## BOX BEAM STANDARD PLAN INDEX OF SHEETS


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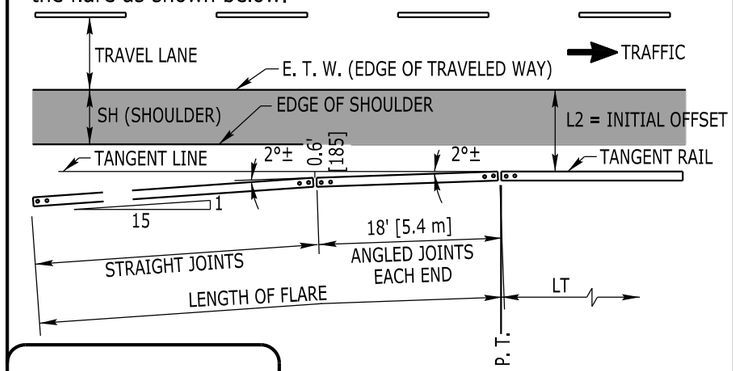
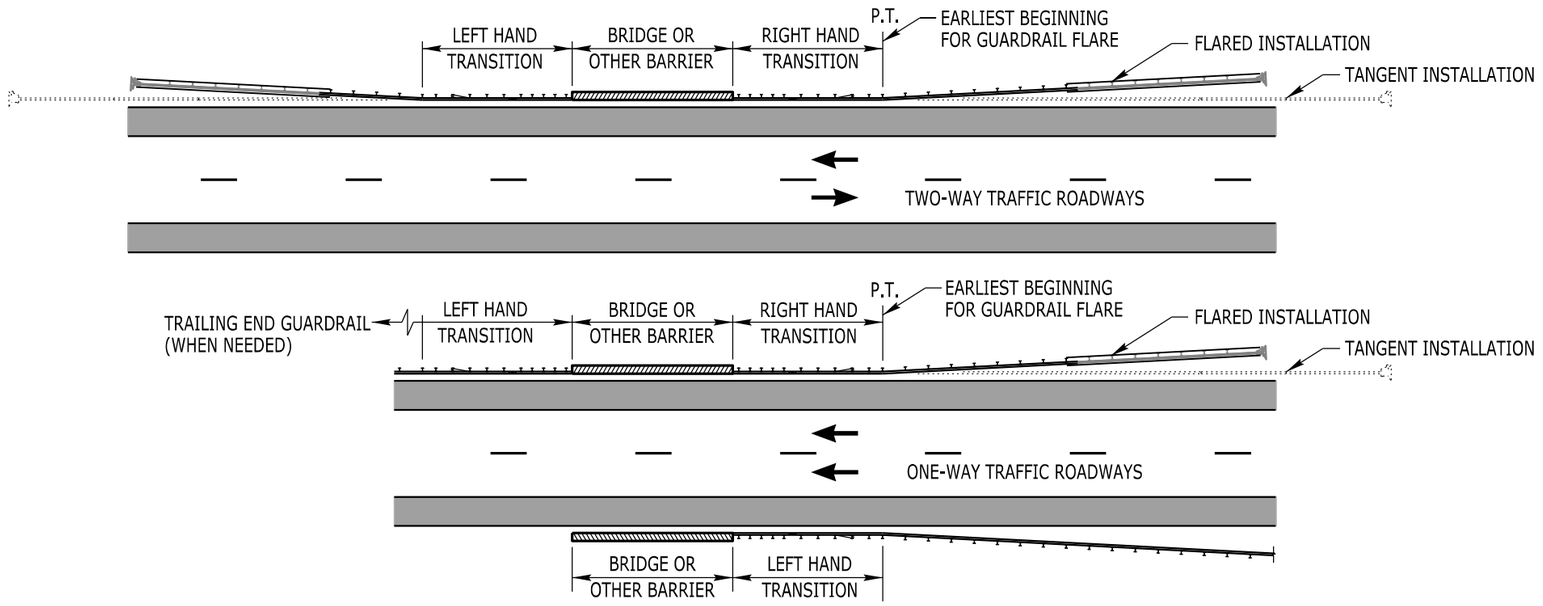
Fabricate and furnish all box beam components in accordance with the latest WYDOT Standard Plan "Box Beam Guardrail Fabrication Standards". By reference that Standard plan is hereby included in the contract.

**Initiating Guardrail Flares and Curved Guardrail Installations with radii of 715 ft. [218 m] and greater (i.e. 8 degrees and flatter) -** Initiate by angling joints, not shop bending rail. A box beam joint will typically allow nearly 2 degrees of deflection per joint. To simulate a straight 1W:15L flare (typical for high speed roadways), angle the joints at each end of the first rail element on the flare as shown below.

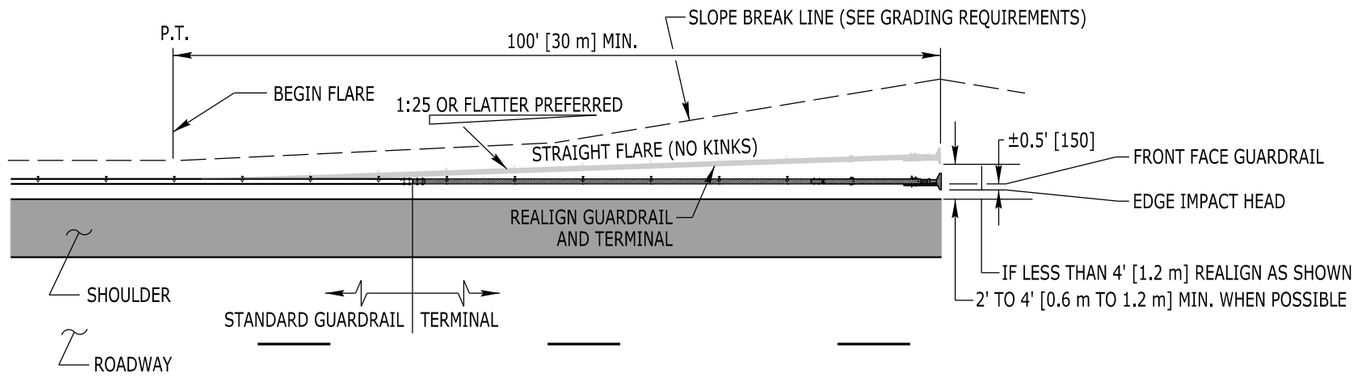



**TYPICAL 1W:15L FLARE LAYOUT**




**CONNECTIONS TO BRIDGE RAILING AND OTHER TRAFFIC BARRIERS**

Connect box beam guardrail barrier to bridge rails and/or concrete barriers with the appropriate guardrail transition section on each end receiving guardrail.




**INSTALL IMPACT HEAD OF TERMINAL A MINIMUM OF 2 ft. TO 4 ft. [0.6 m] TO [1.2 m] FROM EDGE OF SHOULDER WHERE POSSIBLE**

For tangent guardrail installations (without flare) where the guardrail impact head is located within 4 ft. [1.2 m] of the shoulder slope break line (outside edge of shoulder): the last 100 ft. [30 m] of guardrail including the terminal should be realigned on a straight flare, not to exceed 1:25, to offset the impact head an additional 2 ft. to 4 ft. [0.6 m to 1.2 m], assuming the proper grading envelope can be provided (see details for grading around the terminal). This will reduce the likelihood of nuisance impacts on the terminal.


Designed by: WBW
Drawn by: GLD
Checked by: WBW
Previous Dwg. No. 606-6B


GENERAL REQUIREMENTS

Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

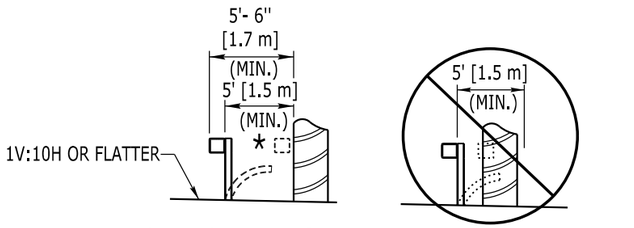
**BOX BEAM GUARDRAIL**

STANDARD PLAN


STANDARD PLAN NUMBER
606-6C
SHEET 1 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023

## NOTES FOR PLACEMENT OF GUARDRAIL NEAR FIXED OBJECTS

① **Shielding Fixed Object Hazards -** Extend tangent run of guardrail a minimum of four standard post spaces (24 ft. [7.3 m] ) on each side of the fixed object hazard. For standard post spacing, locate the back of the rail a minimum of 5 ft. [1.5 m] from the fixed object.




**PROPER GUARDRAIL PLACEMENT**



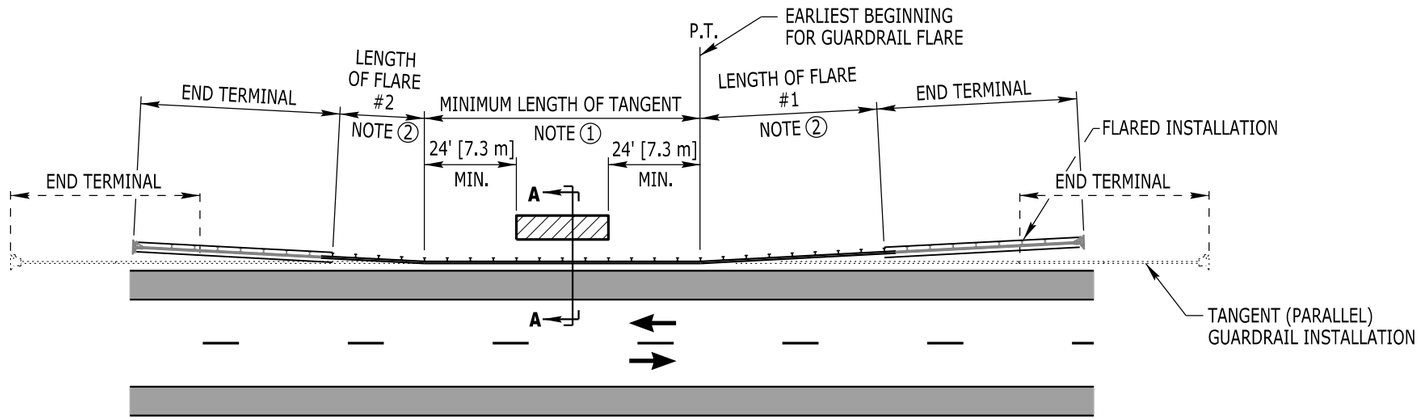

**INCORRECT GUARDRAIL PLACEMENT**

**SECTION A - A**

*The minimum provided deflection distance may be reduced by reducing the post spacing. Start the reduced post spacing 24 ft. [7.3 m] before the hazard and extend 24 ft. [7.3 m] beyond the hazard.

