

GRATE UNIT NO. 40

GRATE UNIT IS STRUCTURALLY DESIGNED TO CARRY LOW SPEED MAINTENANCE VEHICLES ONLY.

NOTE: MATERIAL FOR GRATE SPECIFICATIONS FOR STEEL BARS SHALL CONFORM TO ASTM A36. FOR THE PIPE CROSS MEMBERS, ASTM A53 TYPE E GRADE B. THE GRATE UNIT SHALL BE PAINTED BLACK, FEDERAL SPEC. TT-E-489G.

WELDING: AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE (LATEST EDITION)

CATCH BASIN DIMENSIONS				FOR DESIGN USE ONLY
INSIDE DIAMETER (D) OF PIPE (INCHES)	PIPE WALL THICKNESS (INCHES)	DIAMETER OF CUT-OUT HOLES (INCHES)	BOX SECTION MINIMUM HEIGHTS (INCHES)	CATCH BASIN MINIMUM DESIGN DEPTH (FEET)
18	2 1/2	25	49	3.13
24	3	32	56	3.67
30	3 1/2	39	63	4.21
36	4	46	70	4.75
42	4 1/2	53	77	5.29
48	5	60	84	5.83
54	5 1/2	67	91	6.38
60	6	74	98	6.92

- CUT-OUT HOLES BASED ON REINFORCED CONCRETE PIPE WITH WALL TYPE "B".
- ALL FLEXIBLE PIPE MATERIALS REQUIRE GASKET. SEE STANDARD DRAWING D-PB-2.
- CUT-OUT HOLES FOR PRECAST STRUCTURES TO BE FORMED IN ORDER TO OBTAIN A SMOOTH EDGED HOLE. SCORED OR ETCHED HOLES WITH REINFORCING STEEL LEFT UNCUT WILL NOT BE PERMITTED.
- TO BE USED IN 96 INCH INTERIOR WALL ONLY.

- REV. 3-30-00: CHANGED GRATE UNIT DESIGNATION FROM NO. 39 TO NO. 40.

REV. 5-27-01: CHANGED PAY ITEMS IN GENERAL NOTE ① ADDED CATCH BASIN MAXIMUM DEPTH NOTE.
- REV. 7-29-02: CHANGED ASTM SPECIFICATION IN GENERAL NOTE ②.

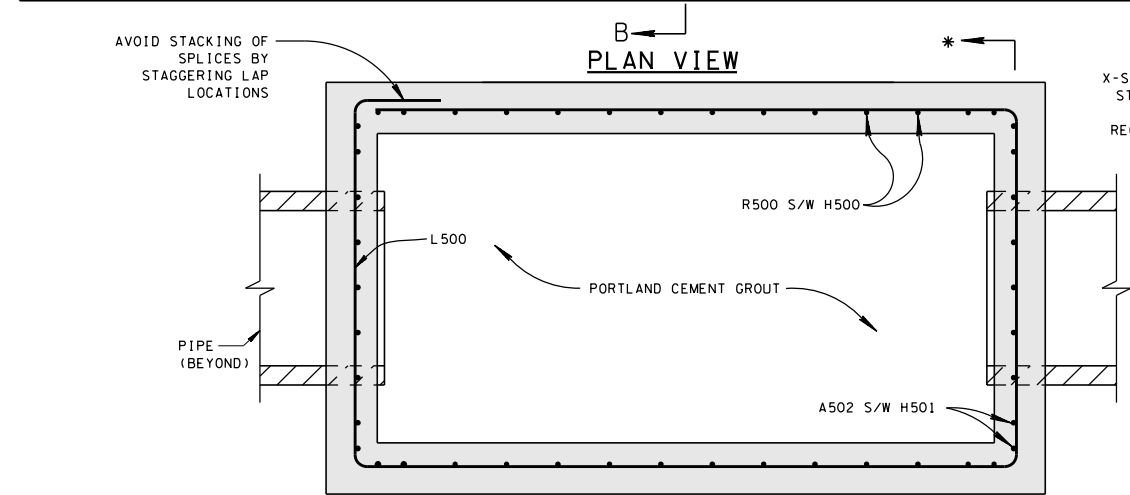
REV. 8-01-12: REVISED CATCH BASIN FOR COMPLIANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH INTERIMS. REVISED REINFORCING, GENERAL NOTES, LEGEND AND ADDITIONAL MISC. DRAFTING EDITS.

