City of Oakley
ADDENDUM NO. 4 to contract documents for
CIP 255 – Cypress Grove Pump Station Project

BID OPENING DATE: December 1, 2022 2:00 PM

Notice is hereby given that the following clarifications and revisions are made to the above referenced contract documents:

Updates to the Plans and Specifications:

This Addendum address questions that were asked at the last on-site meeting on 11-8-22 and emails received from contractors.

Attached

1) Response to questions from Pace Water
2) Cypress Grove Pump Station As-Builts

All bidders shall acknowledge receipt and acceptance of Addendum No. 4 by signing in the space provided at the end of this Addendum and submitting the signed addendum with their proposal.

Jason Kabalin
Capital Projects Engineer
November 16, 2022

_____
Contractor Signature

_____
Date

_____
Company Name

November 15, 2022,

Jason Kabalin
City of Oakley

Re: Comments on the Rebid Addendum #8138E

Dear Jason,

Pacific Advanced Civil Engineering, Inc. (PACE) is pleased to provide the following responses to the Cypress Grove Strom Water Pump Station Upgrades comments received from the various contractors bidding on the project. The responses from PACE are as follows:

BLOCKA CONSTRUCTION

1. Drawing A2.1 Keynote 15.6 calls for a roof top exhaust what spec and/or schedule to follow for this?

PACE RESPONSE: The roof exhaust is a typical mushroom style roof vent that attaches to an 8 inch vent pipe. The generator exhaust and vent is currently existing. Contractor shall ensure the exhaust pipe and vent is properly sealed and replace if required.

2. Drawing A2.1 cites detail 9/A3.1 where the MAXX AIR 36-IN Exhaust fans are to be installed. Detail 9/A3.1 is a detail for installing metal wall louvers at CMU wall. MAXX AIR 36-IN Exhaust Fans installation will not allow louvers to be installed as shown in detail 9/A3.1. Please clarify if louvers are necessary where the MAXX AIR 36-IN Exhaust Fans are to be installed.

PACE RESPONSE: The 36" maxx air fan has an integrated shutter and no louver is required. There is a typical blockout in the masonry wall needed for the fan in these locations. Please refer to the manufacturer's installation instructions for further details

VALENTINE CORPORATION

1. Specification 46000 – Irrigation and Lake Recirculation Prefabricated Pumping Skid System
    a. This specification is listed in the TOC, but it is not included in the current specifications. Please provide this specification
    b. Where is this skid shown on the plans?

PACE RESPONSE: There is no irrigation pump skid on the project and this should be removed from the table of contents

2. Plan Sheet G2 – Furnish 12 each air diffusers
    a. Is there a specification and proposed manufacturer of the pond diffusers here?
    b. Do we just furnish them here, but do not install them?

PACE RESPONSE: The air diffuser specs are listed in the equipment list on sheet M0.1, these diffusers are in the lake. They are existing and need to be replaced along with the weighted aeration hoses. Please see the lake as builts for locations of the existing aeration piping and junction boxes. 1500 LF should be sufficient for the weighted hose.

3. Plan Sheet M0.1, Mechanical Equipment List

a. WELLMATE Pressure Tank x 264 Gallon – quantity = 2
    i. I only see one new pressure tank on plan Sheet M1?

PACE RESPONSE: There is only quantity one (1) pressure tank, this was a typo

b. Kasco Air Diffuser – quantity = 12 each
    i. Where is this work shown on the plan set?

PACE RESPONSE: The air diffuser specs are listed in the equipment list on sheet M0.1, these diffusers are in the lake. They are existing and need to be replaced along with the weighted aeration hoses. Please see the lake as builts for locations of the existing aeration piping and junction boxes. 1500 LF should be sufficient for the weighted hose.

c. Exhaust Vent Fan – quantity = 2each
    i. I see one each 36" shown on the architectural plans (at wall louver), but fan is not shown on mechanical plans & any mounting details – Where is the second one?
    ii. I see 1 each roof mounted fan, but it is not called out on the mechanical equipment list.
    iii. Can a detail for the roof fan be provided?

PACE RESPONSE: There are 2 wall mounted fans on the north wall. There is no roof mounted fan, this was removed on a previous revision. All references should be removed.

4. Plan Sheet M1
    i. Do you have a detail for Note 6 – New thermal venting with mushroom cap?

PACE RESPONSE: The roof exhaust is a typical mushroom style roof vent that attaches to an 8 inch vent pipe. The generator exhaust and vent is currently existing. Contractor shall ensure the exhaust pipe and vent is properly sealed and replace if required.

5. Plan Sheet C1 – 6" thick exterior sidewalk is shown as 4" wide. I am assuming this should be 4' wide?

PACE RESPONSE: The side walk should be 4' (feet) , not inches, this was a typo.

CAIRO BUILDER

1. The main contract docs only call for a 1-year warranty. Where we run into some issues, however, is in Specs Part III which are the Technical Specs for this job.

   This is the big one, at 417 pages, so I simply searched by keyword of "warranty" and at first things were looking good. But then I hit page 179, which is the section for Sheet Metal Roofing, and saw that they are requiring a 5yr warranty. And then on page 197, the specs call for a 10 year warranty on the Sectional Door.

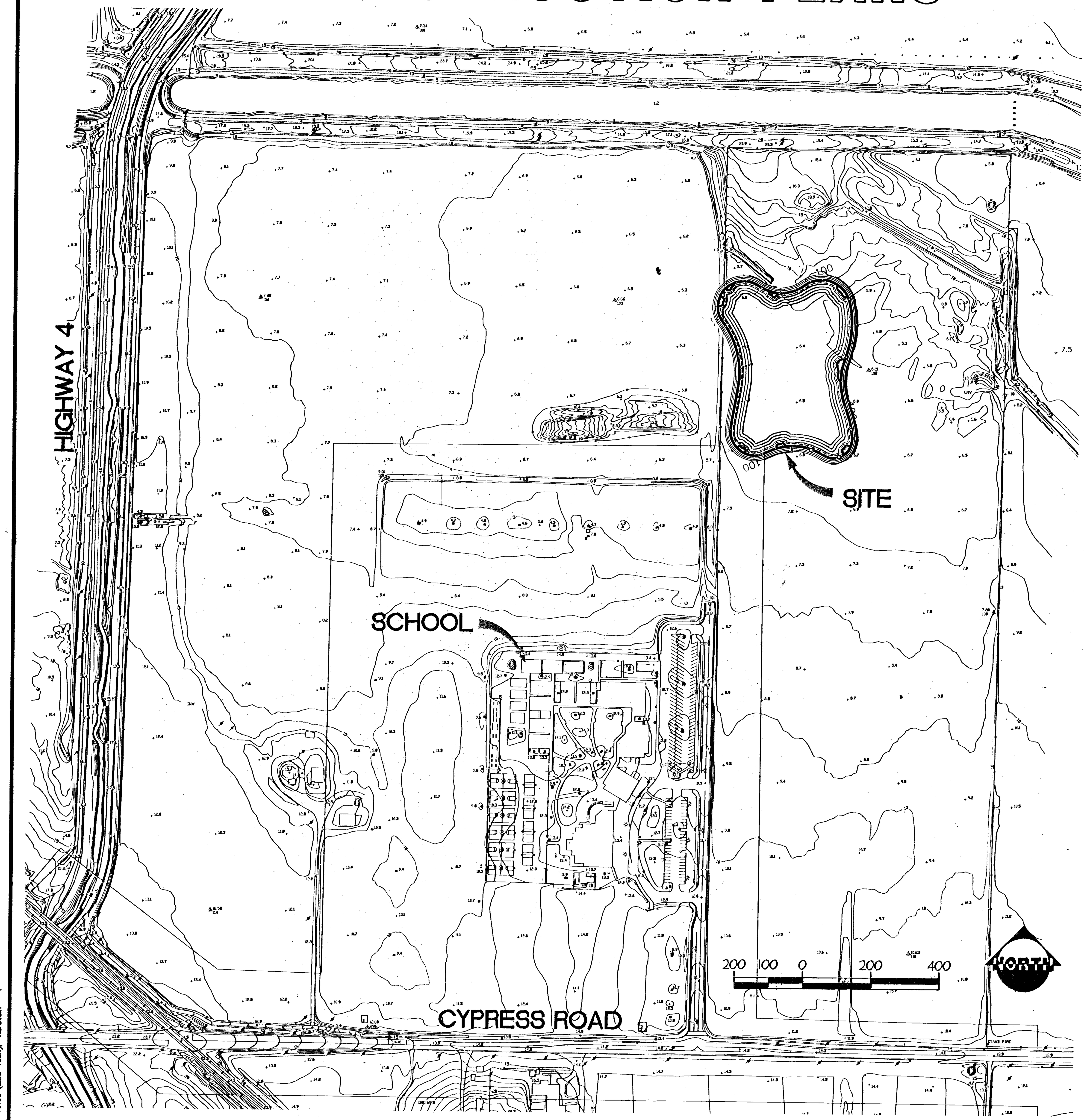
   My initial thought was that these might just be poorly written specs and that these were intended to be manufacturer warranties, however as I continued to go through the specs I saw that they were actually very diligent in specifying when the warranties were meant for the manufacturer (see pages 212, 244, 364, 384, 396, 402, 407, and 413). That leaves us no choice but to

interpret the lack of specificity on the Roofing & Door warranties to mean that it applies directly to Cairo, and unfortunately those are both well beyond what we'd be able to support.

PACE RESPONSE: The 10-year warranty for the sectional door is referring to the paint finish. This warranty shall be provided by the MANUFACTURE. The sheet metal roofing shall be backed by a MANUFACTURE warranty against degradation of metal finish for a minimum of five (5) years. The contractor shall warrant against defective workmanship for a minimum of one (1) year.

Jason Ezell
Design Engineer
D (714) 481-1776 C (714) 514-8813
E jezell@pacewater.com

CYPRESS GROVE
LAKE & STORM WATER PUMP STATION
CONSTRUCTION PLANS



LAKE NOTES:

1. THESE PLANS ARE INTENDED FOR WATER FEATURE CONSTRUCTION USE ONLY. SEE DRAWINGS BY RESPECTIVE DESIGNERS FOR OTHER ASPECTS OF CONSTRUCTION.
2. ALL RECIRCULATION PIPE SHALL BE INSTALLED SO THE FLOW IS SLIGHTLY OFF LEVEL OR UPHILL TO PREVENT AIR TRAPS AND SHALL HAVE A 3'-0" (MIN) COVER OUTSIDE WATER FEATURE LIMITS AND A 1'-0" (MIN) COVER WITHIN UNLESS OTHERWISE NOTED.
3. ALL PVC PIPE SHALL BE PER THE FOLLOWING SCHEDULE UNLESS OTHERWISE NOTED:

30"ø AND LARGER	80 PSI PLASTIC IRRIGATION PIPE (P.I.P.)
15"ø - 27"ø	80 PSI PLASTIC IRRIGATION PIPE (P.I.P.)
10"ø - 12"ø	100 PSI PLASTIC IRRIGATION PIPE (P.I.P.)
8"ø	RING-TITE (RT) CLASS 160
6"ø AND SMALLER	SCHEDULE 40 IPS

4. THE MEMBRANE LINER SHALL BE 30 MIL PVC-SEE LINER SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. WATER LEVELS SHOWN INDICATE AVERAGE SURFACE ELEVATIONS DURING OPERATION. ELEVATIONS MAY DIFFER DURING SHUTDOWN CONDITIONS.
6. ALL MANUFACTURER PRODUCT CALLOUTS SHOWN IN THESE PLANS SHALL BE CONSIDERED "OR APPROVED EQUAL" UNLESS OTHERWISE NOTED.
7. THE LAKE CONTRACTOR SHALL VERIFY THE AVAILABLE ELECTRICAL POWER PRIOR TO PURCHASING EQUIPMENT.
8. REFER TO SPECIFICATIONS FOR COLOR, TYPE OF BOULDERS TO BE USED, AND INSTALLATION REQUIREMENTS. THE LAKE CONTRACTOR SHALL FURNISH AND INSTALL BOULDERS SUBJECT TO APPROVAL OF THE OWNER. NOTIFY OWNER'S REPRESENTATIVE PRIOR TO SETTING ANY BOULDERS.
9. PAINT ALL EXPOSED PVC PIPE WITHIN THE LAKE AREA AND VISIBLE FROM THE SHORELINE WITH BLACK OR DARK BLUE PAINT SUITABLE FOR PLASTIC SURFACES.
10. TOP OF CONCRETE SHORELINE & CONTROL WEIR ELEVATIONS SHALL BE INSTALLED + .05' OF ELEVATION AS SHOWN ON PLANS.
11. CONCRETE FOR LAKE CONSTRUCTION UNLESS OTHERWISE SPECIFIED ON PLANS SHALL BE 6 SAC MINIMUM PEA GRAVEL PUMP MIX AND SHALL BE ABLE TO BE PUMPED AT A 3" SLUMP W/ A TRAILER MOUNTED GROUT PUMP WITH A 2" HOSE.
12. A MINIMUM OF 2'-0" CLEARANCE BETWEEN WATER OR SEWER LINES AND RECIRCULATION LINES IS REQUIRED. IF CLEARANCE IS LESS THEN 2'-0", CONCRETE ENCASEMENTS OR DUCTILE IRON PIPE WITH MECHANICAL OR RESTRAINED JOINTS.

LEGEND:

- INDICATES SHORELINE W/ CONC. VENEER
- SHADED AREA INDICATES LIMIT OF CONCRETE
- INDICATES SHORELINE W/ EXPOSED LINER
- INDICATES BOULDERS WITH GRADUATED SIZES
  - 2'ø = 10%
  - 3'ø = 20%
  - 4'ø = 40%
  - 5'ø = 20%
  - 6'ø = 10%
- INDICATES RIVER COBBLE SHELL
- INDICATES DISCHARGE RISER
- 12"ø — INDICATES RECIRCULATION PIPE & SIZE-SEE GENERAL NOTES #2 & #3
- INDICATES 1/2"ø WEIGHTED AERATION TUBING
- 12"ø — INDICATES RECIRCULATION INTAKE PIPE AND SIZE
- INDICATES TOTAL EFFECTIVE WEIR LENGTH / INDICATES TOP OF WEIR ELEVATION
- 1000 — INDICATES RECIRCULATION FLOW IN GALLONS PER MINUTE ±25% (FOR PHASE I SYSTEM)
- INDICATES WATER SURFACE ELEVATION / INDICATES FINISH BOTTOM ELEVATION
- INDICATES DETAIL LETTER DESIGNATION / INDICATES SHEET LOCATION / FOOT INDICATES SECTION DIRECTION
- INDICATES AERATION POD
- 100 — INDICATES 100 YEAR STORM LINE

NOTE: NOT ALL SYMBOLS MAY BE USED.

NOTE: DELTA 1-4 PRIOR TO APPROVAL TO CONSTRUCT

SHEET INDEX:

		90% SUBMITTAL FOR BID	100% SUBMITTAL FOR REVIEW 1	100% SUBMITTAL FOR REVIEW 2	100% SUBMITTAL FOR APPROVAL
	LAKE PLANS:				
L01	GENERAL NOTES AND SITE PLAN	1/08/05	4/08/05	4/27/05	5/19/05
L02	OVERALL WATER FEATURE & LAKE PIPING PLAN	1/08/05	4/08/05	4/27/05	5/19/05
L03	WATER FEATURE DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
L04	WATER FEATURE DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
L05	WATER FEATURE DETAILS	1/08/05	4/08/05	4/27/05	5/19/05
	PUMP STATION PLANS:				
C01	CIVIL SITE PLAN	1/08/05	4/08/05	4/27/05	5/04/05
C02	CIVIL GRADING PLAN	1/08/05	4/08/05	4/27/05	5/04/05
C03	CIVIL DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
A0	NOTES	1/08/05	4/08/05	4/08/05	5/04/05
A01	ARCHITECTURAL SECTIONS	1/08/05	4/08/05	4/08/05	5/04/05
A02	ARCHITECTURAL PLAN	1/08/05	4/08/05	4/08/05	5/04/05
A03	ARCHITECTURAL ROOFING	1/08/05	4/08/05	4/08/05	5/04/05
AD1	ARCHITECTURAL DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
AD2	ARCHITECTURAL DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
M01	MECHANICAL PLAN	1/08/05	4/08/05	4/08/05	5/04/05
M02	MECHANICAL SECTIONS	1/08/05	4/08/05	4/08/05	5/04/05
M03	MECHANICAL DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
M04	MECHANICAL DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
M05	MECHANICAL DETAILS	1/08/05	4/08/05	4/08/05	5/04/05
I0	P&ID INDEX	1/08/05	4/08/05	4/08/05	5/04/05
I01	P&ID	1/08/05	4/08/05	4/08/05	5/04/05
E1.0	COVER SHEET	1/08/05	4/08/05	4/08/05	5/04/05
E1.1	SINGLE LINE	1/08/05	4/08/05	4/27/05	5/04/05
E1.2	ELECTRICAL PLANS SITE	1/08/05	4/08/05	4/27/05	5/04/05
E1.3	ELECTRICAL PLANS DETAILS	1/08/05	4/08/05	4/27/05	5/04/05
E1.4	ELECTRICAL PLANS SCHEMATICS	1/08/05	4/08/05	4/27/05	5/04/05
	WELL PLANS:				
W01	PLAN & SECTION	1/08/05	4/08/05	4/27/05	5/04/05
W02	DETAILS	1/08/05	4/08/05	4/27/05	5/04/05
W03	CONTROL & SES	1/08/05	4/08/05	4/27/05	5/04/05
W04	ONE LINE DIAGRAM	1/08/05	4/08/05	4/27/05	5/04/05
W05	WELL P&ID	1/08/05	4/08/05	4/27/05	5/04/05
W6	LAKE DEGASSING PUMP STA.				7/7/06

RECORD DRAWINGS 12/22/05 #64928

FIELD REVISIONS: M1, M2; L5; L2, L3, L5

FILTER ADDED TO IRRIGATION DISCHARGE
WETLAND PLANTER IN LAKE MODIFIED
HYDROSTATIC RELIEF VALVES IN LIEU OF SOIL COVER IN LAKE
RECORD DRAWINGS

ABBREVIATIONS:

AR	AIR RELEASE	DIP	DUCTILE IRON PIPE	GPM	GALLONS PER MINUTE	PH	PHASE	SPECS	SPECIFICATIONS		
AIR/VAC	AIR RELEASE AND VACUUM RELIEF	EW	EACH WAY	GV	GATE VALVE	PUE	PUBLIC UTILITY EASEMENT	SF	SQUARE FEET		
APP EQ	APPROVED EQUAL	EOP	EDGE OF PAVEMENT	HP	HORSE POWER	PVC	POLYVINYL CHLORIDE	THK	THICK		
BL	BALL VALVE	EL	ELEVATION	HZ	HERTZ	PSF	POUNDS PER SQUARE FOOT	TOF	TOP OF FOOTING		
BLDG	BUILDING	ENG'G	ENGINEERING	IE	INVERT ELEVATION	PSI	POUNDS PER SQUARE INCH	TOP	TOP OF PAVEMENT		
BV	BUTTERFLY VALVE	EQ	EQUALIZER	IRR	IRRIGATION	PS	PUMP STATION	TOS	TOP OF SLAB		
CV	CHECK VALVE	FF	FINISH FLOOR	MFR	MANUFACTURER	RB	REDUCER BUSHING	TOW	TOP OF WALL		
CONC	CONCRETE	FG	FINISH GRADE	MAX	MAXIMUM	REINF	REINFORCED	TDH	TOTAL DYNAMIC HEAD		
CONT	CONTINOUS	FLG	FLANGE	MG	MILLION GALLON	RCP	REINFORCED CONCRETE PIPE	TYP	TYPICAL		
DIA	DIAMETER	GAL	GALLONS	MIN	MINIMUM	R/W	RIGHT OF WAY	V	VOLTS		
		GA	GAUGE	OC	ON CENTER	SCH	SCHEDULE	WS	WATER SURFACE		

BENCH MARK:

CONTRA COSTA COUNTY BENCH MARK NO. 3095 LOCATED ON THE NORTH SIDE OF CYPRESS ROAD BRIDGE CROSSING OF MARSH CREEK. ELEVATION 22.993.