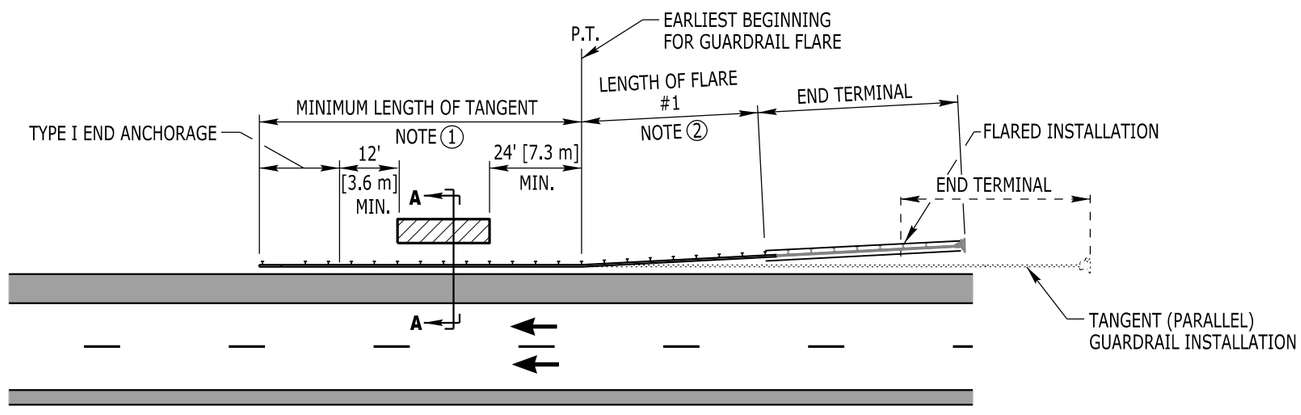
| *Deflection Distance | Post Spacing |
|---|---|
| 5 ft. [1.5 m] | 6 ft. [1830] (Standard) |
| 4 ft. [1.2 m] | 4 ft. [1220] |

② **Flared vs. Tangent (Parallel) Installation -** Drawing depicts flared guardrail runs with solid lines and tangent (parallel) installations in dashed lines. Tangent guardrail runs are longer than flared guardrails to shield the same hazard.




**TYPICAL GUARDRAIL PLACEMENT AROUND A FIXED OBJECT**

TWO WAY TRAFFIC ROADWAYS




**TYPICAL GUARDRAIL PLACEMENT AROUND A FIXED OBJECT**

ONE WAY TRAFFIC ROADWAYS SUCH AS DIVIDED HIGHWAYS

## GRADING NOTES

**If necessary, modify the earthwork shown in the plans and as staked to provide these minimum grading requirements at guardrail installations. The engineer will pay for this work using standard grading bid items as provided in the plans.**

① Ensure the cross-slope of the earthwork in the area approaching a guardrail installation, the area around the terminal and the area of the guardrail flare is a 1V:10H surface or flatter. If Type I End Anchorages are used, extend this grading envelope through the clear-zone to the upstream beginning of the terminal.

② Ensure cross slope of grading from roadway to the barrier face is 1V:10H or flatter. Extend 1V:10H a minimum of 2 ft. [610] behind guardrail posts.

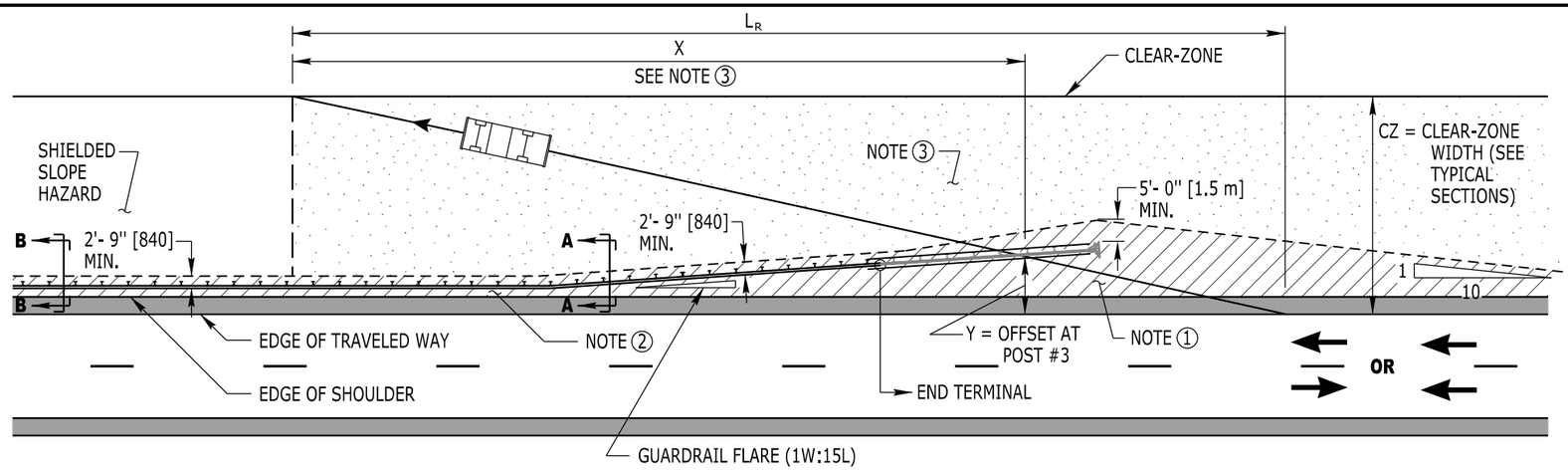
③ Ensure the area immediately behind and beyond the terminal is traversable and free from fixed object hazards or is at least similar in character to upstream, unshielded slopes located within the clear-zone. Ensure a slope of 1V:4H or flatter; if not practical, use a maximum slope of 1V:3H. Extend the traversable slope for a distance X beyond post 3 of the end terminal.

If not shown on the plans, calculate X from the formula below: $X = (CZ - Y)(L_R) / (CZ)$

| DESIGN SPEED | | $L_R$ Runout Length | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ADT OVER 10,000 | | ADT 5,000 to 10,000 | | ADT 1,000 to 5,000 | | ADT Under 1000 | |
| mph | [km/h] | ft | [m] | ft | [m] | ft | [m] | ft | [m] |
| 80 | 130 | 470 | 143 | 430 | 131 | 380 | 116 | 330 | 101 |
| 70 | 110 | 360 | 110 | 330 | 101 | 290 | 88 | 250 | 76 |
| 60 | 100 | 300 | 91 | 250 | 76 | 210 | 64 | 200 | 61 |
| 50 | 80 | 230 | 70 | 190 | 58 | 160 | 49 | 150 | 46 |
| 40 | 60 | 160 | 49 | 130 | 40 | 110 | 34 | 100 | 30 |
| 30 | 50 | 110 | 34 | 90 | 27 | 80 | 24 | 70 | 21 |

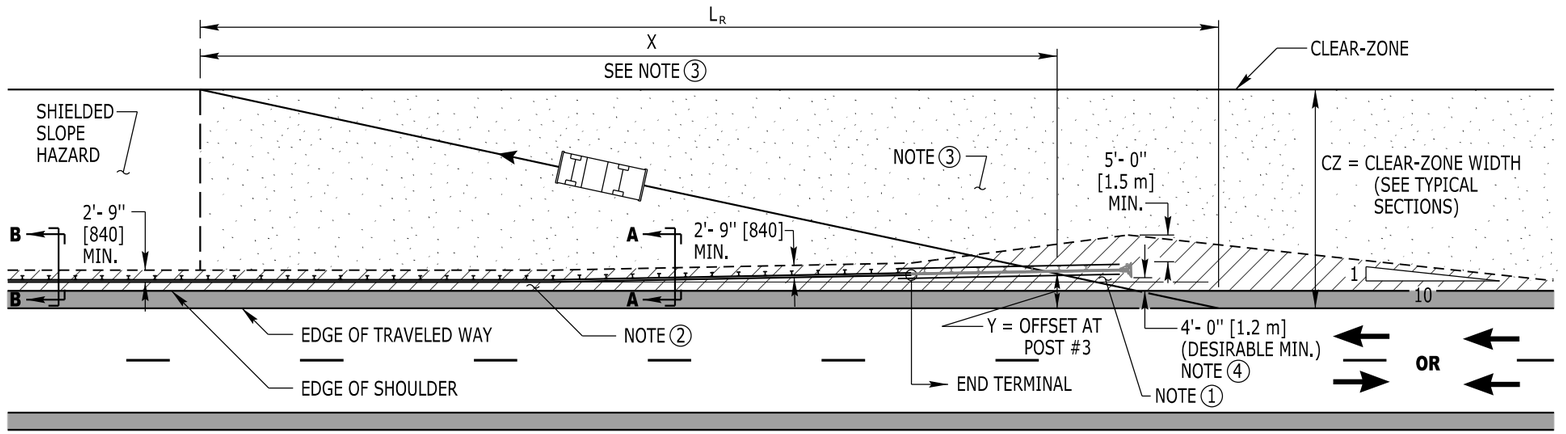
④ "X" can be found graphically by moving up stream of the hazard the longitudinal distance $L_R$, shown in the table above, plotting the design trajectory from the edge of traveled way to the far extreme (width) of the hazard (or the clear zone width, whichever is less). The trajectory should intersect the guardrail at post 3 of the terminal (the point where the guardrail redirects). The distance back to the hazard from post 3 is "X".

⑤ For tangent guardrail installations where the face of the Guardrail at the impact head of the terminal is less than 4 ft. [1.2 m] from the shoulder break point, realign the guardrail and terminal as shown in detail on SHEET 1 of this standard plan.



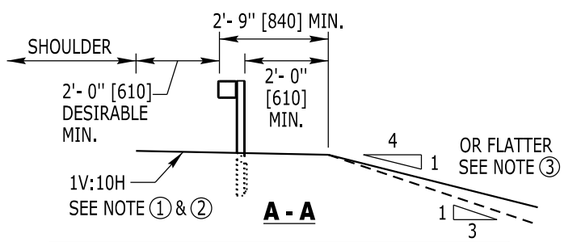

**APPROACH END GRADING - FLARED GUARDRAIL INSTALLATION**

(APPLIES TO TWO WAY TRAFFIC AND ONE WAY TRAFFIC ROADWAYS SUCH AS DIVIDED HIGHWAYS)

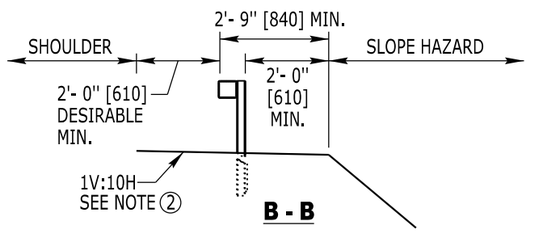



**APPROACH END GRADING - TANGENT (PARALLEL) GUARDRAIL INSTALLATION**

(APPLIES TO TWO WAY TRAFFIC AND ONE WAY TRAFFIC ROADWAYS SUCH AS DIVIDED HIGHWAYS)




**RUNOUT GRADING BEHIND GUARDRAIL**




**FILL SLOPE HAZARD PROTECTION**

| | |
|---|---|
| Designed by: | WBW |
| Drawn by: | GLD |
| Checked by: | WBW |
| Previous Dwg. No. | 606-6B |

GRADING REQUIREMENTS (SHEET 1 OF 2)

Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

**BOX BEAM GUARDRAIL**

STANDARD PLAN

STANDARD PLAN NUMBER
**606-6C**
SHEET 3 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023

## GRADING NOTES

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① Ensure the cross-slope of the earthwork in the area approaching a guardrail installation, the area around the terminal and the area of the guardrail flare is a 1V:10H surface or flatter. If Type I End Anchorages are used, extend this grading envelope through the clear-zone to the upstream beginning of the terminal.

