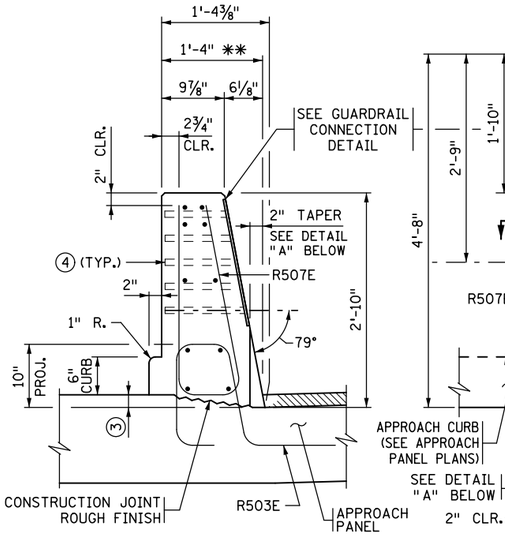
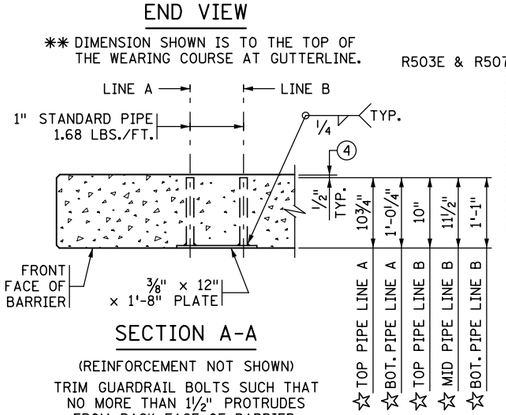


END VIEW

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



SECTION A-A

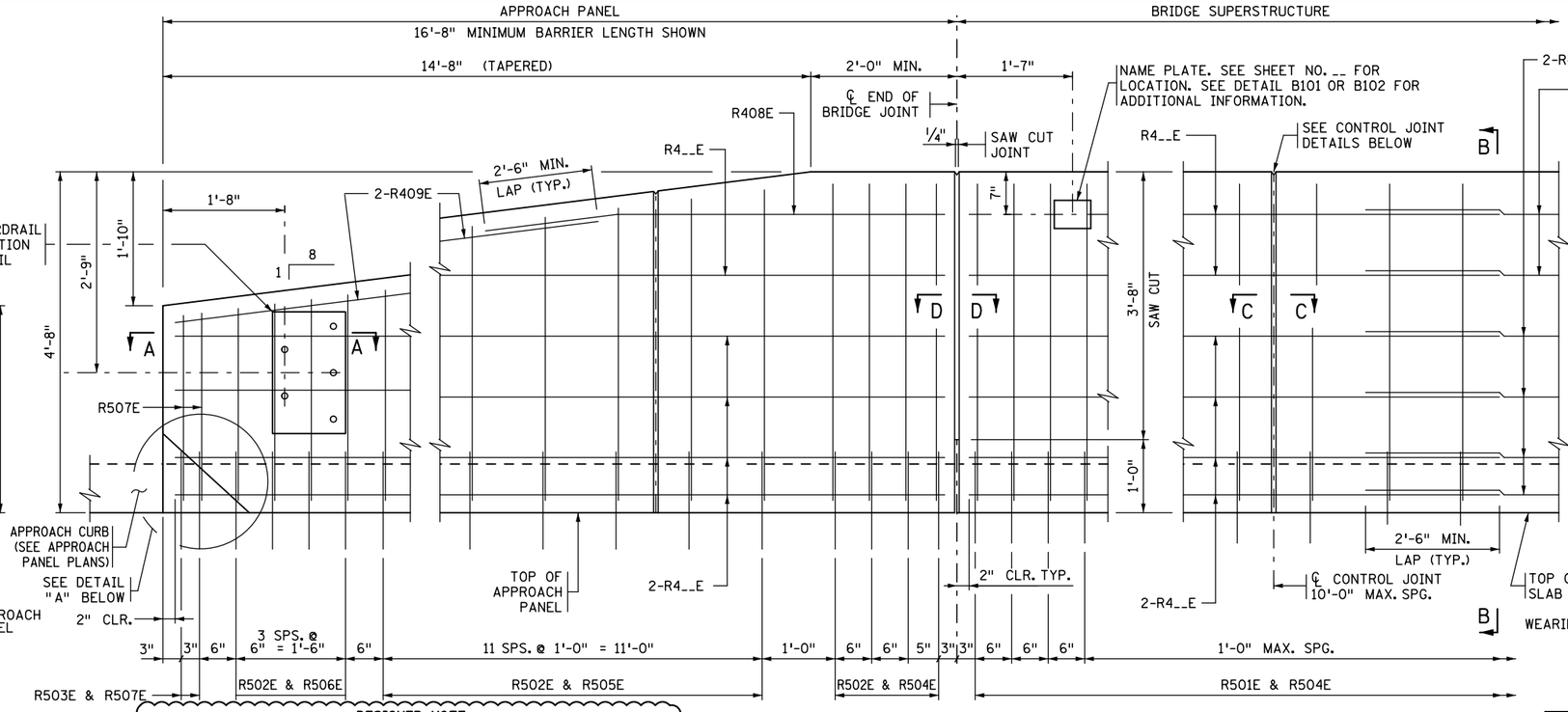
(REINFORCEMENT NOT SHOWN)