PLAN APPROVAL

REVIEWED FOR CONFORMANCE WITH CITY OF OAKLEY STANDARDS AND REQUIREMENTS. APPROVAL FOR CONSTRUCTION IS SUBJET TO THE INFORMATION SHOWN HERIN. THE CITY OF OAKLEY AND THE UNDERSIGNED ARE NOT RESPONSIBLE FOR ANY ERRORS OR OMMISSIONS THAT MAY EXIST ON THESE PLANS.

JASON VOGAN, CITY ENGINEER — DATE: 5/26/2005
R.C.E. NO. 59299 — EXPIRES: 06/30/07

NO	BY	DATE	REVISIONS	DATE	APP.
1	JP	4-8-05	PER CITY COMMENTS		
2	JP	4-27-05	PER CITY COMMENTS		
3	DG	5/05/5	PER CITY COMMENTS		
4	DG	5/19/5	PER CITY COMMENTS		

REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA — 5-19-05

PREPARED BY SONNY O. SIM, PROJECT ENGINEER, R.C.E. NO. — # 59816, EXP. 12/31/05
DRAWN P.M./JP — SCALE AS SHOWN
DESIGNED S.O.S./J.N.
CHECKED S.O.S. — DATE 04/27/05

W6 LAKE DEGASSING PUMP STATION
GENERAL NOTES AND SITE PLAN

CYPRESS GROVE — OAKLEY, CA.

PACE — PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA. 92708
PH (714) 481-7300 FAX (714) 481-7299

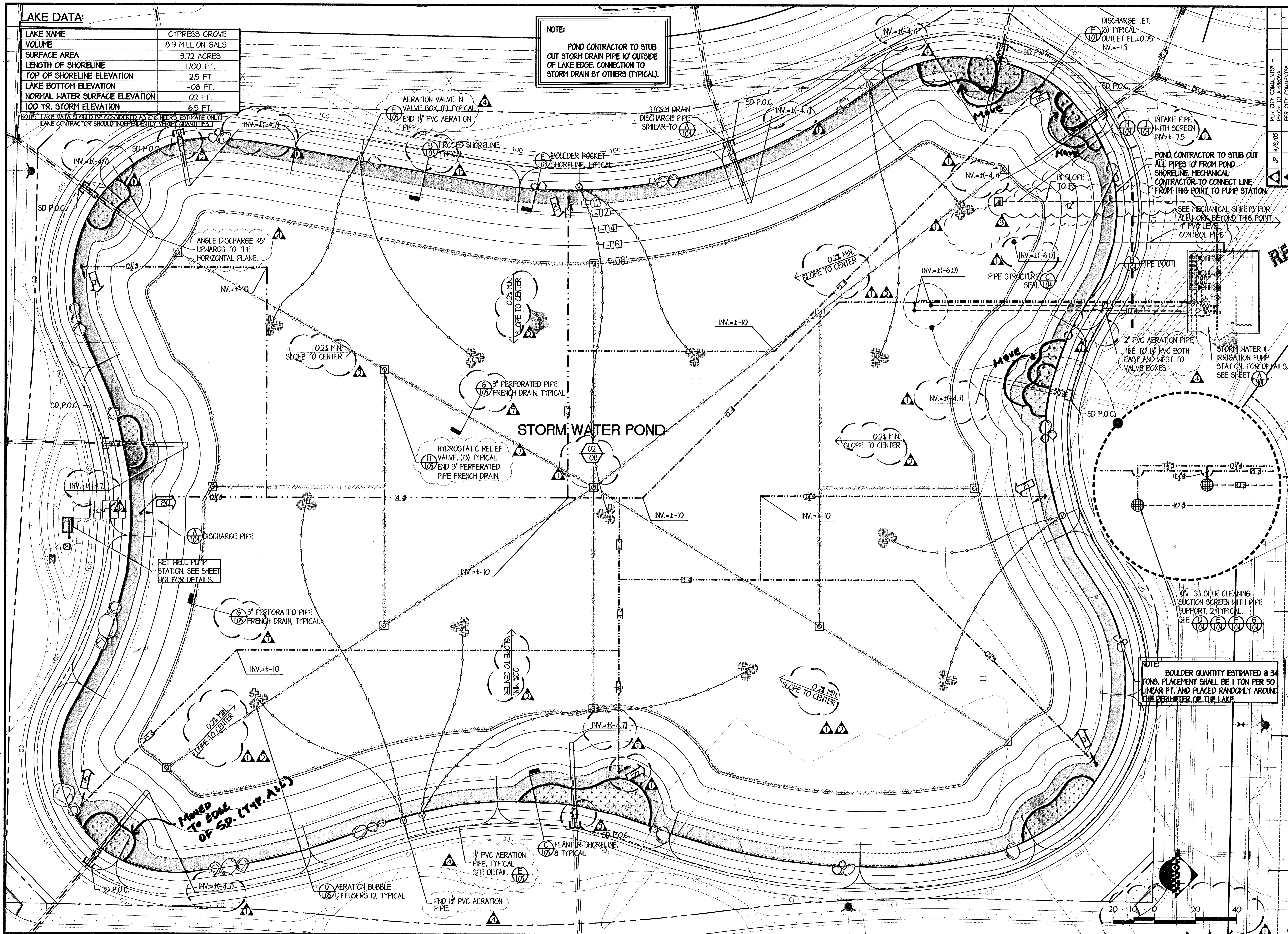
SHEET L01 OF 07 SHEETS
JOB NO. 8117-E

LAKE DATA:

LAKE NAME	CYPRESS GROVE
VOLUME	8.9 MILLION GALS
SURFACE AREA	3.72 ACRES
LENGTH OF SHORELINE	1700 FT.
TOP OF SHORELINE ELEVATION	2.5 FT
LAKE BOTTOM ELEVATION	-08 FT.
NORMAL WATER SURFACE ELEVATION	02 FT.
100 YR. STORM ELEVATION	6.5 FT.

NOTE: LAKE DATA SHOULD BE CONSIDERED AS ENGINEER'S ESTIMATE ONLY. LAKE CONTRACTOR SHOULD INDEPENDENTLY VERIFY QUANTITIES.

NOTE:
POND CONTRACTOR TO STUB OUT STORM DRAIN PIPE 10' OUTSIDE OF LAKE EDGE. CONNECTION TO STORM DRAIN BY OTHERS (TYPICAL).



STORM WATER POND
DISCHARGE JET, (8) TYPICAL OUTLET EL.±0.75 INV.=-1.5
AERATION VALVE IN VALVE BOX, (6) TYPICAL
END 1½" PVC AERATION PIPE
ERODED SHORELINE, TYPICAL
BOULDER POCKET SHORELINE, TYPICAL
STORM DRAIN DISCHARGE PIPE SIMILAR TO A/104
INTAKE PIPE WITH SCREEN INV=±-7.5
POND CONTRACTOR TO STUB OUT ALL PIPES 10' FROM POND SHORELINE. MECHANICAL CONTRACTOR TO CONNECT LINE FROM THIS POINT TO PUMP STATION.
SEE MECHANICAL SHEETS FOR ALL WORK BEYOND THIS POINT
4" PVC LEVEL CONTROL PIPE
PIPE BOOT
PIPE STRUCTURE SEAL
ANGLE DISCHARGE 45° UPWARDS TO THE HORIZONTAL PLANE.
0.2% MIN. SLOPE TO CENTER
3" PERFORATED PIPE FRENCH DRAIN, TYPICAL
HYDROSTATIC RELIEF VALVE, (13) TYPICAL END 3" PERFORATED PIPE FRENCH DRAIN.
2" PVC AERATION PIPE, TEE TO 1½" PVC BOTH EAST AND WEST TO VALVE BOXES
STORM WATER & IRRIGATION PUMP STATION. FOR DETAILS, SEE SHEET A/101
DISCHARGE PIPE
WET WELL PUMP STATION. SEE SHEET 101 FOR DETAILS.
10" SS SELF CLEANING SUCTION SCREEN WITH PIPE SUPPORT, 2 TYPICAL.
NOTE: BOULDER QUANTITY ESTIMATED @ 34 TONS. PLACEMENT SHALL BE 1 TON PER 50 LINEAR FT. AND PLACED RANDOMLY AROUND THE PERIMETER OF THE LAKE.
PLANTER SHORELINE, 8 TYPICAL
1½" PVC AERATION PIPE, TYPICAL SEE DETAIL E/105
AERATION BUBBLE DIFFUSERS 12, TYPICAL
END 1½" PVC AERATION PIPE.
SD P.O.C.
INV.=±-10
INV.=±(-4.7)
INV.=±(-6.0)
1½ SLOPE TO ES
MOVE
MOVED TO EDGE OF S.D. (TYP. ALL)
RECORD DRAWINGS
20 10 0 20 40

NO	BY	DATE	REVISIONS	DATE	APP.
1	JP	4/18/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
3	DC	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
4	DC	5/18/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
5	BR	7/8/05	IRRIGATION FILTER		
6	BR	9/21/05	WETLAND PLANTER		
7	BR	9/26/05	HYDROSTATIC RELIEF		

PREPARED BY SONNY O. SIM
PROJECT ENGINEER
R.C.E. NO. 59816
EXP. 12/31/05

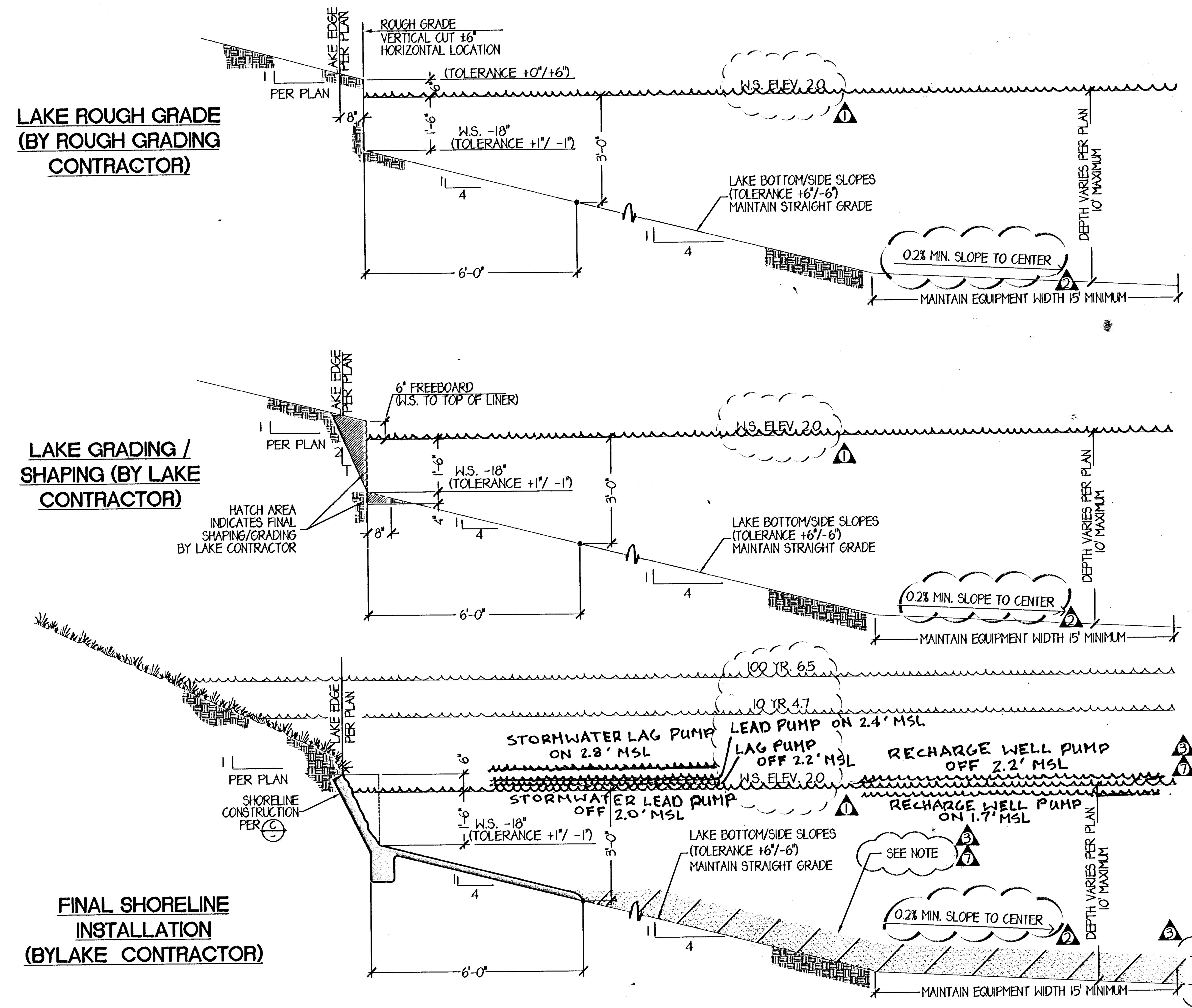
DRAWN P.M./JP
DESIGNED S.O.S./I.N.
CHECKED S.O.S.
SCALE AS SHOWN
DATE 04/27/05

TITLE: ENLARGED STORM WATER POND AND PIPING PLAN

JOB: CYPRESS GROVE
OAKLEY CA.

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA. 92708
PH (714) 481-7300 FAX (714) 481-7299

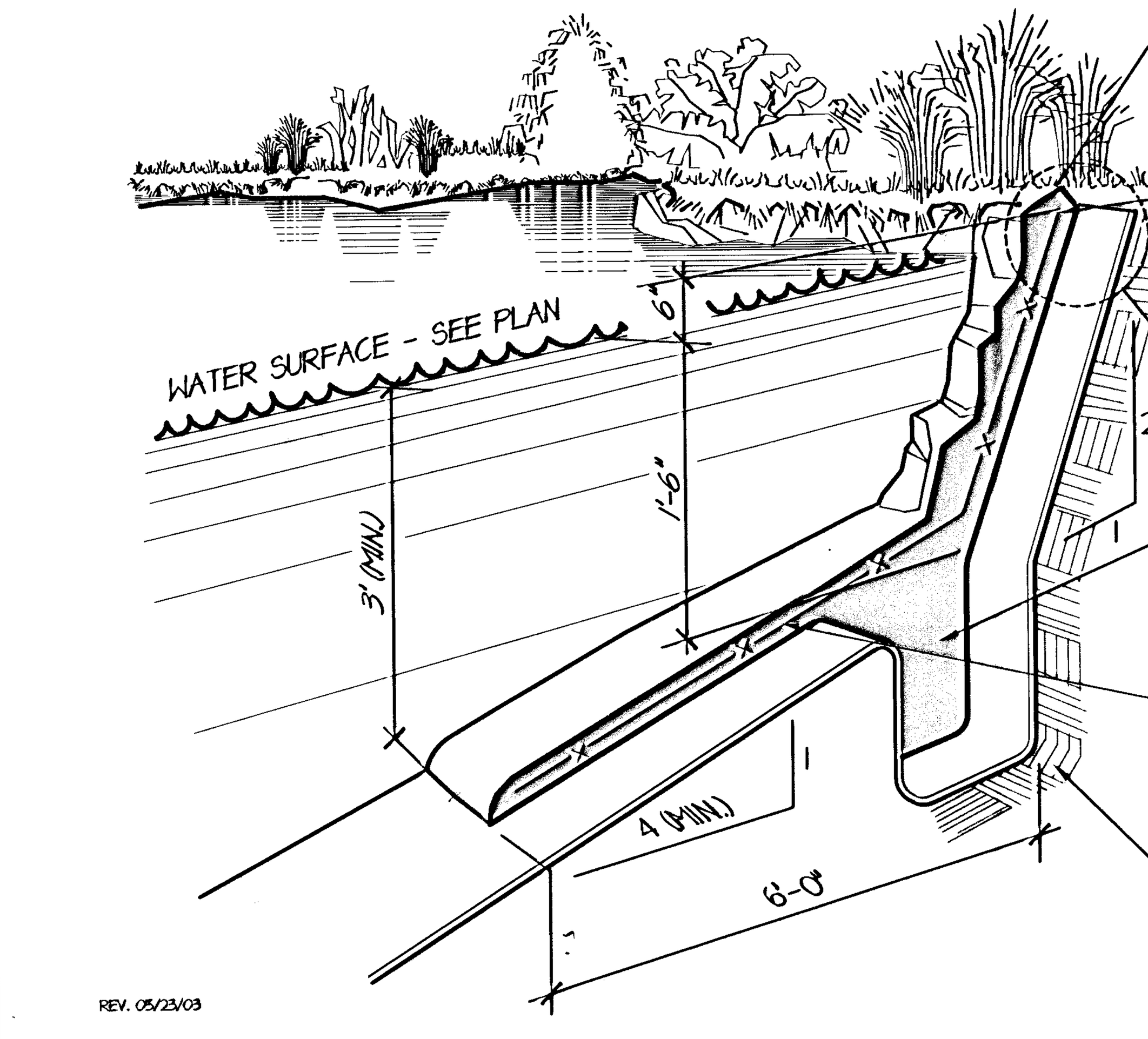
SHEET L02 OF 07 SHEETS
JOB NO. 8117-E



NOTE:
THE SOIL SHALL BE COARSE, SANDY LOAM, SELECT MATERIAL. SOIL COVER SHALL BE FREE FROM LUMPS OR BALLS OF CLAY AND SHALL NOT CONTAIN EXCESSIVE AMOUNTS OF CALCAREOUS OR CLAY COATINGS, AND SHALL NOT CONTAIN ANY CALICHE, DEBRIS, SYNTHETIC MATERIALS, DELETERIOUS OR FOREIGN SUBSTANCES. IN ADDITION, SOIL COVER SHALL MEET THE FOLLOWING GRADATION CRITERIA: NO MORE THAN 50% OF THE MATERIAL SHALL BE FINES (PASS THE NO. 200 SIEVE), AND THE FINE CLAY FRACTION SHALL NOT BE MORE THAN 20%, LEAVING AT LEAST 30% AS SILT. THE SOIL COVER PLASTICITY INDEX (PI) SHALL BE LESS THAN 10.

