x 8.5 STEEL LINE POST

1⅛"

2" TO 3"

ROUTED 6" x 8" WOOD BLOCK FOR STEEL POST

BEAM ELEMENT

POST BOLT (TYP.)

¾" OR ¹³⁄₁₆" DIA. GALVANIZING HOLE(S) (UP TO 4 OPTIONAL HOLES IN BOTTOM OF POSTS GREATER THAN 6'-0" IN LENGTH)

12'-6" EFFECTIVE BEAM ELEMENT LENGTH

6'-3" TYPICAL POST SPACING

34"

GROUND LINE

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

POST BOLT
CONNECTING STEEL POST
TO WOOD OFFSET BLOCK
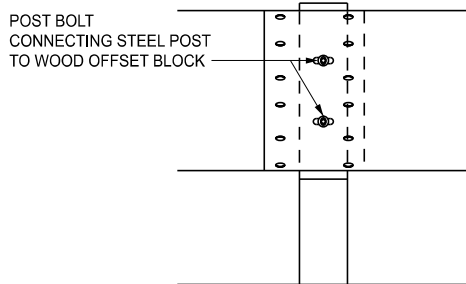
GUARDRAIL, TYPE B

WOOD POST

POST BOLT
CONNECTING STEEL POST TO
ROUTED WOOD OFFSET BLOCK
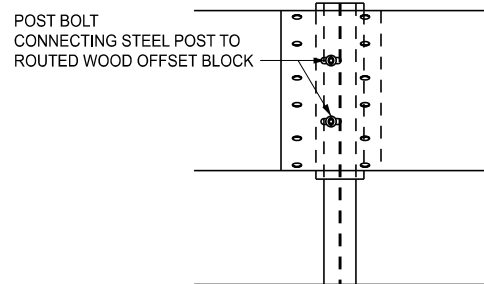
GUARDRAIL, TYPE B

STEEL POST

POST BOLT
CONNECTING STEEL POST
TO WOOD OFFSET BLOCK

GUARDRAIL, TYPE T

WOOD POST

POST BOLT
CONNECTING STEEL POST TO
ROUTED WOOD OFFSET BLOCK

GUARDRAIL, TYPE T

STEEL POST

BLOCK AND POST CONNECTION DETAILS

MDOT
Michigan Department of Transportation

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

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

(SPECIAL DETAIL)
FHWA APPROVAL

01/29/2024
PLAN DATE

R-60-J

SHEET
5 OF 16

¾" x 2½"
POST BOLT SLOT

²⁹⁄₃₂ x 1⅛"
SPLICE BOLT SLOT
(TYP.)

℄ POST BOLT SLOT AND
℄ WOOD POST

WOOD POST

℄ STEEL POST

¾" x 2½"
POST BOLT SLOT

²⁹⁄₃₂ x 1⅛"
SPLICE BOLT SLOT
(TYP.)

℄ POST BOLT SLOT

STEEL POST

THRIE BEAM ELEMENT SPLICE DETAILS

TOP

TOP

¾" DIA. HOLE
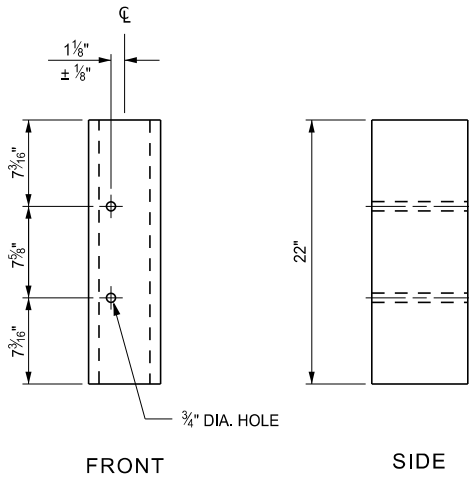
FRONT

SIDE

FOR USE ON STEEL POSTS

¾" DIA. HOLE

FRONT

SIDE

FOR USE ON WOOD POSTS
(SEE NOTES ON SHEET 16 OF 16)

WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE T AND TYPE TD

MDOT
Michigan Department of Transportation
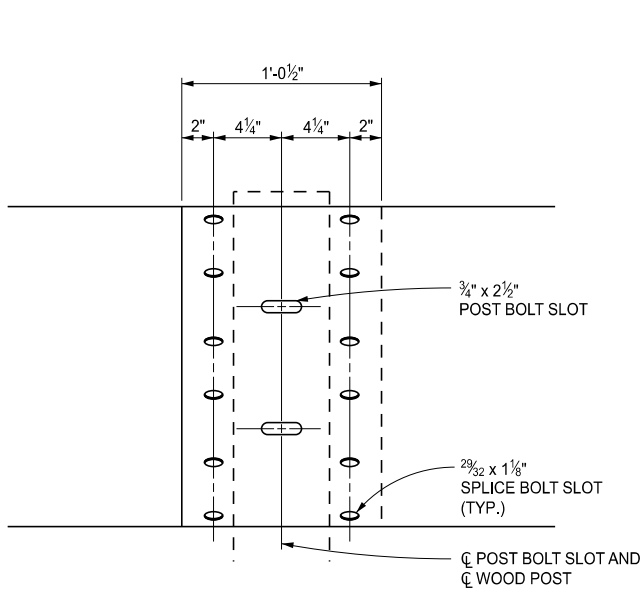
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D
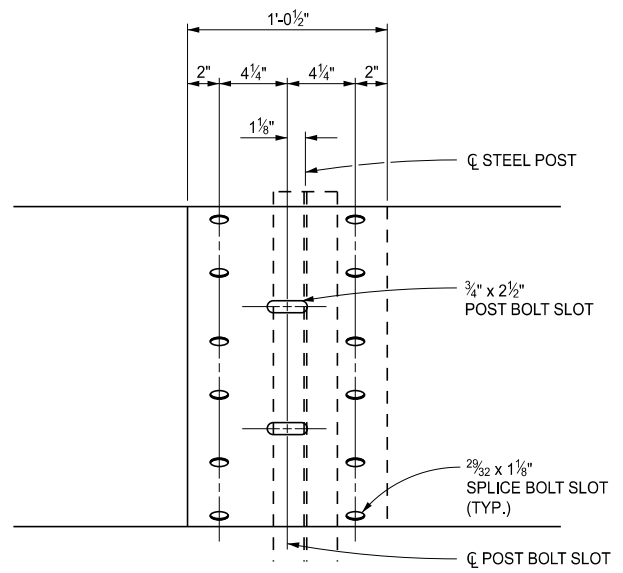
(SPECIAL DETAIL)
FHWA APPROVAL

