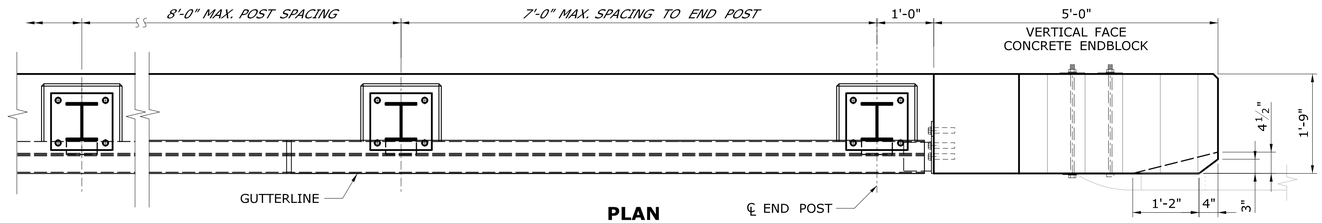
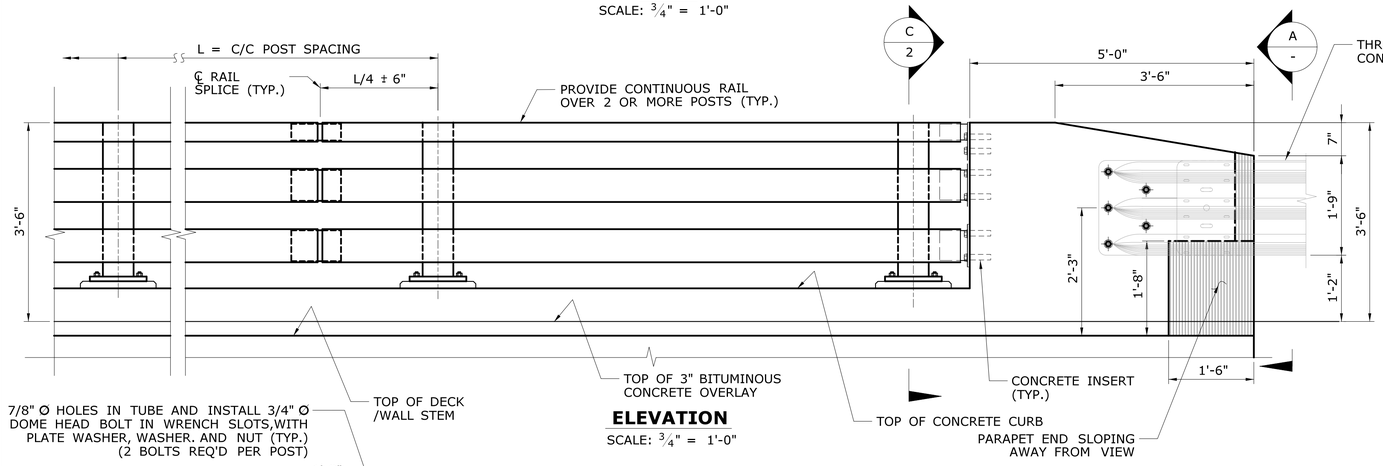


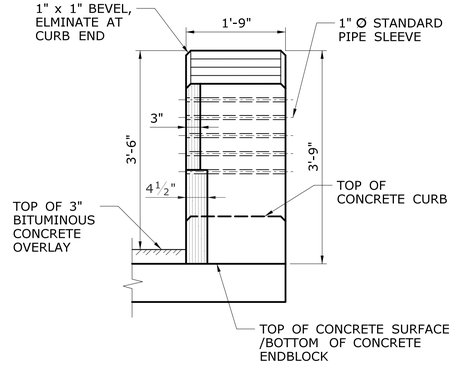
PLAN

SCALE: ¾" = 1'-0"