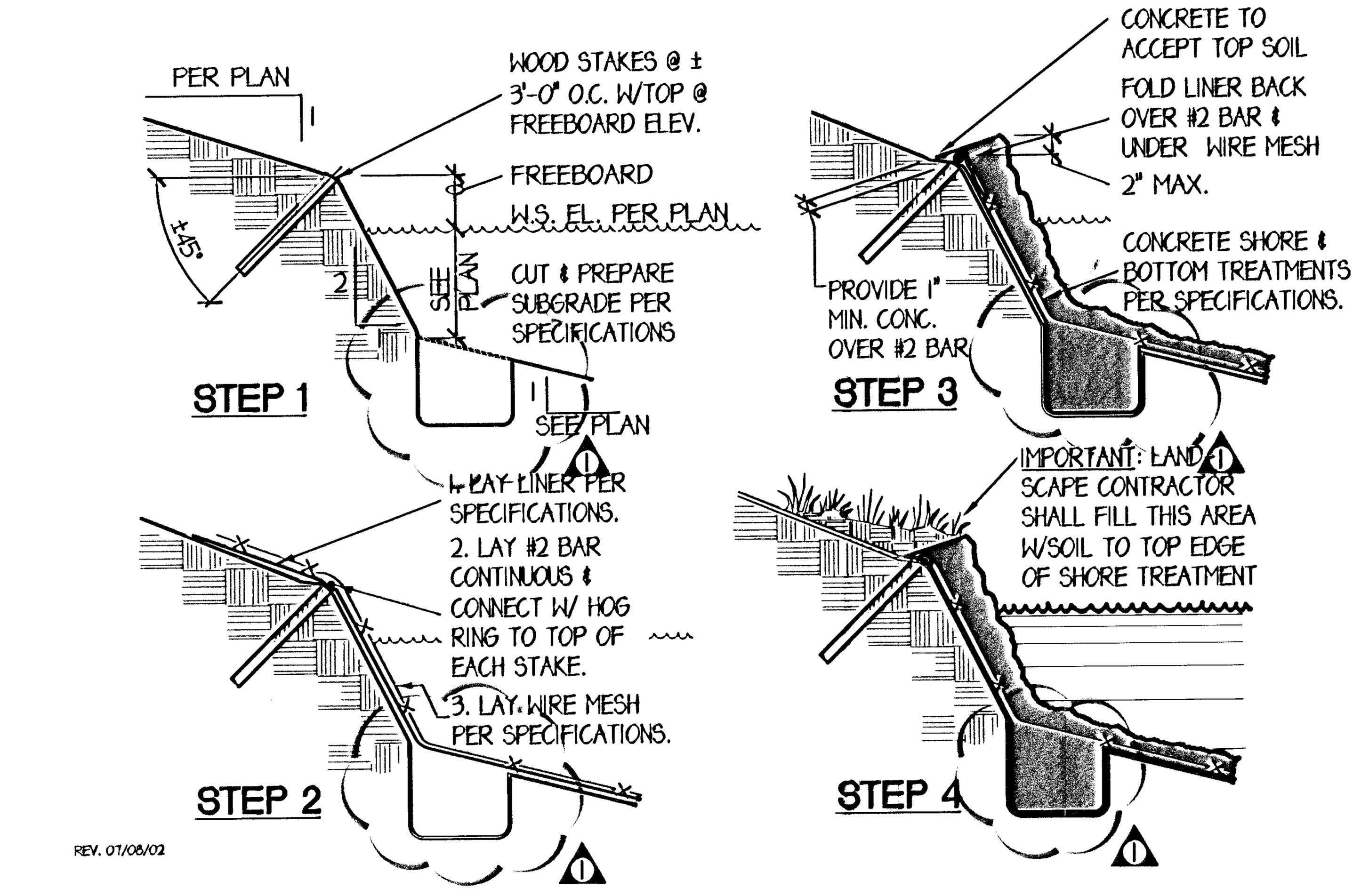
LAKE SHORELINE GRADING & INSTALLATION PROCEDURE

AS SHOWN | A



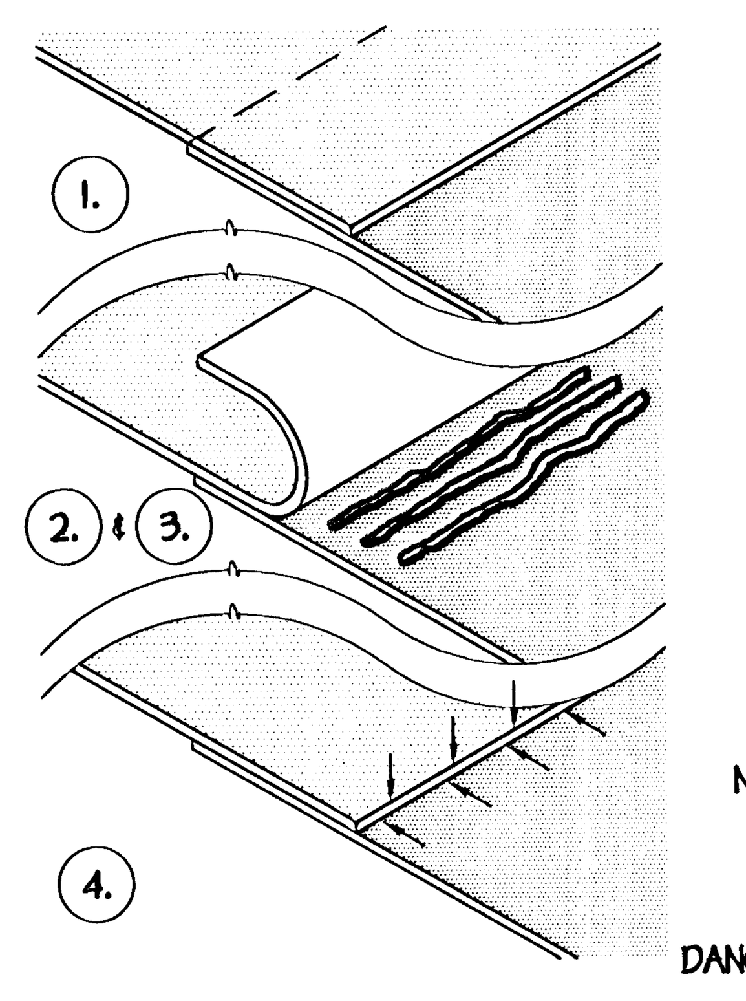
ERODED CONCRETE SHORELINE

PERSPECTIVE | B



SHORELINE CONSTRUCTION

1"=1'-0" | C



1. ALIGN PANELS & OVERLAP EDGES APPROX. 6"(MIN.).
2. FOLD BACK EDGES OF TOP SHEET & CLEAN BOTH SEAM SURFACES THOROUGHLY W/CLEAN RAGS- IF NECESSARY, USE M.E.K. (METHYL-ETHYL-KEYTONE) SPARINGLY TO REMOVE GREASE, OIL OR OTHER CONTAMINANTS.
3. APPLY SEAM ADHESIVE PER MANUFACTURER'S RECOMENDATION W/ SQUEEZE BOTTLE. START WITH 2 TO 3 BEADS WORKING IN APPROX 3 TO 4 FOOT INCREMENTS ALONG SEAM. PRESS OR ROLL SEAM TOGETHER IMMEDIATELY. SUFFICIENT ADHESIVE SHOULD BE APPLIED TO FORM A CONTINUOUS WELD OF NOT LESS THAN 2" WIDE. GLUE DOWN ALL LOOSE EDGES. DO NOT LEAVE EXPOSED BEADS OF GLUE ON LINER SURFACE AS IT WILL BURN HOLES!! PRESS ADHESIVE OUT OF SEAM AND WIPE OFF EXCESS.
4. AFTER 1 TO 2 HOURS (PREFERABLY OVERNIGHT), REINSPECT SEAMS & GLUE DOWN ANY ADDITIONAL LOOSE EDGES.

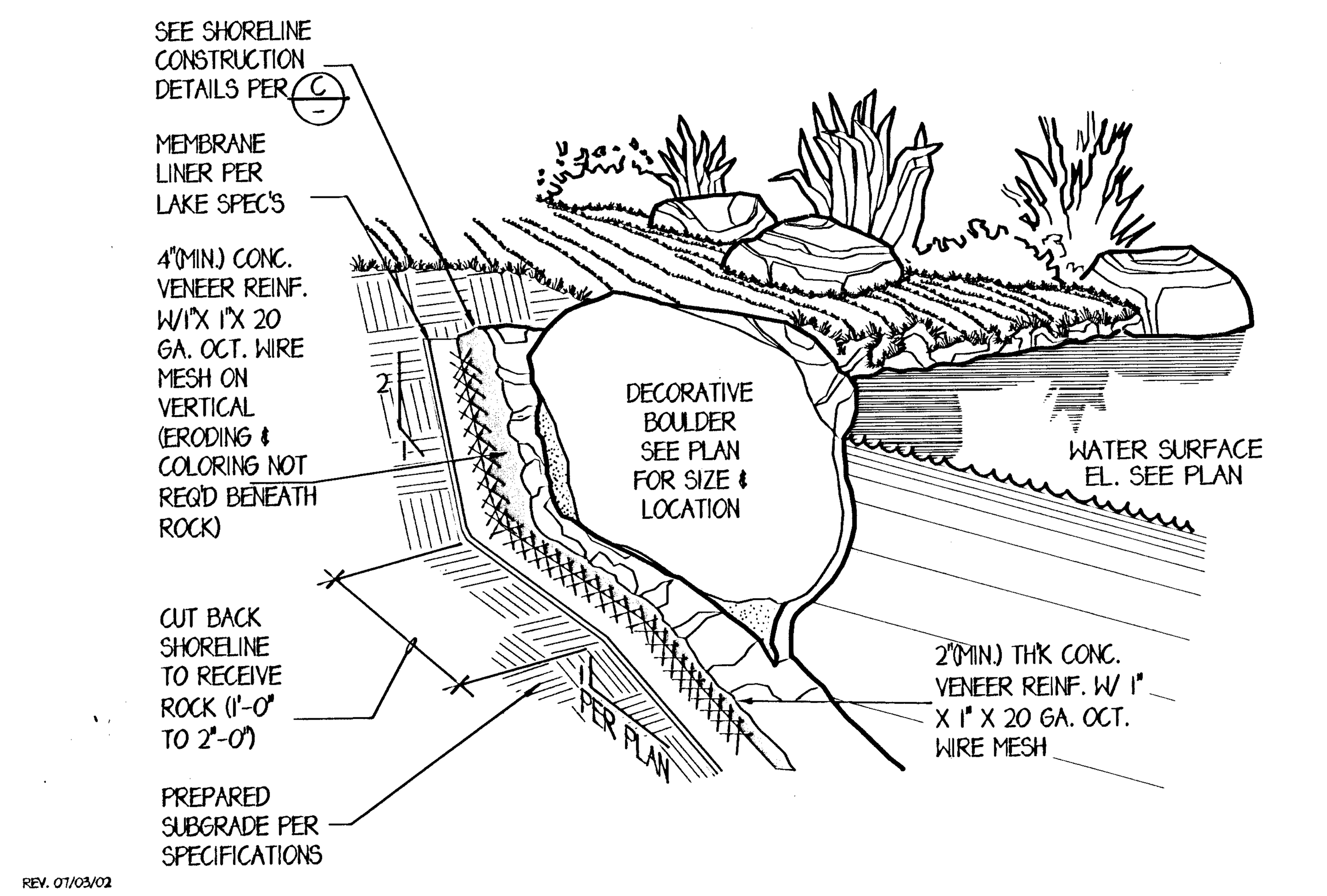
NOTE: KEEP CAP TIGHTLY SEALED ON CAN AT ALL TIMES. THIS MATERIAL IS HYDROSCOPIC & WILL ABSORB MOISTURE FROM THE AIR. DO NOT USE IF ADHESIVE HAS THICKENED OR CLOUDED.

DANGER!: FLAMMABLE MIXTURE - DO NOT USE NEAR FIRE, FLAME, OR ELECTRICAL SPARK. VAPORS MAY IGNITE EXPLOSIVELY. STORE IN COOL DRY AREA.

WARNING!: REFER TO MANUFACTURER'S WARNINGS ON LABEL OF CONTAINER FOR SAFE USE OF ADHESIVES AND CLEANING FLUIDS. CHECK FOR MANUFACTURER'S SPECS.

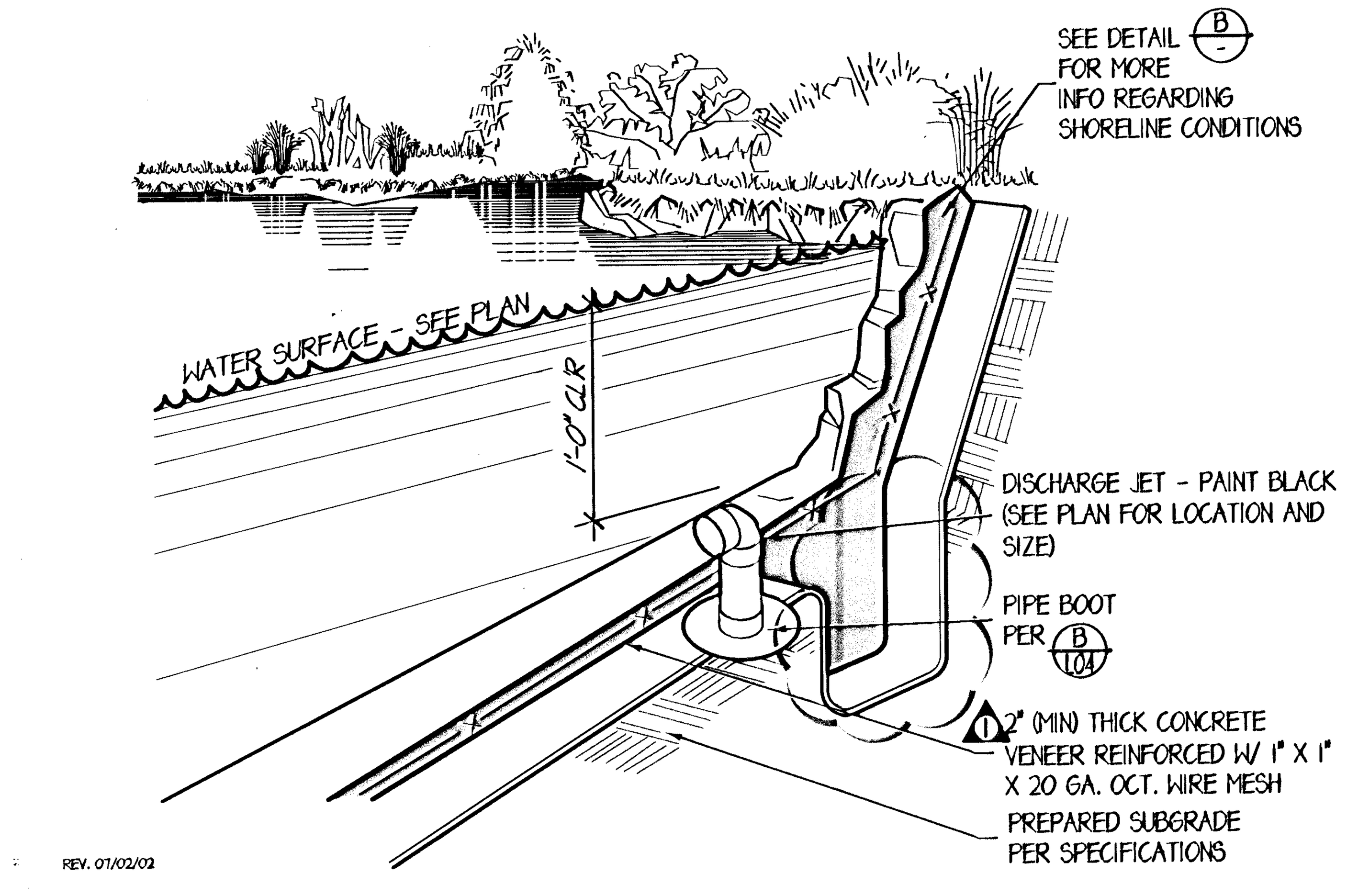
LINER SEAMING PROCEDURE

D



BOULDER POCKET

PERSPECTIVE | E



DISCHARGE JET

PERSPECTIVE | F

NO	BY	DATE	REVISIONS	DATE	APP.
1	JP	4/8/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
3	DC	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
4	DC	5/19/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
5	BR	7/8/05	IRRIGATION FILTER		
6	BR	9/21/05	WETLAND PLANTER		
7	BR	9/26/05	HYDROSTATIC RELIEF		

RECORD DRAWINGS

PREPARED BY SONNY O. SIM, PROJECT ENGINEER, R.C.E. NO. 59816, EXP. 12/31/05
DRAWN P.M./J.P. | SCALE
DESIGNED S.O.S./J.N. | DATE 04/27/05
CHECKED S.O.S.

TITLE: WATER FEATURE DETAILS

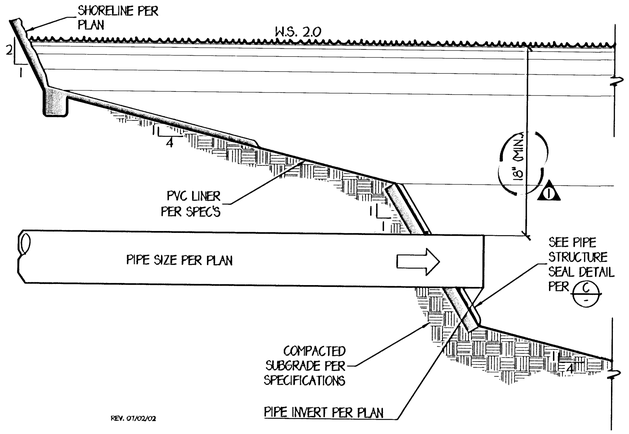
JOB: CYPRESS GROVE, OAKLEY, CA.

PACE PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200, FOUNTAIN VALLEY, CA. 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET L03 OF 07 SHEETS

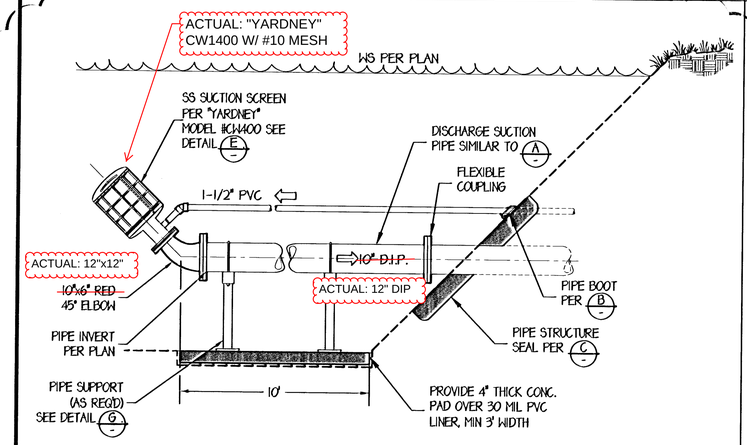
JOB NO. 8117-E

\\Santaanafs01\projects\8117E\Engineering - checked out\8117E-10\sheets\8117-L03.dwg - Tab: Layout1 By: nicksade on Oct. 12, 2005 at 04:18 pm



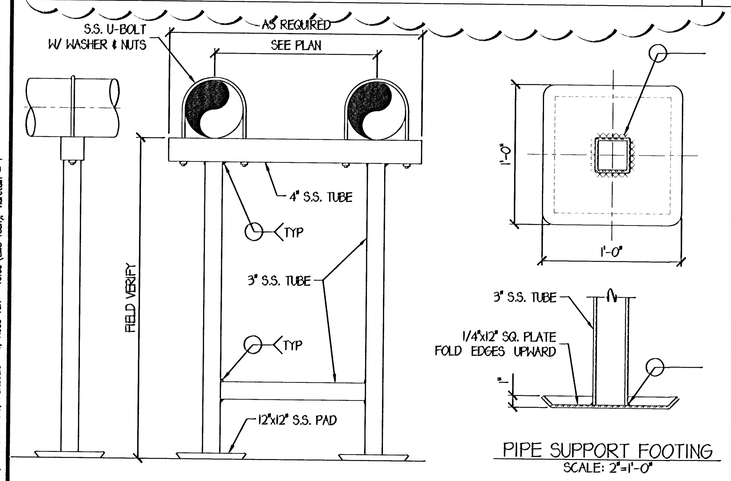
DISCHARGE PIPE

1/2" = 1'-0" | A



10" INTAKE DETAIL

SCALE: 1/2" = 1'-0" | D



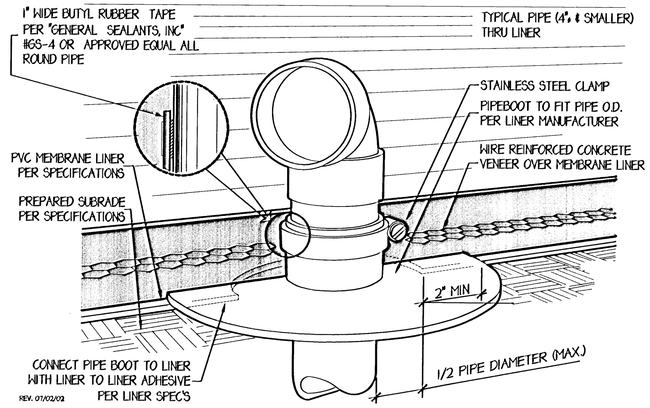
PIPE SUPPORT FOOTING
SCALE: 2"=1'-0"