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If not shown on the plans, calculate X from the formula below: $X = (CZ - Y)(L_R) / (CZ)$

| DESIGN SPEED | | $L_R$ Runout Length | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ADT OVER 10,000 | | ADT 5,000 to 10,000 | | ADT 1,000 to 5,000 | | ADT Under 1000 | |
| mph | [km/h] | ft | [m] | ft | [m] | ft | [m] | ft | [m] |
| 80 | 130 | 470 | 143 | 430 | 131 | 380 | 116 | 330 | 101 |
| 70 | 110 | 360 | 110 | 330 | 101 | 290 | 88 | 250 | 76 |
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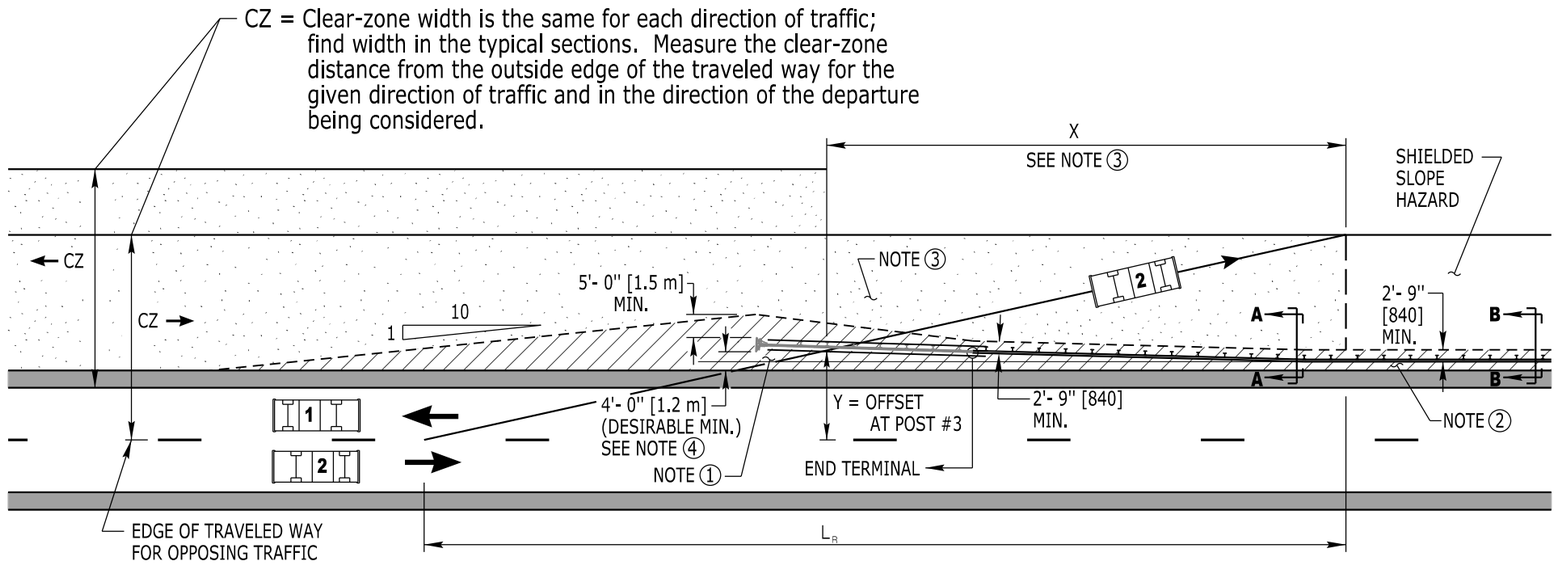
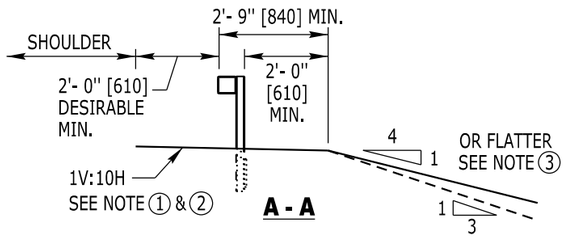


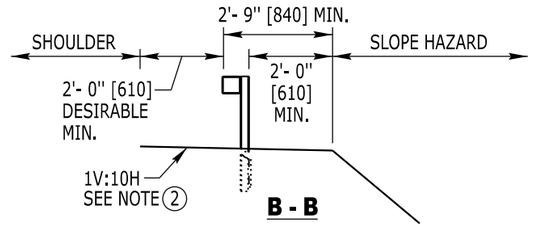

**APPROACH END GRADING FOR OPPOSING TRAFFIC LANES**

(APPLIES TO TWO WAY TRAFFIC ROADWAYS)

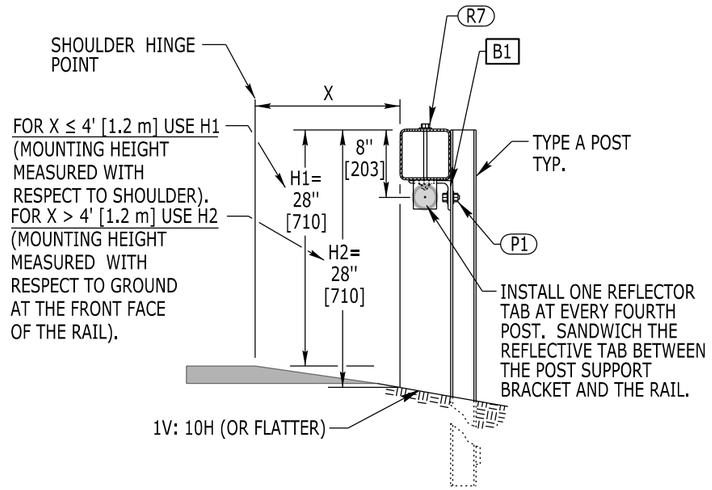
**Note:** Tangent installation shown, apply same concept for flared installations.




**RUNOUT GRADING BEHIND GUARDRAIL**




**FILL SLOPE HAZARD PROTECTION**




**STANDARD BOX BEAM BARRIER POST (TYPICAL)**

## BOLT REQUIREMENTS

**3/4" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)**

(HS2) 3/4" x 2" [19 x 50] (A325) STANDARD SPLICE BOLT +1 HARDENED WASHER (F436)

**1/2" A307 HEX BOLTS (TYP. POST BOLT)**

(P1) 1/2" x 1 1/2" [13 x 40] (A307) +2 WASHERS (F844) + 1 NUT (A563)

**3/8" A307 HEX BOLTS (TYP. RAIL BOLT)**

(R7) 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

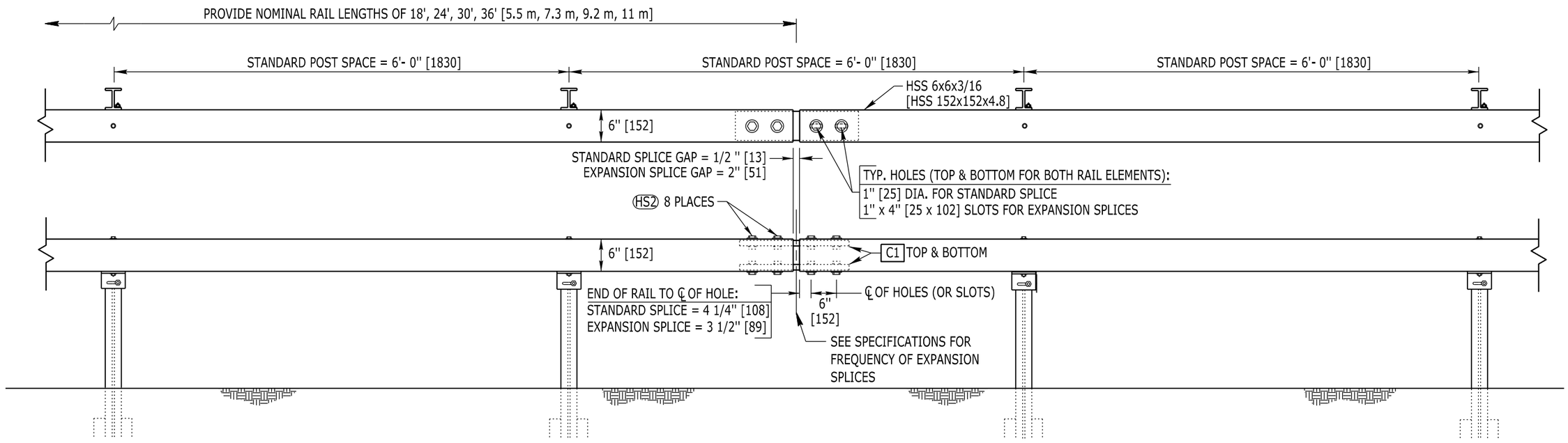
## STANDARD HARDWARE AND POSTS

(SEE BOX BEAM FABRICATION STANDARD PLAN)

[B1] STANDARD BOX BEAM SUPPORT ANGLE

[C1] STANDARD BOX BEAM SPLICE PLATE

TYPE A POST - S3x5.7x5'-4" [S76x8.5x1625]




**BOX BEAM GUARDRAIL DETAILS**

Designed by: WBW
Drawn by: GLD
Checked by: WBW
Previous Dwg. No. 606-6B

BOX BEAM GUARDRAIL STANDARD RUN

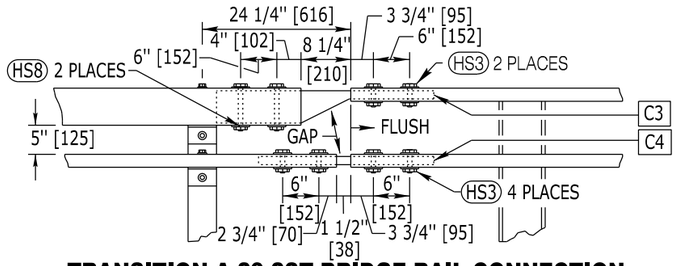
Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

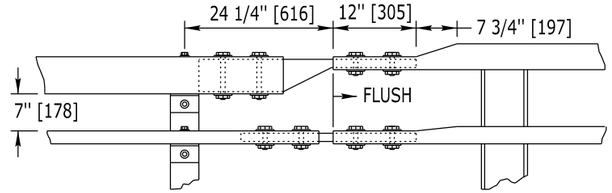
**BOX BEAM GUARDRAIL**

STANDARD PLAN

STANDARD PLAN NUMBER
**606-6C**
SHEET 5 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023



