

** DIMENSION SHOWN IS TO THE TOP OF THE WEARING COURSE AT GUTTERLINE.

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DESIGNER NOTE
(REMOVE PRIOR TO PLOTTING FINAL PLAN):
MINIMUM BARRIER LENGTH ON APPROACH PANEL IS 10'-8" WITH MINIMUM OF 22 R502E AND R503E DOWELS WITH ACCOMPANYING APPROPRIATE BARRIER VERTICAL BARS, 12" MAX. SPACING. VERIFY APPROACH BARRIER LENGTH, NEED FOR A GUARDRAIL CONNECTION, AND VERTICAL TAPER WITH ROADWAY DESIGNER. REFER TO MEMO TO DESIGNERS (2016-01) FOR ADDITIONAL REQUIREMENTS REGARDING BARRIER PLACEMENT.

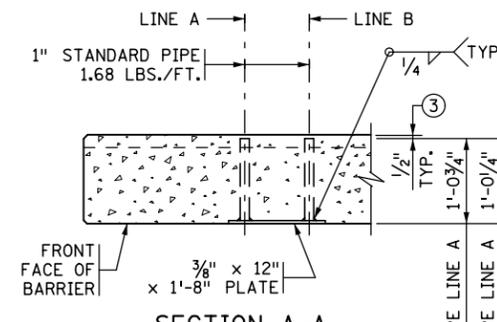
JOINT AT ABUTMENT
(INTEGRAL OR SEMI-INTEGRAL ABUTMENT)

INSIDE ELEVATION OF BARRIER
CONCRETE WEARING COURSE NOT SHOWN

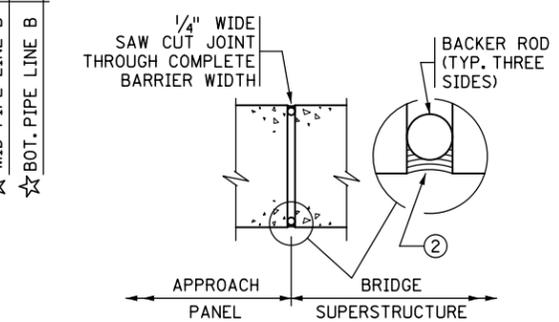
BARRIER MEETS NCHRP 350 TL-4 REQUIREMENTS ON BRIDGE DECK AND TL-3 ON APPROACH PANEL.

BILL OF REINFORCEMENT FOR BARRIER

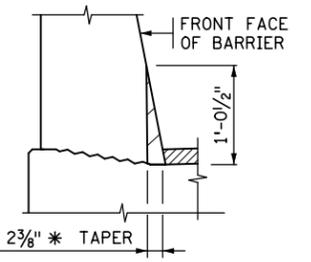
| BAR | NO. | LENGTH | SHAPE | LOCATION |
|-------|--------------|-----------------|-------|------------------|
| R501E | | 5'-4" | | BARRIER DOWEL |
| R502E | | 5'-6" | | BARRIER DOWEL |
| R503E | | 5'-5" | | BARRIER DOWEL |
| R504E | | 7'-5" | | BARRIER VERTICAL |
| R505E | -- SER. OF 4 | 6'-11" TO 7'-3" | | BARRIER VERTICAL |
| R506E | | 6'-9" | | BARRIER VERTICAL |
| R407E | | 10'-3" | | BARRIER LONGIT. |
| R4__E | | | | BARRIER LONGIT. |
| R4__E | | | | BARRIER LONGIT. |
| R4__E | | | | BARRIER LONGIT. |
| R4__E | | | | BARRIER LONGIT. |



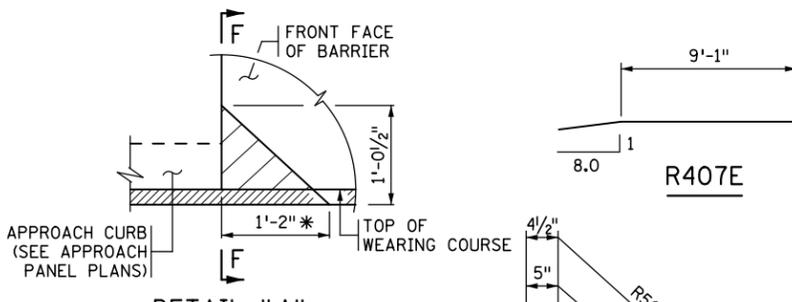
SECTION A-A
(REINFORCEMENT NOT SHOWN)
TRIM GUARDRAIL BOLTS SUCH THAT NO MORE THAN 1/2" PROTRUDES FROM BACK FACE OF BARRIER.
☆ DIMENSIONS INCLUDE 3/8" PLATE