PIPE SUPPORT

SCALE: 1" = 1'-0" | G

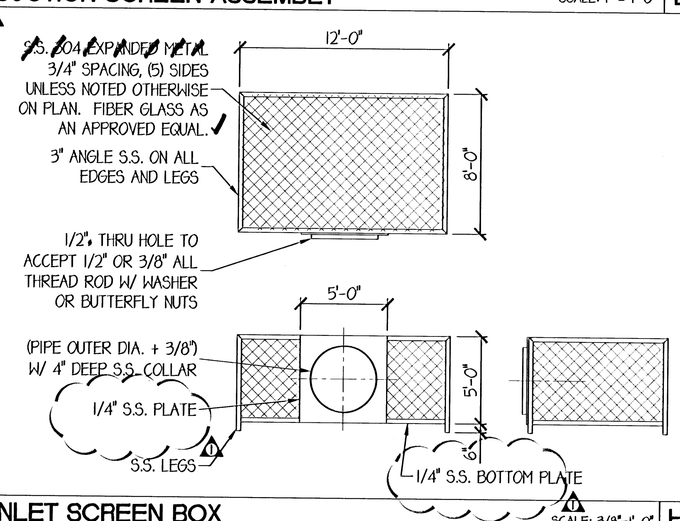
PIPE BOOT

PERSPECTIVE | B



SUCTION SCREEN ASSEMBLY

SCALE: 1" = 1'-0" | E

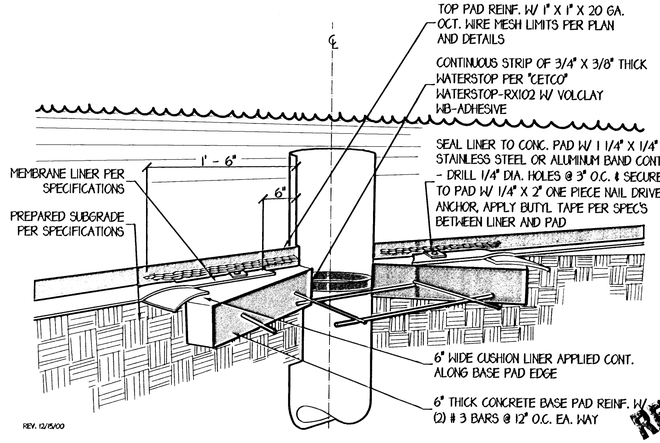


INLET SCREEN BOX

SCALE: 3/8"=1'-0" | H

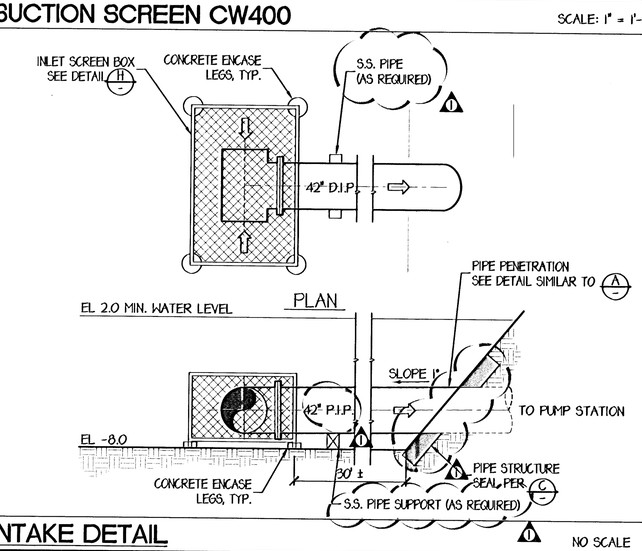
PIPE STRUCTURE SEAL

PERSPECTIVE | C



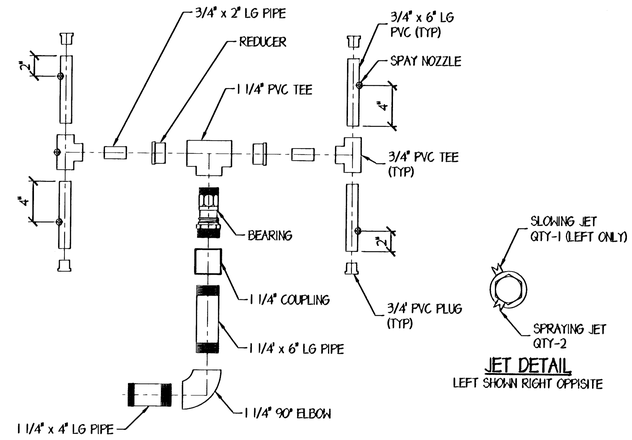
SUCTION SCREEN CW400

SCALE: 1" = 1'-0" | F



INTAKE DETAIL

NO SCALE | J



JET DETAIL
LEFT SHOWN RIGHT OPPISITE

NO	BY	DATE	REVISIONS	DATE	APP.
1	JP	1-8-08	PER CITY COMMENTS		
2	JP	4-29-08	PER CITY COMMENTS		

RECORD DRAWING 5-4-08

PREPARED BY: SONNY O. SIM
PROJECT ENGINEER
R.C.E. NO. # 55816
EXP. 12/31/05

DRAWN: P.M./J.P.
DESIGNED: S.O.S./J.N.
CHECKED: S.O.S.
SCALE:
DATE: 04/27/05

TITLE: WATER FEATURE DETAILS

JOB: CYPRESS GROVE
©OAKLEY
GA.

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET L04
OF 07 SHEETS
JOB NO. 8117-E

Xrefs: 36x24+dwg Water Quality Filter02.dwg
Dimscale = 1; LTscale = 0.5; PSStyle = 1; Acad Ver. = 16.0s (LMS Tech); Variation = 1
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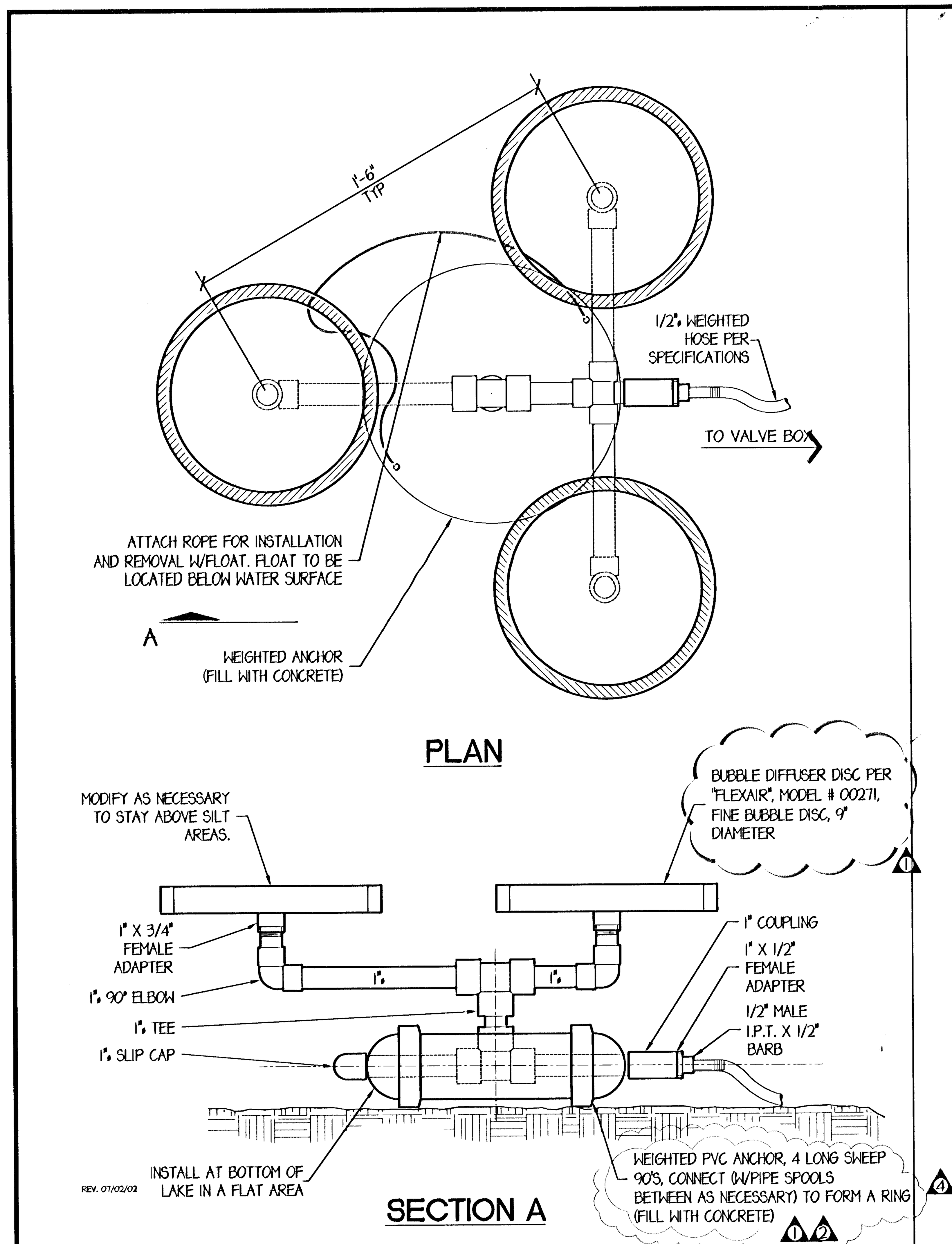
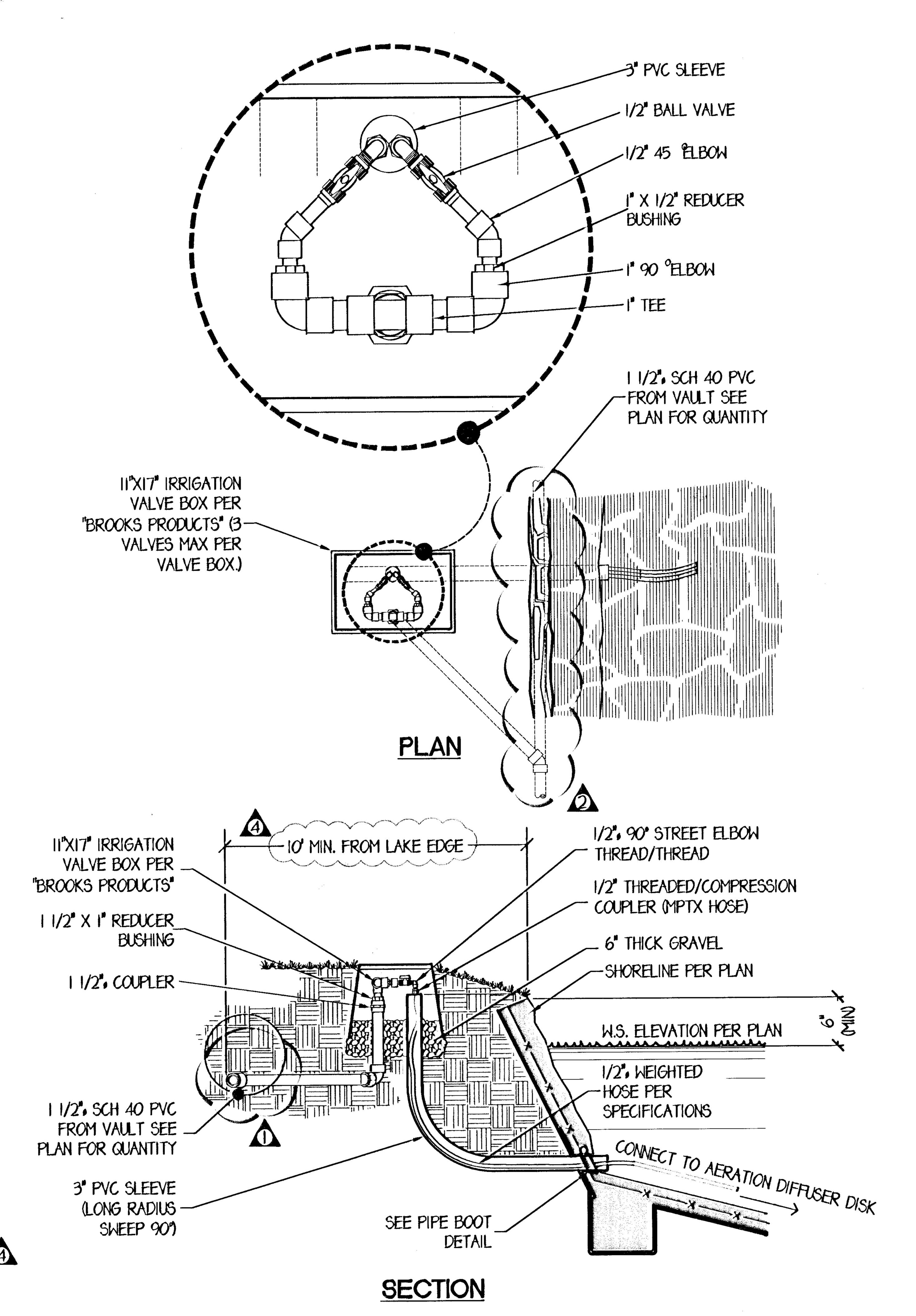
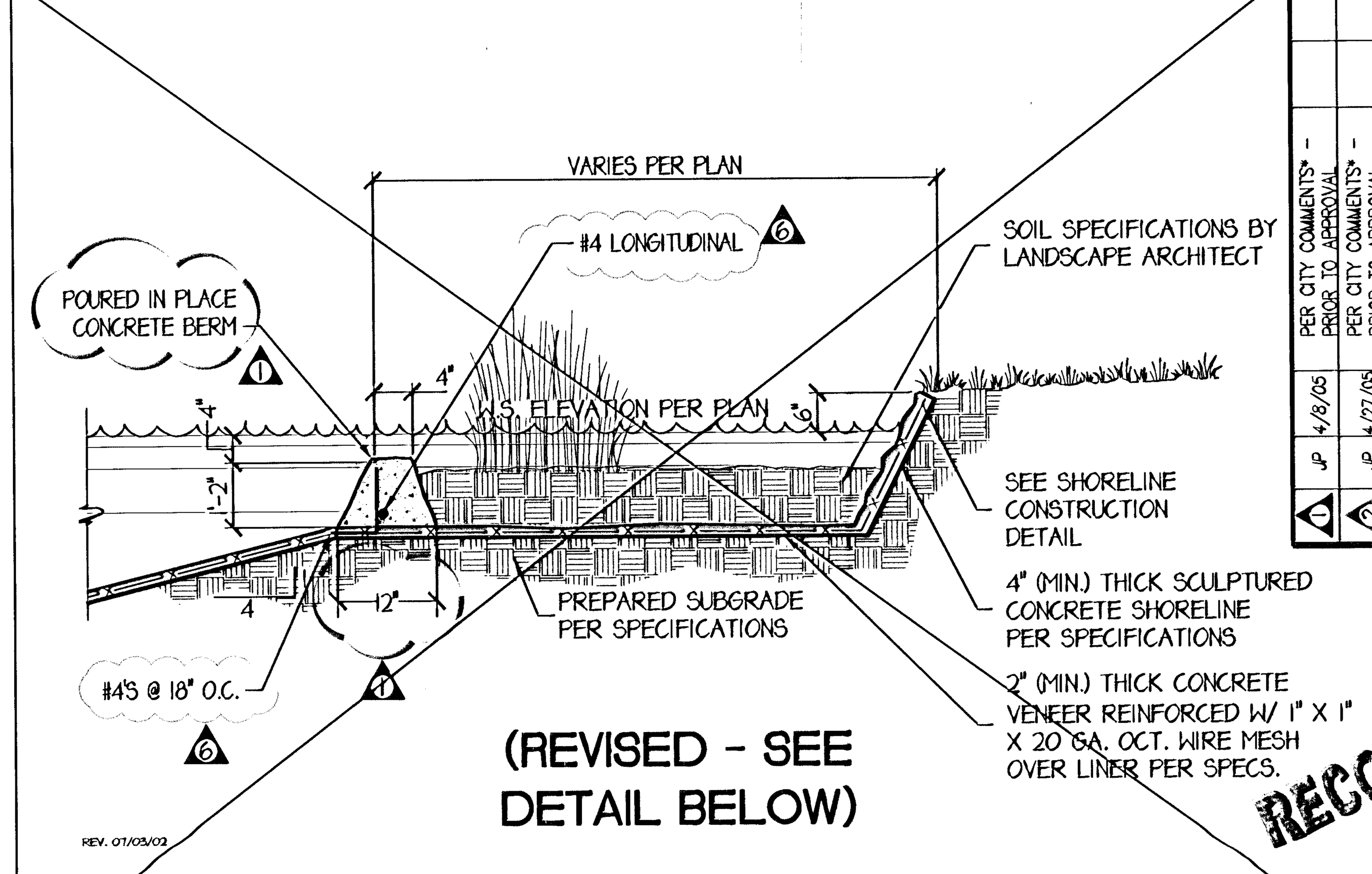