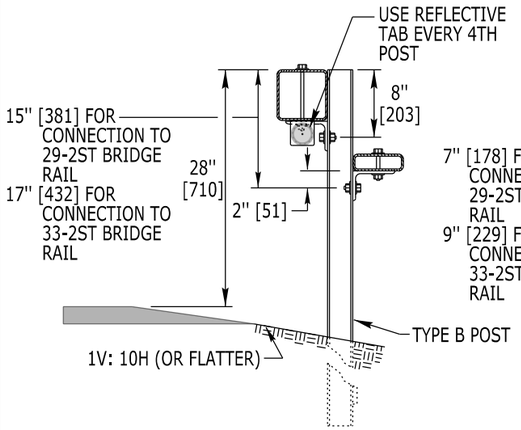

**TRANSITION A 29-2ST BRIDGE RAIL CONNECTION**




**TRANSITION B 33-2ST BRIDGE RAIL CONNECTION**

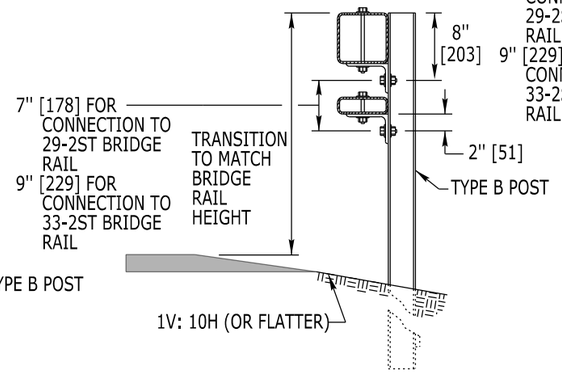
Use same hardware as 29-2ST Connection

## BRIDGE CONNECTION DETAILS



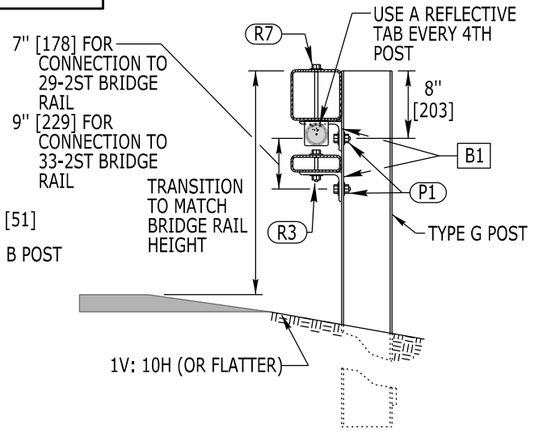

**POST T9**

Use same connection hardware as T1-T6



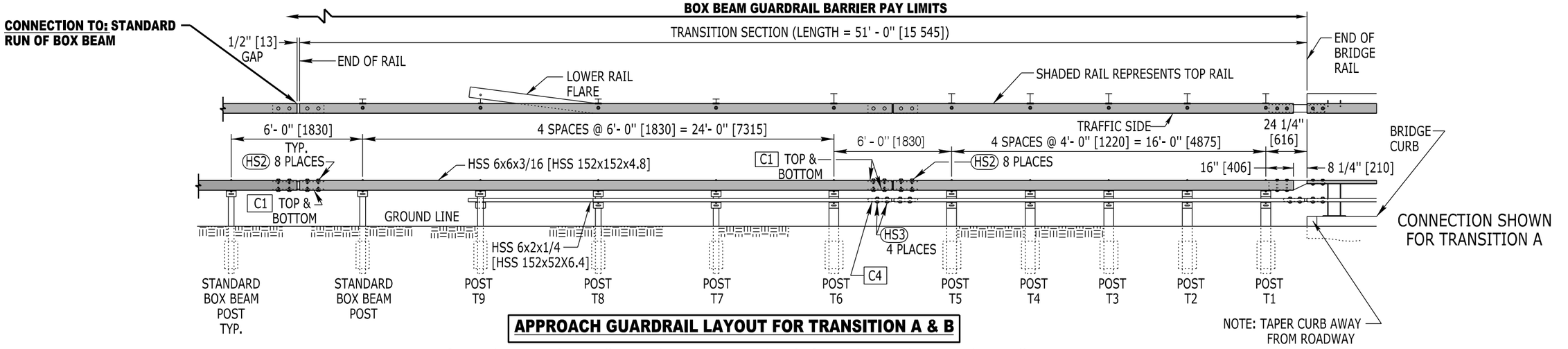

**POST T7 - T8**

Use same connection hardware as T1-T6




**POST T1 - T6**

**BOX BEAM GUARDRAIL BARRIER PAY LIMITS**




**APPROACH GUARDRAIL LAYOUT FOR TRANSITION A & B**

Left Hand approach installation shown - mirror details for Right Hand approach installation.

## BOLT REQUIREMENTS

**3/4" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)**

- (HS2) 3/4" x 2" [19 x 50] (A325) + 1 HARDENED WASHER (F436)
- (HS3) 3/4" x 3 1/2" [19 x 90] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM)
- (HS8) 3/4" x 8" [19 x 205] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM)

**1/2" A307 HEX BOLTS (TYP. POST BOLT)**

- (P1) 1/2" x 1 1/2" [13 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

**3/8" A307 HEX BOLTS (TYP. RAIL BOLT)**

- (R3) 3/8" x 3 1/2" [10 x 90] (A307) + 2 WASHERS (F844) + 1 NUT (A563)
- (R7) 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

## STANDARD HARDWARE AND POSTS

(SEE BOX BEAM FABRICATION STANDARD PLAN)

- [B1] STANDARD BOX BEAM SUPPORT ANGLE
- [C1] STANDARD BOX BEAM SPLICE PLATE
- [C3] UPPER BRIDGE RAIL CONNECTION SLEEVE
- [C4] LOWER BRIDGE RAIL CONNECTION SLEEVE

TYPE A POST - S3x5.7x5'-4" [S76x8.5x1625]
TYPE B POST - S3x5.7x5'-4" [S76x8.5x1625]
TYPE G POST - W6x9x5'-4" [W152x13.4x1625] OR W6x8.5x5'-4" [W152x12.7x1625]

Designed by: WBW
Drawn by: GLD
Checked by: WBW
Previous Dwg. No. 606-6B

TRANSITION A 29-2ST BRIDGE RAIL,
TRANSITION B 33-2ST BRIDGE RAIL

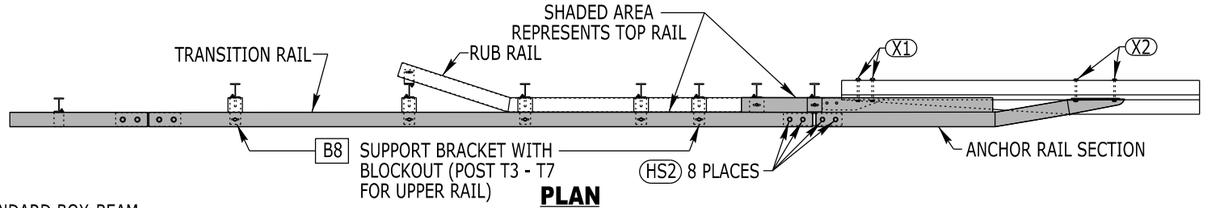
Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

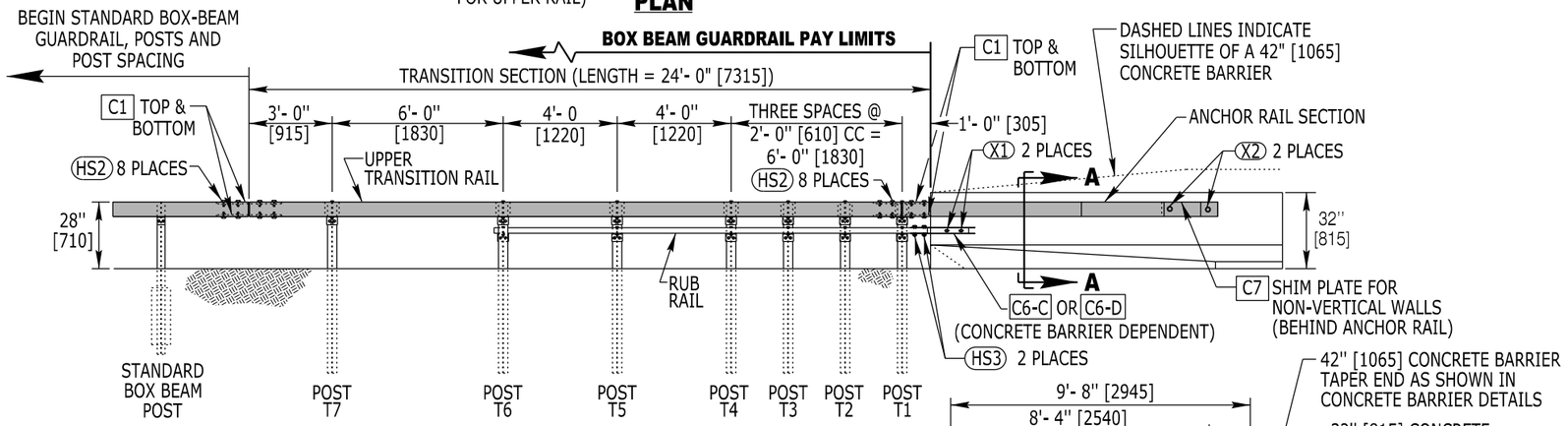
**BOX BEAM GUARDRAIL**

STANDARD PLAN

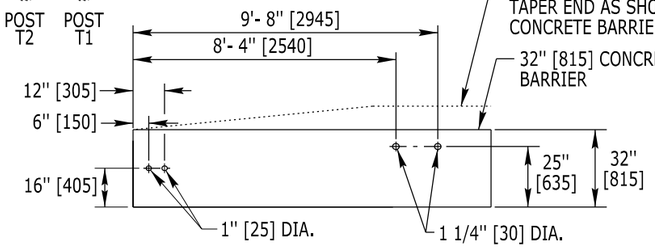
STANDARD PLAN NUMBER
**606-6C**
SHEET 6 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023




## PLAN

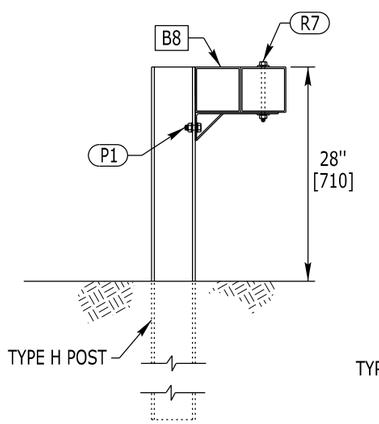



## ELEVATION

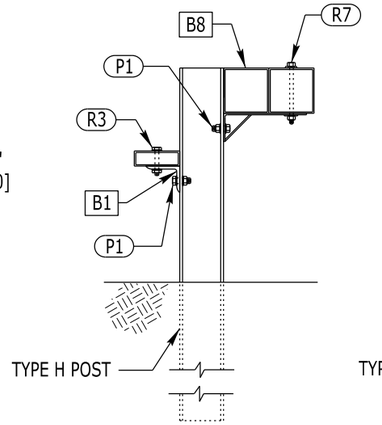



## CONCRETE BARRIER HOLE DRILLING DETAILS

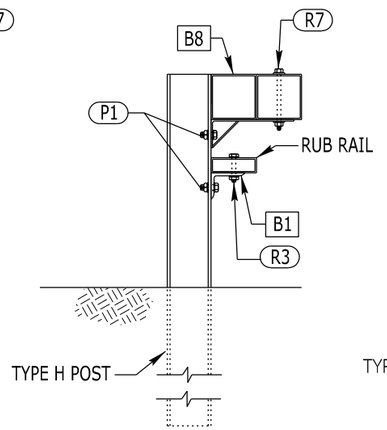
**TRANSITION C - TO NEW JERSEY (NJ) CONCRETE BARRIER**
**TRANSITION D - TO SINGLE SLOPE CONCRETE BARRIER**