ELEVATION

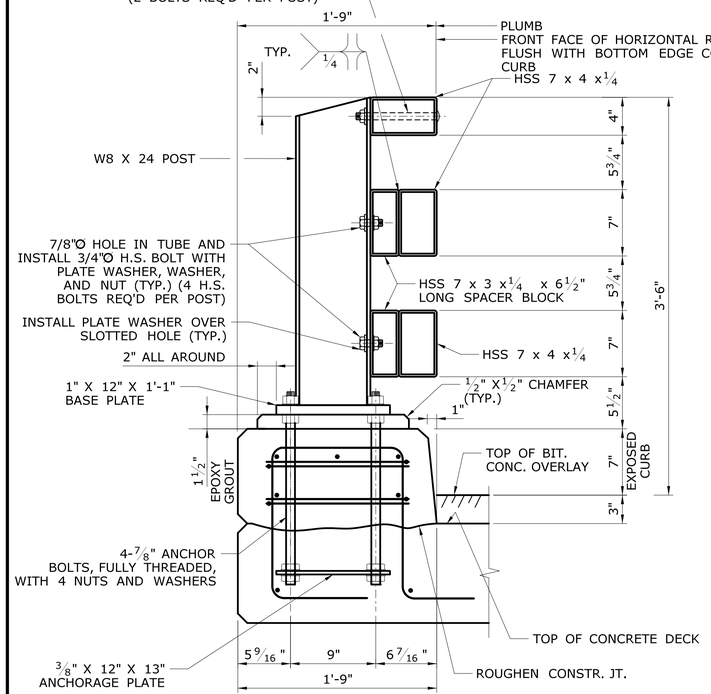
SCALE: ¾" = 1'-0"



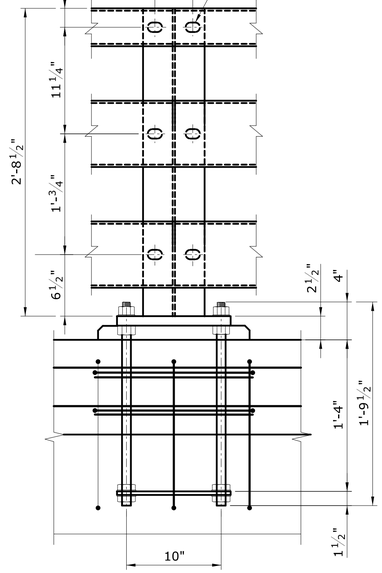
SECTION

SCALE: ¾" = 1'-0"

A -



TYPICAL SECTION AT POST



ELEVATION AT POST

CURB AND POST DETAILS

SCALE: 1½" = 1'-0"

BRIDGE RAIL NOTES

THE 3-TUBE CURB MOUNTED BRIDGE RAIL HAS BEEN EVALUATED AT TEST LEVEL 4 (TL-4) AND COMPLIES WITH MASH 2016.

CONCRETE FOR THE CURB AND ENDBLOCK SHALL BE CLASS PCC04462. THE COMPRESSIVE STRENGTH OF THE CONCRETE, BASED ON TEST CYCLINDERS, SHALL BE NO LESS THAN 4,000 PSI PRIOR INSTALLING THE EPOXY GROUT BELOW THE BASEPLATES. PRIOR TO ALLOWING THE RAIL, CURB AND ENDBLOCK TO BE PLACED IN SERVICE FOR THE PROTECTION OF VEHICULAR TRAFFIC, THE COMPRESSIVE STRENGTH OF THE GROUT, BASED ON STRENGTH GAIN OVER TIME LISTED IN THE GROUT MANUFACTURER'S DATA SHEET, SHALL BE NO LESS THAN 5,000 PSI.

THE REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 AND BE HOT-DIP GALVANIZED.

THE 1 IN. DIAMETER PIPE SHALL CONFORM TO ASTM A53, GRADE B OR ASTM A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123.