AERATION BUBBLE DIFFUSER 3"=1'-0" D

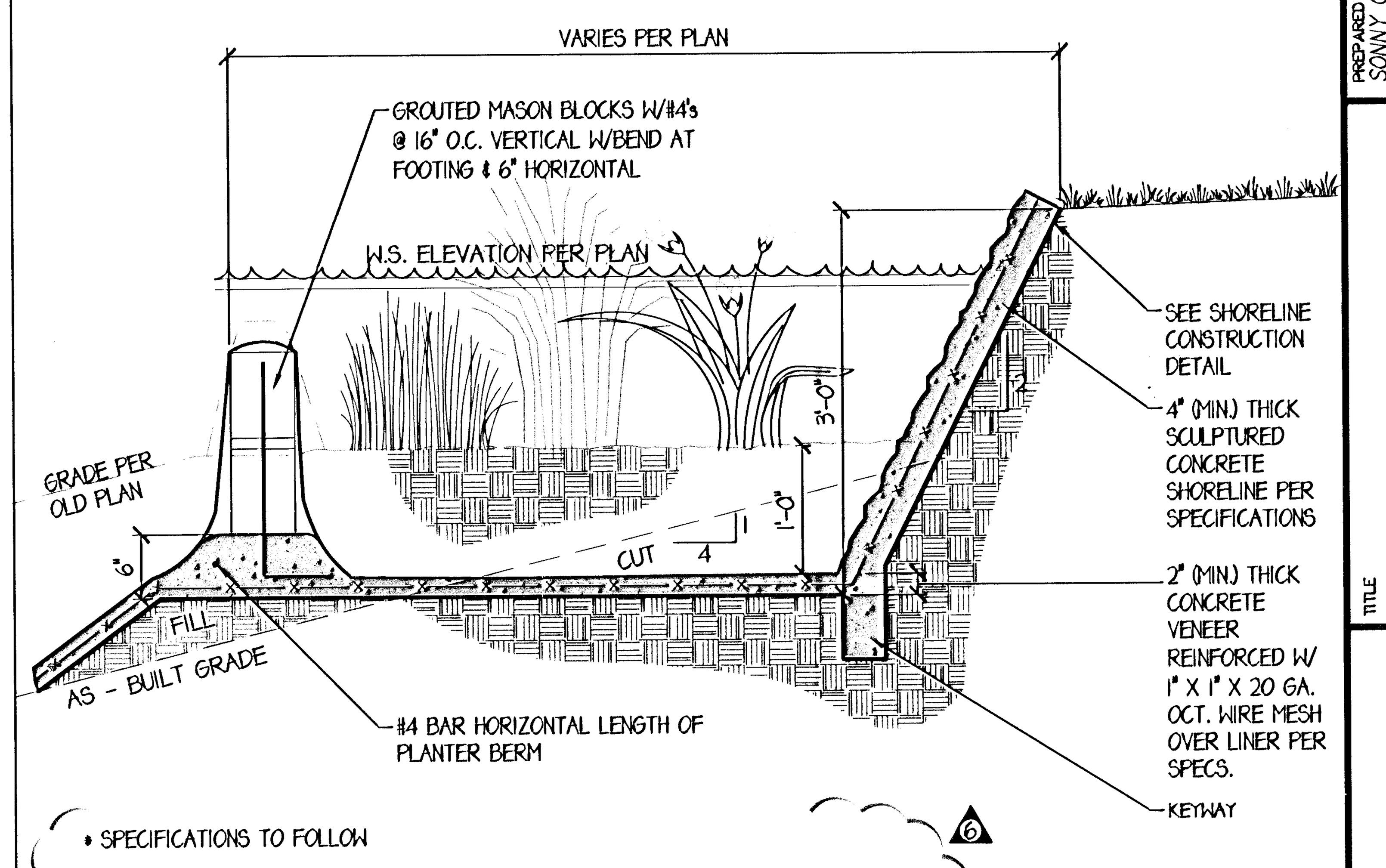


AERATION VALVE BOX 1"=1'-0" E

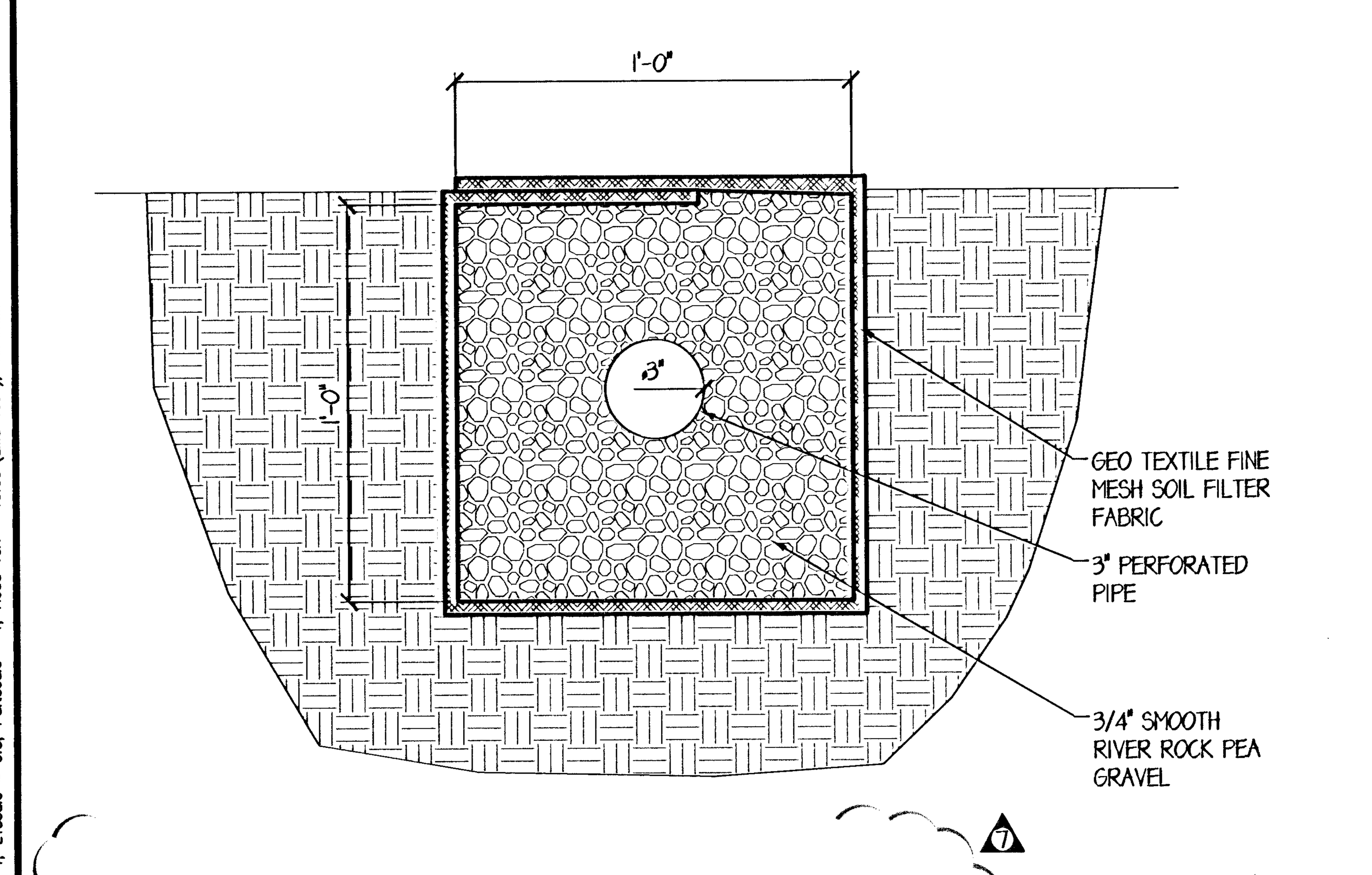


PLANTER SHELF SHORELINE N.T.S. C

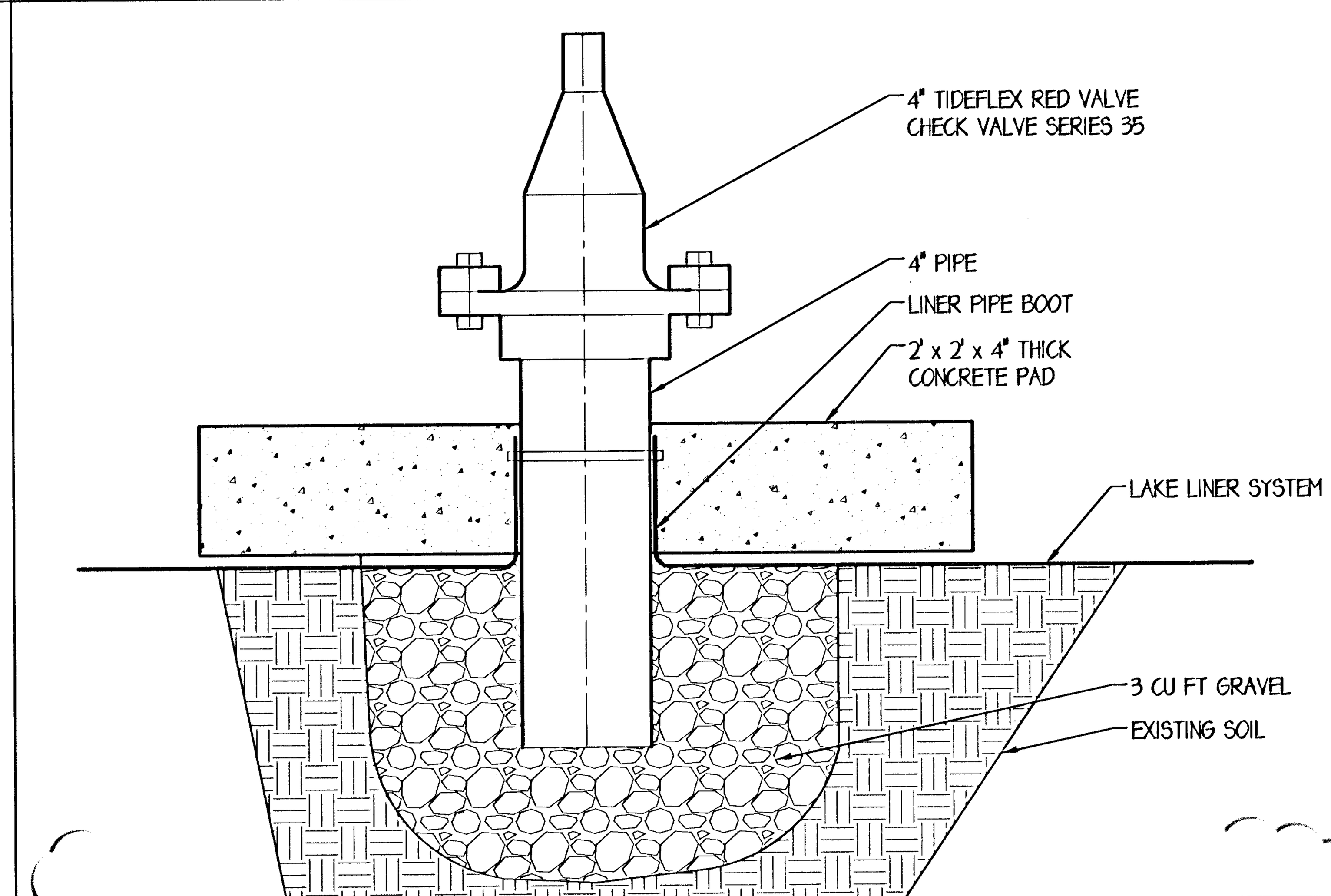
RECORD DRAWINGS



PLANTER SHELF SHORELINE - REVISED 1"=1'-0" C



3" PERFORATED PIPE FRENCH DRAIN 3"=1'-0" G



HYDROSTATIC RELIEF VALVE 3"=1'-0" H

NOTE: DETAILS A & B NOT SHOWN

NO	BY	DATE	REVISIONS	DATE	APP.
1	JP	4/8/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
3	DC	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
4	DC	5/19/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
5	BR	7/8/05	IRRIGATION FILTER		
6	BR	9/21/05	WETLAND PLANTER	11/8/05	
7	BR	9/26/05	HYDROSTATIC RELIEF	11/8/05	

PREPARED BY SONNY O. SIM
PROJECT ENGINEER
R.C.E. NO. — # 59816
EXP. 12/31/05
DRAWN P.M./JP
DESIGNED S.O.S./J.N.
CHECKED S.O.S.
SCALE
DATE 04/27/05

TITLE
WATER FEATURE DETAILS

JOB
CYPRESS GROVE
OAKLEY CA.

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET L05
OF 07 SHEETS
JOB NO. 8117-E

O'KEEFE STREET

3 - TELEPHONE LINE TO CONTROL PANEL

1" POTABLE WATER LINE PER CB&G IMPROVEMENT PLANS

4

42" PIP INLET
IE -6.05

4" PVC
IE -7.62

3

54 L.F. OF 42" PIP @ S=0.111

10'

10.5'

5.00'

FFE 8.0

DRIVEWAY PER CBG IMPROVEMENT PLANS

30" C905 OUTLET
IE -1.13

30" FM PER IMPROVEMENT PLANS BY CB&G ENGINEERING

PUMP STATION CONTRACTOR TO COORDINATE W/ FORCE MAIN CONTRACTOR FOR CONNECTION

8" SCH 80 PVC OUTLET TO IRRIGATION PER JAMES D. EDDY & ASSOC. PLANS CONTRACTOR TO EXTEND PIPE 5' SEE DIMENSION

3

2

10" PIP (2)
IE -5.6

8" PVC
IE 4.17

4" SCH40 PVC

2

2" SCH40 PVC AIR LINE

8" SCH 80 PVC RECIRC.

2 1/2" SCH40 PVC RETURN

10" PIP INLET

42" PIP INLET
IE -6.65

4" PVC
IE -6.0

CRANE COURT

NOTE:
CONTRACTOR TO STUB OUT TO 10' FROM SHORELINE. MATCH PIPE INVERT WITH LAKE CONTRACTOR.

LAKE PIPELINE (BY OTHERS)

42" PIP INLET (BY OTHERS)

NORTH

10 5 0 10 20

SITE PLAN

SCALE: 1"=10'

NO	BY	DATE	REVISIONS	DATE APP.
1	SL	4/5/5	PER CITY COMMENTS	
2	DG	4/27/5	PER CITY COMMENTS	
3	DG	5/05/5	PER CITY COMMENTS	
4	DG	5/19/5	PER CITY COMMENTS	

RECORD DRAWINGS 5.19.05

REGISTERED PROFESSIONAL ENGINEER ANDREW T. KOMOR No. C 64928 Exp. 6-30-07 CIVIL STATE OF CALIFORNIA

PREPARED BY
ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. — # C 64928
EXP. 6/30/07

SCALE

DRAWN S.L./A.K.
DESIGNED J.A.M.
CHECKED A.K.

DATE APR 2005

CYPRESS GROVE
WATER PUMP STATION

YARD PIPING PLAN

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET
C1

JOB NO. 8138-E

Xrefs: 8138-10-TBAK.dwg; 8138-x-topo.dwg; 8138-CC.dwg; 8138-SITE.dwg; 8117-lake.dwg; 8138-PUMP_SITE.dwg; 8138-MASTR0679.dwg; 8138-MASTR0650.dwg; 8138-MECH.dwg; 8138-ARCH.dwg
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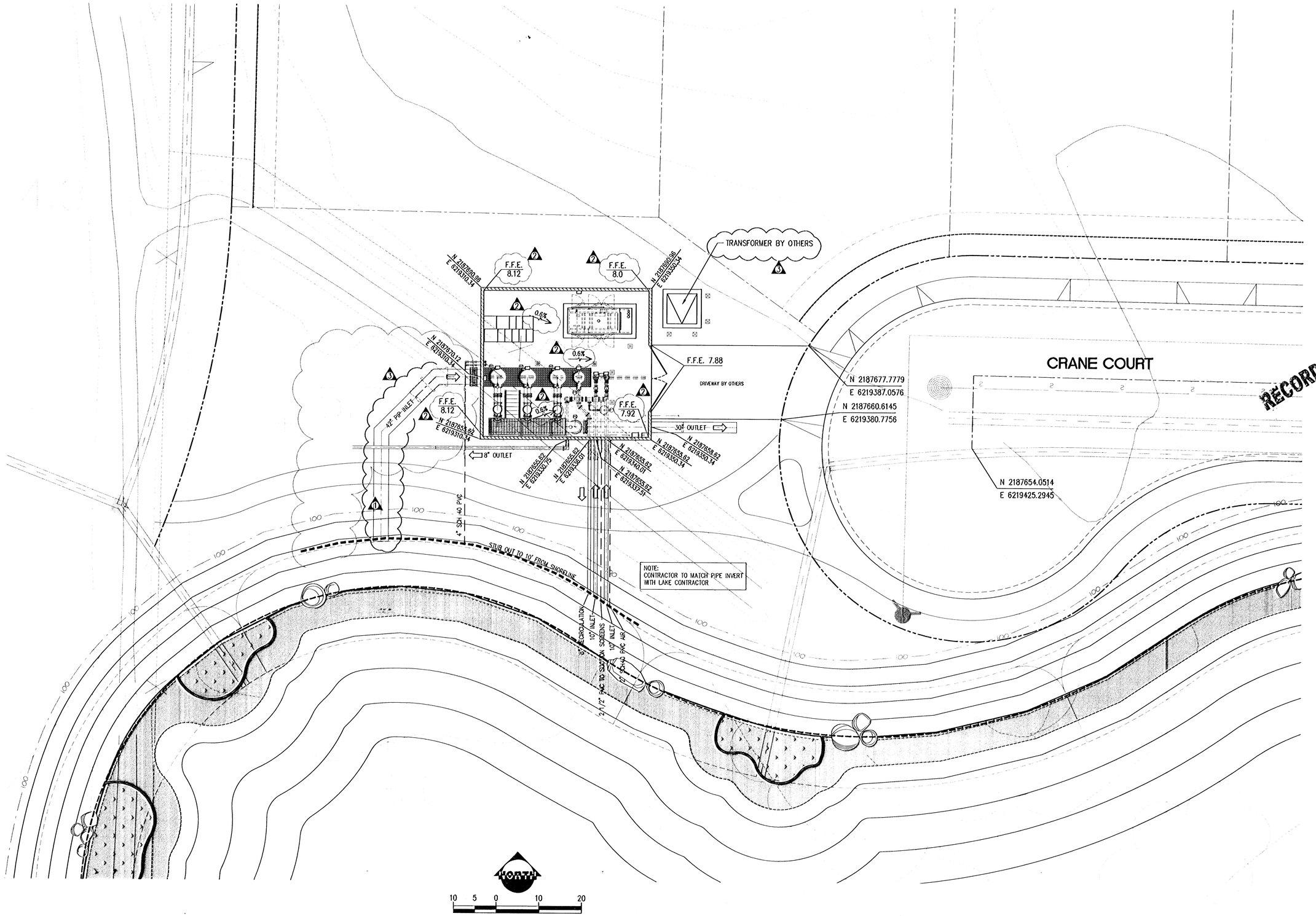

NO	BY	DATE	REVISIONS	DATE APP.
1	SL	4/5/5	PER CITY COMMENTS	
2	DG	4/27/5	PER CITY COMMENTS	
3	DG	5/06/5	PER CITY COMMENTS	

RECORD DRAWINGS 5-4-05

REGISTERED PROFESSIONAL ENGINEER ANDREW T. KOMOR No. C 64328 Exp. 6/30/07 CIVIL

PREPARED BY
ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. # C 64328
EXP. 6/30/07

DRAWN S.L./A.K.
DESIGNED J.A.M.
CHECKED A.K.

SCALE 1" = 10'

DATE APR 2005

CYPRESS GROVE WATER PUMP STATION

SITE PLAN

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET C2

JOB NO. 8138-E

Xrefs: 8138-10-TBlk.dwg, 8138-x-topo.dwg, 8117-data.dwg, 8138-MECH.dwg, 8138-ARCH.dwg, 8138-SITE.dwg, 8138-MSTR0679.dwg
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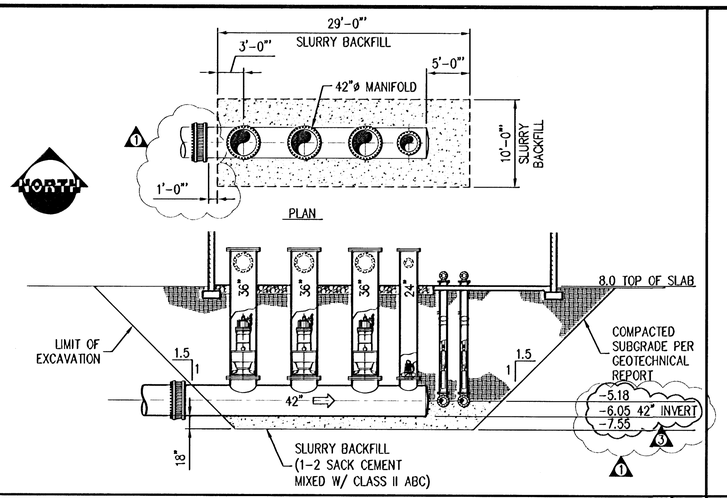

42" INTAKE PIPE DETAIL

SCALE: 1/8"=1'-0" | A

NO	BY	DATE	REVISIONS	DATE APP.
1	DG	1/06/05	PER CITY COMMENTS	
2	DG	5/05/05	PER CITY COMMENTS	

RECORD DRAWINGS

PREPARED BY
ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. — # C 64928
EXP. 6/30/07

DRAWN: D.L./A.K.
DESIGNED: J.A.M.
CHECKED: A.K.
SCALE:
DATE: APR 2005

CYPRESS GROVE
WATER PUMP STATION

DETAILS

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET
C3

JOB NO. 8138-E

GENERAL STRUCTURAL NOTES

A. GENERAL REQUIREMENTS

1. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE STRUCTURAL ENGINEERS IN THIS OR SIMILAR LOCALITIES. THEY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKMEN WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

2. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, LAGGING, SHORING, BRACING, FORM-WORK, ETC. AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. CONSTRUCTION MATERIALS SHALL BE UNIFORMLY SPREAD OUT SUCH THAT DESIGN LIVE LOAD PER SQUARE FOOT AS NOTED HEREIN IS NOT EXCEEDED.

3. DESIGN OF NON-PRIMARY STRUCTURAL ITEMS, SUCH AS STAIRS, RAILINGS, NON-STRUCTURAL WALLS AND PREFABRICATED STRUCTURAL ITEMS, SUCH AS FLOOR AND ROOF TRUSSES, IS TO BE PROVIDED BY OTHERS AND SUBMITTED FOR APPROVAL AS A DEFERRED SUBMITTAL UNLESS SPECIFICALLY NOTED ON THESE DRAWINGS.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS WITH ARCH'L. DRAWINGS AND RESOLVE ANY DISCREPANCIES WITH THE ARCHITECT PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCH'L., MECH., PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SCBCONTRACTORS PRIOR TO CONSTRUCTION.

5. TYPICAL DETAILS AND NOTES SHALL APPLY, THOUGH NOT NECESSARILY INDICATED AT A SPECIFIC LOCATION ON PLANS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. DETAILS MAY SHOW ONLY ONE SIDE OF CONNECTION OR MAY OMIT INFORMATION FOR CLARITY.

6. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.

7. ALL INSPECTIONS REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR BY THESE PLANS SHALL BE PROVIDED BY AN INDEPENDENT INSPECTION COMPANY OR THE BUILDING DEPARTMENT. SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN INSPECTION.

8. SHOP DRAWINGS ARE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE STRUCTURAL DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS SHALL BE CLOUDED AND SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW UNLESS SPECIFICALLY NOTED ACCORDINGLY. SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE CONTRACT DRAWINGS. ONE COPY OF EACH SUBMITTAL WILL BE RETAINED FOR THE ENGINEER'S RECORDS.