01/29/2024
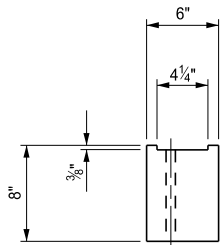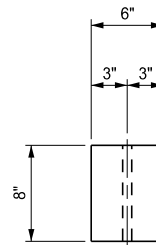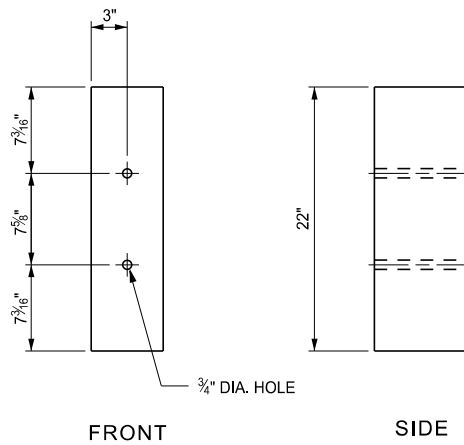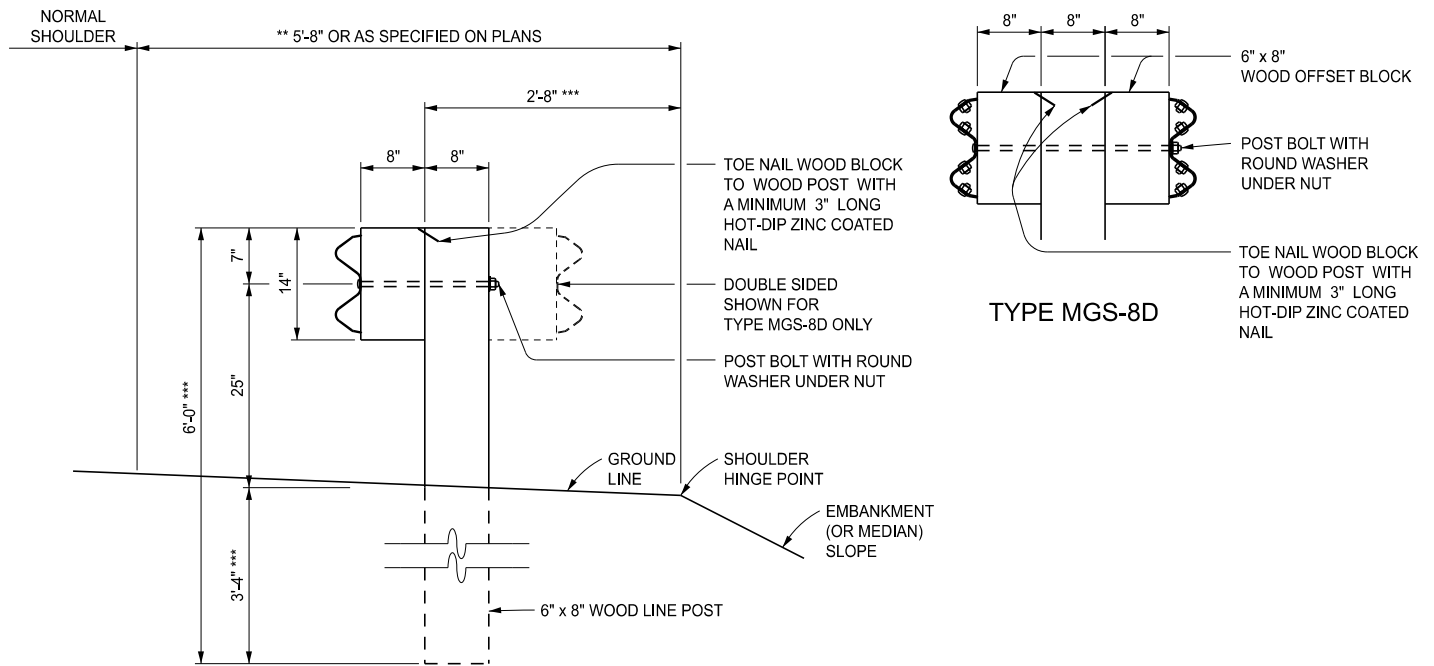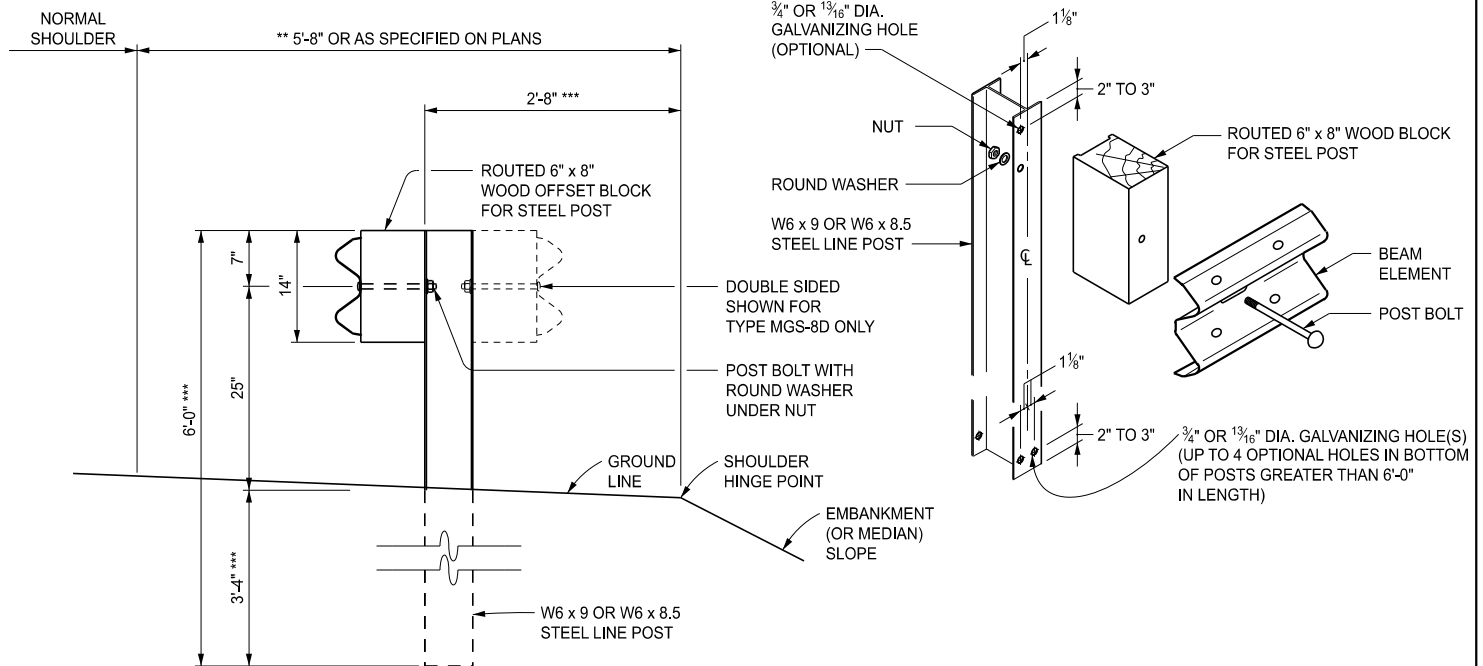PLAN DATE

R-60-J

SHEET
6 OF 16

NORMAL
SHOULDER

** 5'-8" OR AS SPECIFIED ON PLANS

2'-8" ***

8"   8"

8"   8"   8"

6" x 8"
WOOD OFFSET BLOCK

POST BOLT WITH
ROUND WASHER
UNDER NUT

TOE NAIL WOOD BLOCK
TO WOOD POST WITH
A MINIMUM 3" LONG
HOT-DIP ZINC COATED
NAIL

TYPE MGS-8D

TOE NAIL WOOD BLOCK
TO WOOD POST WITH
A MINIMUM 3" LONG
HOT-DIP ZINC COATED
NAIL

DOUBLE SIDED
SHOWN FOR
TYPE MGS-8D ONLY

POST BOLT WITH ROUND
WASHER UNDER NUT

7"

14"

25"

6'-0" ***

3'-4" ***

GROUND
LINE

SHOULDER
HINGE POINT

EMBANKMENT
(OR MEDIAN)
SLOPE

6" x 8" WOOD LINE 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)
(WOOD POST)

NORMAL
SHOULDER

** 5'-8" OR AS SPECIFIED ON PLANS

2'-8" ***

¾" OR $\frac{13}{16}$" DIA.
GALVANIZING HOLE
(OPTIONAL)

1⅛"

2" TO 3"

NUT

ROUND WASHER

W6 x 9 OR W6 x 8.5
STEEL LINE POST

ROUTED 6" x 8" WOOD BLOCK
FOR STEEL POST

ROUTED 6" x 8"
WOOD OFFSET BLOCK
FOR STEEL POST

DOUBLE SIDED
SHOWN FOR
TYPE MGS-8D ONLY

POST BOLT WITH
ROUND WASHER
UNDER NUT

BEAM
ELEMENT

POST BOLT

7"