HOLLOW STRUCTURAL SHAPES SHALL CONFORM TO ASTM A500 GRADE C OR ASTM A501, GRADE B.

ALL OTHER STEEL SHALL CONFORM TO ASTM A572, GRADE 50 UNLESS NOTED OTHERWISE.

THE SILICON CONTENT OF THE STEEL USED FOR THE EXPOSED MEMBERS AND PLATE COMPONENTS SHALL FALL WITHIN THE RANGE OF 0 TO 0.04% OR 0.15% TO 0.25%.

ALL STEEL SHAPES, PLATES AND HOLLOW STRUCTURAL SECTIONS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.

THE ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 105. THE NUTS SHALL CONFORM TO ASTM A563, GRADE DH. THE WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.

ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325, TYPE 1. NUTS SHALL CONFORM TO ASTM A563, GRADE DH. CIRCULAR, FLAT, HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

DOME HEAD BOLTS WITH WRENCH SLOTS USED FOR THE TOP RAIL SHALL CONFORM TO ASTM F3125 GRADE A325, TYPE 1 OR ASTM A449, GRADE 1. SUBSTITUTION OF DOME HEAD BOLTS WITH BOLTS MEETING DIFFERENT MATERIAL REQUIREMENTS IS NOT PERMITTED. NUTS SHALL CONFORM TO ASTM A563, GRADE DH. CIRCULAR, FLAT, HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

RAIL ELEMENTS SHALL BE FABRICATED TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE. POSTS SHALL BE INSTALLED NORMAL TO GRADE IN THE LONGITUDINAL DIRECTION AND VERTICAL IN THE TRANSVERSE DIRECTION.

ALL BRIDGE RAIL MATERIALS, INCLUDING ANCHOR PLATES, ANCHOR BOLTS, CONCRETE INSERTS, HARDWARE AND EPOXY GROUT, SHALL BE PAID FOR UNDER THE ITEM "3-TUBE CURB MOUINTED BRIDGE RAIL".

ALL ITALICIZED TEXT ON THIS SHEET IS FOR INSTRUCTION PURPOSE ONLY AND SHALL NOT BE INCLUDED IN CONSTRUCTION PLANS.

THE SUBSTITUTION OF MATERIALS DETAILED ON THE PLANS IS NOT ALLOWED.

THE RAILING HAS BEEN DETAILED ASSUMING A 3 IN. THICK BITUMINOUS CONCRETE OVERLAY. FOR THICKER OVERLAYS, THE OVERALL CURB HEIGHT MAY BE INCREASED FROM 10 IN. TO NO MORE THAN 13 IN. THE EXPOSED CURB HEIGHT CANNOT BE INCREASED AND SHALL REMAIN A CONSTANT 7 IN. IF THE OVERLAY THICKNESS IS INCREASED, THE DESIGNER IS RESPONSIBLE FOR MODIFYING ALL DIMENSIONS RELATED TO THE INCREASED OVERLAY THICKNESS.

IF THE OVERLAY THICKNESS IS INCREASED, THE ANCHOR BOLT LENGTH SHALL BE INCREASED BY THE SAME VALUE TO ENSURE A MINIMUM ANCHOR BOLT EMBEDMENT OF 6 IN. BELOW THE BOTTOM OF THE CURB.

THE RAIL SPLICE SHALL HAVE A MINIMUM 1 IN. GAP. PROVIDE A RAIL SPLICE IN EACH PANEL THAT HAS A DECK EXPANSION JOINT. INCREASE THE LENGTH OF THE INNER SPLICE TUBE TO ACCOMODATE THE MOVEMENT.