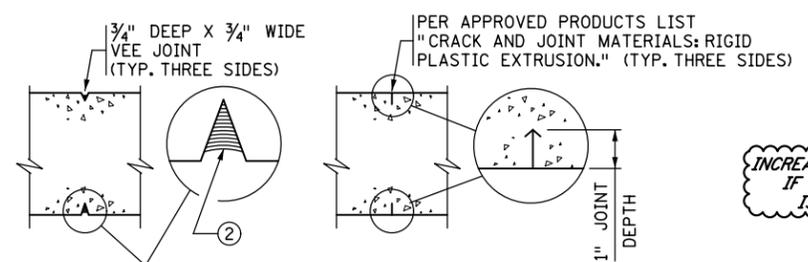
SECTION D-D
APPROACH PANEL SUPERSTRUCTURE



VIEW F-F
AT BARRIER END

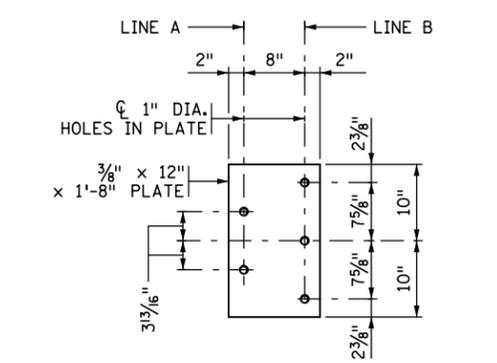
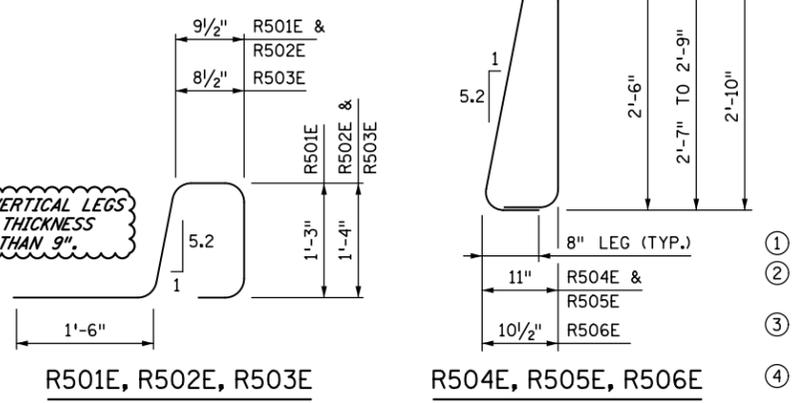


DETAIL "A"
ELEVATION VIEW (WEARING COURSE SHOWN)



SECTION C-C
CAST-IN-PLACE CONSTRUCTION
SECTION C-C
SLIPFORM CONSTRUCTION
CONTROL JOINT DETAILS

INCREASE R501E VERTICAL LEGS IF DECK SLAB THICKNESS IS GREATER THAN 9"



GUARDRAIL CONNECTION DETAIL
GALVANIZE AFTER FABRICATION PER SPEC. 3394
ESTIMATED WEIGHT = 34 LBS.

- GENERAL NOTES**
- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE ENDS OF THE BARRIER.
 - CONCRETE BARRIER = 513 LBS./FT. (0.127 CU. YDS./FT.)
 - FINISH ALL EDGES OF BARRIER WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
 - SPACE CONTROL JOINTS AT 10 FT. MAXIMUM. REFER TO SUPERSTRUCTURE SHEET FOR SPECIFIC SPACING INFORMATION.
 - GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.
 - GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO BARRIER.
 - BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
 - PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT IN DECK.
 - JOINT SEALANT PER MNDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
 - REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.
 - MATCH GUTTERLINE ELEVATION.

REVISION: MAY 10, 2017
APPROVED: AUGUST 24, 2016
Kevin Weston
STATE BRIDGE ENGINEER

FOR SLIPFORM CONSTRUCTION: IMMEDIATELY AFTER CONCRETE IS PLACED AND WHILE IT IS STILL WET, CREATE A ONE INCH STRAIGHT GROOVE USING A TROWEL. INSERT RIGID PLASTIC EXTRUSION INTO GROOVE TO A DEPTH 1/8" BELOW THE SURFACE; FINISH OVER GROOVE COMPLETELY HIDING THE EXTRUSION.

CERTIFIED BY _____
LICENSED PROFESSIONAL ENGINEER DATE _____
NAME: _____ LIC. NO. _____

TITLE: **CONCRETE BARRIER 36"**
(TYPE S, TL-4)
INTEGRAL OR SEMI-INTEGRAL ABUTMENT WITH GUARDRAIL CONNECTION (WITH 2" CONCRETE WEARING COURSE)

DES: _____ DR: _____
CHK: _____ CHK: _____
APPROVED: _____
BRIDGE NO. _____
SHEET NO. OF SHEETS

FIG. 5-397.138(B)