

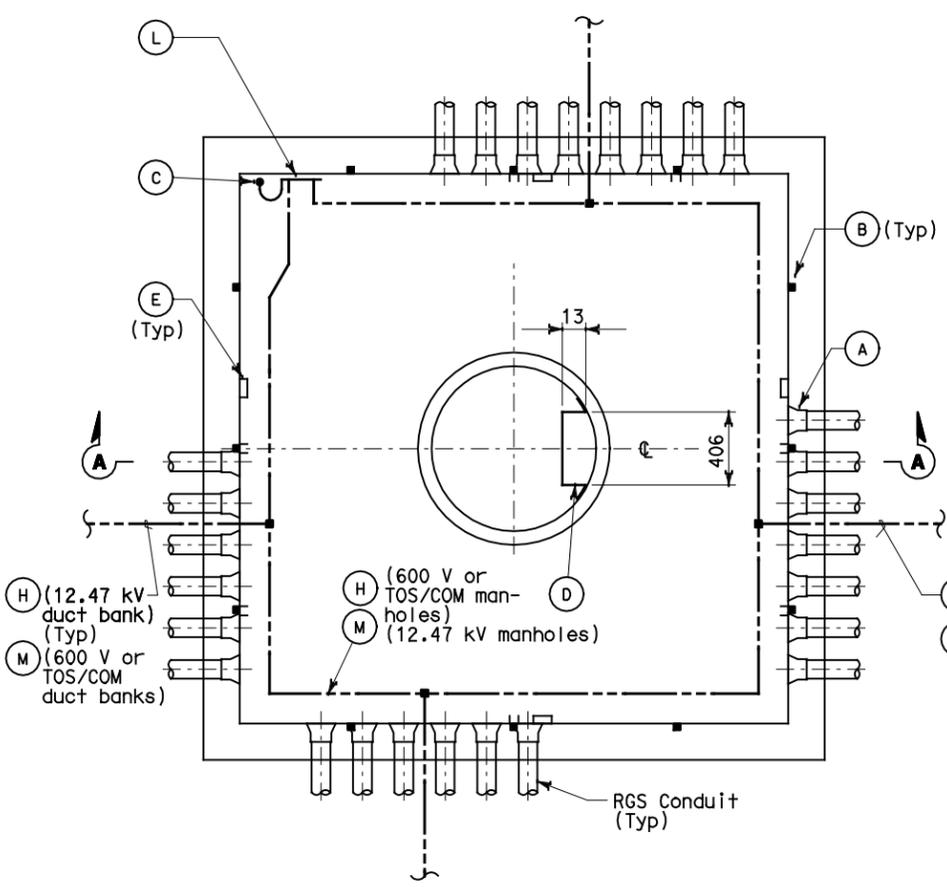


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		100 R1	1204

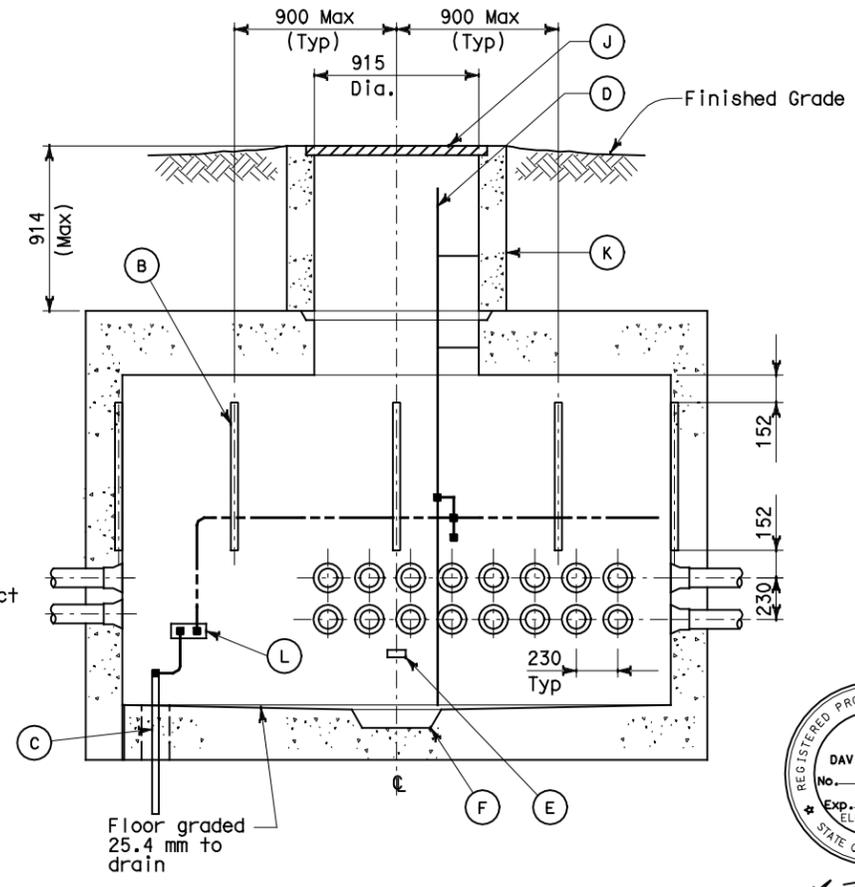
REGISTERED ELECTRICAL ENGINEER
 JENS ERLINGSSON
 No. 8249
 Exp. 9/30/06
 ELECTRICAL
 STATE OF CALIFORNIA