GENERAL NOTES

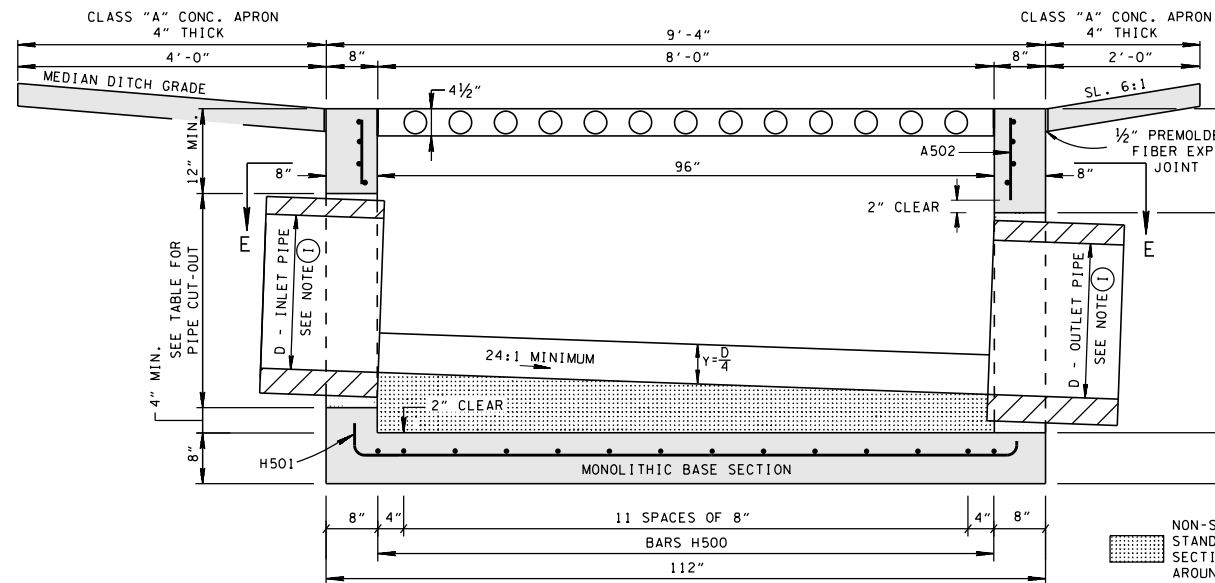
- DRAWING TO BE USED FOR ALL CAST-IN-PLACE NO. 40 CONCRETE CATCH BASINS AND ALL PRECAST NO. 40 CONCRETE CATCH BASINS. SEE STANDARD DRAWING D-CB-99 FOR ADDITIONAL CONSTRUCTION NOTES & DETAILS.
- THIS DRAWING DEPICTS THE MINIMUM HORIZONTAL REINFORCING AT THE TOP OF CATCH BASIN WALLS. SEE ADDITIONAL DETAILS ON STANDARD DRAWING D-CB-99 FOR TALLER SECTIONS AND STEEL PLACEMENT ABOVE PIPE OPENINGS.
- CAST-IN-PLACE CONCRETE CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS, SECTION 611 AND/OR SPECIAL PROVISIONS UNLESS SUPERSEDED BY THIS DRAWING. THE CONTRACTOR MAY WITH PERMISSION FROM THE ENGINEER SUBSTITUTE PRECAST CATCH BASINS FOR CAST-IN-PLACE CATCH BASINS PROVIDED THAT ALL PRECAST ELEMENTS MEET ASTM C913 (CURRENT EDITION) UNLESS SUPERSEDED BY THIS DRAWING.
- 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.

