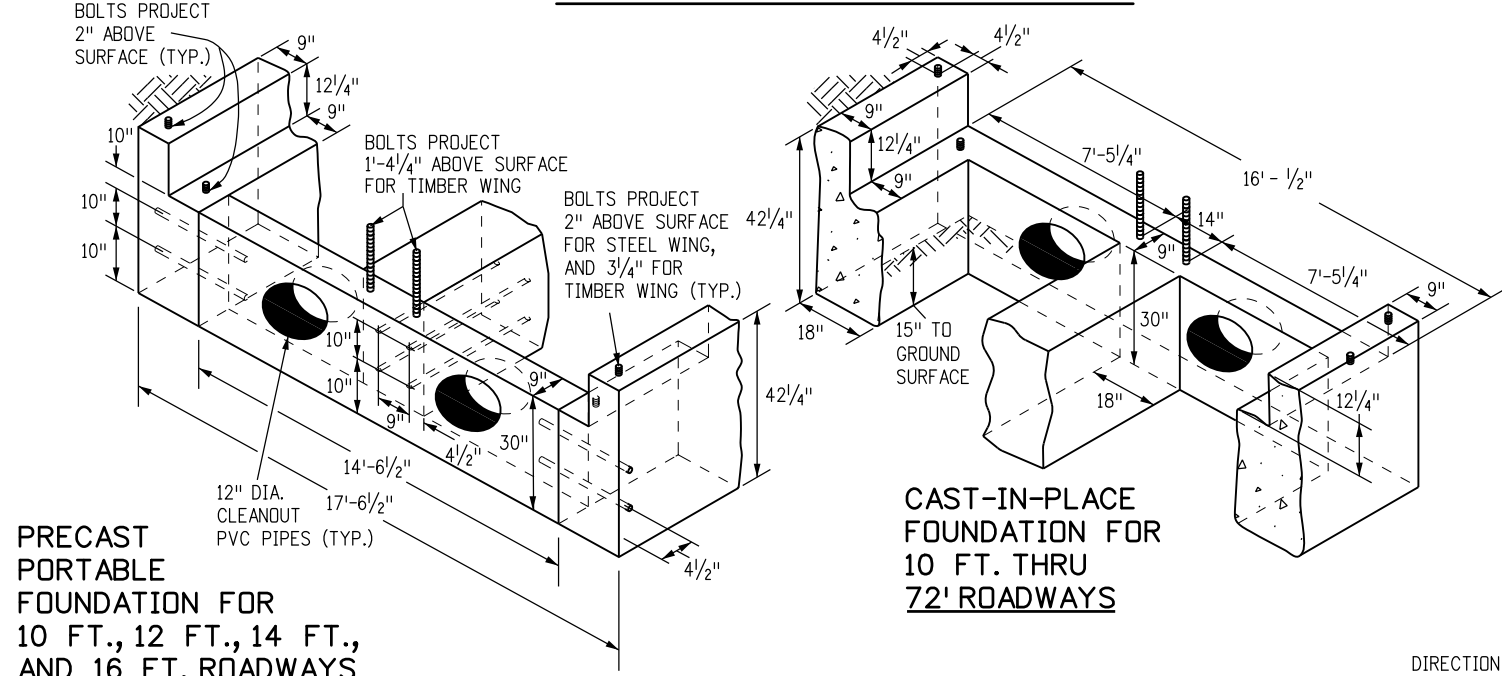


TYPICAL DEER GUARD INSTALLATIONS

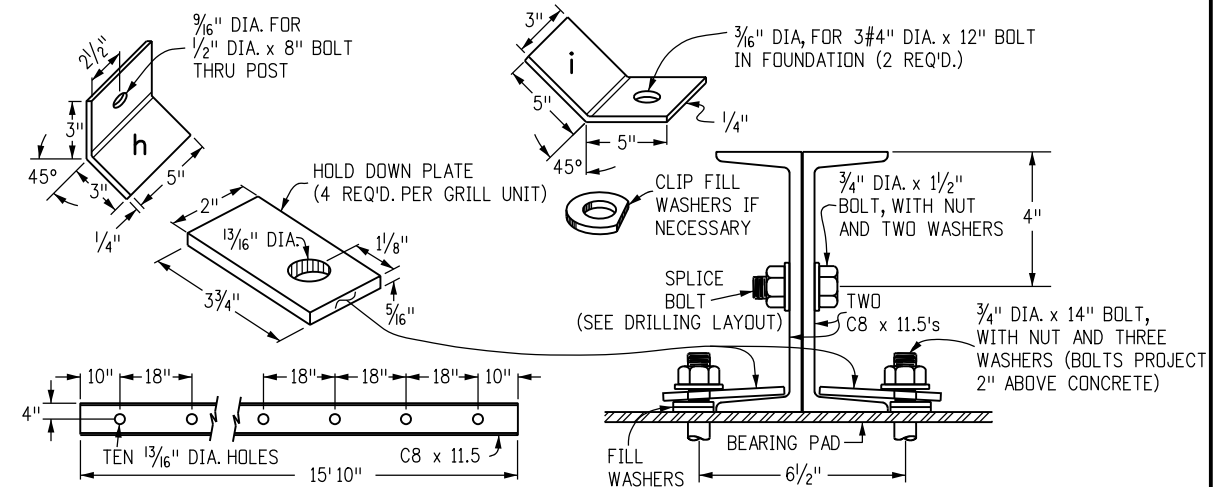
GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. FOUNDATION MAY BE CAST-IN-PLACE OR PRECAST.
2. REINFORCING BARS SHALL BE #4, GRADE 60.
3. ALL TIMBER SHALL BE TREATED IN CONFORMANCE WITH ASSHTO M 133 AND AWPA C14.
4. WING POSTS MAY BE MADE FROM 6 IN. DIAMETER AND TREATED IN ACCORDANCE WITH 710.07
5. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND PAINTED WITH ALUMINUM PAINT IN ACCORDANCE WITH SECTION 509. ALL HARDWARE SHALL BE GALVANIZED IN CONFORMANCE WITH AASHTO M 111 OR PAINTED WITH ZINC-RICH PAINT MEETING MILITARY SPECIFICATION DOD-P-21035
6. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 (ASTM A 709) GRADE 36.
7. WELDING SHALL CONFORM TO THE AWS STRUCTURAL WELDING CODE AND AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES.