12-6-04
 PLANS APPROVAL DATE
 PB POWER, Inc.
 A Parsons Brinckerhoff Company
 303 Second St., Suite 700N
 San Francisco, CA 94107-1317

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PLAN
SCALE 1:20



SECTION A-A
SCALE 1:20

TYPICAL MANHOLE DETAIL

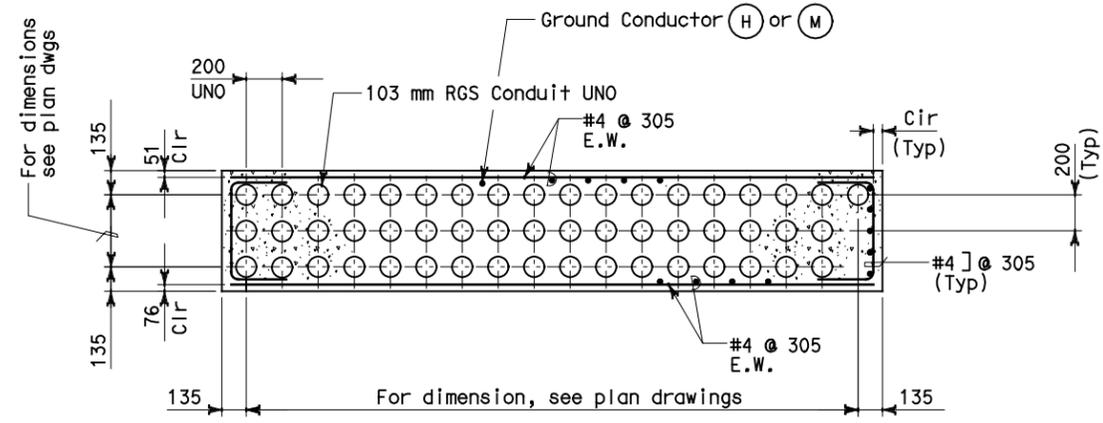


FOR REVISION ONLY

NOTES:

- Manhole, cast iron ring and cover shall be designed for HS-20 traffic loading acting on top of and beyond the dimensional plan limits of the manhole. Additionally, the manhole shall be designed for a 1330KN point load distributed over a 1000mm X 1000mm area at the finished grade elevation. This load shall be applied on top of the manhole but outside the manhole cover and riser, and beyond the dimensional plan limits of the manhole.
- Minimum ultimate compressive strength $f'_c = 25$ MPa.
- Steel reinforcement yield strength $F_y = 414$ MPa.
- All manhole joints shall be primed with joint primer by manhole supplier. In addition, all joints shall be made watertight by using joint sealant.
- Prior to setting the manhole, the contractor shall prepare the site by providing a minimum of 152 mm of sand or other suitable base material. The base material shall be compacted and graded to the required level.
- Manholes shall comply with requirements of ASTM C478 and ASTM C858, as applicable.
- The ladder shall be designed to the specifications in the latest revision of American National Standard Institute's publication A1413, safety requirements for "Fixed Ladder".
- Manhole cover engraved nameplates shall read as follows:
 - Caltrans High Voltage } Manholes No. 1,3,8,11,14,17,20, 23 and 26.
 - Caltrans 600 V } Manholes No. 2,5,7,10,13,16,19, 22 and 25.
 - Caltrans TOS&COMM } Manholes No. 4,6,9,12,15,18,21, 24, 27, 29 and 30.
 - Non-Caltrans Utility } Manhole No. 28.
- For other related work, not shown on this sheet, see Electrical Special Provisions.
- References:
 - For duct banks and manholes, see sheet E11, & E-11A.
 - For manhole plans and sections, see sheets E-14 through E-16.
 - For duct bank sections, see sheet E-19, E-19A, E-19B.
 - For grounding interface, see sheet E-18.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
- Manhole cover shall be standard size round steel plate unless noted otherwise.
- All exposed metal shall be grounded.
- For actual duct bank configuration and details see sheets U-4, E-19C and E-19D.

LIST OF MATERIAL		
ITEM NO	DESCRIPTION	REMARKS
(A)	End bells. For size & location see manholes plans & sections	
(B)	41 mm X41 mm concrete insert strut channel (flush mounted)	Hot dip galvanized
(C)	Copper clad round rod 19 dia x 3050 long	
(D)	Ladder complete with supports	Hot dip galvanized
(E)	Pull iron-insert type	As required
(F)	305 dia round x 102 deep sump	
(H)	500 kcmil bare copper ground conductor	
(J)	Cast iron manhole cast cover with engraved nameplate	See notes 8 and 11
(K)	Manhole necking or riser	As required
(L)	Ground copper bar, 6 mm thick x 100 mm high x 600 mm long	
(M)	#4/0 AWG bare copper ground	



TYPICAL DUCT BANK DETAIL
SCALE 1:20

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
08/08/11	W2 DUCT BANKS REINFORCEMENT	LJ TW	LJ RG	205	
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

**DETAILS UNDERGROUND
TYPICAL MANHOLE AND DUCT BANK**
SCALE AS NOTED

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 BEHZAD GOLEMOHAMMADI
 DESIGN OVERSIGHT
 CALIFORNIA REGISTERED PROFESSIONAL ENGINEER
 No. 10699
 Exp. 06/30/2013
 ELECTRICAL
 STATE OF CALIFORNIA

DATE PLOTTED => 09-AUG-2011
 TIME PLOTTED => 13:45
 LAST REVISION 00-00-00