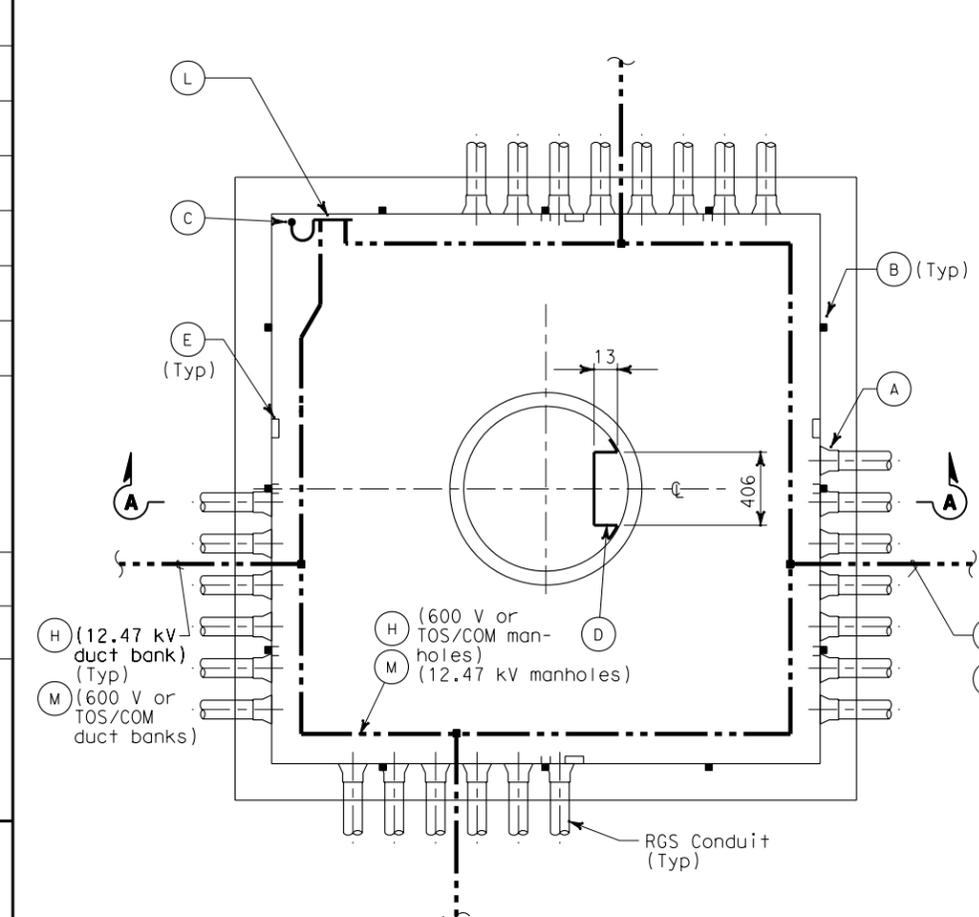
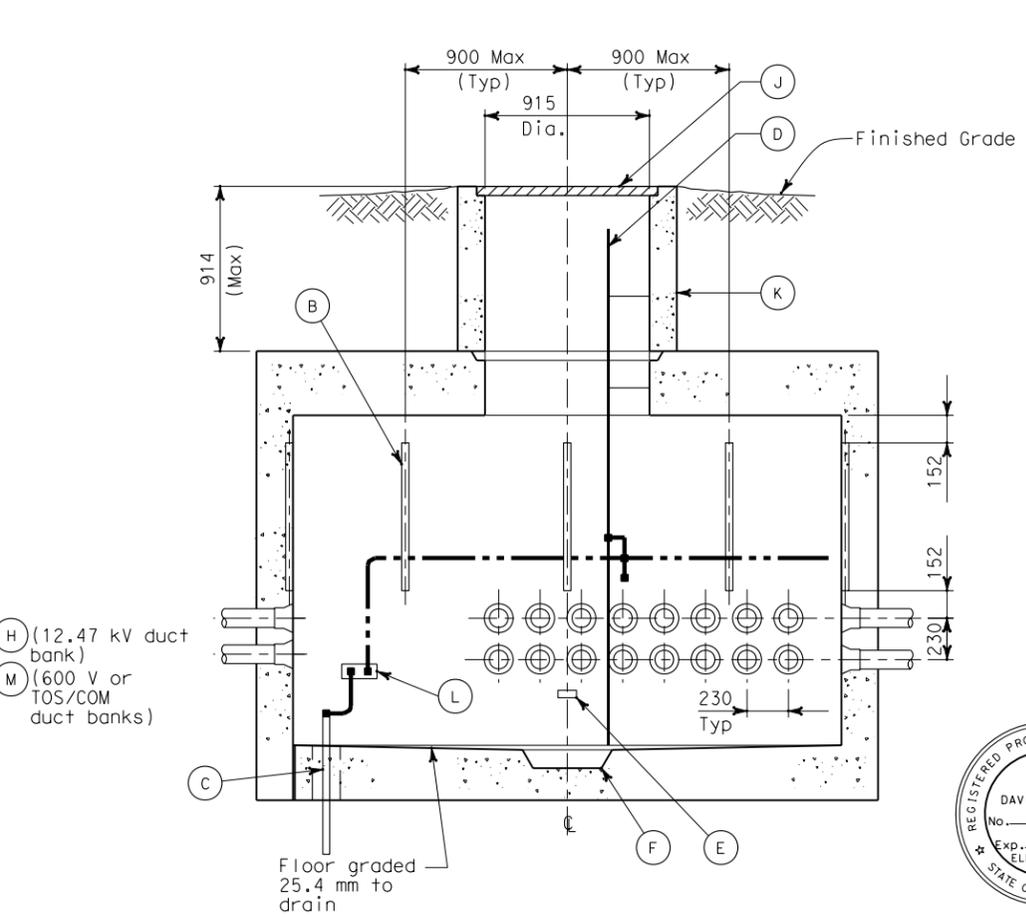