14"

25"

6'-0" ***

3'-4" ***

1⅛"

2" TO 3"

¾" OR $\frac{13}{16}$" DIA. GALVANIZING HOLE(S)
(UP TO 4 OPTIONAL HOLES IN BOTTOM
OF POSTS GREATER THAN 6'-0"
IN LENGTH)

GROUND
LINE

SHOULDER
HINGE POINT

EMBANKMENT
(OR MEDIAN)
SLOPE

W6 x 9 OR W6 x 8.5
STEEL LINE 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.
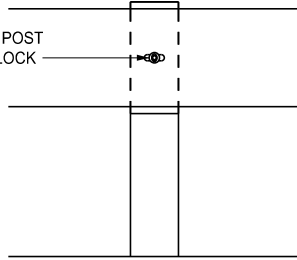
GUARDRAIL, TYPE MGS-8 (OR MGS-8D)
(STEEL POST)

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)	01/29/2024	R-60-J	SHEET
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POST BOLT
CONNECTING WOOD POST
TO WOOD OFFSET BLOCK

WOOD POST

1⅛"

℄ STEEL POST

POST BOLT
CONNECTING STEEL POST TO
ROUTED WOOD OFFSET BLOCK

STEEL POST

BLOCK AND POST CONNECTION DETAILS
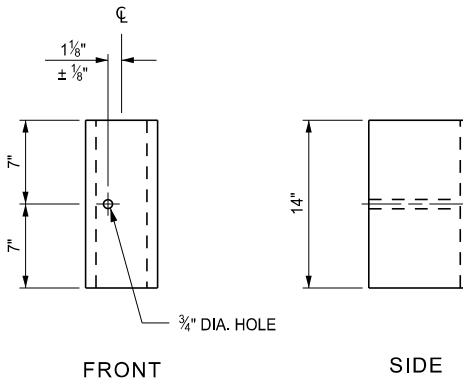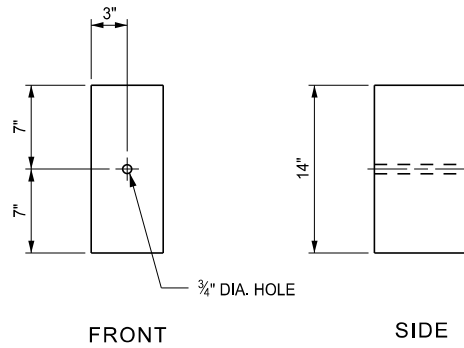
6"

4¼"

8"

⅜"

TOP

6"

3"   3"

8"

TOP

℄

1⅛"
± ⅛"

7"

7"

¾" DIA. HOLE

FRONT

14"

SIDE

FOR USE ON STEEL POSTS

3"

7"

7"

¾" DIA. HOLE

FRONT

14"

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

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

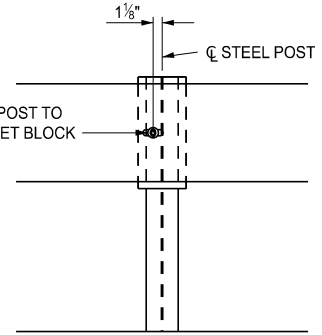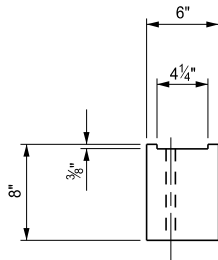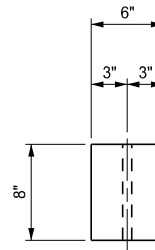| (SPECIAL DETAIL)	01/29/2024	R-60-J	SHEET
FHWA APPROVAL	PLAN DATE		8 OF 16

12'-6" EFFECTIVE BEAM ELEMENT LENGTH

6'-3" TYPICAL POST SPACING

TOP OF RAIL

* 31"

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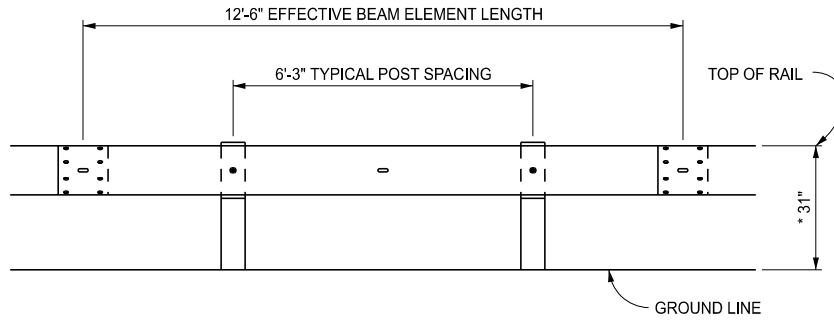
ELEVATION SHOWING POST SPACING FOR
GUARDRAIL, TYPE MGS-8 (OR MGS-8D)
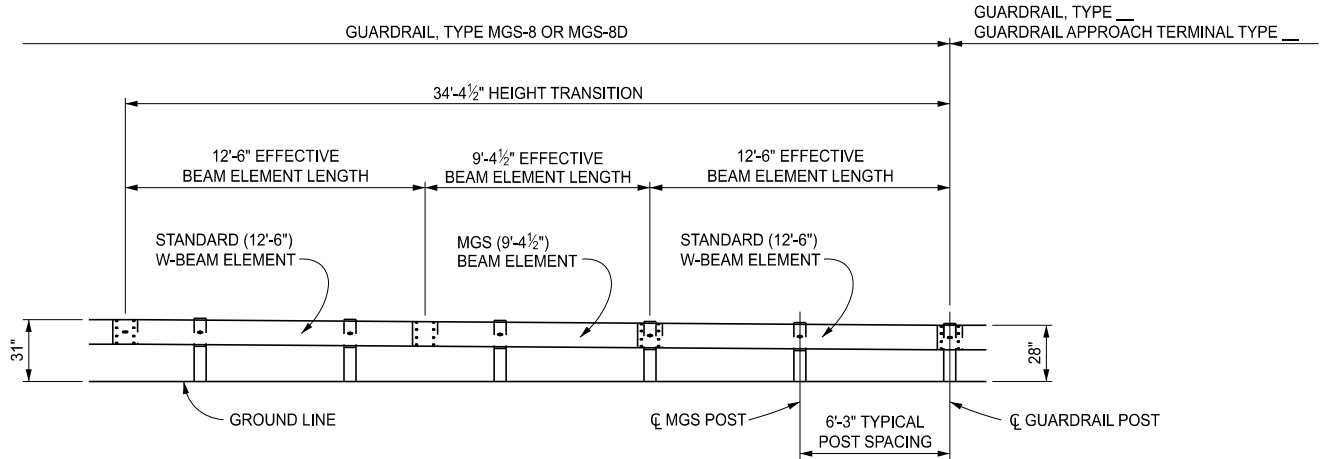* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

GUARDRAIL, TYPE MGS-8 OR MGS-8D

GUARDRAIL, TYPE __
GUARDRAIL APPROACH TERMINAL TYPE __

34'-4½" HEIGHT TRANSITION

12'-6" EFFECTIVE
BEAM ELEMENT LENGTH

9'-4½" EFFECTIVE
BEAM ELEMENT LENGTH

12'-6" EFFECTIVE
BEAM ELEMENT LENGTH

STANDARD (12'-6")
W-BEAM ELEMENT

MGS (9'-4½")
BEAM ELEMENT

STANDARD (12'-6")
W-BEAM ELEMENT

31"

28"