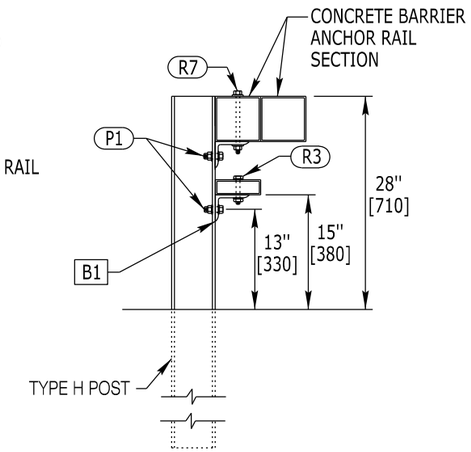

**POST T7**



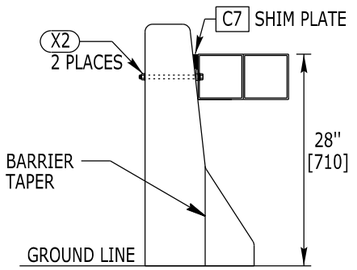

**POST T6**



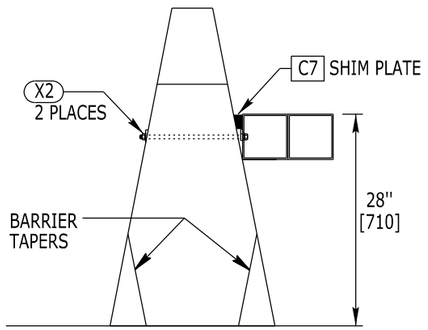

**POSTS T3 - T5**




**POSTS T1 & T2**




**TRANSITION C**
**SECTION A-A**
**NEW JERSEY BARRIER**




**TRANSITION D**
**SECTION A-A**
**42" [1070] SINGLE SLOPE**

## BOLT REQUIREMENTS

**3/4" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)**

HS2 3/4" x 2" [19 x 50] (A325) + 1 HARDENED WASHER (F436)

HS3 3/4" x 3 1/2" [19 x 90] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM)

**1/2" A307 HEX BOLTS (TYP. POST BOLT)**

P1 1/2" x 1 1/2" [13 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

**3/8" A307 HEX BOLTS (TYP. RAIL BOLT)**

R3 3/8" x 3 1/2" [10 x 90] (A307) + 2 WASHERS F844) + 1 NUT (A563)

R7 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (563)

**SPECIAL APPLICATION BOLTS**

X1 3/4" [19] SAE GRADE 5 HEX BOLT (LENGTH DEPENDENT ON CONCRETE)**
+ (2) 3/4" [19] WASHERS + (1) 3/4" [19] SAE GRADE 5 HEX NUT

** 3/4" x 4" [19 x 102] POWERS WEDGE BOLT OR EQUIVALENT ANCHORS ARE ACCEPTABLE ALTERNATIVE

X2 1" [25] SAE GRADE 5 HEX BOLT (LENGTH DEPENDENT ON CONCRETE)
+ (2) 1" [25] PLATE WASHERS + (1) 1" [25] SAE GRADE 5 HEX NUT

## STANDARD HARDWARE AND POSTS

(SEE BOX BEAM FABRICATION STANDARD PLAN)

B1 STANDARD BOX BEAM SUPPORT ANGLE

B8 TRANSITION C & D RAIL SUPPORT BRACKET

C1 STANDARD BOX BEAM SPLICE PLATE

C6-C RUB RAIL CONNECTOR BRACKET (FOR NJ CONCRETE BARRIER)

C6-D RUB RAIL CONNECTOR BRACKET (FOR SINGLE SLOPE CONCRETE BARRIER)

C7 SHIM PLATE

TYPE H POST - W 6x9x6'-0" [W152x13.4x1830] OR W 6x8.5x6'-0" [W152x12.7x1830]

| | |
|---|---|
| Designed by: | WBW |
| Drawn by: | GLD |
| Checked by: | WBW |
| Previous Dwg. No. | 606-6B |

TRANSITION C CONC. NJ SHAPE,
TRANSITION D CONC. SS SHAPE

Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

**BOX BEAM GUARDRAIL**

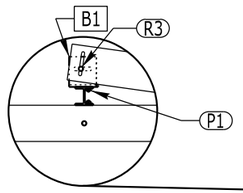
STANDARD PLAN

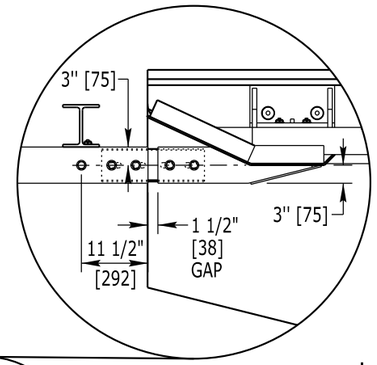
STANDARD PLAN NUMBER
**606-6C**
SHEET 7 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023

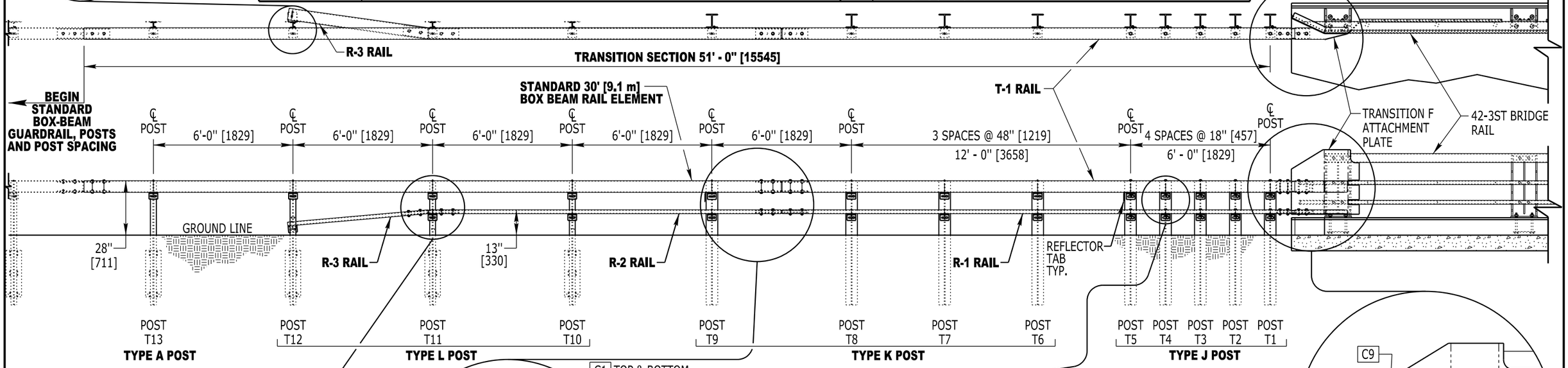
∗Note that bolts required for splice plates require only 1 washer and don't require a nut as they are provided with the splice plates.

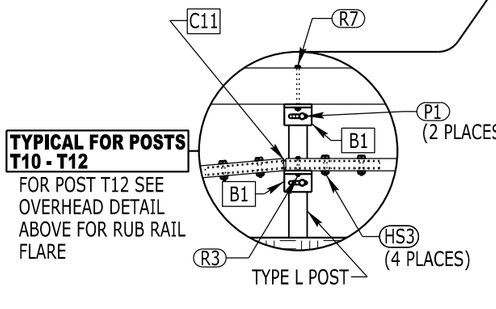
| QTY. | BOLT REQUIREMENTS |
|---|---|
| | **3/4" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)** |
| 26 b + 10 n + 36 w | (HS2) 3/4" x 2" [19 x 50] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM) ∗ |
| 12 b + 12 n + 24 w | (HS3) 3/4" x 3 1/2" [19 x 90] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM) |
| 5 b + 5 n + 10 w | (HS4) 3/4" x 4" [19 x 102] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM) |
| 4 b + 4 n + 8 w | (HS7) 3/4" x 7 1/2" [19 x 190] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM) |
| 5 b + 5 n + 10 w | (HS8) 3/4" x 8" [19 x 205] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM) |
| | **5/8" A325 HIGH STRENGTH HEAVY HEX BOLTS (TRANSITION MOUNTING BOLT)** |
| 4 b + 4 n + 8 w | (TM3) 5/8" x 3 1/2" [16 x 89] (A325) + 2 WASHERS (F436) + 1 NUT (A194-2HM) |
| | **1/2" A307 HEX BOLTS (TYP. POST BOLT)** |
| 15 b + 15 n + 30 w | (P1) 1/2" x 1 1/2" [13 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563) |
| | **3/8" A307 HEX BOLTS (TYP. RAIL BOLT)** |
| 7 b + 7 n + 14 w | (R3) 3/8" x 3 1/2" [10 x 90] (A307) + 2 WASHERS (F844) + 1 NUT (A563) |
| 8 b + 8 n + 16 w | (R7) 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (A563) |

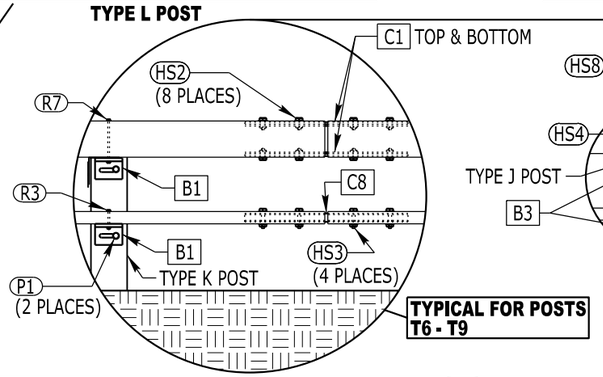
| QTY. | HARDWARE AND POSTS (SEE BOX BEAM FABRICATION STANDARD PLAN) |
|---|---|
| 15 | B1 STANDARD BOX BEAM SUPPORT ANGLE |
| 10 | B3 TRANSITION F BOX BEAM SUPPORT ANGLE |
| 4 | C1 STANDARD BOX BEAM SPLICE PLATE |
| 1 | C8 RUB RAIL SPLICE SLEEVE |
| 1 | C9 UPPER BRIDGE RAIL CONNECTION SLEEVE |
| 1 | C10 LOWER BRIDGE RAIL CONNECTION SLEEVE |
| 1 | C11 RUB RAIL FLARE SLEEVE |
| 1 | SF1 TRANSITION F ATTACHMENT PLATE |
| 1 | TYPE A POST - S3x5.7x5'-4" [S76x8.5x1625] |
| 5 | TYPE J POST - W6x9x5'-4" [W152x13.4x1625] |
| 4 | TYPE K POST - W6x9x5'-4" [W152x13.4x1625] |
| 3 | TYPE L POST - S3x5.7x5'-4" [S76x8.5x1625] |
| 20 | 3/4" [19] (F844) WASHERS REQUIRED FOR POST 1-5 CONNECTION |

