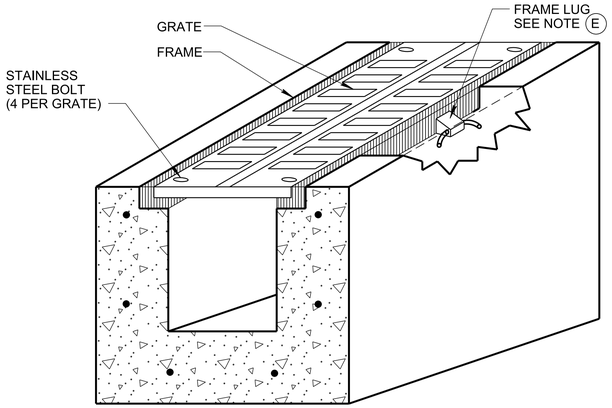
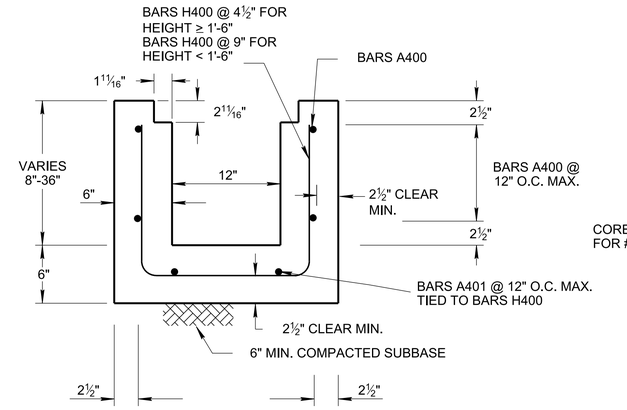
REV. 10-31-2019; REDREW SHEET.

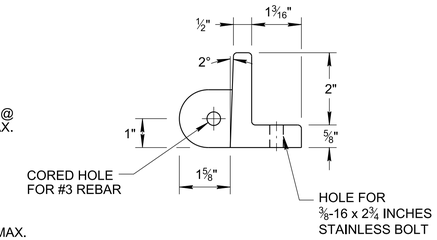
REV. 07-07-2023: REINFORCING STEEL LEGEND AND GENERAL NOTE (K) WERE ADDED.



PERSPECTIVE VIEW



TYPICAL TRENCH CROSS SECTION



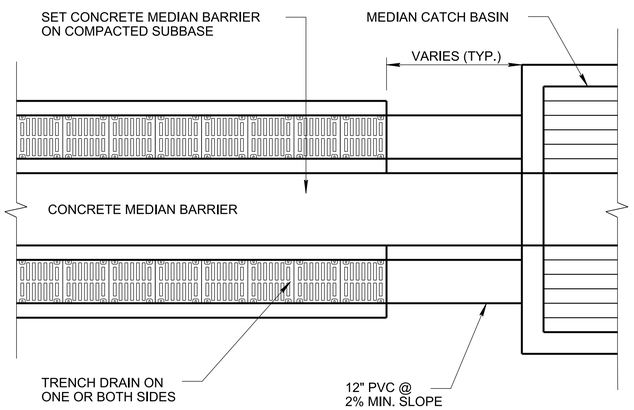
FRAME DETAIL SHOWING LUG

SEE NOTE (E)