B. BASIS FOR DESIGN

1. BUILDING CODE: 2001 CALIFORNIA BUILDING CODE

2. ROOF LOADS: LIVE LOAD:
   20 PSF

   DEAD LOAD:
   12 PSF

3. WIND LOAD: 80 MPH BASIC WIND SPEED
   EXPOSURE C

4. SEISMIC LOAD: ZONE 4 Nv=1.0 Cv=0.64
   IMPORTANCE FACTOR = 1.0 Na=1.0 Ca=0.44
   SOIL PROFILE TYPE SD
   R = 4.5
   DISTANCE TO SEISMIC SOURCE 15 KM
   SEISMIC SOURCE TYPE A
   SEISMIC DESIGN CRITERIA BASED ON RECOMMENDATIONS BY KLIENFELDER, INC. FILE NO. 39802.G01 DATED JANUARY 4, 2005.

C. FOUNDATION

1. FOUNDATIONS DESIGNED PER RECOMMENDATIONS BY KLEINFELDER, INC., FILE NO. 39802.G01 DATED JANUARY 4, 2005. SITE PREPARATION, GRADING, TESTS, INSPECTIONS, FIELD OBSERVATIONS, OR APPROVAL FROM THE GEOTECHNICAL ENGINEER RECOMMENDED BY THE GEOTECHNICAL REPORT AND ANY ADDENDA SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF FOUNDATIONS.

2. ALLOWABLE DEAD PLUS LIVE LOAD SOIL PRESSURE = 2000 PSF.

3. TRENCHES AND EXCAVATIONS UNDER OR ADJACENT TO FOUNDATIONS SHALL BE PROPERLY BACKFILLED AND COMPACTED.

D. CONCRETE

1. MIN. 28 DAY COMPRESSIVE STRENGTH, f'c, SHALL BE 2500 psi FOR ALL CONCRETE IN CONTACT WITH SOIL. MIN. 28 DAY STRENGTH FOR ALL OTHER CONCRETE SHALL BE 3000 psi.

2. CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY AND APPROVED BY THE ENGINEER. MIX DESIGNS FOR CONCRETE SLABS SHALL BE PROPORTIONED SO AS TO MINIMIZE SHRINKAGE USING 1 1/2" DIA. MAX. SIZE AGGREGATE.

3. ALL CONCRETE SHALL BE NORMAL WEIGHT OF 145 POUNDS PER CUBIC FOOT USING HARDROCK AGGREGATES.

4. MAX. SLUMP SHALL BE 5 INCHES. WATER SHALL BE CLEAN AND POTABLE.

5. PORTLAND CEMENT SHALL CONFORM TO CBC STANDARD 19-1. TYPE V CEMENT SHALL BE USED FOR CONCRETE IN CONTACT WITH EARTH. TYPE II CEMENT MAY BE USED ELSEWHERE. CEMENT SHALL BE TYPE V WITH POZZOLAN WHERE CONCRETE IS IN CONTACT WITH SOIL CONTAINING VERY SEVERE SULFATE EXPOSURE.

6. FLY ASH MAY BE USED IN CONCRETE, SUBJECT TO APPROVAL BY THE ARCHITECT, PROVIDED THE FOLLOWING CONDITIONS ARE MET:

6.1. FLY ASH SHALL COMPLY WITH ASTM C 618.

6.2. CEMENT CONTENT SHALL BE REDUCED A MINIMUM OF 15 PERCENT UP TO A MAXIMUM OF 25 PERCENT WHEN COMPARED TO AN EQUIVALENT CONCRETE MIX DESIGN WITHOUT FLY ASH. FLY ASH CONTENT SHALL NOT COMPRISE MORE THAN 35 PERCENT OF THE TOTAL CEMENTITIOUS CONTENT. THE WATER-CEMENT RATIO SHALL BE CALCULATED BASED ON THE TOTAL CEMENTITIOUS MATERIAL IN THE MIX.

6.3. CLASS F FLY ASH SHALL BE USED IN SULFATE RESISTANT CONCRETE WITH F'C EQUAL TO OR GREATER THAN 4000 PSI. CLASS C FLY ASH MAY BE USED ELSEWHERE.

6.4. SHOULD THE CONTRACTOR ELECT TO USE EARLY STRENGTH CONCRETE TO ACHIEVE THE SPECIFIED COMPRESSIVE STRENGTH, f'c, AT LESS THAN 28 DAYS, THE CONCRETE MIX DESIGN SHALL BE PROPORTIONED TO DEVELOP THE 28 DAY COMPRESSIVE STRENGTH AT THE REQUIRED AGE. THE CONTRACTOR SHALL SUBMIT TEST DATA FOR REVIEW BY THE STRUCTURAL ENGINEER TO SUBSTANTIATE THE CONCRETE STRENGTH AT THE REQUIRED AGE.

7. NO MORE THAN 90 MINUTES SHALL ELAPSE BETWEEN CONCRETE BATCHING AND CONCRETE PLACEMENT, UNLESS APPROVED BY THE ENGINEER.

D. CONCRETE (CONT.)

8. CONCRETE MIXING, PLACEMENT AND QUALITY SHALL BE PER CBC SECTION 1905 AND CBC STANDARD 19-3. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED. SLABS ON GRADE NEED BE VIBRATED ONLY AROUND AND UNDER FLOOR DUCTS OR SIMILAR ELEMENTS. REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES. UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED 5 FEET.

9. ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS.

10. PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH DUE TO COLD OR HOT WEATHER IN ACCORDANCE WITH ACI 305 AND 306. CONTRACTOR SHALL TAKE SPECIAL CURING PRECAUTIONS TO MINIMIZE SHRINKAGE CRACKING OF CONCRETE SLABS.

11. PIPES AND ELECTRICAL CONDUITS SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE EXCEPT WHERE SPECIFICALLY APPROVED BY THE ENGINEER. EMBEDDED ITEMS SHALL NOT IMPAIR THE STRENGTH OF THE MEMBER.

E. MASONRY

1. SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, f'm, SHALL BE 1500 PSI. CONTRACTOR SHALL SUBMIT EVIDENCE THAT ALL CONCRETE BLOCK, GROUT AND MORTAR CONFORM TO THE REQUIREMENTS OF EITHER CBC 2105.3.2 OR CBC 2105.3.4 TO ACHIEVE THE DESIGN COMPRESSIVE STRENGTH SPECIFIED ABOVE BASED ON ONE HALF ALLOWABLE STRESSES.

2. STRUCTURAL MASONRY SHALL BE HOLLOW, MEDIUM WEIGHT (115 PCF), LOAD-BEARING CONCRETE MASONRY UNITS CONFORMING TO CBC STANDARD 21-4. ALL BLOCKS SHALL BE PLACED IN RUNNING BOND CONSTRUCTION U.N.O. WITH ALL VERTICAL CELLS IN ALIGNMENT.

3. MORTAR MIX SHALL CONFORM TO REQUIREMENTS OF CBC STANDARD 21-15, TYPE M OR S.

4. GROUT SHALL CONFORM TO REQUIREMENTS OF CBC STANDARD 21-19. USE SUFFICIENT WATER FOR GROUT TO FLOW INTO ALL JOINTS OF THE MASONRY WITHOUT SEGREGATION. ONLY SOLID GROUT CELLS WITH REINFORCING UNLESS REQUIREMENT TO SOLID GROUT ENTIRE WALL IS SPECIFICALLY NOTED ON PLANS OR SCHEDULE. HOLD GROUT DOWN 1-1/2" BELOW TOP OF BLOCK AT GROUT LIFT JOINTS.

5. LAP REINFORCING BARS SHALL BE PER CBC 2107 OR REBAR LAP SCHEDULE, WHERE PRESENT, U.N.O.

6. REINFORCING SHALL BE SECURED IN ITS PROPER POSITION WITHIN THE CELL TO PREVENT LATERAL DISPLACEMENT PRIOR TO GROUTING PER CBC REQUIREMENTS.

7. MIN. WALL VERT. REINFORCING, U.N.O. ON PLANS OR DETAILS, SHALL BE #5 BAR VERT. FULL HEIGHT IN CENTER OF GROUTED CELL AT ALL WALL INTERSECTIONS, CORNERS, WALL ENDS, JAMBS AT WALL OPENINGS, AND AT EACH SIDE OF CONTROL JOINTS. REFER TO PLAN FOR TYPICAL VERT. WALL REINF. SIZE AND SPACING. DOWEL ALL VERT. REINFORCING TO FOUNDATION WITH DOWELS TO MATCH AND LAP VERT. REINFORCING.

8. MIN. WALL HORIZ. REINFORCING, U.N.O. ON PLANS OR DETAILS, SHALL BE (2) #5 BARS IN CENTER OF 32 INCH DEEP (MIN.) CONTINUOUS GROUTED BOND BEAM AT ROOF LINES AND SINGLE #5 BAR IN CENTER OF 16 INCH DEEP CONTINUOUS GROUTED BOND BEAM FREE STANDING WALL AND AT INTERVALS NOT TO EXCEED 48" o.c. PLACE BARS AT ROOF LINES CONTINUOUS THROUGH CONTROL JOINTS. PROVIDE BENT BARS PER TYPICAL DETAILS TO MATCH AND LAP HORIZ. BOND BEAM REINFORCING AT CORNERS AND WALL INTERSECTIONS TO MAINTAIN BOND BEAM CONTINUITY. USE BOND BEAM UNITS AT HORIZ. REINFORCING.

F. REINFORCING STEEL

1. REINFORCING STEEL SHALL CONFORM TO REQUIREMENTS OF ASTM A615 OR ASTM A706. REINFORCING SHALL BE GRADE 60 (FY = 60 KSI) DEFORMED BARS FOR ALL BARS #5 AND LARGER AND ALL BARS USED FOR MASONRY WALL PRIMARY REINFORCING. REINFORCING MAY BE GRADE 40 (FY = 40 KSI) DEFORMED BARS FOR ALL BARS #4 AND SMALLER U.N.O. ON PLANS OR DETAILS. ALL REINFORCING TO BE WELDED SHALL BE ASTM A706, GRADE 60 LOW ALLOY WELDABLE STEEL.

2. WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A185. LAPS IN WELDED WIRE FABRIC SHALL BE MADE SUCH THAT THE OVERLAP, MEASURED BETWEEN OUTERMOST CROSS WIRE OF EACH FABRIC SHEET, IS NOT LESS THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES.

3. ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" OR "CLR" ARE TO CENTER OF STEEL. MIN. COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS FOLLOWS, U.N.O. ON PLANS OR DETAILS:

EXPOSURE CONDITION:	MINIMUM COVER :	TOLERANCES (+ / -):
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"	3/8"
EXPOSED TO EARTH OR WEATHER:		
NO. 5 AND SMALLER:	1 1/2"	3/8"
NO. 6 AND LARGER:	2"	3/8"
SLABS ON GRADE	1 1/2"	1/4"

4. LAP SPLICES OF REINFORCING STEEL IN MASONRY AND CONCRETE SHALL BE ACCORDING TO THE TYPICAL LAP SCHEDULE, U.N.O. STAGGER SPLICES A MIN. OF ONE LAP LENGTH. NO TACK WELDING OF REINFORCING BARS ALLOWED. LATEST ACI CODE AND DETAILING MANUAL APPLY. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZ. BARS AT ALL CORNERS AND INTERSECTIONS PER TYPICAL DETAILS. VERT. WALL BARS SHALL BE SPLICED AT OR NEAR FLOOR LINES. SPLICE TOP BARS AT CENTER LINE OF SPAN AND BOTTOM BARS AT THE SUPPORT IN SPANDRELS, BEAMS, GRADE BEAMS, ETC. U.N.O.

5. MECHANICAL SPLICE COUPLERS SHALL HAVE CURRENT ICBO APPROVAL AND SHALL BE CAPABLE OF DEVELOPING 125% OF THE STRENGTH OF THE BAR.

6. ALL REINFORCING SHALL BE BENT COLD. BARS SHALL NOT BE UN-BENT AND RE-BENT. FIELD BENDING OF REBAR SHALL NOT BE ALLOWED UNLESS SPECIFICALLY NOTED.

7. WELDING OF REINFORCING BARS, METAL INSERTS, AND CONNECTIONS SHALL CONFORM WITH CBC STANDARD 19-1, AND SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS.

8. REINFORCING BAR SPACING SHOWN ON PLANS ARE MAX. ON CENTERS. ALL BARS SHALL BE DETAILED AND PLACED PER CRSI SPEC'S AND HANDBOOK. DOWEL ALL VERT. REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. MIN. CLEAR SPACING BETWEEN PARALLEL REINFORCEMENT SHALL BE THE LARGER OF 1-1/2 TIMES NOMINAL BAR DIA. OR 1-1/3 TIMES MAX. AGGREGATE SIZE OR 1-1/2".

G. STRUCTURAL STEEL

1. STRUCTURAL STEEL MEMBERS SHALL CONFORM WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES U.N.O:

SHAPE	STANDARD	Fy
ROLLED WIDE FLANGE SECTIONS	ASTM A992	50 KSI
BARS AND PLATES	ASTM A36	36 KSI
TUBES	ASTM A500, GRADE B	46 KSI
BOLTS	ASTM A325	---
NUTS	ASTM A563	---
WASHERS	ASTM F436	---
ANCHOR BOLTS/RODS	ASTM A307	---
	OR ASTM F1554, GRADE 55 (F1554 RODS SHALL COMPLY WITH WELDABILITY SUPPLEMENT S1)	55

2. WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS. ALL WELDING SHALL USE E70 SERIES LOW HYDROGEN ELECTRODES OR E71T-8 WIRE ELECTRODES PER AWS 520 U.N.O. ALL WELDS INVOLVING REINFORCING BARS SHALL USE E90 SERIES ELECTRODES. ALL WELDING SHALL CONFORM WITH THE LATEST AMERICAN WELDING SOCIETY STANDARDS. WELDS ON DRAWINGS ARE SHOWN AS SHOP WELDS. CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. ALL FULL PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY. ALL MISCELLANEOUS WELDS SHALL BE PER LATEST AMERICAN WELDING SOCIETY STANDARDS.

3. ALL BOLTS SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS WITH THREADS EXCLUDED FROM SHEAR PLANE (TYPE "X" CONNECTION), U.N.O. HIGH-STRENGTH BOLTS SHALL BE SNUG TIGHTENED USING ANY AISC APPROVED METHOD AND REQUIRE PERIODIC SPECIAL INSPECTION U.N.O. ALL BOLTS IN SLOTTED OR OVERSIZE HOLES AND ALL HIGH-STRENGTH BOLT SHALL BE INSTALLED WITH WASHERS.

4. ALL ANCHOR BOLTS/RODS AT STEEL COLUMN BASEPLATES SHALL BE EITHER BOLTS WITH HEADS EMBEDDED INTO CONCRETE OR RODS WITH THREADS BOTH ENDS (OR ALLTHREADED ROD) WITH NUT FULLY THREADED ONTO EMBEDDED END. TACK WELD NUT TO ROD OR "DING" THREADS TO PREVENT NUT FROM BACKING OFF.

5. ANCHOR BOLTS/RODS SHALL NOT BE REPAIRED, REPLACED OR FIELD MODIFIED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

6. ALL STRUCTURAL AND MISC. STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" LATEST EDITION.

7. ALL MISC. WELDS NOT NOTED, INCLUDING STIFFENERS, MISC. PLATES, ETC. SHALL BE PER LATEST EDITION OF AISC MANUAL TABLE J2.4.

8. HEADED STUDS SHOWN ON PLANS OR DETAILS SHALL BE TRW NELSON STUDS PER I.C.B.O. # ER-5217 OR APPROVED EQUAL. STUDS SHALL HAVE FLUXED ENDS AND BE AUTOMATICALLY END-WELDED WITH SUITABLE EQUIPMENT AT SPACINGS INDICATED ON THE PLANS OR DETAILS. WELDING OF STUDS SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY THE AMERICAN WELDING SOCIETY. HEADED STUDS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY ARE OF EQUIVALENT CAPACITY FOR THE INTENDED APPLICATION AND HAVE CURRENT I.C.B.O. APPROVAL.

9. ALL EXPANSION ANCHOR BOLTS SHALL BE EITHER TRUBOLT WEDGE ANCHORS MANUFACTURED BY ITW/RAMSET/REDHEAD PER ICBO NO. ER-1372, HILTI KWIK-BOLT II PER ICBO ER-4627 OR WEDGE-ALL EXPANSION ANCHORS MANUFACTURED BY SIMPSON STRONG-TIE PER ICBO NO. ER-3631. ALL EXPANSION ANCHOR BOLTS SHALL BE INSTALLED WITH SPECIAL INSPECTON. SUBSTITUTIONS SHALL ONLY BE PERMITTED WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER THROUGH THE ARCHITECT.

10. ALL EPOXY ANCHOR BOLTS SHALL USE EITHER SIMPSON SET EPOXY PER ICBO ER-5279, ITW RAMSET/RED HEAD EPCON CERAMIC 6 PER ICBO ER-4285, OR HILTI HY-150 INJECTION ADHESIVE PER ICBO ER-5193. INSTALL PER MANUFACTURER'S SPECIFICATIONS. SPECIAL INSPECTION PER CBC SECTION 1701 IS REQUIRED FOR ALL EPOXY ANCHOR INSTALLATIONS. FOR EPOXY PRODUCTS, THE BASE MATERIAL TEMPERATURE SHALL BE NO LESS THAN 40° F AT THE TIME OF APPLICATION.

H. STEEL DECK

1. STEEL DECK SHALL BE MANUFACTURED BY EITHER VERCO MANUFACTURING, CO., PER ICBO ER-2078P OR ASC STEEL DECK PER ICC ER-2757. STEEL DECK BY OTHER MANUFACTURERS MAY BE USED ONLY WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER THROUGH THE ARCHITECT.

2. ALL DECK WELDING SHALL USE E60 OR E70 SERIES ELECTRODES (MIN. ROD DIA. = 1/8"). ALL ARC SPOT (PUDDLE) WELDS SHALL HAVE AN EFFECTIVE FUSION AREA NOT LESS THAN 1/2" IN DIA. OR 3/8" x 1". ANY ARC SEAM WELDS SHALL HAVE A FUSION AREA NOT LESS THAN 3/8" x 1 1/2". OTHER DECK WELD REQUIREMENTS SHALL COMPLY WITH THE LATEST EDITION OF AWS D1. 3.

3. ROOF DECK TYPE, THICKNESS, AND GAGE SHALL BE AS NOTED ON PLAN. DECK SHALL BE ERECTED IN ACCORDANCE WITH MFR'S RECOMMENDATIONS AS 3 SPAN MIN. WELD DECK TO SUPPORTING MEMBERS WITH (5) PUDDLE WELDS PER SHEET AT ENDS, END LAPS AND INTERMEDIATE SUPPORTS, AND AT 12" o.c. AT PERIMETER BEAMS, EDGES OF OPENINGS RUNNING PARALLEL TO THE DECK, AND AT DRAG OR COLLECTOR ELEMENTS NOTED ON PLANS. END LAPS AT SUPPORTS SHALL BE 2" MIN. SIDE SEAM ATTACHMENT SHALL BE BUTTON PUNCHES AT 12" o.c. DECK STEEL MAY EITHER BE GALVANIZED OR PRIME PAINTED.

4. STEEL DECK SUPPLIER SHALL PROVIDE ALL NECESSARY ACCESSORIES SUCH AS RIDGE AND VALLEY PLATES, SADDLES, COVER PLATES, MUD STOPS NOT SPECIFICALLY NOTED ON PLANS, ETC., TO MAKE THE JOB COMPLETE.

I. LIGHT GAUGE STEEL FRAMING

1. ALL COLD-FORMED LIGHT GAUGE STEEL FRAMING SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH MFR'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" BY THE AMERICAN IRON AND STEEL INSTITUTE.

2. STRUCTURAL DRAWINGS TYPICALLY SHOW ONLY THE PRIMARY STRUCTURAL FRAMING ELEMENTS OF THE SYSTEM. CONTRACTOR SHALL PROVIDE ALL ACCESSORIES INCLUDING TRACKS, WEB STIFFENERS, BLOCKING, LINTELS, CLIP ANGLES, REINFORCEMENTS, FASTENING DEVICES, BRACING, AND OTHER ACCESSORIES AS RECOMMENDED BY THE MFRTO PROVIDE A COMPLETE FRAMING SYSTEM.