8. OUTLET PIPES WILL BE REQUIRED AND PAID FOR AS SHOWN IN THE PLANS. A 6 INCH SLEEVE MAY BE USED THROUGH THE CENTRAL SUPPORT TO DRAIN FROM ONE CELL TO THE OTHER TO MINIMIZE THE NUMBER OF OUTLET PIPES.
9. TYPE OF WING (TIMBER OR STEEL) SHALL BE STEEL UNLESS OTHERWISE SHOWN ON THE PLANS.
10. STRUCTURE EXCAVATION, STRUCTURE BACKFILL, AND SURVEY WORK WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
11. A 4 IN. CONCRETE FLOOR SHALL BE PLACED IN THE DEER GUARD AND SHALL BE GRADED TO DRAIN. THIS QUANTITY WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
12. EXPANSION JOINT MATERIAL SHALL BE USED BETWEEN THE 4 INCH CONCRETE FLOOR AND THE FOUNDATION. THIS QUANTITY WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
13. TOOLED OR SAWCUT JOINTS WILL BE REQUIRED IN THE 4 INCH CONCRETE FLOOR AS DIRECTED. DETAIL. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THIS WORK
14. HIGHWAY LOADING DESIGN DATA:
HL-93 (DESIGN TRUCK OR TANDEM, AND DESIGN LANE LOAD)
15. A TREATED 2X6 MAY BE USED AT THE OPEN END OF THE DEER GUARD TO KEEP FILL MATERIAL FROM FALLING IN.