GROUND LINE

℄ MGS POST

6'-3" TYPICAL
POST SPACING

℄ GUARDRAIL POST

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
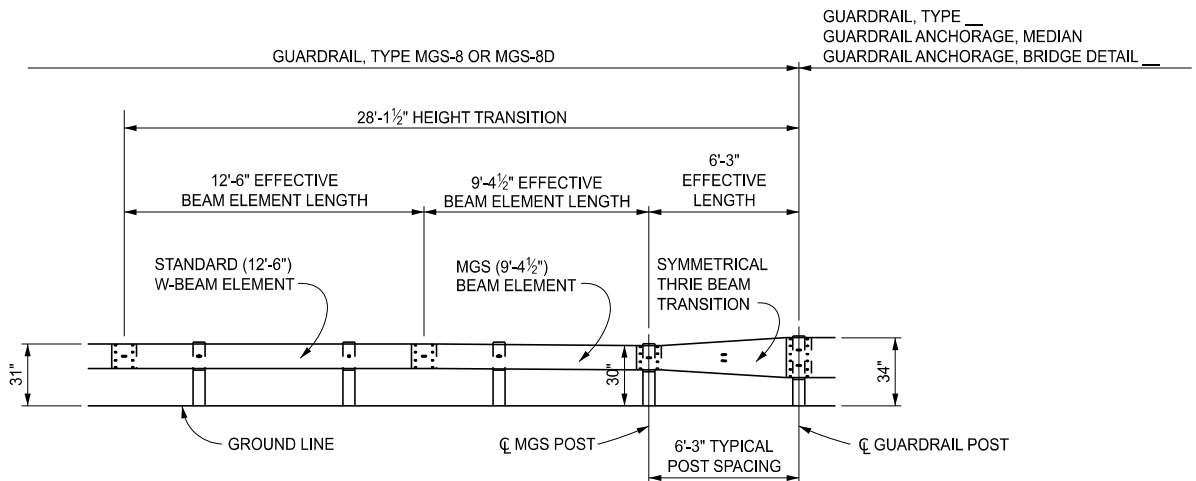
GUARDRAIL, TYPE MGS-8 OR MGS-8D

GUARDRAIL, TYPE __
GUARDRAIL ANCHORAGE, MEDIAN
GUARDRAIL ANCHORAGE, BRIDGE DETAIL __

28'-1½" HEIGHT TRANSITION

12'-6" EFFECTIVE
BEAM ELEMENT LENGTH

9'-4½" EFFECTIVE
BEAM ELEMENT LENGTH

6'-3"
EFFECTIVE
LENGTH

STANDARD (12'-6")
W-BEAM ELEMENT

MGS (9'-4½")
BEAM ELEMENT

SYMMETRICAL
THRIE BEAM
TRANSITION

31"

30"

34"

GROUND LINE

℄ MGS POST

6'-3" TYPICAL
POST SPACING

℄ GUARDRAIL POST

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

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

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

(SPECIAL DETAIL)
FHWA APPROVAL

01/29/2024
PLAN DATE

R-60-J

SHEET
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GUARDRAIL, TYPE B OR TYPE BD
GUARDRAIL APPROACH TERMINAL TYPE 2M OR TYPE 3M

TYPE 2M SEE
STANDARD PLAN R-62-SERIES
TYPE 3M SEE
STANDARD PLAN R-63-SERIES

34'-4½" HEIGHT TRANSITION

12'-6" EFFECTIVE
BEAM ELEMENT LENGTH

9'-4½" EFFECTIVE
BEAM ELEMENT LENGTH

12'-6" EFFECTIVE
BEAM ELEMENT LENGTH

STANDARD (12'-6")
W-BEAM ELEMENT

MGS (9'-4½")
BEAM ELEMENT

STANDARD (12'-6")
W-BEAM ELEMENT

28"

31"

℄ GUARDRAIL POST

6'-3" TYPICAL
POST SPACING

℄ MGS POST

GROUND LINE
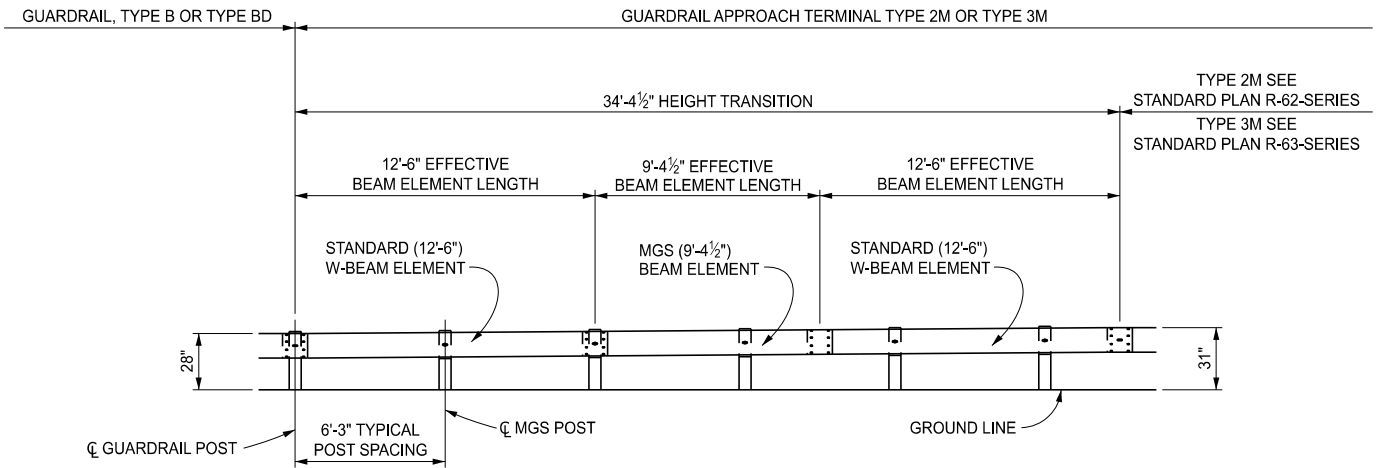
**ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING
GUARDRAIL, TYPE B (OR TYPE BD) TO
GUARDRAIL APPROACH TERMINAL TYPE 2M OR TYPE 3M**

GUARDRAIL, TYPE T OR TYPE TD
GUARDRAIL APPROACH TERMINAL TYPE 2M OR TYPE 3M

TYPE 2M SEE
STANDARD PLAN R-62-SERIES
TYPE 3M SEE
STANDARD PLAN R-63-SERIES

28'-1½" HEIGHT TRANSITION

6'-3"
EFFECTIVE
LENGTH

9'-4½" EFFECTIVE
BEAM ELEMENT LENGTH

12'-6" EFFECTIVE
BEAM ELEMENT LENGTH

SYMMETRICAL
THRIE BEAM
TRANSITION

MGS (9'-4½")
BEAM ELEMENT

STANDARD (12'-6")
W-BEAM ELEMENT

34"

30"

31"