3. STEEL FOR 12, 14 AND 16 GAGE STUDS AND JOISTS SHALL HAVE A MIN. YIELD STRENGTH OF 50 KSI. STEEL FOR ALL 18, 20 AND 25 GAGE STUDS AND JOISTS, ALL GAGES OF TRACK, ALL DIAGONAL TENSION STRAPS OR BRACES, AND BRIDGING SHALL HAVE A MIN. YIELD STRENGTH OF 33 KSI. STEEL SHALL BE GALVANIZED OR THOROUGHLY COATED WITH RUST INHIBITIVE PAINT AT ALL LOCATIONS.

4. FASTENING OF COMPONENTS SHALL BE WITH SELF-TAPPING SCREWS OR WELDS. ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED UP WITH ZINC-RICH PAINT. ALL WELDS OF CARBON SHEET STEEL SHALL BE TOUCHED UP WITH PAINT.

5. SCREWS SHALL BE SELF-TAPPING PAN HEAD, HEX HEAD, OR WAFER HEAD SHEET METAL SCREWS. SCREWS WHICH ARE REMOVED SHALL BE REPLACED BY A SCREW OF A LARGER DIA. WHERE THE REPLACEMENT IS MADE INTO AN EXISTING HOLE. REPLACE ALL SCREWS WHICH STRIP OUT MATERIAL. SCREWS SHALL BE SPACED NO CLOSER THAN 5/8 INCH O.C. AND WITH A MIN. FREE EDGE DISTANCE OF 1/2 INCH. CLIP ANGLES OR FLAT CLIPS USED FOR ATTACHMENTS SHALL BE 20 GAGE MIN., U.N.O. SIZE CLIP ANGLES AND FLAT CLIPS TO MAINTAIN MIN. SCREW SPACING AND EDGE DISTANCES NOTED ABOVE. ALL SCREWS #8 AND LARGER SHALL HAVE A MIN. HEAD SIZE OF 5/16 INCH.

I. LIGHT GAUGE STEEL FRAMING (CONT.)

6. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAGE STRUCTURAL STEEL FRAMING WORK.

7. STUDS SIZE WHERE NOT SPECIFICALLY NOTED ON DETAILS SHALL BE 1 5/8 INCH WIDE BY 3 1/2 INCH DEEP BY 20 GAGE MIN. TRACK SIZE WHERE NOT SPECIFICALLY NOTED ON DETAILS SHALL BE 1" WIDE BY 3 1/2 INCH BY 20 GAGE MIN.

8. JOISTS, STUDS, TRACK, ETC. SHALL HAVE STEEL THICKNESS AND EFFECTIVE SECTION PROPERTIES AS LISTED IN THE METAL STUD MFRS ASSOCIATION MANUAL, ICBO ER NO. 4943, OR EQUIVALENT.

J. SUBMITTALS

1. SHOP DRAWINGS OR REPORTS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION OR CONSTRUCTION (AS APPLICABLE) U.N.O.

   CONCRETE MIX DESIGNS
   CONCRETE REINFORCING
   ELECTRICAL GENERATOR
   MASONRY BLOCK, GROUT AND MORTAR STRENGTH
   MASONRY REINFORCING
   STEEL DECK
   STRUCTURAL STEEL

2. REFER TO APPLICABLE G.S.N. SECTIONS FOR DESIGN REQUIREMENTS.

3. SHOP DRAWINGS ARE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE STRUCTURAL DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS SHALL BE CLOUDED AND SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW UNLESS SPECIFICALLY NOTED ACCORDINGLY. SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE CONTRACT DRAWINGS. ONE COPY OF EACH SUBMITTAL WILL BE RETAINED FOR THE ENGINEER'S RECORDS.

4. ALLOW FIVE (5) WORKING DAYS MIN. FOR THE ENGINEER'S REVIEW. ONE COPY OF EACH SUBMITTAL WILL BE RETAINED FOR ENGINEER'S RECORDS.

K. SPECIAL INSPECTIONS

1. IN ADDITION TO STANDARD INSPECTIONS BY THE BUILDING OFFICIAL REQUIRED PER CBC SECTION 108, THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS WHO SHALL PROVIDE INSPECTIONS DURING CONSTRUCTION FOR THE TYPES OF WORK LISTED IN THIS SECTION.

2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE SPECIAL INSPECTOR AT LEAST 24 HOURS NOTICE PRIOR TO PERFORMING ANY WORK REQUIRING SPECIAL INSPECTION.

4. THE SPECIAL INSPECTOR SHALL INSPECT THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED CONTRACT DRAWINGS AND SPEC'S. SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER AND THE BUILDING OFFICIAL. SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPEC'S AND THE APPLICABLE CODE PROVISIONS.

5. INSPECTORS SHALL INSPECT FROM AN APPROVED SET OF CONTRACT DRAWINGS. SHOP DRAWINGS SHALL NOT BE USED IN LIEU OF THE APPROVED CONTRACT DRAWINGS FOR INSPECTION PURPOSES.

6. TYPES OF WORK TO BE INSPECTED BY THE SPECIAL INSPECTOR ARE AS FOLLOWS:

6.1. DURING THE WELDING OF ANY STRUCTURAL MEMBER OR CONNECTION, EXCEPT WELDING DONE IN AN APPROVED FABRICATOR'S SHOP PER CBC SECTION 1701.7. EXCEPTION: SPECIAL INSPECTOR NEED NOT BE CONTINUOUSLY PRESENT DURING WELDING OF SINGLE PASS FILLET WELDS NOT LARGER THAN 5/16 INCH OR FLOOR AND ROOF DECK WELDING, PROVIDED THE MATERIALS AND QUALIFICATIONS OF WELDING PROCEDURES AND WELDERS ARE VERIFIED PRIOR TO THE START OF WORK, AND PERIODIC INSPECTIONS ARE MADE OF WORK IN PROGRESS.

6.2. DURING ALL EPOXY ANCHORING OPERATIONS FOR BOLTS, REBAR, THREADED ROD, ETC. INCLUDING VERIFICATION OF BOLT OR BAR MATERIALS, HOLE DEPTH AND DIA., HOLE CLEANOUT, EPOXY MIXING AND PLACEMENT PROCEDURES, AND EMBEDMENT DEPTH IN ACCORDANCE THE CONTRACT DRAWINGS AND THE MFR'S SPEC'S AND RECOMMENDATIONS.

7. CERTIFICATE OF APPROVAL REGARDING MATERIALS AND INSPECTION OF PREFABRICATED ITEMS SHALL BE PROVIDED IN ACCORDANCE WITH CBC SECTION 1704.

STANDARD ABBREVIATIONS

A.B.	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
A.C.S.	ALL COMMON SURFACES
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH'L.	ARCHITECTURAL
ALT.	ALTERNATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B.F.F.	BELOW FINISH FLOOR
BOT.	BOTTOM
BRG.	BEARING
C.J.	CONTROL JOINT
C.J.P.	COMPLETE JOINT PENETRATION
℄	CENTER LINE
CLR.	CLEAR DIMENSION TO FACE OF REBAR
COL.	COLUMN
CONT.	CONTINUOUS
DIA.	DIAMETER
DIAG.	DIAGONAL
DWG.	DRAWING
E.F.	EACH FACE
EL.	ELEVATION
ELECT.	ELECTRICAL
EQ.	EQUAL
E.W.	EACH WAY
F.F.	FINISH FLOOR
FLR.	FLOOR
FT.	FOOT
FTG.	FOOTING
GA.	GAUGE
GLB	GLULAM BEAM
G.S.N.	GENERAL STRUCTURAL NOTES
G.T.	GIRDER TRUSS
HORIZ.	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
IBC	INTERNATIONAL BUILDING CODE
I.D.	INSIDE DIAMETER
INFO.	INFORMATION
JT.	JOINT
K	KIP (1,000 LBS)
K.O.	KNOCKOUT
KSI	KIPS PER SQUARE INCH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LONG.	LONGITUDINAL
LVL	LAMINATED VENEER LUMBER
MFR.	MANUFACTURER
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.T.S.	NOT TO SCALE
o.c.	ON CENTER
O.D.	OUTSIDE DIAMETER
OPP.	OPPOSITE
PL.	PLATE
PLF	POUNDS PER LINEAR FOOT
PLYWD.	PLYWOOD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
REQ'D.	REQUIRED
SIM.	SIMILAR
SPEC.	SPECIFICATION
STD.	STANDARD
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
THRU	THROUGH
T.O.	TOP OF
T.O.D.	TOP OF DECK
T.O.F.	TOP OF FOOTING
T.O.L.	TOP OF LEDGER
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
w/	WITH
w/o	WITHOUT
WT.	WEIGHT

RECORD DRAWINGS

MAY 0 4 2005

NO	BY	DATE	REVISIONS	DATE	APP.
△					
△					
△					
△					
△					

PREPARED BY
PROJECT ENGINEER
R.C.E. NO. ——
EXP.
DRAWN
SCALE
DESIGNED
CHECKED
DATE

CYPRESS GROVE
WATER PUMP STATION

GENERAL STRUCTURAL
NOTES

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WSE# SC24149

SHEET
A0

JOB NO. 8138-E

K:\2004SC\SC24149\A0D-SC24149-G.dwg – Tab: Model By: davidh on May 04, 2005 at 08:23 am

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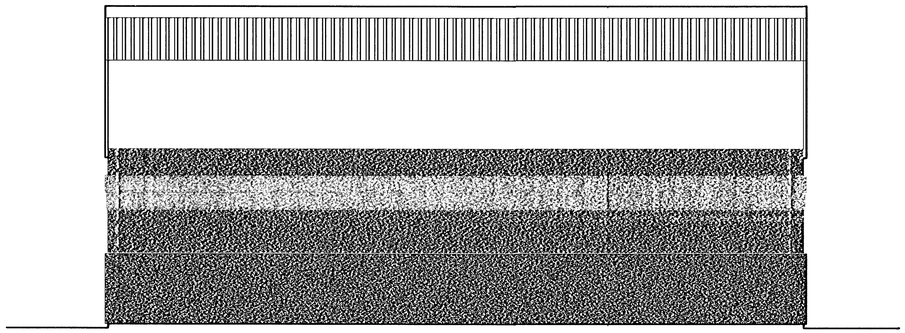
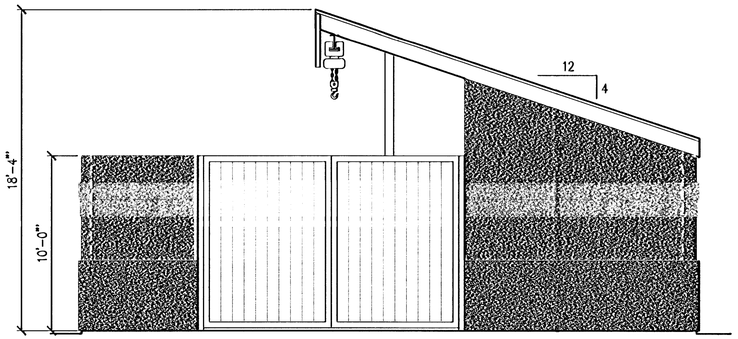


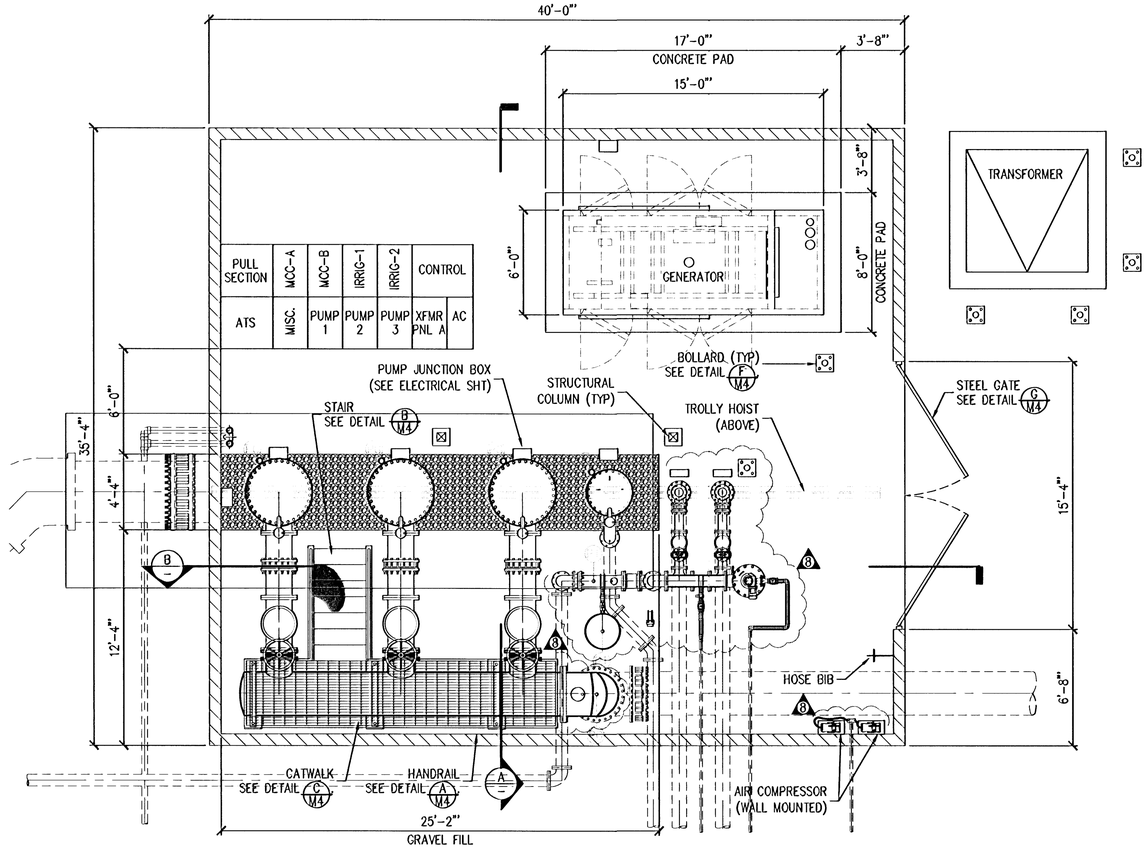
NORTH ELEVATION
1/4" = 1'-0"

PAINTING SPEC:

1. EXPOSED METAL: PRIME-DEVOE 224HS; FINISH-DEVOE 379UVA
2. EXTERIOR BUILDING:
A. MAIN BODY - SW# 7038 TONY TAUPE
B. 4' BOTTOM - SW# 7039 VIRTUAL TAUPE
C. TRIM - SW# 1108 FRAGILE BEAUTY

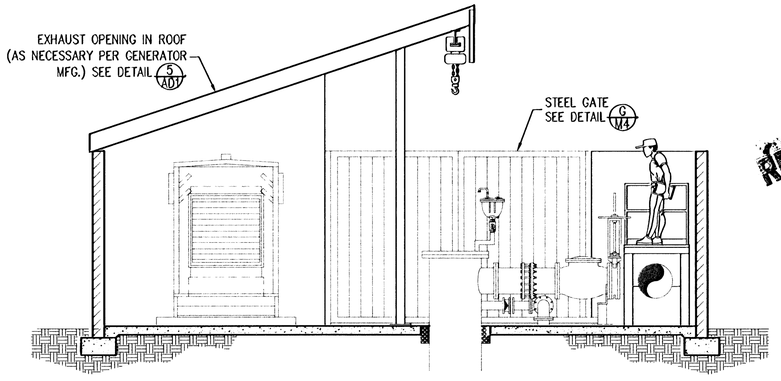


EAST ELEVATION
1/4" = 1'-0"



FLOOR PLAN
1/4" = 1'-0"

NORTH



SECTION A
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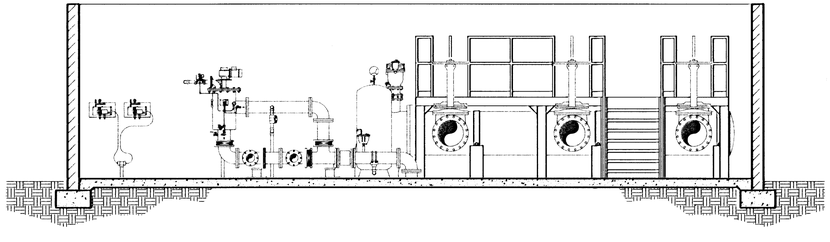

SECTION B
1/4" = 1'-0"

NO.	BY	DATE	REVISIONS	DATE APP.
1	JP	4/8/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
3	DG	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
4	DG	5/19/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
5	BR	7/6/05	IRRIGATION FILTER	
6	BR	9/21/05	WETLAND PLANTER	
7	BR	9/26/05	HYDROSTATIC RELIEF	
8	DG	12/22/05	RECORD DRAWINGS	

RECORD DRAWINGS

PREPARED BY
ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. # C 64928
EXP: 6/30/07

DRAWN: S.L./A.K.
DESIGNED: J.A.M.
CHECKED: A.K.
SCALE: 1/4" = 1'
DATE: APR 2005

CYPRESS GROVE
WATER PUMP STATION

ARCHITECTURAL SECTIONS

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A1

JOB NO. 8138-E

Xrefs: 8138-10-TBL.dwg; 8138-SECTIONS.dwg; 8138-ARCH.dwg; 8138-ARCH.dwg; 8138-STRUCT.dwg
Demands = 48; LTscale = 1; PSltscale = 1; Acad Ver. = 16.0s (LMS Tech); Variation = 1

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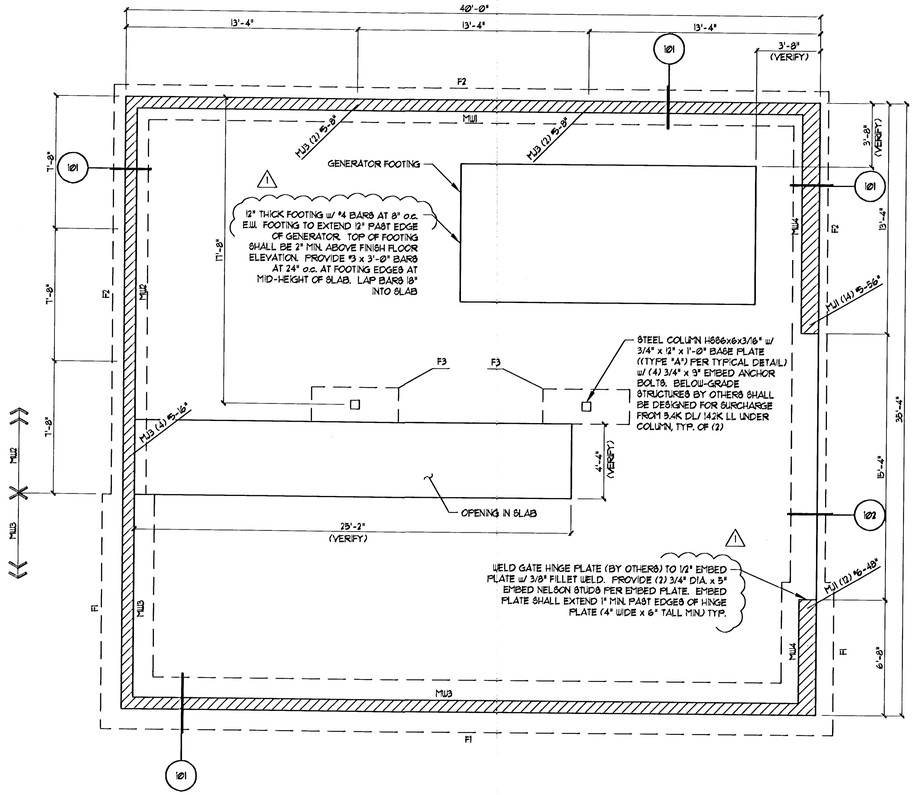
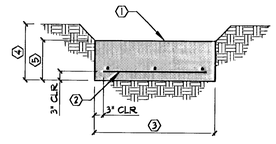


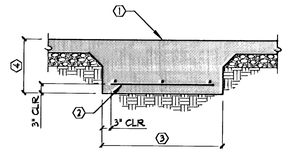
FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

FOOTING (F) SCHEDULE



ISOLATED / CONTINUOUS FOOTING

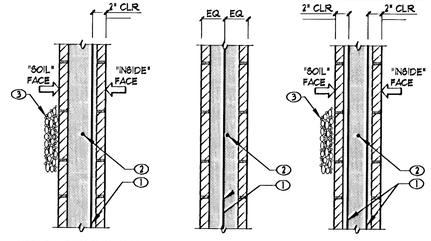


THICKENED SLAB FOOTING

1. SEE PLAN AND DETAILS FOR EMBEDDED ITEMS AND CONSTRUCTION ABOVE FOOTING
2. REBAR
3. WIDTH / LENGTH
4. THICKNESS PER SCHEDULE OR EMBED DEPTH PER G.B.N.
5. THICKNESS

MARK	WIDTH	LENGTH	THICKNESS	FOOTING REBAR	NOTES
F1	3'-0"	CONT.	1'-6"	(3) #4 CONT. TOP & BOTTOM	
F2	2'-0"	CONT.	1'-6"	(2) #4 CONT. TOP & BOTTOM	
F3	2'-0"	3'-0"	1'-6"	#4 AT 6" o.c. E.W. BOTTOM	CAST MONOLITHICALLY w/ SLAB

MASONRY WALL (MW) SCHEDULE



1. VERT. REINFORCING
2. HORIZ. REINFORCING
3. BACKFILL AT "SOIL" FACE AS OCCURS

MARK	NOMINAL THICKNESS	VERT. REINFORCING FULL WALL HEIGHT	HORIZ. REINFORCING	NOTES
MU1	8"	#5 AT 48" o.c. CENTERED	#5 AT 48" o.c.	
MU2	8"	#5 AT 32" o.c. CENTERED	#5 AT 48" o.c.	
MU3	8"	#6 AT 16" o.c. CENTERED	#5 AT 48" o.c.	
MU4	12"	#5 AT 48" o.c. CENTERED	#5 AT 48" o.c.	