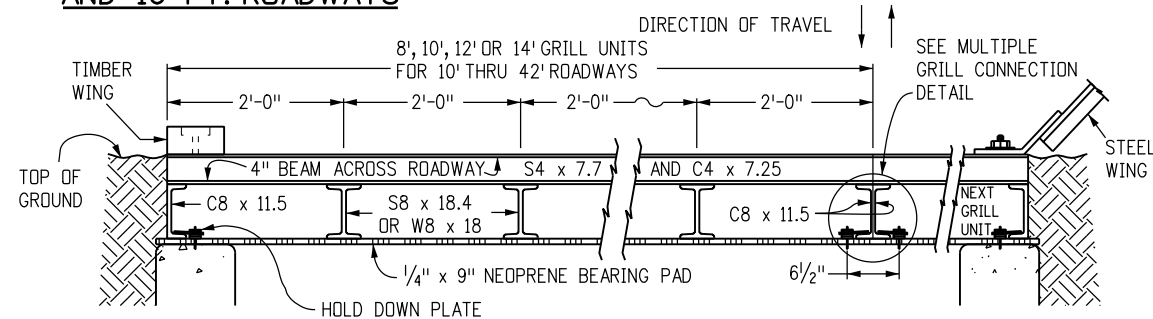
PRECAST PORTABLE FOUNDATION FOR 10 FT., 12 FT., 14 FT., AND 16 FT. ROADWAYS

CAST-IN-PLACE FOUNDATION FOR 10 FT. THRU 72' ROADWAYS

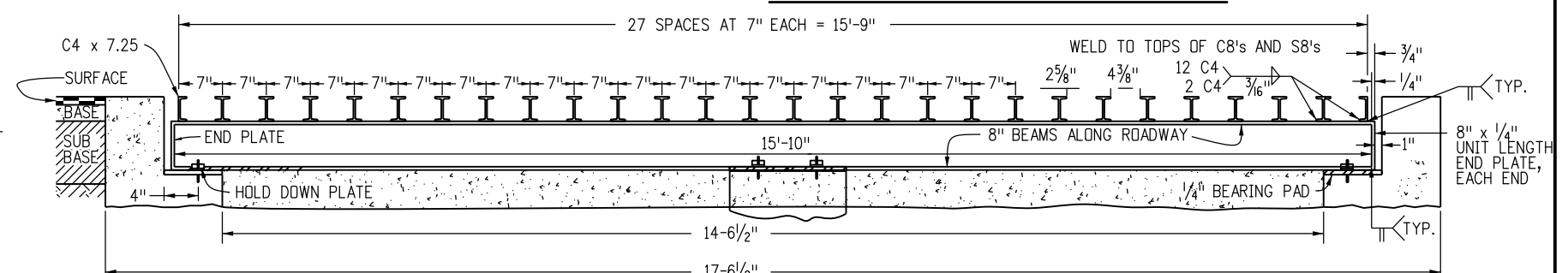


DRILLING LAYOUT

MULTIPLE GRILL UNIT CONNECTION



ELEVATION VIEW



WELDED GRILL CROSS SECTIONS

SIDE VIEW

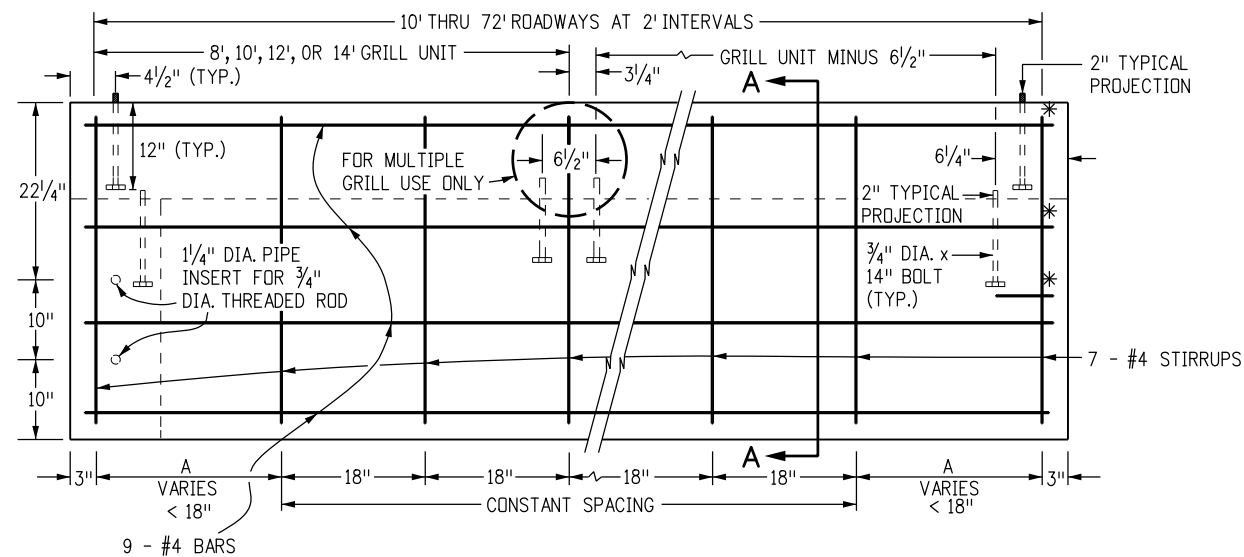
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CAD Ver.: MicroStation V8	(R-X)
Scale: Not to Scale	Units: English