SINCE THE VERTICAL GEOMETRY OF BRIDGES VARY, THE DESIGNER IS REPSONSIBLE FOR DETERMINING IF THE INSTALLATION NOTE STATING "THE POSTS SHALL BE INSTALLED NORMAL TO THE GRADE IN THE LONGITUDINAL DIRECTION" OF THE BRIDGE IS APPLICABLE AND REVISE THE NOTE IF REQUIRED.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 3/9/2021

DESIGNER/DRAFTER: -

CHECKED BY: -

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\3-Tube Curb Mount Bridge Rail Details - 1 - V20210309.dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE: - - -

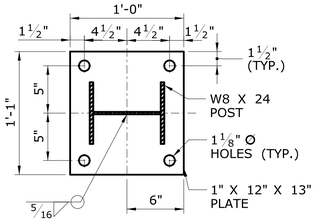
TOWN: - -

DRAWING TITLE: 3-TUBE CURB MOUNTED BRIDGE RAIL DETAILS - 1

PROJECT NO. -

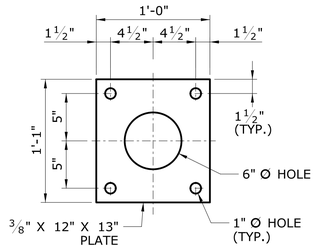
DRAWING NO. -

SHEET NO. 1 OF 3



BASE PLATE DETAIL

SCALE: 1½" = 1'-0"



ANCHOR PLATE DETAIL

SCALE: 1½" = 1'-0"

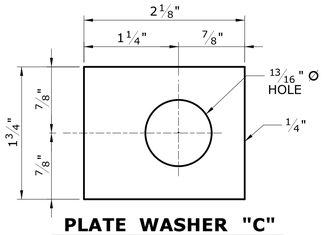
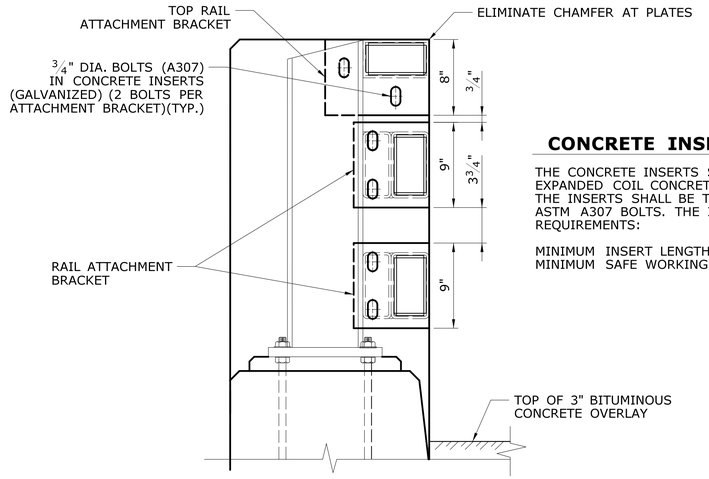


PLATE WASHER "C"

SCALE: FULL SCALE



SECTION C/1

SCALE: 1½" = 1'-0"

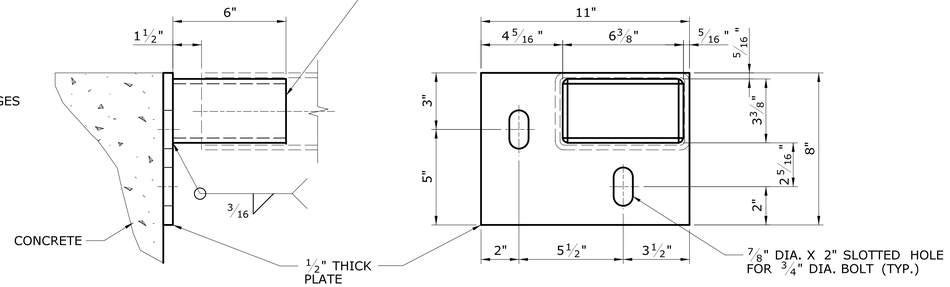
CONCRETE INSERT NOTES

THE CONCRETE INSERTS SHALL BE HOT-DIP GALVANIZED, EXPANDED COIL CONCRETE INSERTS WITH A CLOSED-BACK. THE INSERTS SHALL BE THREADED TO RECEIVE ¾" DIA. ASTM A307 BOLTS. THE INSERTS SHALL MEET THE FOLLOWING REQUIREMENTS:

MINIMUM INSERT LENGTH = 4½"
MINIMUM SAFE WORKING LOAD IN TENSION = 4000 LBS.