℄ GUARDRAIL POST

6'-3" TYPICAL
POST SPACING

℄ MGS POST

GROUND LINE
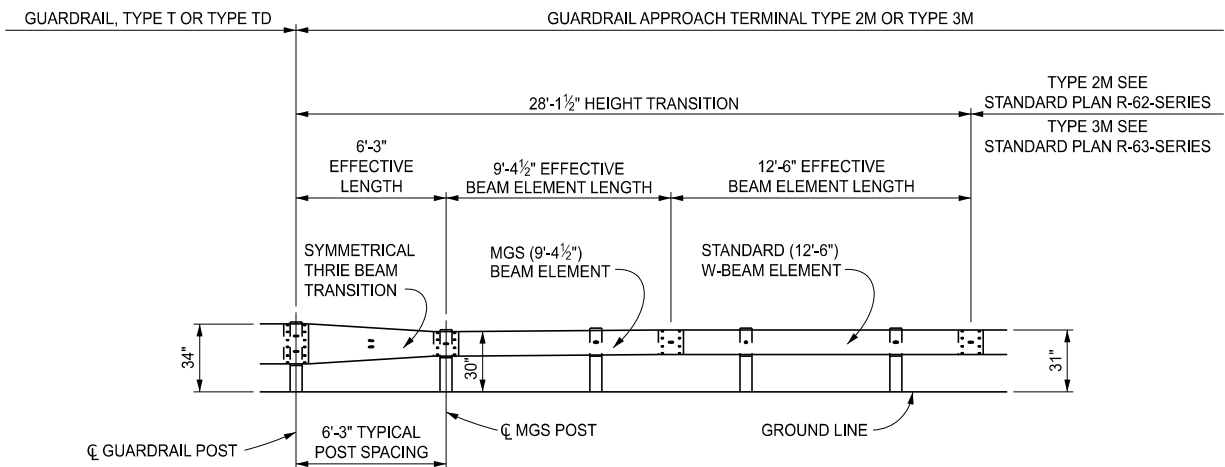
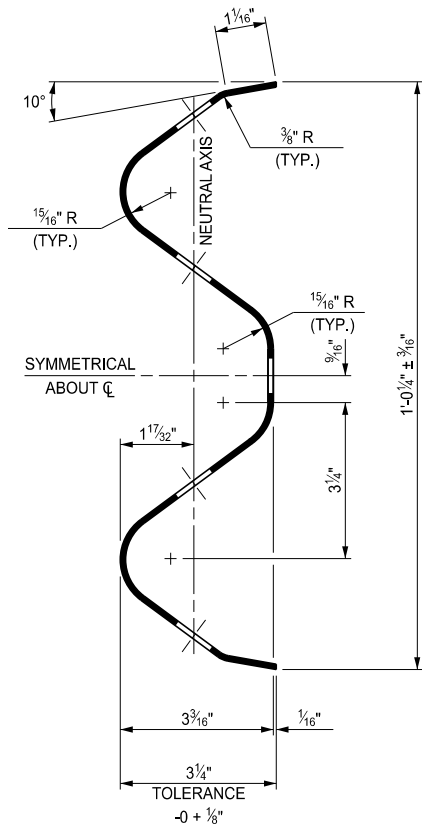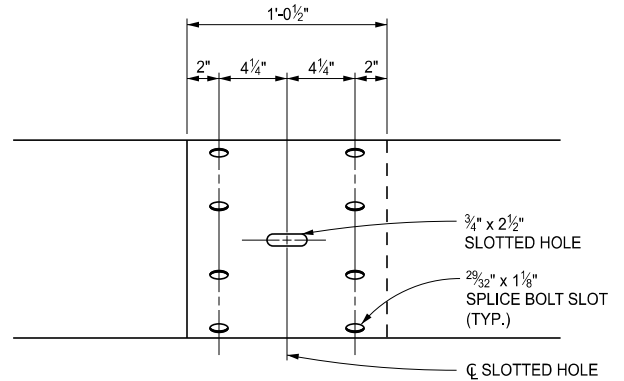**ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING
GUARDRAIL, TYPE T (OR TYPE TD) TO
GUARDRAIL APPROACH TERMINAL TYPE 2M OR TYPE 3M**

MDOT
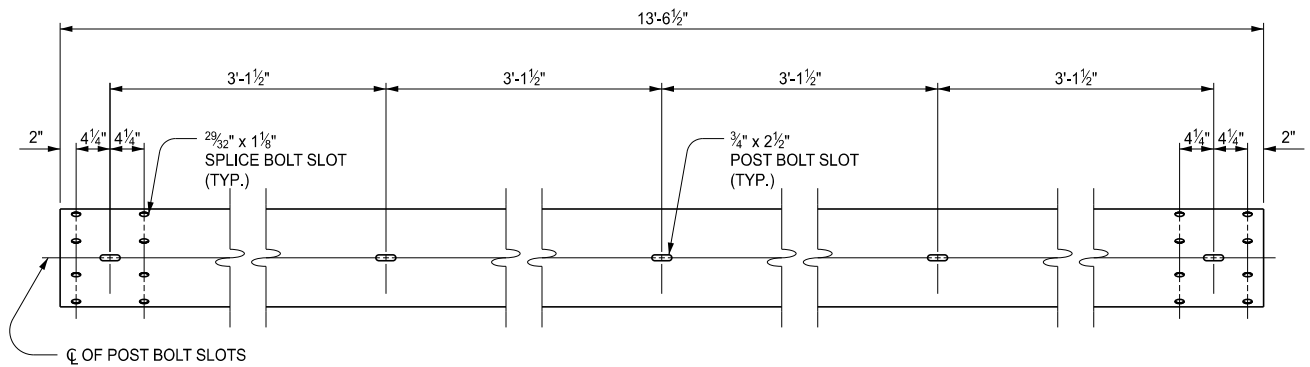Michigan Department of Transportation

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

| DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE | (SPECIAL DETAIL) FHWA APPROVAL | 01/29/2024 PLAN DATE | **R-60-J** | SHEET 10 OF 16 |

SECTION THROUGH BEAM ELEMENT

1¹¹⁄₁₆"

10°

³⁄₈" R (TYP.)

NEUTRAL AXIS

¹⁵⁄₁₆" R (TYP.)

¹⁵⁄₁₆" R (TYP.)

⁹⁄₁₆"

1'-0¼" ± ³⁄₁₆"

SYMMETRICAL ABOUT ₵

3¼"

1¹⁷⁄₃₂"

3³⁄₁₆"

¹⁄₁₆"

3¼"

TOLERANCE
-0 + ⅛"

BEAM ELEMENT SPLICE DETAILS

1'-0½"

2" 4¼" 4¼" 2"

³⁄₄" x 2½" SLOTTED HOLE

²⁹⁄₃₂" x 1⅛" SPLICE BOLT SLOT (TYP.)

₵ SLOTTED HOLE

FRONT ELEVATION OF BEAM ELEMENT

13'-6½"

3'-1½"   3'-1½"   3'-1½"   3'-1½"

2" 4¼" 4¼"   4¼" 4¼" 2"

²⁹⁄₃₂" x 1⅛" SPLICE BOLT SLOT (TYP.)

³⁄₄" x 2½" POST BOLT SLOT (TYP.)

₵ OF POST BOLT SLOTS

FRONT ELEVATION OF MGS (9'-4½") BEAM ELEMENT

10'-5"

3'-1½"   3'-1½"   3'-1½"

2" 4¼" 4¼"   4¼" 4¼" 2"

²⁹⁄₃₂" x 1⅛" SPLICE BOLT SLOT (TYP.)

³⁄₄" x 2½" POST BOLT SLOT (TYP.)