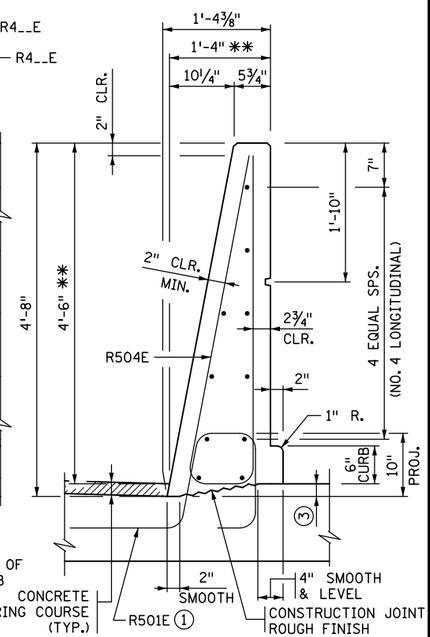
TRIM GUARDRAIL BOLTS SUCH THAT NO MORE THAN 1½" PROTRUDES FROM BACK FACE OF BARRIER.

☆ DIMENSIONS INCLUDE ⅜" PLATE

GUARDRAIL CONNECTION DETAIL

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





SECTION B-B

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

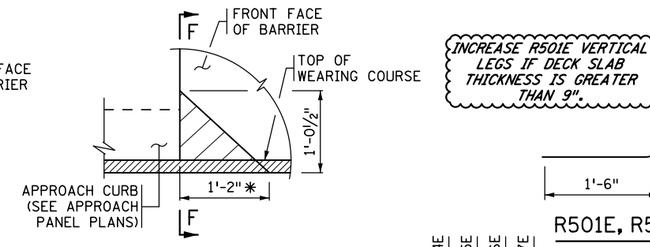
JOINT AT ABUTMENT

(INTEGRAL OR SEMI-INTEGRAL ABUTMENT)

CONTROL JOINT

INSIDE ELEVATION OF BARRIER

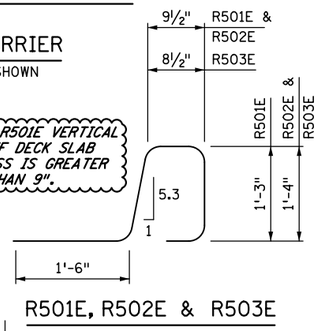
CONCRETE WEARING COURSE NOT SHOWN



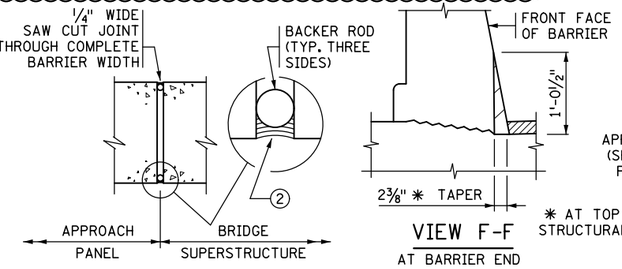
DETAIL "A"