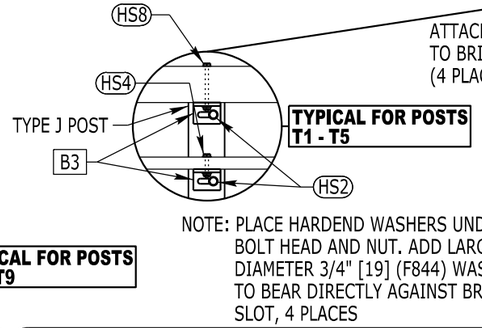


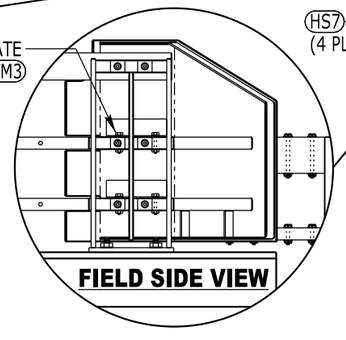



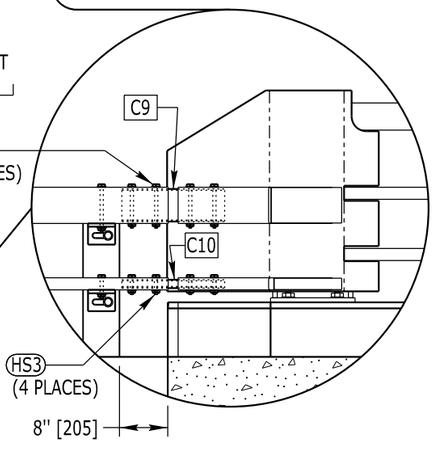




NOTE: PLACE HARDEND WASHERS UNDER BOLT HEAD AND NUT. ADD LARGER DIAMETER 3/4" [19] (F844) WASHER TO BEAR DIRECTLY AGAINST BRACKET SLOT, 4 PLACES




| | |
|---|---|
| Designed by: | WBW |
| Drawn by: | GLD |
| Checked by: | WBW |
| Previous Dwg. No. | 606-6B |

TRANSITION F TO 42-3ST BRIDGE RAIL

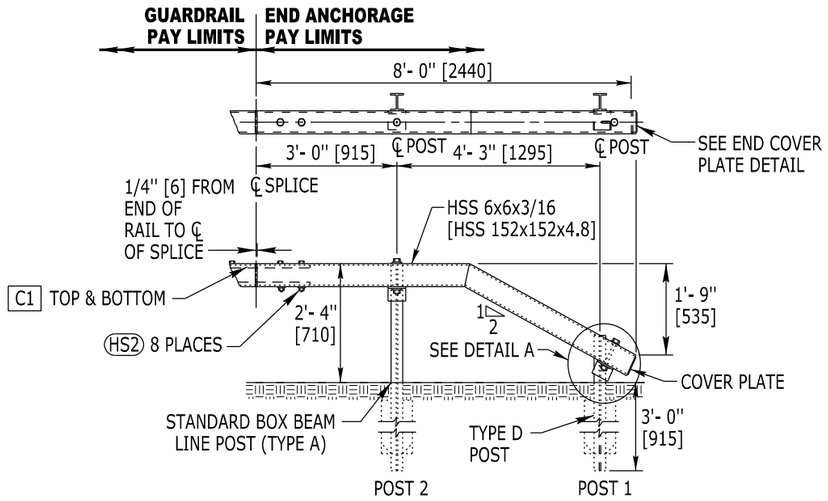
Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

**BOX BEAM GUARDRAIL**

STANDARD PLAN

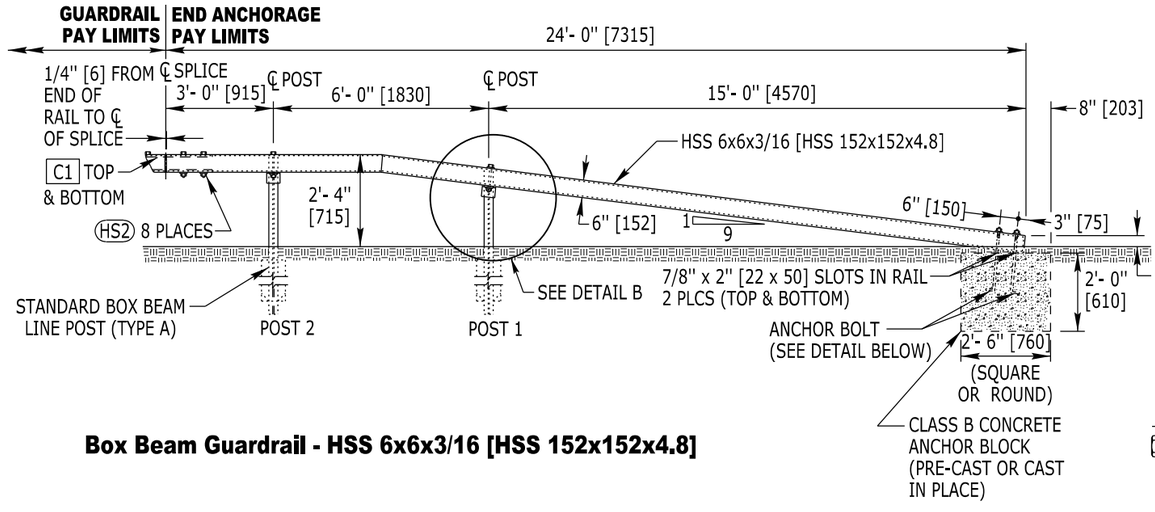
STANDARD PLAN NUMBER
**606-6C**
SHEET 8 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023




**Box Beam Guardrail - HSS 6x6x3/16 [HSS 152x152x4.8]**

## END ANCHORAGE TYPE II

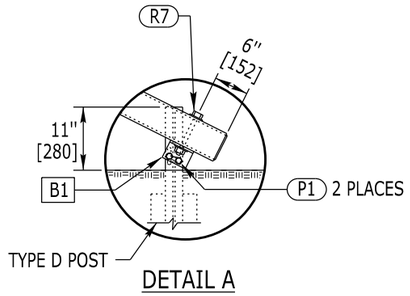
**Note:** Only use Type II End Anchorages for the downstream terminal of a guardrail run on one-way traffic roadways (such as divided highways). Place Type I anchorages at least 48 ft. [15.0 m] downstream of the hazard.



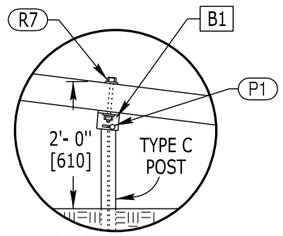

**Box Beam Guardrail - HSS 6x6x3/16 [HSS 152x152x4.8]**

## END ANCHORAGE TYPE I

**Note:** Flare Type I End Anchorages outside the clear-zone.

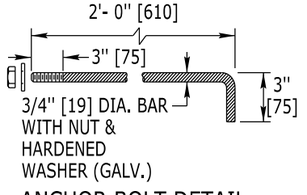



DETAIL A




SHOULDER BARRIER (POST BEHIND RAIL)

DETAIL B




ANCHOR BOLT DETAIL

## BOLT REQUIREMENTS

**3/4" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)**

(HS2) 3/4" x 2" [19 x 50] (A325) STANDARD SPLICE BOLT + 1 HARDENED WASHER (F436)

(HS8) 3/4" x 8" [19 x 203] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM)

**1/2" A307 HEX BOLTS (TYP. POST BOLT)**

(P1) 1/2" x 1 1/2" [13 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

**3/8" A307 HEX BOLTS (TYP. RAIL BOLT)**

(R7) 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

## STANDARD HARDWARE AND POSTS

(SEE BOX BEAM FABRICATION STANDARD PLAN)

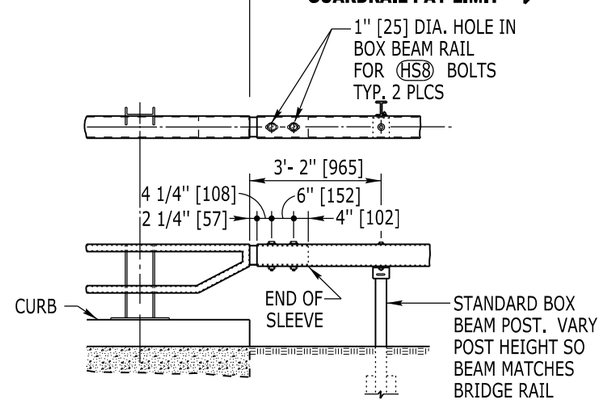
[B1] STANDARD BOX BEAM SUPPORT ANGLE

[C1] STANDARD BOX BEAM SPLICE PLATE

TYPE A POST - S3x5.7x5'- 4" [S76x8.5x1625]

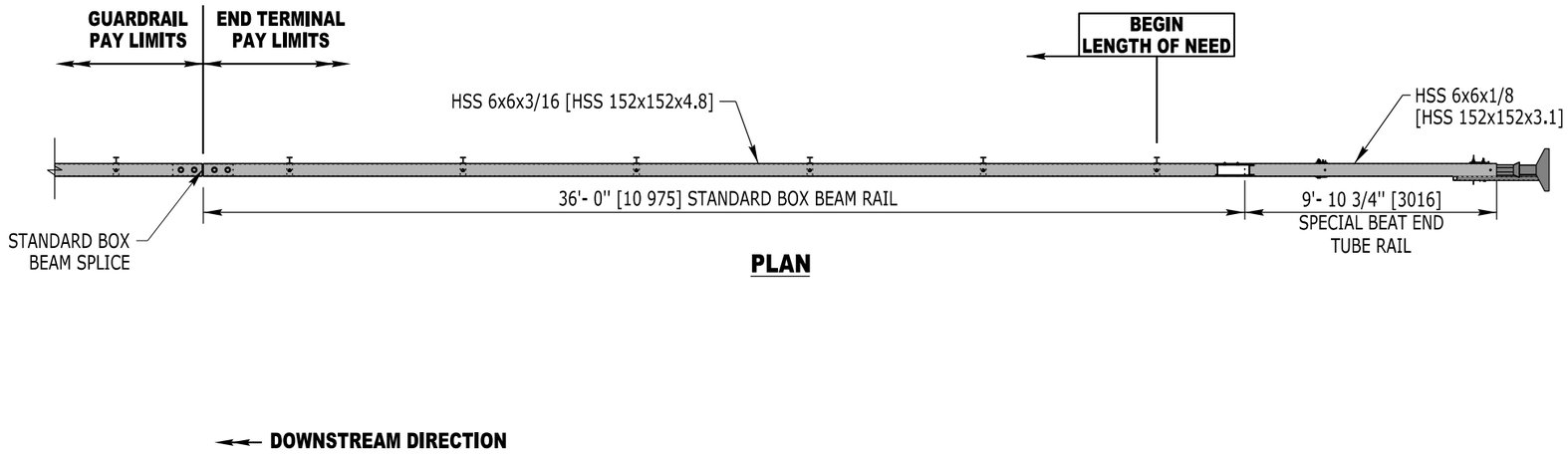
TYPE C POST - S3x5.7x5'- 0" [S76x8.5x1525]