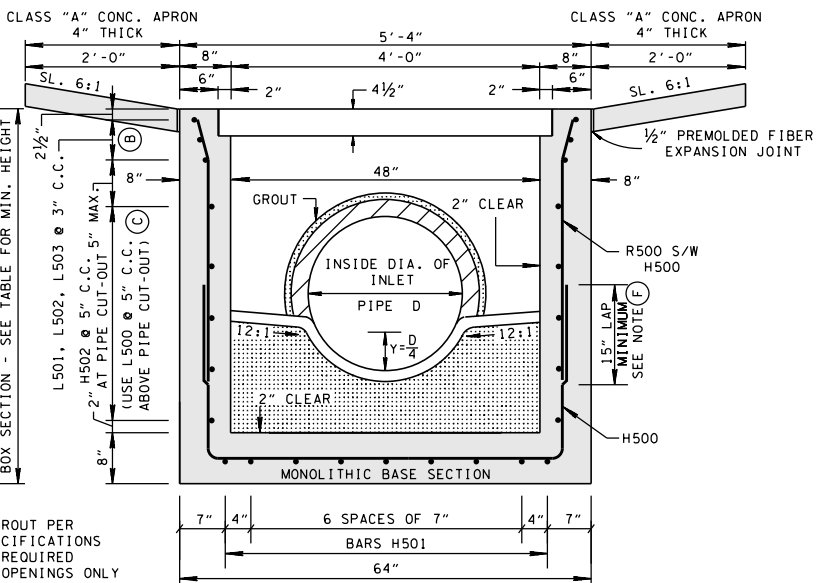
- PRECAST CATCH BASIN UNITS WHICH ARE DAMAGED DURING SHIPMENT OR INSTALLATION WILL BE REJECTED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE DAMAGED CATCH BASIN UNITS AT HIS OWN EXPENSE.
- THE CONTRACTOR MAY ELIMINATE THE A502 BARS BY LENGTHENING THE VERTICAL LEG OF THE H501 BARS AND ELIMINATE THE R500 BARS BY LENGTHENING THE VERTICAL LEG OF THE H500 BARS AND BENDING THE TOP 6 INCHES 75° SO THAT 2 INCHES OF CLEAR COVER IS PROVIDED AT THE TOP OF THE STRUCTURE.
- APPROPRIATE SIZING AND LOCATION OF LIFTING DEVICES SHALL BE THE RESPONSIBILITY OF THE FABRICATOR.
- THE CONTRACTOR IS TO PATCH ALL LIFTING DEVICE HOLES WITH GROUT AND PLACE A MINIMUM OF ONE (1) INCH OF COVER OVER THE HARDWARE OF THESE DEVICES ON BOTH TOP AND BOTTOM SURFACES.
- SEE ROADWAY PLANS DRAINAGE TABULATION FOR PIPE INLET AND OUTLET ELEVATIONS. IF NEEDED, INVERT ELEVATIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER IN ORDER TO ACCOMMODATE INLET AND OUTLET PIPES.
- FOR CASES WHERE THE OUTLET PIPE DIAMETER IS LARGER THAN THE INLET PIPE DIAMETER, A MINIMUM 12 INCH DEPTH SHALL BE MAINTAINED ABOVE THE OUTLET PIPE.
- CONCRETE JOINT MATERIAL TO BE 1/2 INCH PREMOLDED FIBER IN ACCORDANCE WITH SECTION 905 OF STANDARD SPECIFICATIONS.
- PAY DEPTH MEASUREMENT MADE FROM TOP OF GRATE TO OUTLET FLOW ELEVATION. PAYMENT FOR CATCH BASIN WILL BE MADE UNDER ITEM NOS. 611-40.01, CATCH BASIN, TYPE 40, 0'-4' DEPTH THROUGH 611-40.05, CATCH BASINS, TYPE 40, > 16'-20' DEPTH PER EACH. PAYMENT INCLUDES GRATE. WHEN CONCRETE APRON IS USED, IT IS TO BE INCLUDED IN THE PRICE BID PER CATCH BASIN.



SECTION E-E



SECTION A-A



SECTION B-B

REINFORCING STEEL LEGEND