₵ OF POST BOLT SLOTS

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
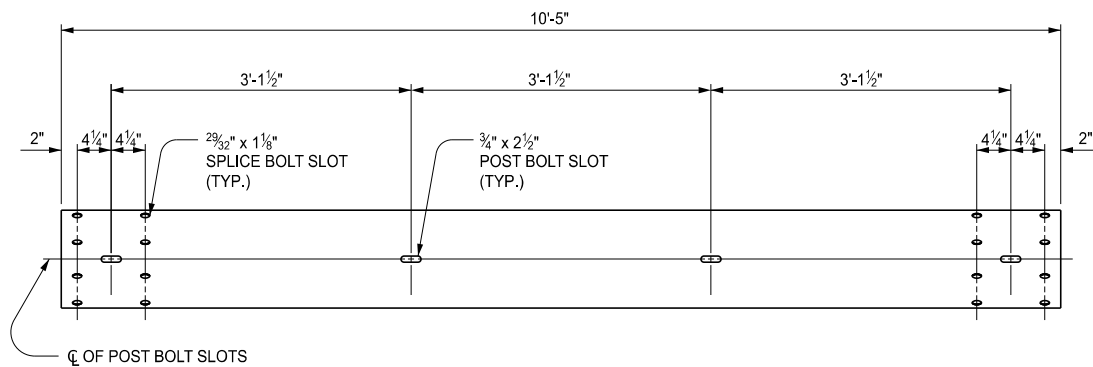
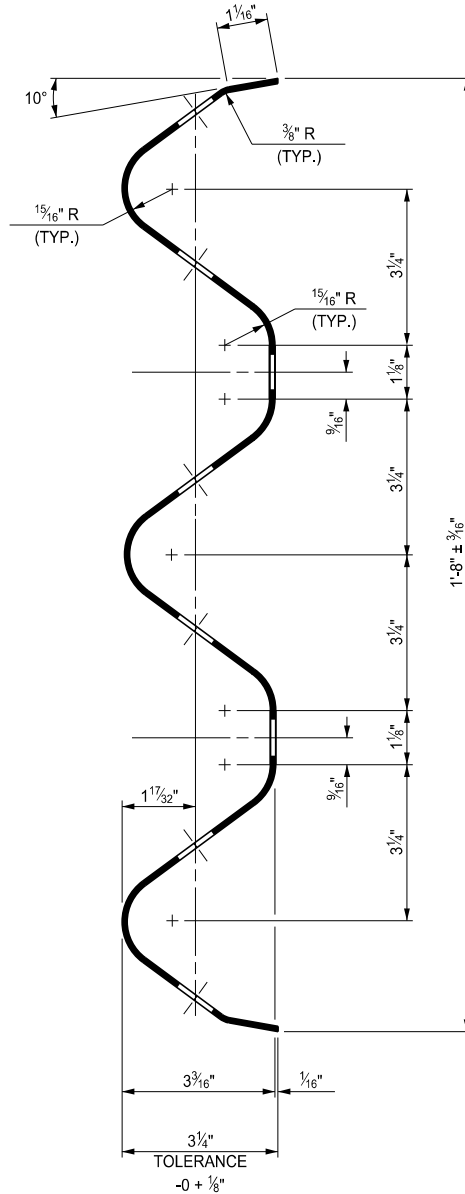| (SPECIAL DETAIL) | 01/29/2024 | R-60-J | SHEET |
| FHWA APPROVAL | PLAN DATE | | 11 OF 16 |
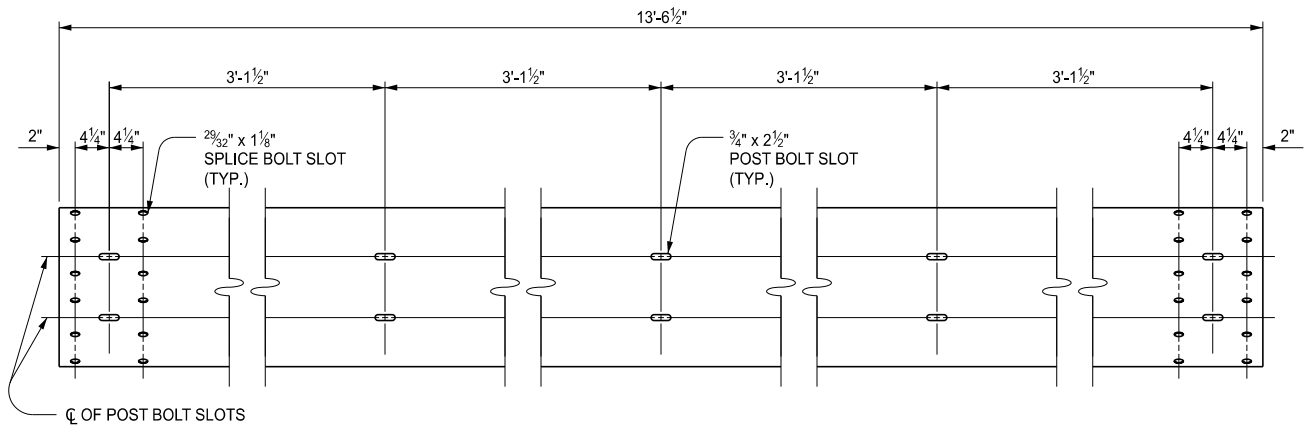
FRONT ELEVATION OF THRIE BEAM ELEMENT

13'-6½"

3'-1½"   3'-1½"   3'-1½"   3'-1½"

2"   4¼" 4¼"   4¼" 4¼"   2"

²⁹⁄₃₂" x 1⅛"
SPLICE BOLT SLOT
(TYP.)

¾" x 2½"
POST BOLT SLOT
(TYP.)

℄ OF POST BOLT SLOTS

1¹⁄₁₆"

10°

⅜" R
(TYP.)

¹⁵⁄₁₆" R
(TYP.)

¹⁵⁄₁₆" R
(TYP.)

3¼"

1⅛"

⁹⁄₁₆"

3¼"

1'-8" ± ³⁄₁₆"

3¼"

1⅛"

⁹⁄₁₆"

1¹⁷⁄₃₂"

3¼"

3³⁄₁₆"   ¹⁄₁₆"

3¼"
TOLERANCE
-0 + ⅛"

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

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Michigan Department of Transportation