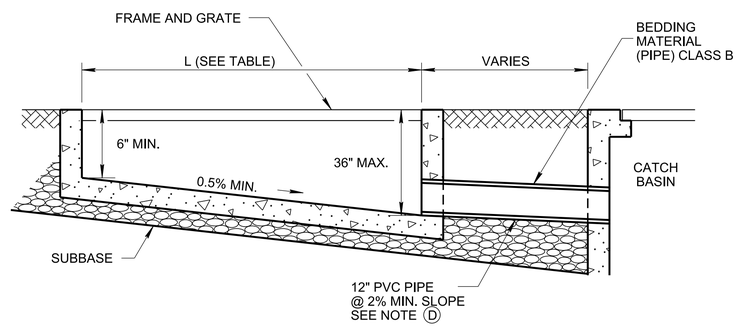
TRENCH DRAIN LENGTHS*

DRAINAGE AREA (ACRES)	REQ'D LENGTH, L (FEET)
0.2	40
0.3	60
0.4	80
0.5	100
0.6	120

* BASED ON 50-YEAR DESIGN STORM



PLAN VIEW - IN MEDIAN WITH CATCH BASIN

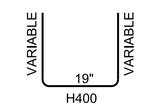


PROFILE VIEW - IN MEDIAN WITH CATCH BASIN

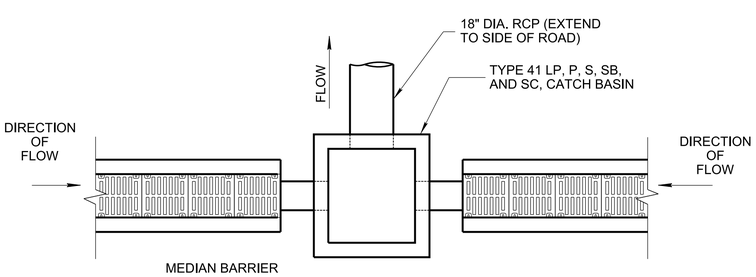
REINFORCING STEEL LEGEND

A400 VARIABLE

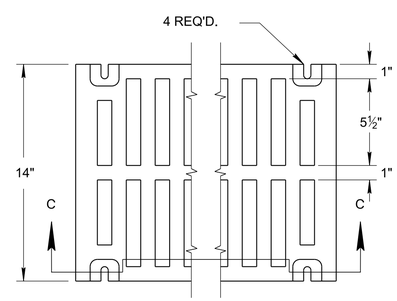
A401 VARIABLE



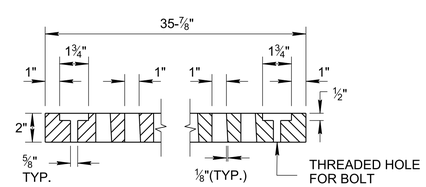
DIMENSIONS SHOWN ON THIS LEGEND ARE OUTSIDE TO OUTSIDE OF BAR. STANDARD C.R.S.I. HOOK AND TIE DETAILS SHALL APPLY, EXCEPT AS NOTED.



PLAN VIEW - IN MEDIAN WITH SIDE DISCHARGE PIPE



GRATE AND FRAME SHALL BE HEAVY DUTY AND CAPABLE OF SUPPORTING HS-20 LOADING



DETAIL OF SINGLE GRATE UNIT SECTION C-C

TRENCH DRAIN GENERAL NOTES

(A) TRENCH DRAIN MAY BE USED TO COLLECT ROADWAY RUNOFF IN AREAS WHERE LONG SECTIONS OF FLAT PROFILE GRADE ARE UNAVOIDABLE. THEY MAY BE USED IN MEDIANS OR IN OTHER AREAS WHERE RUNOFF MAY COLLECT.

(B) THE MAXIMUM ALLOWABLE OUTFLOW RATE THROUGH THE DISCHARGE PIPE SHOULD NOT EXCEED 4.5 CFS. THE DISCHARGE SHALL BE CALCULATED USING THE RATIONAL METHOD AS DESCRIBED IN CHAPTER 4 OF THE DRAINAGE DESIGN MANUAL.

(C) WHERE TRENCH DRAIN IS CONNECTED TO A CATCH BASIN AT THE LOW POINT OF THE PROFILE GRADE, THE OUTLET PIPE SHALL CONSIST OF 12-INCH PVC PIPE AT A SLOPE OF AT LEAST 2.0%. IN ORDER TO MAINTAIN MINIMUM COVER, THE TRENCH SHALL BE 36 INCHES DEEP AT THE OUTLET.

(D) PVC PIPE SHALL MEET THE REQUIREMENTS OF ASTM F949.

(E) TRENCH DRAIN FRAMES SHALL BE PROVIDED WITH LUGS SPACED AT 12 INCHES ON CENTER. LUG TYPE MAY VARY BY MANUFACTURER. LUGS SHALL BE PROVIDED WITH A HOLE THROUGH WHICH A #3 REBAR MAY BE PLACED PRIOR TO POURING THE TRENCH WALLS.

(F) GRATES SHALL BE SOLIDLY ATTACHED TO THE TRENCH DRAIN FRAMES BY MEANS OF STAINLESS STEEL BOLTS (3/8-16 x 2¾ INCHES) AND FLAT WASHERS AT EACH CORNER OF THE GRATE.

(G) THE GENERAL INSTALLATION PROCEDURE FOR CAST-IN-PLACE TRENCH DRAINS SHALL BE AS FOLLOWS:

1. SET REINFORCING STEEL.
2. FORM AND POUR TRENCH DRAIN BASE.
3. SET FORMS FOR TRENCH DRAIN WALLS.
4. SET TRENCH GRATES AND FRAMES INTO PLACE ON THE FORMS. GRATES MUST BE BOLTED TO THE FRAMES. INSERT SHORT SECTIONS OF #3 REBAR AS NEEDED INTO THE FRAME LUGS.
5. POUR TRENCH DRAIN WALLS.

(H) PRECAST TRENCH DRAIN SECTIONS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.

(I) PAYMENT FOR TRENCH DRAINS WILL BE MADE UNDER ITEM NUMBER 611-05.01, TRENCH DRAIN PER LINEAR FOOT.

(J) OTHER APPROVED TRENCH DRAIN SYSTEMS ON QUALIFIED PRODUCT LIST MAY BE USED WITH THE APPROVAL OF THE ENGINEER.

(K) THE FOLLOWING MATERIAL PROPERTIES ARE REQUIRED FOR BOTH CAST-IN-PLACE AND PRECAST STRUCTURES:

CONCRETE: f'_c = 4,000 POUNDS PER SQUARE INCH AT 28 DAYS
REINFORCING STEEL: ASTM A615, F_y = 60,000 POUNDS PER SQUARE INCH
ALL REINFORCING IS TO BE INSTALLED AS DETAILED ON THIS DRAWING.

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

TRENCH DRAIN

08-15-2007

D-TD-1

NOT TO SCALE

7/6/2023 2:53:05 PM
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