ELEVATION VIEW (WEARING COURSE SHOWN)

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



R501E, R502E & R503E



SECTION D-D

VIEW F-F

AT BARRIER END

* AT TOP OF STRUCTURAL SLAB

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		9'-6"		BARRIER DOWEL
R505E	-- SER. OF 12	6'-7" TO 9'-5"		BARRIER VERTICAL
R506E	-- SER. OF 4	6'-1" TO 6'-5"		BARRIER VERTICAL
R507E		5'-6"		BARRIER DOWEL
R408E		11'-8"		BARRIER LONGIT.
R409E		7'-7"		BARRIER LONGIT.
R4__E				BARRIER LONGIT.
R4__E				BARRIER LONGIT.
R4__E				BARRIER LONGIT.
R4__E				BARRIER LONGIT.

GENERAL NOTES

MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE ENDS OF THE BARRIER.

CONCRETE BARRIER = 643 LBS./FT. (0.159 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH ½" 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.

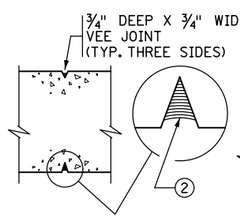
BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

1. PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT IN DECK.
2. JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
3. DIMENSIONS TO BE DETERMINED BASED ON THE BRIDGE DECK SLOPE.
4. REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.

DESIGNER NOTE
(REMOVE PRIOR TO PLOTTING FINAL PLAN):

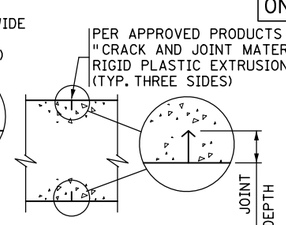
MINIMUM BARRIER LENGTH ON APPROACH PANEL IS 16'-8" WITH MINIMUM OF 22 R502E AND R503E DOWELS WITH ACCOMPANYING APPROPRIATE BARRIER VERTICAL BARS, 12" MAX. SPACING.
VERIFY APPROACH BARRIER LENGTH, NEED FOR A GUARDRAIL CONNECTION, AND VERTICAL TAPER WITH ROADWAY DESIGNER.
REFER TO MEMO TO DESIGNERS (2016-01) FOR ADDITIONAL REQUIREMENTS REGARDING BARRIER PLACEMENT.

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



SECTION C-C

CAST-IN-PLACE CONSTRUCTION

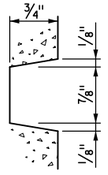


SECTION C-C

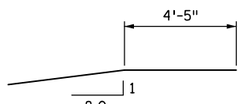
SLIPFORM CONSTRUCTION

CONTROL JOINT DETAILS

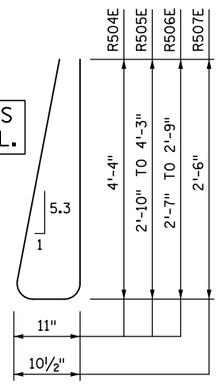
FOR SLIPFORM CONSTRUCTION: IMMEDIATELY AFTER CONCRETE IS PLACED AND WHILE IT IS STILL WET, CREATE A ONE INCH STRAIGHT GROOVE USING A TROWEL. INSERT RIGID PLASTIC EXTRUSION INTO GROOVE TO A DEPTH ⅛" BELOW THE SURFACE; FINISH OVER GROOVE COMPLETELY HIDING THE EXTRUSION.



BARRIER RUSTICATION



R408E



R504E, R505E, R506E, R507E

REVISION: MAY 10, 2017

APPROVED: AUGUST 24, 2016
Kevin Western
STATE BRIDGE ENGINEER

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

TITLE: CONCRETE BARRIER 54" (TYPE S, TL-4)
INTEGRAL OR SEMI-INTEGRAL ABUTMENT WITH BRIDGE SLAB SIDEWALK AND GUARDRAIL CONNECTION (WITH 2" CONCRETE WEARING COURSE)

DES: DR: CHK: CHK: APPROVED:

SHEET NO. OF SHEETS

FIG. 5-397.142(D)

BRIDGE NO.