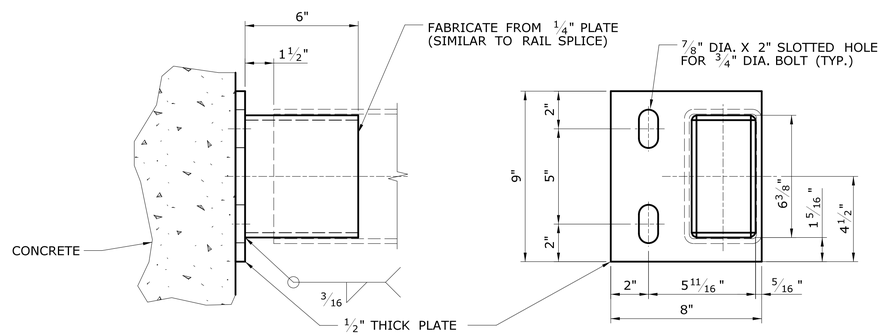
RAIL SPLICE DETAILS

SCALE: 3" = 1'-0"



TOP RAIL ATTACHMENT BRACKET

SCALE: 3" = 1'-0"



RAIL ATTACHMENT BRACKET

SCALE: 3" = 1'-0"

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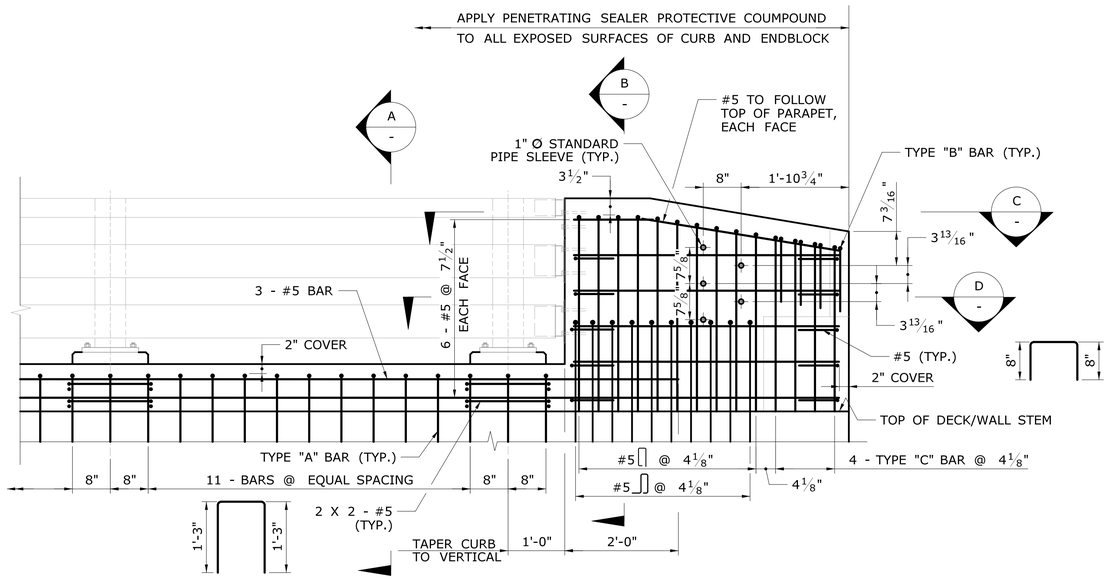
DRAWING TITLE:
3-TUBE CURB MOUNTED BRIDGE RAIL DETAILS - 2

PROJECT NO.