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
 4201 East Arkansas Avenue
 CDOT HQ, 4th Floor
 Denver, CO 80222
 Phone: 303-757-9021 FAX: 303-757-9868
 Division of Project Support DLM/LTA

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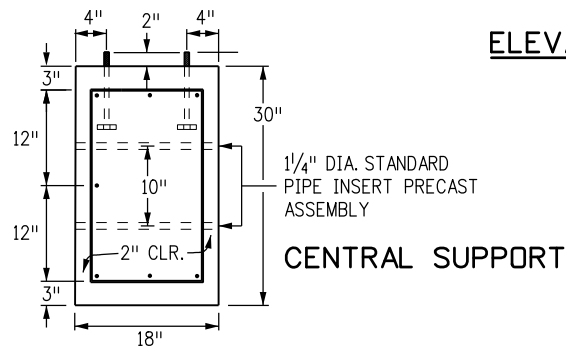


PRECAST PORTABLE FOUNDATION

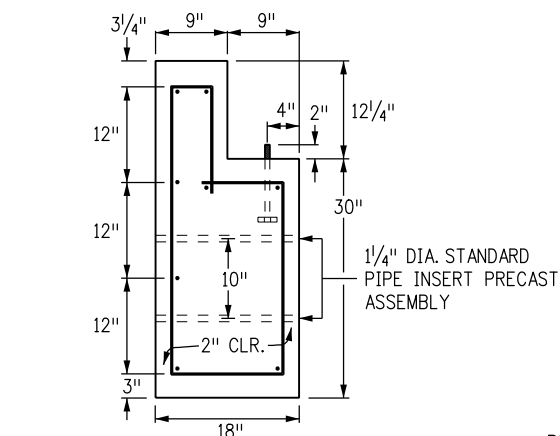
CAST-IN-PLACE FOUNDATION

ELEVATION OF FOUNDATION

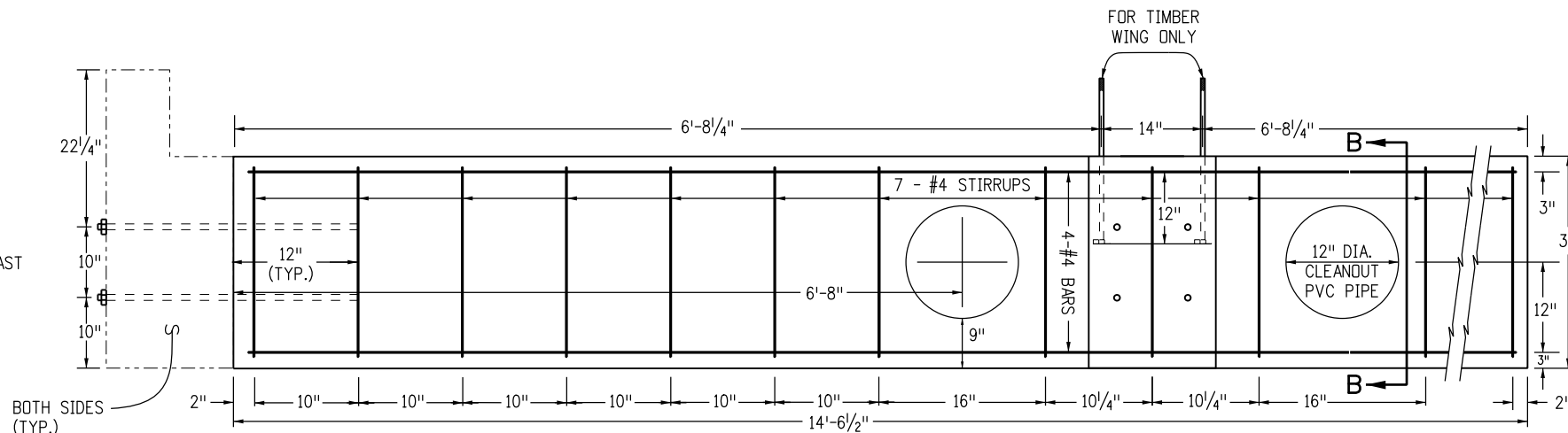
* WHEN CAST IN PLACE, LONGITUDINAL BARS EXTENDING FROM AND INTO THE LATERAL SUPPORT SHALL BE BENT 90° WITH A 2 IN. RADIUS AND CONTINUE PERPENDICULAR 10 IN. FROM THE BEND