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

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

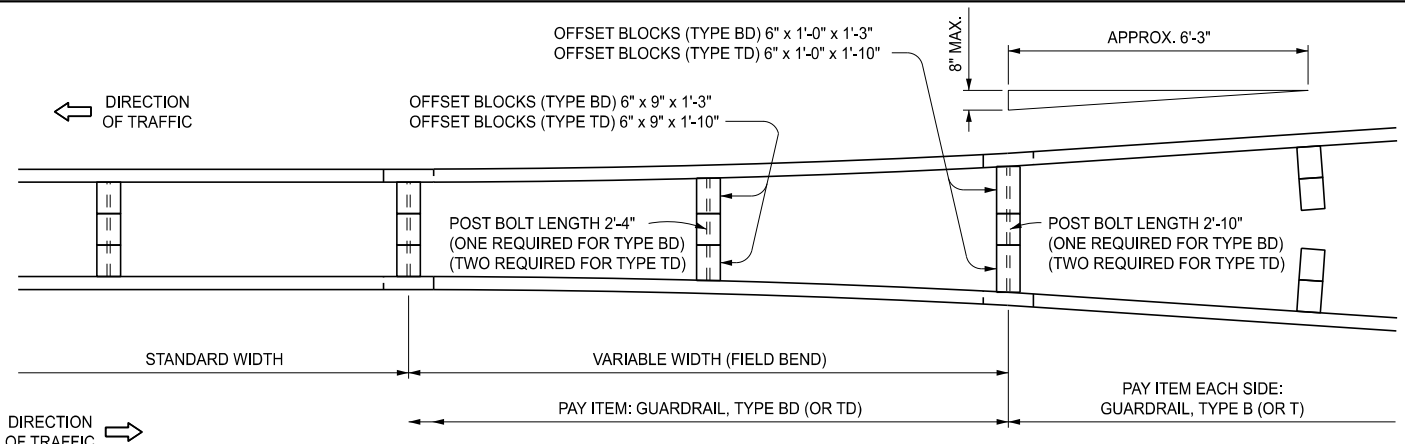| (SPECIAL DETAIL)	01/29/2024	**R-60-J**	SHEET
FHWA APPROVAL	PLAN DATE		12 OF 16
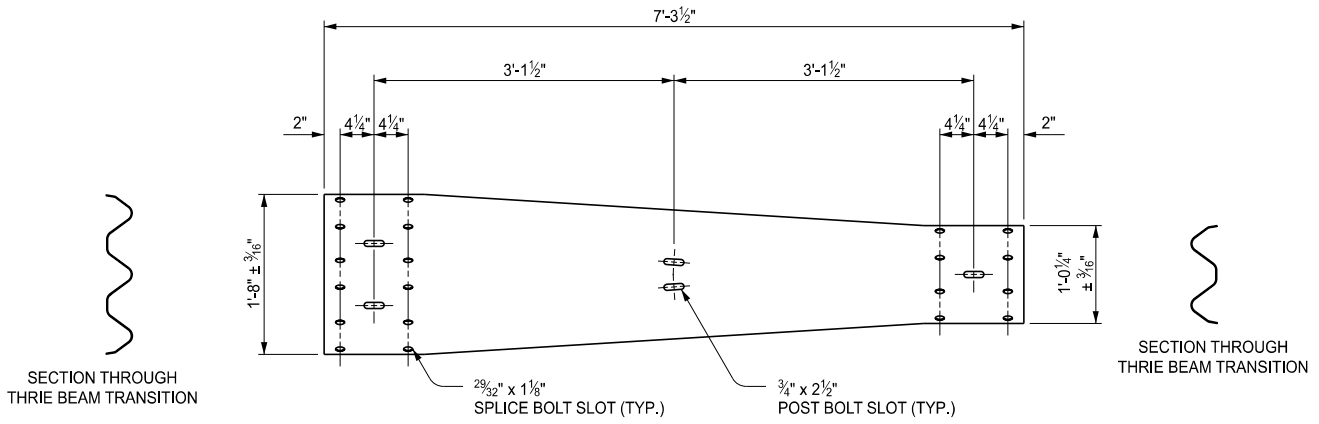
SYMMETRICAL THRIE BEAM TRANSITIONS
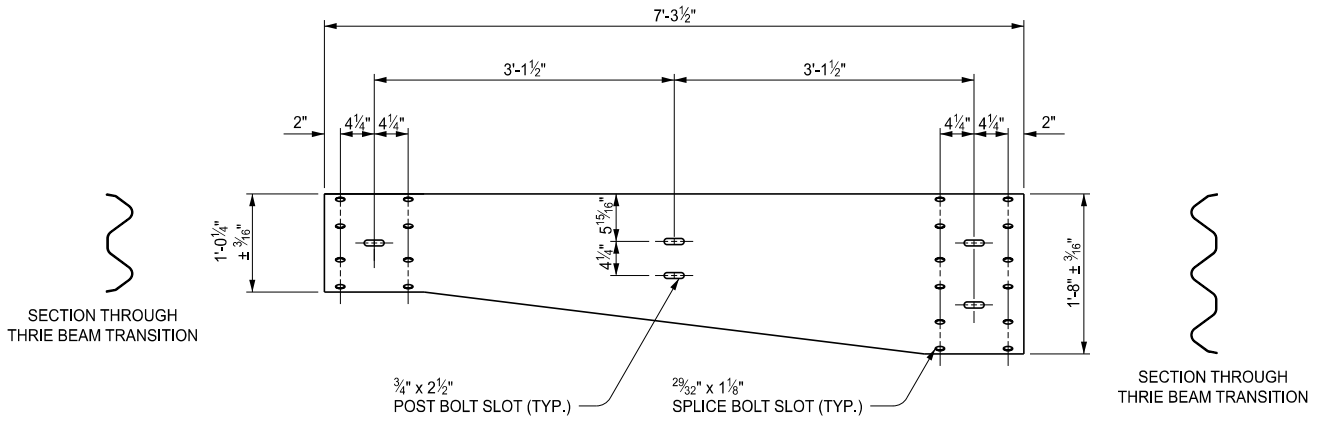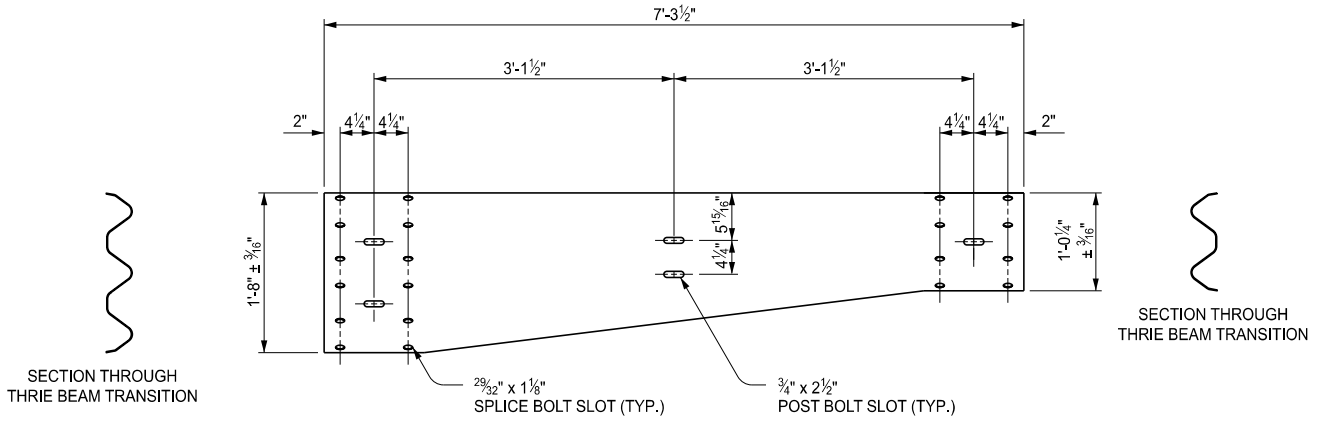
ASYMMETRICAL THRIE BEAM TRANSITIONS

NOTE: ASYMMETRICAL TRANSITION TYPE WILL VARY BY LOCATION DEPENDING ON GUARDRAIL LAYOUT
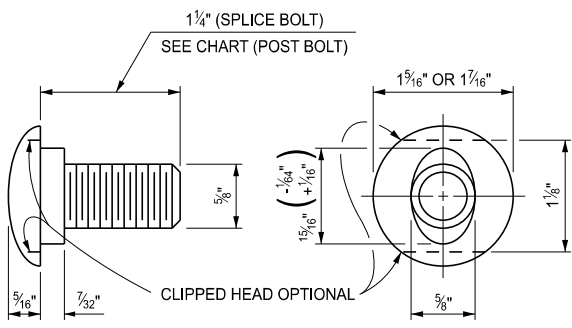
DIRECTION OF TRAFFIC ←

OFFSET BLOCKS (TYPE BD) 6" x 1'-0" x 1'-3"
OFFSET BLOCKS (TYPE TD) 6" x 1'-0" x 1'-10"

OFFSET BLOCKS (TYPE BD) 6" x 9" x 1'-3"
OFFSET BLOCKS (TYPE TD) 6" x 9" x 1'-10"

8" MAX.

APPROX. 6'-3"

POST BOLT LENGTH 2'-4"
(ONE REQUIRED FOR TYPE BD)
(TWO REQUIRED FOR TYPE TD)

POST BOLT LENGTH 2'-10"
(ONE REQUIRED FOR TYPE BD)
(TWO REQUIRED FOR TYPE TD)

STANDARD WIDTH

VARIABLE WIDTH (FIELD BEND)

PAY ITEM EACH SIDE:
GUARDRAIL, TYPE B (OR T)

DIRECTION OF TRAFFIC ⇒

PAY ITEM: GUARDRAIL, TYPE BD (OR TD)

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 NO. REQ'D	POST BOLTS LENGTH	SPLICE BOLTS (1¼" LONG) (NO. REQ'D)	WASHERS (ROUND) (NO. REQ'D)
A	WOOD	N/A	1	9½"	8	1
A	STEEL	N/A	1	2"	8	1
B	WOOD	WOOD	1	18"	8	1
B	STEEL	WOOD	1	9½"	8	1
BD	WOOD	WOOD	1	* 26½"	16	———
BD	STEEL	WOOD	2	9½"	16	2
T	WOOD	WOOD	2	18"	12	2
T	STEEL	WOOD	2	9½"	12	2
TD	WOOD	WOOD	2	* 26½"	24	———
TD	STEEL	WOOD	4	9½"	24	4

(WASHERS column note: NOT NEEDED AT INTERMEDIATE POSTS)