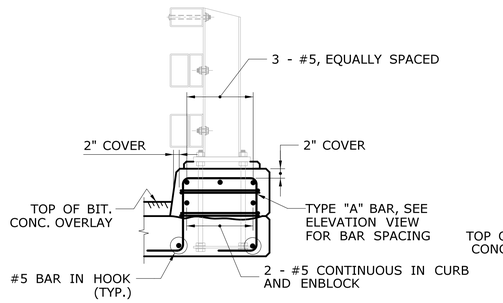
DRAWING NO.

SHEET NO.
2 OF 3



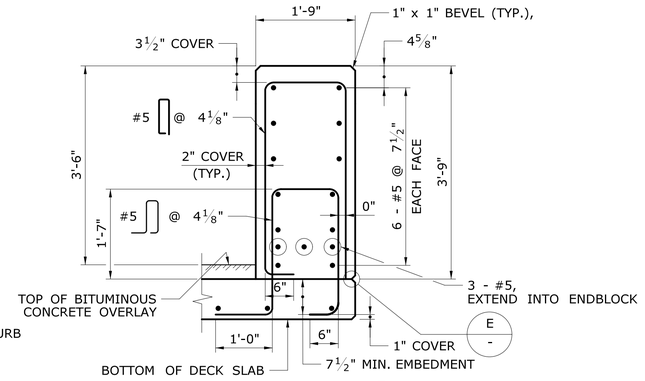
ELEVATION - CURB AND ENDBLOCK REINFORCEMENT

SCALE: ¾" = 1'-0"



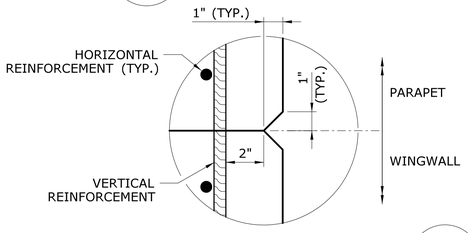
SECTION A -

SCALE: ¾" = 1'-0"



SECTION B -

SCALE: ¾" = 1'-0"



TYPICAL RUSTICATION DETAIL E -

SCALE: 3" = 1'-0"

PLAN SECTION - ENDBLOCK REINFORCEMENT C -

SCALE: ¾" = 1'-0"

PLAN SECTION - ENDBLOCK REINFORCEMENT D -

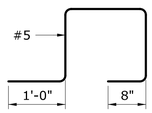
SCALE: ¾" = 1'-0"

REINFORCEMENT SPLICE NOTES:

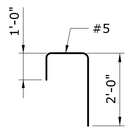
1. THE SPLICE LENGTH FOR THE LONGITUDINAL REINFORCEMENT IN THE CURB AND ENDBLOCK SHALL BE AS FOLLOWS UNLESS DIMENSIONED OTHERWISE:

BAR SIZE	SPLICE LENGTH
#5	2'-4"

2. THE SPLICES SHALL BE ALTERNATED SO THAT 50% OR LESS OF THE LONGITUDINAL BARS ARE SPLICED AT THE SAME LOCATION.

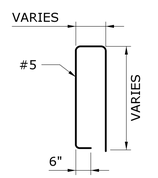


TYPE "A" BAR



TYPE "B" BAR

SCALE: N.T.S.



TYPE "C" BAR

SCALE: N.T.S.

ISOMETRIC VIEW - REINFORCEMENT DETAIL AT ENDBLOCK

SCALE: N.T.S.

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Filename: ...\3-Tube Curb Mount Bridge Rail Details -Reinforcement V20210309.dgn

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OFFICE OF ENGINEERING

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PROJECT TITLE:

TOWN:

DRAWING TITLE:

3-TUBE CURB MOUNTED BRIDGE RAIL - REINFORCEMENT

PROJECT NO.

DRAWING NO.

SHEET NO.

3 OF 3