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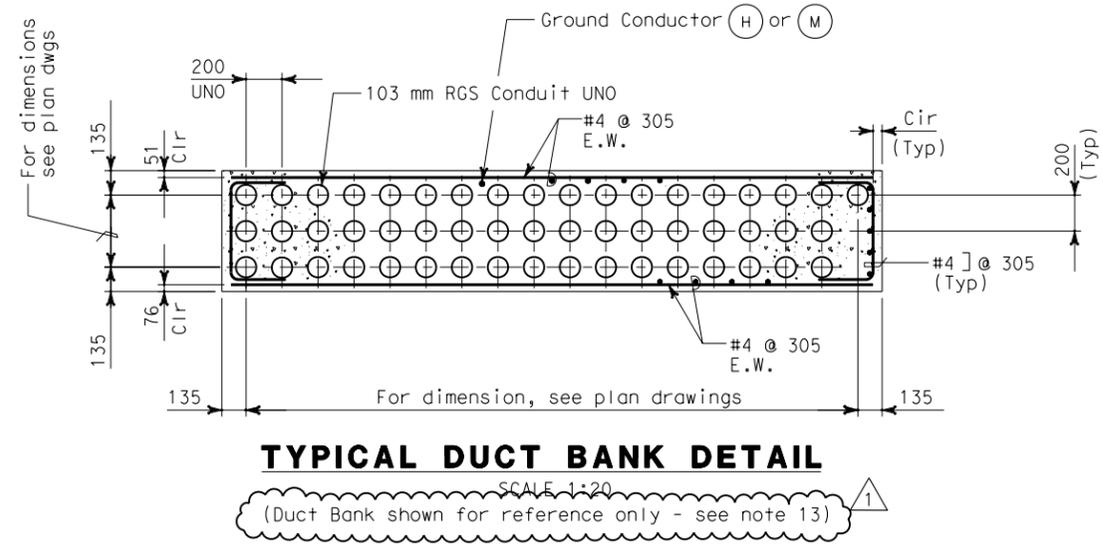
PLAN
SCALE 1:20



SECTION A-A
SCALE 1:20

TYPICAL MANHOLE DETAIL

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
(Duct Bank shown for reference only - see note 13)

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE				
△	07/20/11	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.
 FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS



FOR REVISION ONLY

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Metric

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST NO	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

12/19/02
 REGISTERED ELECTRICAL ENGINEER DATE

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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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 $Fy=414$ 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.

DETAILS UNDERGROUND
TYPICAL MANHOLE AND DUCT BANK
 SCALE AS NOTED

DATE PLOTTED => 7/22/2011
 TIME PLOTTED => 1:59:10 PM
 LAST REVISION 00-00-00