MINIMUM POST BOLT THREAD LENGTH

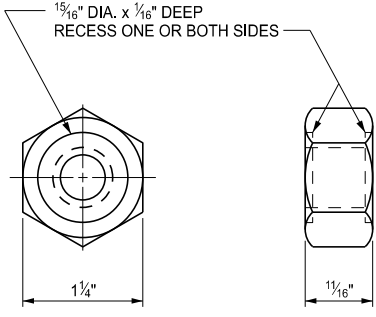| BOLT LENGTH	MINIMUM THREAD LENGTH
9½"	1¾"
18"	2½"
26½"	3"

THRIE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 0N TYPE T END AND 8 ON TYPE B END).
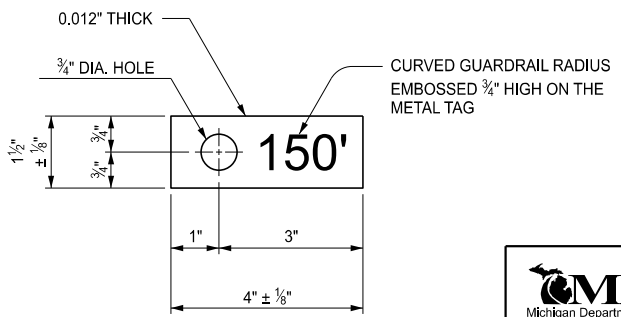
* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD). POST BOLTS SHALL NOT EXTEND MORE THAN ½" BEYOND NUT.
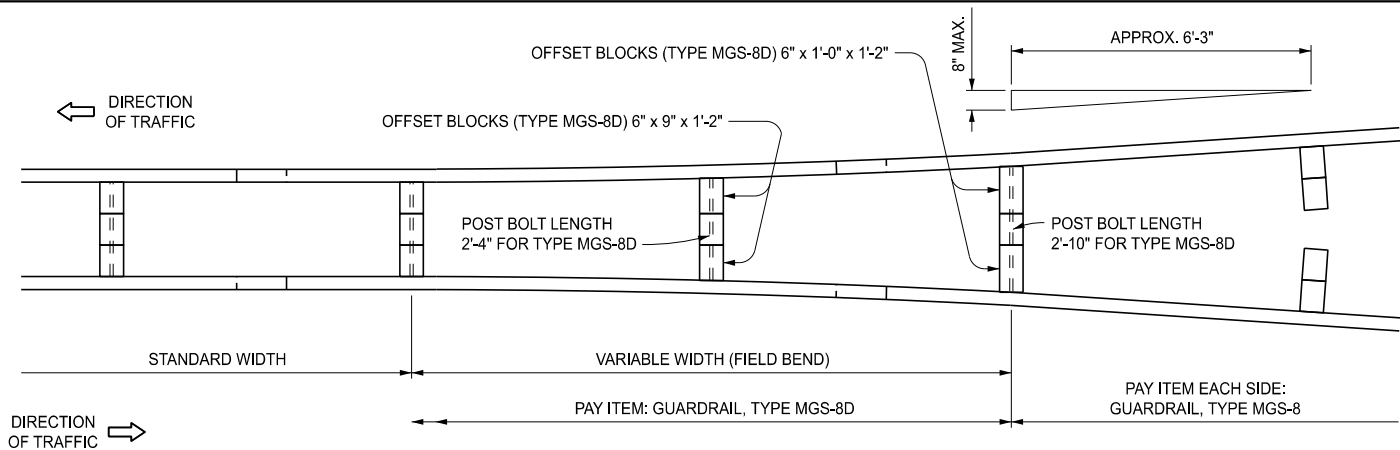
1¼" (SPLICE BOLT)
SEE CHART (POST BOLT)

1⁵⁄₁₆" OR 1⁷⁄₁₆"

5/8"

5/16"   7/32"

15⁄16" (- ¹⁄₆₄" / + ¹⁄₁₆")

1/8"

5/8"

CLIPPED HEAD OPTIONAL

SPLICE BOLT AND POST BOLT

1¾" DIAMETER

9⁄64"

11⁄16" DIAMETER

ROUND WASHER

1⁵⁄₁₆" DIA. x ¹⁄₁₆" DEEP
RECESS ONE OR BOTH SIDES

1¼"

11⁄16"

NUT

0.012" THICK

¾" DIA. HOLE

CURVED GUARDRAIL RADIUS EMBOSSED ¾" HIGH ON THE METAL TAG

1½" ± ⅛"

¾"
¾"

150'

1"   3"

4" ± ⅛"
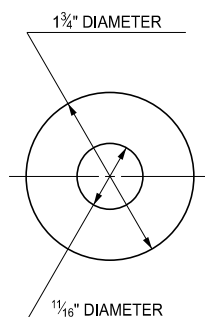
METAL TAG
FOR CURVED GUARDRAIL WITH RADIUS OF 150' OR LESS

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)
FHWA APPROVAL

01/29/2024
PLAN DATE

R-60-J

SHEET
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DIRECTION OF TRAFFIC ⟵

OFFSET BLOCKS (TYPE MGS-8D) 6" x 1'-0" x 1'-2"

OFFSET BLOCKS (TYPE MGS-8D) 6" x 9" x 1'-2"

8" MAX.

APPROX. 6'-3"

POST BOLT LENGTH
2'-4" FOR TYPE MGS-8D

POST BOLT LENGTH
2'-10" FOR TYPE MGS-8D

STANDARD WIDTH

VARIABLE WIDTH (FIELD BEND)

PAY ITEM EACH SIDE:
GUARDRAIL, TYPE MGS-8

PAY ITEM: GUARDRAIL, TYPE MGS-8D

DIRECTION OF TRAFFIC ⟹

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"

THRIE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 0N TYPE T END AND 8 ON TYPE MGS END).
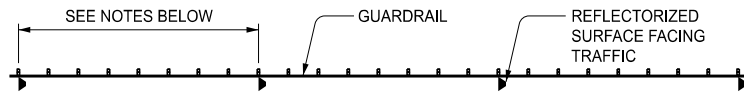
* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL, TYPE MGS-8D POST BOLTS SHALL NOT EXTEND MORE THAN ½" BEYOND NUT.

REFLECTORIZED SIDE FACING TRAFFIC

5"

1 11/16"

3/4"

1 1/2"

1/4" R
(TYP.)

2"

3"

2 3/4"

96° ± 4°

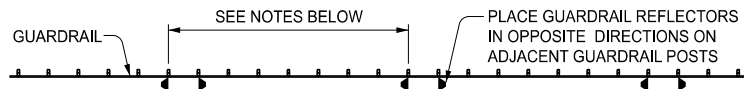(0.0934") NOMINAL
13 GAGE GALVANIZED

GUARDRAIL REFLECTOR

DIRECTION
OF TRAFFIC ⇒

DIRECTION
OF TRAFFIC ⇒

ONE-WAY TRAFFIC

⇐ DIRECTION
OF TRAFFIC

DIRECTION
OF TRAFFIC ⇒

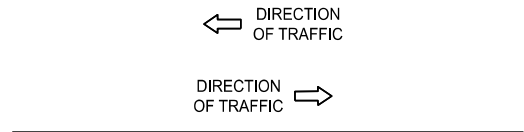### TWO-WAY TRAFFIC
DIRECTION OF RAIL LAP

SEE NOTES BELOW — GUARDRAIL — REFLECTORIZED
SURFACE FACING
TRAFFIC

⇐ DIRECTION
OF TRAFFIC

⇐ DIRECTION
OF TRAFFIC

GUARDRAIL

ONE-WAY TRAFFIC

SEE NOTES BELOW — PLACE GUARDRAIL REFLECTORS
IN OPPOSITE DIRECTIONS ON
ADJACENT GUARDRAIL POSTS

GUARDRAIL

⇐ DIRECTION
OF TRAFFIC

DIRECTION
OF TRAFFIC ⇒

GUARDRAIL

TWO-WAY TRAFFIC
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.

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 RADII
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.