TYPE D POST - S3x5.7x3'- 11" [S76x8.5x1195]

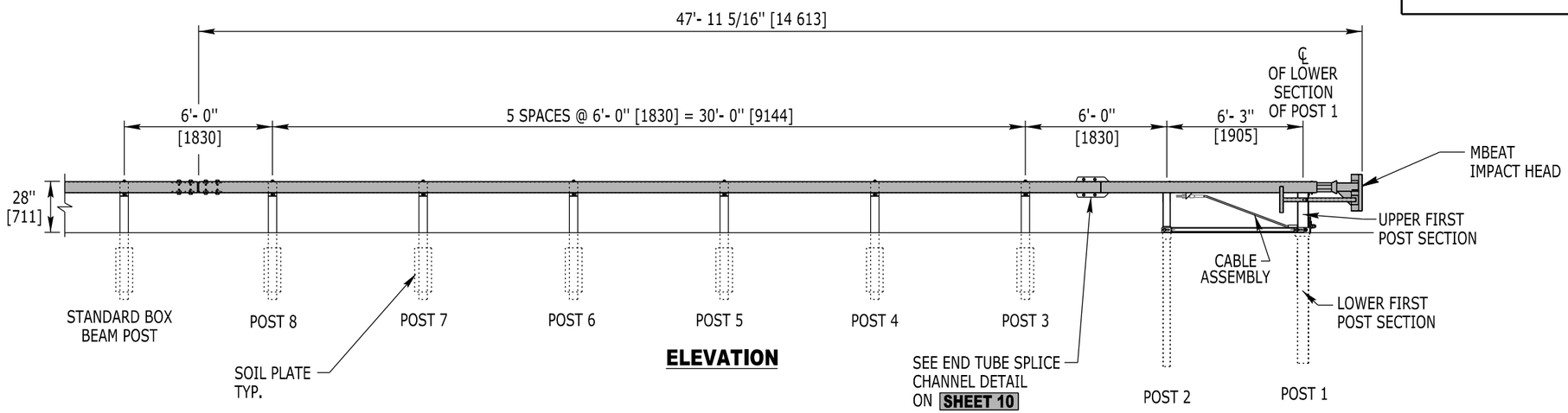



## EXIT END CONNECTION TO STEEL BRIDGE RAILING

(Only for exit ends of one-way traffic bridges which are not required to be upgraded to receive transition sections.)




**PLAN**

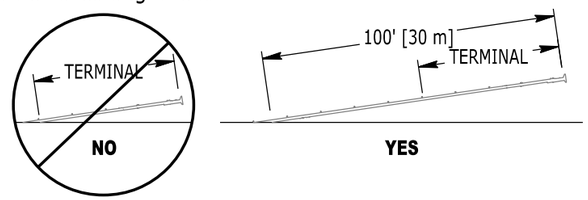



**ELEVATION**

## NOTES

Where the contract calls for a Box Beam Terminal (EATT) - Energy Absorbing Tangent Terminal, or Box Beam End Terminal (WYBET), or equivalent bid description, provide only the MASH Compliant, MBEAT Terminal as shown herein. The MBEAT Terminal can only be manufactured and sold by Road Systems, Inc. or its duly authorized representative. Although standard guardrail components are provided at post 3 and beyond ( e.g posts 4, 5, etc.) the length of the terminal will be defined as shown herein. Refer to the manufacturer's details and installation manual for more precise details for all other features of the terminal. In addition to the manufacturers' requirements, provide a double nut for each end of the cable anchorage.

**Placing Terminal on Flare:** If the terminal is placed on a flare steeper than 1:25 (for example, if it is placed on a 1:15 flare), provide at least 100 ft. [30 m] of guardrail including the terminal length on the same flared alignment.




For tangent guardrail installations where the face of the guardrail at the impact head of the terminal is less than 4 ft [1.2 m] from the shoulder break point, realign the guardrail and terminal as shown in detail on SHEET 1 of this standard plan.

**STANDARD MBEAT**

Designed by: WBW
Drawn by: GLD
Checked by: WBW
Previous Dwg. No. 606-6B

BOX BEAM TERMINAL (EATT), OR (WYBET) (SHEET 1 OF 2)

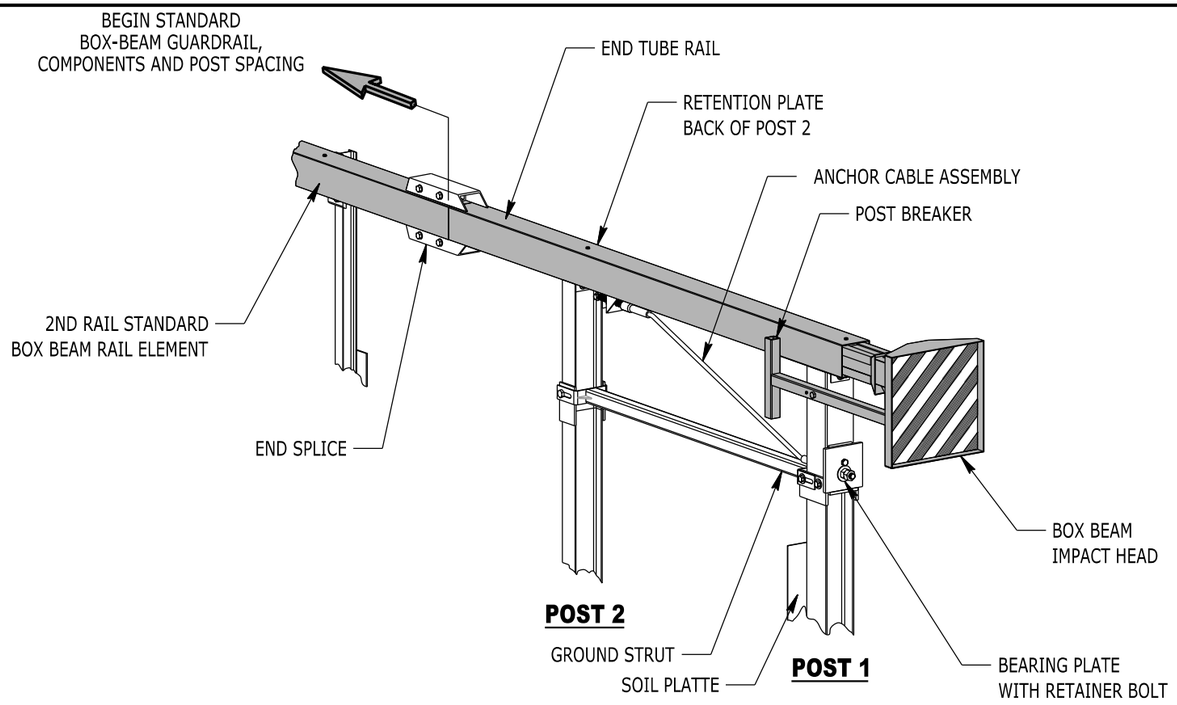
Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

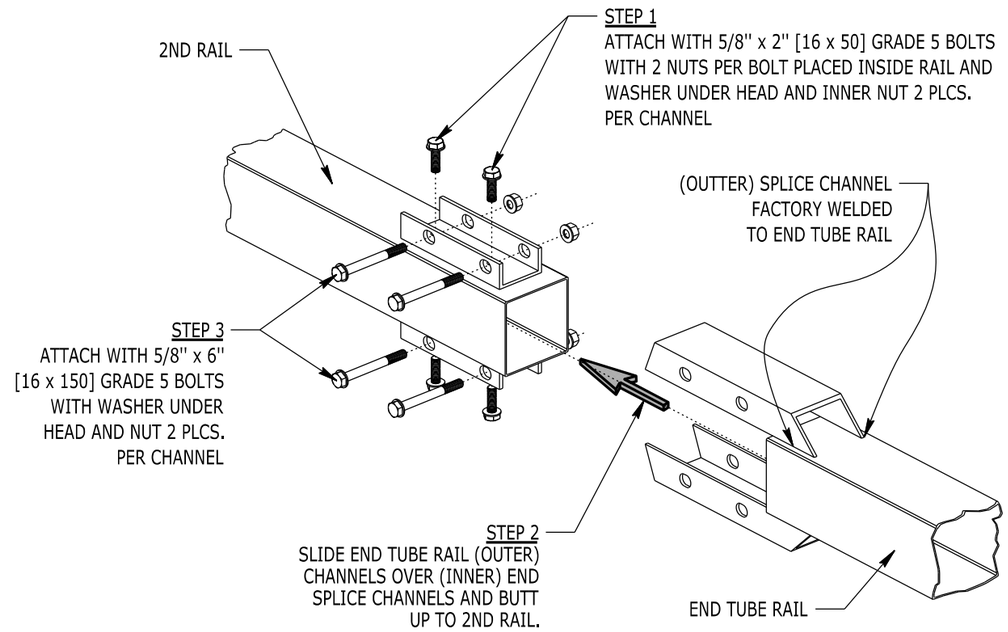
**BOX BEAM GUARDRAIL**

STANDARD PLAN

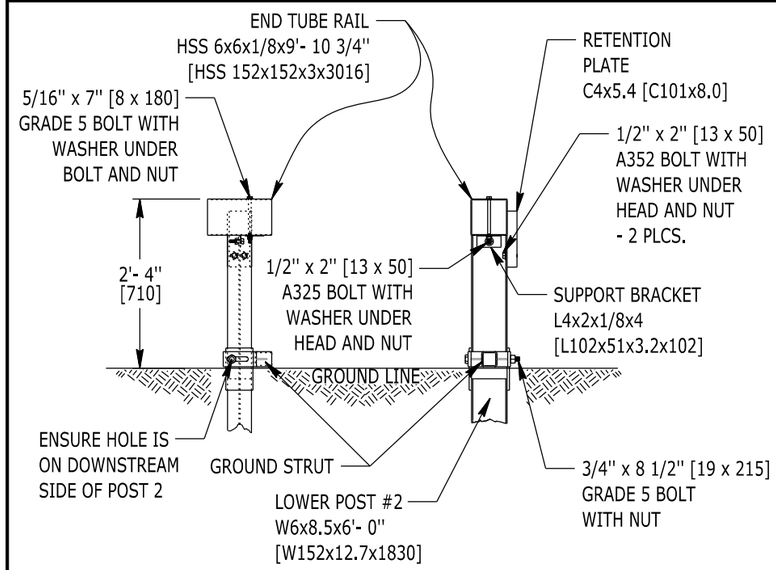
STANDARD PLAN NUMBER
**606-6C**
SHEET 10 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023