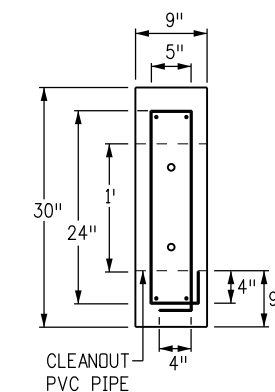
CENTRAL SUPPORT



**SECTION A-A
END SECTION OF FOUNDATION**



ELEVATION OF LATERAL SUPPORT



**SECTION B-B
LATERAL SUPPORT**

- a - 6" x 8" x 7'-4"
 - b - 4" x 8" x 9'-4 1/2"
 - c - 2" x 6" x 6'-7"
 - d - 2" x 6" x 5'-8"
 - e - 2" x 6" x 6'-7"
 - f - 2" x 6" x 2'-5"
 - g - 2" x 6" x 4'-4"
 - h - 2" x 6" x 6'-2"
- 16d NAILS (GALV.) - 2 LB.

ONE TIMBER WING

a - 2" x 2" x 1/4" x 123.70"	32.88 LBS.
b - 2" x 2" x 1/4" x 123.70"	32.88 LBS.
c - 2" x 2" x 1/4" x 177.93"	47.30 LBS.
d - 1 1/2" x 1 1/2" x 1/4" x 141.99"	43.19 LBS.
e - 1 1/2" x 1 1/2" x 1/4" x 106.04"	32.25 LBS.
f - 1 1/2" x 1 1/2" x 1/4" x 70.09"	21.32 LBS.
g - 1 1/2" x 1 1/2" x 1/4" x 34.15"	10.39 LBS.
h - 5" x 6" x 1/4" x BAR	- 2.13 LBS.
i - TWO 3" x 10" x 1/4" x BARS	- 4.25 LBS.
6" x 8" x 7'-8" TIMBER POST	
TOTAL LBS. STEEL = ~226.6	

ONE STEEL WING

ROADWAY WIDTH (FT.)	USE GRILL UNITS (FT.)	PRECAST		CAST-IN-PLACE		A (IN.)	TOTAL GRILL WEIGHT (LBS.)
		CONCRETE (CU. YD.)	REINF. STEEL (LBS.)	CONCRETE (CU. YD.)	REINF. STEEL (LBS.)		
16	8 8	9.4	670	9.4	670	15	5905
20	10 10	11.2	821	11.2	821	15	7345
24	12 12	13.1	934	13.1	934	15	8785
28	14 14	15.0	1059	15.0	1059	15	10224
30	10 10 10	14.1	1136	14.1	1136	12	10809
32	10 12 10	16.9	1184	16.9	1184	15	11737
38	12 14 12	17.3	1353	17.3	1353	12	13628
40	14 12 14	20.7	1419	20.7	1419	15	14617

FOUNDATION QUANTITIES

SIZE	WEIGHT (LBS.)
8'	2952
10'	3672
12'	4392
14'	5112

**WELDED GRILL UNITS
FULL LENGTH**

SIZE	WEIGHT (LBS.)
8'	1476
10'	1836
12'	2196
14'	2556

**WELDED GRILL UNITS
HALF LENGTH**

HALF GRILLS SHALL BE BOLTED ON 18 INCH CENTERS MAX. (SEE MULTIPLE GRILL UNIT CONNECTION DETAIL ON SHEET ONE)

WING QUANTITIES

Computer File Information

Creation Date: 07/18/14	Initials: DLM
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