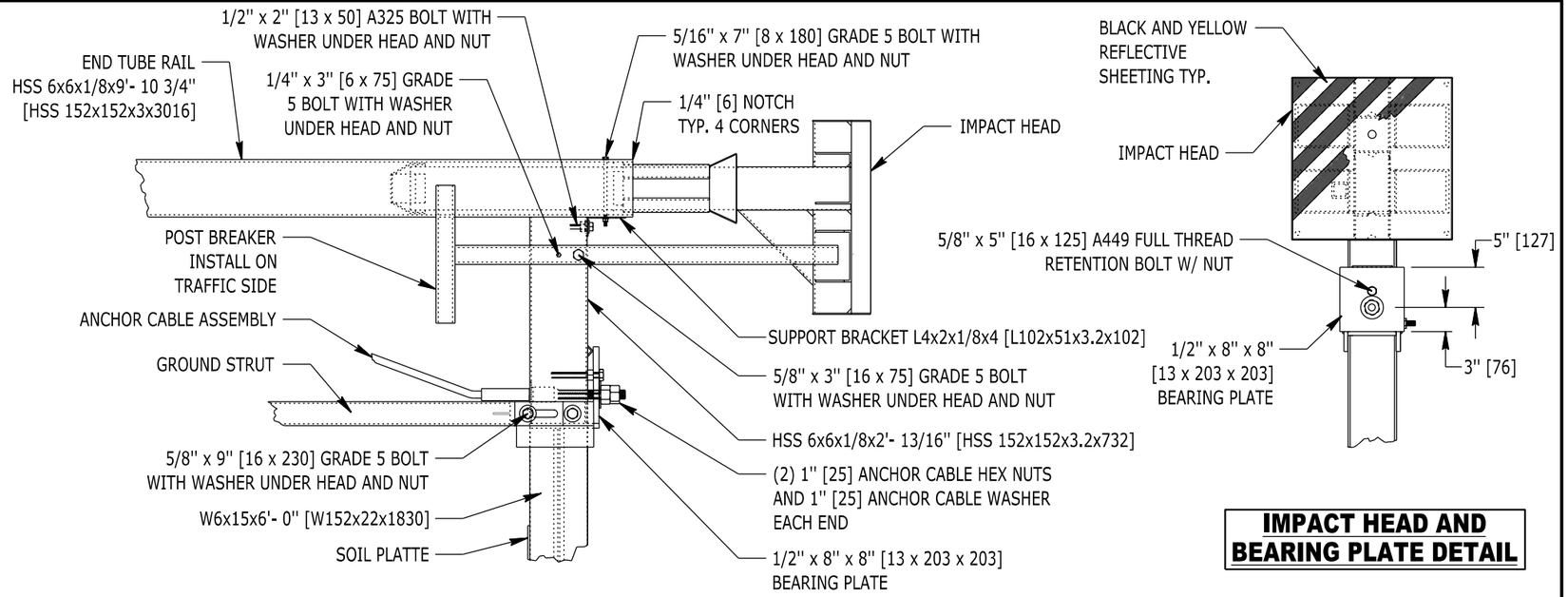

## MBEAT END TERMINAL




## END SPLICE CHANNEL DETAIL




## POST 2




## IMPACT HEAD AND BEARING PLATE DETAIL

| | |
|---|---|
| Designed by: | WBW |
| Drawn by: | GLD |
| Checked by: | WBW |
| Previous Dwg. No. | 606-6B |

BOX BEAM TERMINAL (EATT), OR (WYBET) (SHEET 2 OF 2)

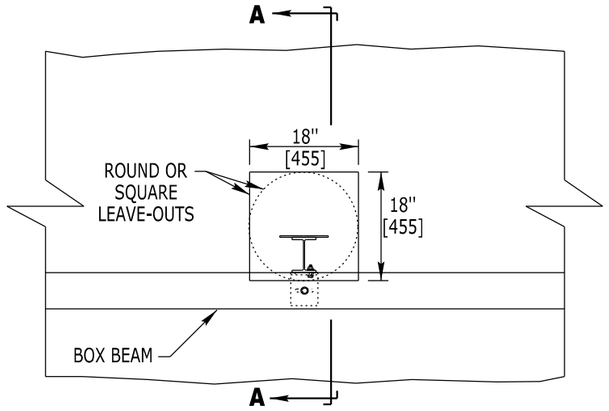
Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

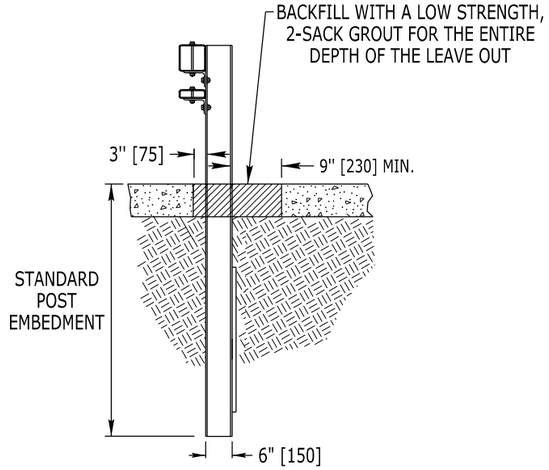
**BOX BEAM GUARDRAIL**

STANDARD PLAN

STANDARD PLAN NUMBER
**606-6C**
SHEET 11 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023



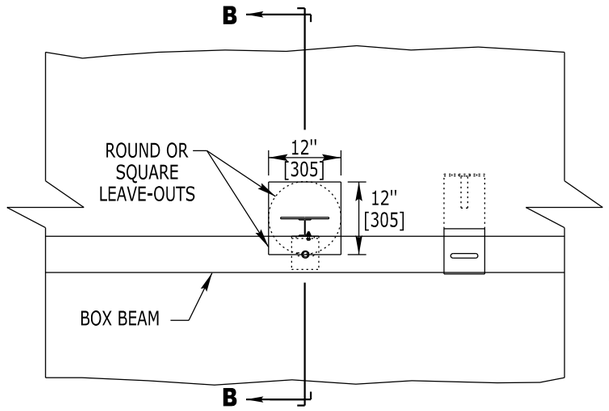

PLAN VIEW



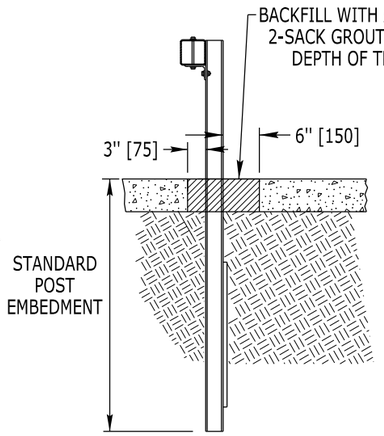

SECTION A-A

## STRONG TRANSITION POSTS

W6X9 [W152X13.4] OR W6X8.5 [W152X12.7]
AND FOUNDATION TUBES FOR TERMINAL




PLAN VIEW



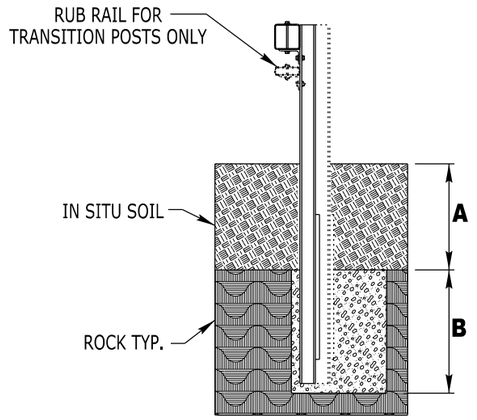

SECTION B-B

## STANDARD BOX BEAM LINE POSTS

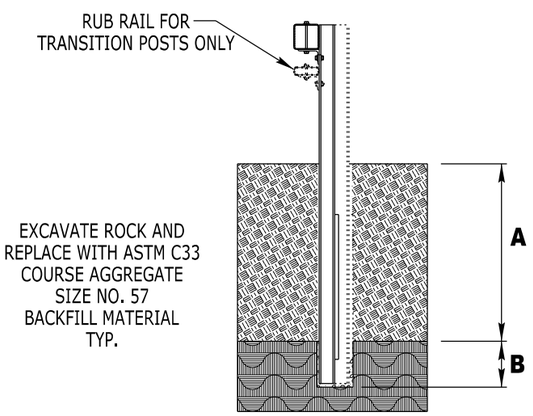
S3X5.7 [S76X8.5]

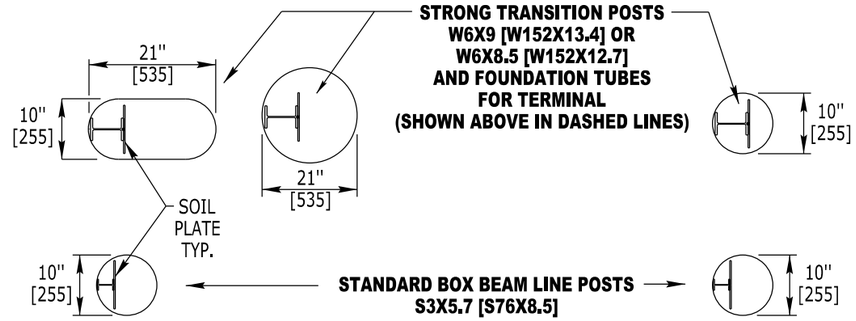
## POST PLACEMENT IN ASPHALT OR CONCRETE PAVEMENTS

**CASE 1**




**CASE 2**




**CASE 1**
**A ≤ 18" [455]**

For overlying soil depths (A) ranging from 0 to 18" [0 to 455], the depth of required drilling (B) is equal to 24" [610] or the desired embedment depth minus the depth of the soil, which ever is less.

**CASE 2**
**A > 18" [455]**

For overlying soil depths (A) ranging from > 18" [455], to the embedment depth of the post, depth of required drilling (B) is equal to either 12" [305] or the desired embedment depth minus the depth of soil, which ever is less.

## POSTS IN ROCK

| | | | |
|---|---|---|---|
| Designed by: WBW<br>Drawn by: GLD<br>Checked by: WBW<br>Previous Dwg. No. 606-6B | POST PLACEMENT IN PAVEMENTS AND ROCK | WYOMING DEPARTMENT OF TRANSPORTATION | **BOX BEAM GUARDRAIL**<br>STANDARD PLAN |

Note: Units shown in brackets [ ] are metric and are in millimeters (mm) unless other units are shown.

STANDARD PLAN NUMBER
**606-6C**
SHEET 12 of 12
Issued by: ENGINEERING SERVICES
Date Issued: SEPTEMBER 2023