SCHEDULE

FOUNDATION PLAN NOTES

A. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. RESOLVE DISCREPANCIES WITH ARCHITECT.

B. ALL FOOTINGS SHALL EXTEND 24 INCHES MIN. BELOW PAD GRADE. PAD GRADE IS DEFINED AS LOWEST ADJACENT COMPACTED SUBGRADE (PAD GRADE BEFORE LANDSCAPING) OR NATURAL GRADE WITHIN 5 FEET OF BUILDING FOR PERIMETER FOOTINGS, OR TOP OF EXTERIOR PAVING OR CONCRETE WHERE EXTERIOR PAVING OR CONCRETE IS PERMANENTLY LOCATED DIRECTLY ADJACENT TO BUILDING AND EXTENDS AT LEAST 5 FEET FROM BUILDING. FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE FROM LOOSE DEBRIS, STANDING WATER, OR UNCOMPACTED MATERIAL AT TIME OF CONCRETE PLACEMENT.

C. FINISH FLOOR ELEVATION = 100'-0" U.N.O.

D. F1, F2, F3, . . . DENOTES FOOTING PER SCHEDULE THIS SHEET.

E. MU1, MU2, MU3, . . . DENOTES MASONRY WALL PER SCHEDULE THIS SHEET.

F. MJX (X) #X-XX" INDICATES MASONRY JAMB PER MASONRY JAMB SCHEDULE THIS SHEET. TYPICAL JAMB SHALL BE MJ1 (2) #5-16" U.N.O. AS A MINIMUM, JAMB REINFORCING SHALL EXTEND TO LEVEL OF FIRST ELEVATED FLOOR OR ROOF ABOVE U.N.O.

G. REFER TO TYP. DETAIL Ø FOR UTILITY PIPES AT FTG.

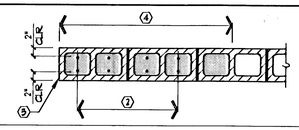
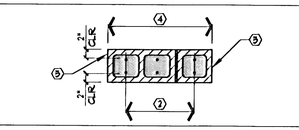
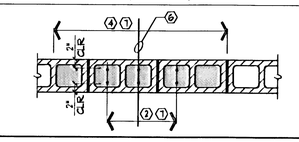
H. TYPICAL CHORD REINFORCING SHALL BE (1) #5 IN CONTINUOUS GROUTED BOND BEAM AT ROOF LEVELS. SEE G.B.N. PLANS, AND DETAILS FOR SPECIAL REINFORCING REQUIRED AT CORNERS, JAMBS, WALL OPENINGS, TOP OF WALL, AND FOR REQUIRED LOCATION OF VERTICAL BARS WITHIN THE CELLS.

I. INTERIOR CONCRETE SLAB ON GRADE SHALL BE 5" THICK OVER APPROVED SUBGRADE PER GEOTECHNICAL REPORT RECOMMENDATIONS. REINFORCE SLAB w/ #4 AT 18" o.c. MAX. EACH WAY CENTERED IN SLAB THICKNESS.

MASONRY JAMB (MJ) SCHEDULE

EXAMPLE DESIGNATION: MJ1 (6) #5 - 32"
① ② ③ ④

1. MASONRY JAMB TYPE PER SCHEDULE BELOW
2. TOTAL NUMBER OF JAMB BARS AS NOTED ON PLAN. ACTUAL NUMBER OF BARS SPECIFIED ON PLAN MAY BE MORE OR LESS THAN SHOWN IN EXAMPLE PROFILES BELOW
3. JAMB BAR SIZE AS NOTED ON PLAN (EX: #4, #5, #6, ETC.)
4. SOLID GROUT DISTANCE AS NOTED ON PLAN. MASONRY JAMB TYPE "MJ2" SHALL BE SOLID GROUTED BETWEEN OPENINGS.
5. EDGE OF WALL OPENING
6. CENTER OF BEAM OR GIRDER BEARING LOCATION
7. CENTER JAMB REINFORCING AND SOLID GROUT ON BEAM OR GIRDER BEARING LOCATION
8. PROFILES SHOWN IN SCHEDULE BELOW ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL BAR QUANTITY, SIZE, AND GROUT DISTANCE SHALL CONFORM TO ACTUAL JAMB DESIGNATIONS.

MARK	PROFILE ⑧
MJ1	
MJ2	
MJ3	

RECORD DRAWINGS

REGISTERED PROFESSIONAL ENGINEER * SCOTT N. JONES No. C 63282 Exp. 06/30/06 CIVIL STATE OF CALIFORNIA * MAY 04 2005

NO	BY	DATE	REVISIONS	PLAN CHECK	DATE	APP.

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PROJECT ENGINEER
R.C.E. NO.
EXP.
DRAWN
DESIGNED
CHECKED
SCALE
DATE

CYPRESS GROVE
WATER PUMP STATION

PUMP STATION
FOUNDATION PLAN

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17320 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA. 92708
PH: (714) 431-7300 FAX (714) 431-7299

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WE# 8C24149

SHEET
A2

JOB NO. 8138-E

Xrefs: X-S2A149-TB.dwg; X-S2A149-PL.dwg; X-S2A149-Sht.dwg
Dimscale = 1; LTscale = 24; PSltscale = 0; Acad Ver. = 16.1s (LMS Tech); Viewtwist = 1

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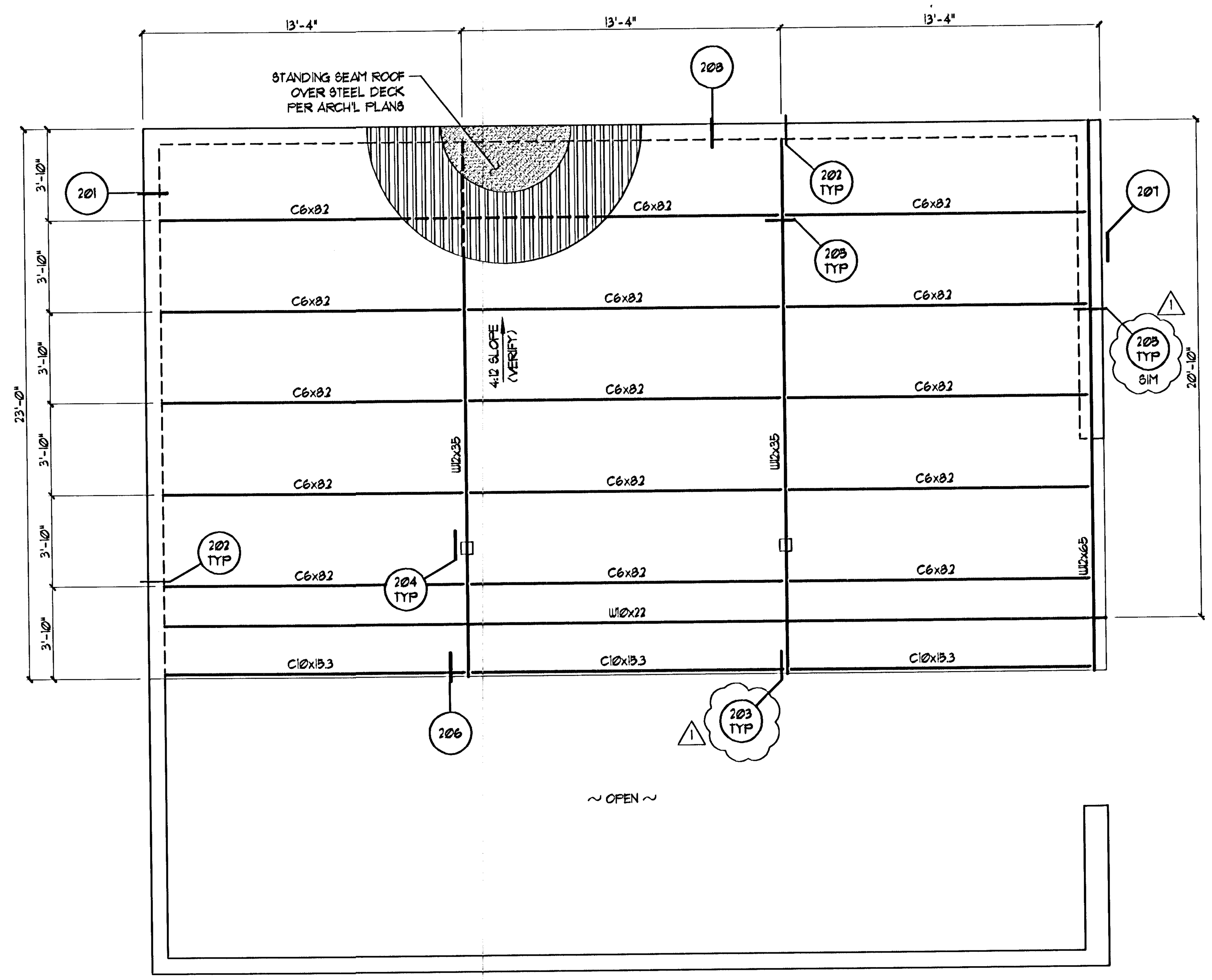
FRAMING PLAN NOTES

A. VERIFY ALL ELEVATIONS, DIMENSIONS, AND SLOPES WITH LATEST ARCH'L.

B. TYPICAL STEEL DECK: 1 1/2" x 20 GAGE B DECK PER G.S.N. ATTACH TO FRAMING PER G.S.N.



ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

CYPRESS GROVE
WATER PUMP STATION

PUMP STATION
ROOF FRAMING PLAN

PREPARED BY
PROJECT ENGINEER
R.C.E. NO. ——
EXP.
DRAWN | SCALE
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CHECKED | DATE

SHEET A3

JOB NO. 8138-E

PACIFIC ADVANCED CIVIL ENGINEERING
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RECORD DRAWINGS

REGISTERED PROFESSIONAL ENGINEER — SCOTT N. JONES — No. C 63292 — Exp. 06/30/06 — CIVIL — STATE OF CALIFORNIA — MAY 04 2005

NO	BY	DATE	REVISIONS	DATE	APP.
1		3/24/05	PLAN CHECK		

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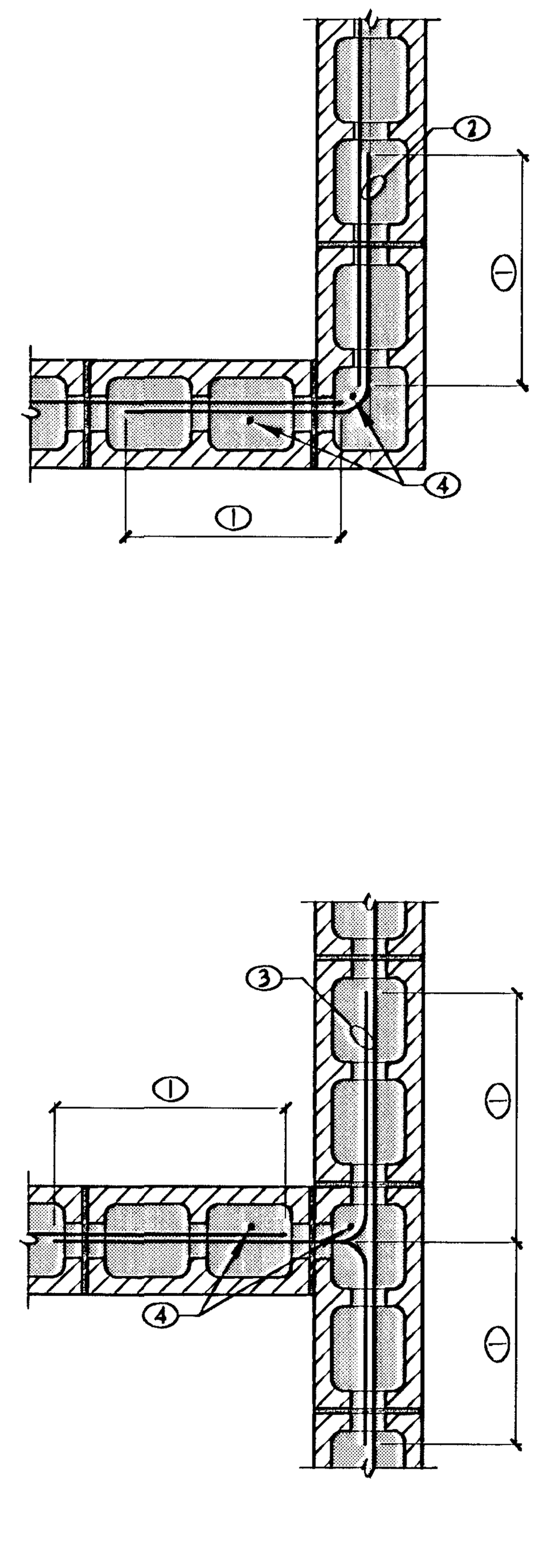
07 TYPICAL MASONRY WALL INTERSECTION



① LENGTH PER TYPICAL REBAR LAP SCHEDULE

② BENT REBAR SIZE TO MATCH HORIZ. WALL REINF.

③ BENT REBAR SIZE TO MATCH HORIZ. WALL REINF. ALTERNATE DIRECTIONS

④ VERTICAL REINF. PER GSN

A. WHERE WALL HORIZ. REINF. ARE AT DIFFERENT ELEVATIONS FROM EACH OTHER PROVIDE BENT BAR IN SOLID-GROUTED CELLS AT EACH HORIZ. BAR SIM. TO THIS DETAIL.

M01-16 040212 TRP — NO SCALE

04 TYPICAL REBAR LAP SCHEDULE

① BAR SPACING IS MEASURED AS CENTER TO CENTER BAR SPACING. NOTIFY ENGINEER WHERE BAR SPACING IS LESS THAN MIN SPACING NOTED IN SCHEDULE

② TOP BARS ARE HORIZONTAL BARS SO PLACED THAT 12 INCHES OR MORE OF FRESH CONCRETE IS CAST IN MEMBER BELOW SPLICE

BAR SIZE	REBAR LOCATION						
	FOOTINGS & SLAB ON GRADE (f'c ≥ 2500 PSI w/ 1 1/2" CLR.)			ELEVATED SLAB AND BEAMS (f'c ≥ 3000 PSI w/ 3/4" CLR.)			MASONRY
	MIN. ① SPACING	TOP ② BARS	OTHER BARS	MIN. ① SPACING	TOP ② BARS	OTHER BARS	
#3	2	18	14	2	17	13	15
#4	2 1/2	24	19	2	28	21	20
#5	3 1/4	30	23	2 1/4	41	31	30
#6	3 3/4	37	28	2 1/4	56	43	36
#7	4	60	46	2 1/2	90	69	42
#8	4	76	59	2 1/2	111	85	48
#9	4 1/4	94	72	2 3/4	134	103	54

A. ALL TABULATED VALUES ARE IN UNITS OF INCHES U.N.O.

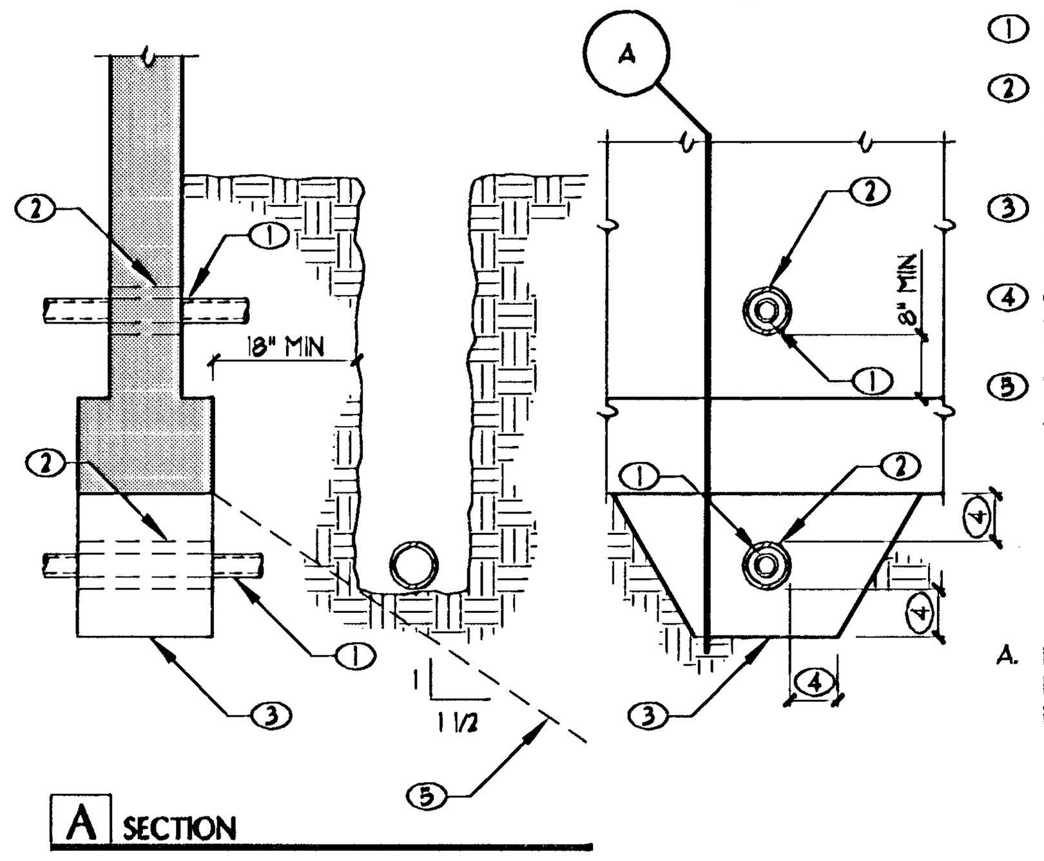
B. CONCRETE LAP LENGTHS BASED ON ACI 318-99 SECTION 12.2.3 WITH CLASS B LAP SPLICE PER SECTION 12.15 FOR NORMAL WT CONCRETE AND UNCOATED BARS

C. CONCRETE STRENGTHS SHOWN ARE FOR DESIGN PURPOSES ONLY. SEE G.S.N. FOR ACTUAL CONCRETE SPECIFICATIONS.

D. MASONRY LAP LENGTHS BASED ON CLASS B LAP SPLICE PER ACI 318-95 AND CBC 2107 FOR UNCOATED BARS

04-23519 — NO SCALE

01 UTILITY PIPES AT FOOTING



① UTILITY PIPE

② SLEEVE. SIZE TO PROVIDE 1/2" MIN. CLEARANCE AROUND UTILITY PIPE.

③ LEAN CONCRETE FILL. FORM SAME WIDTH AS FOOTING.

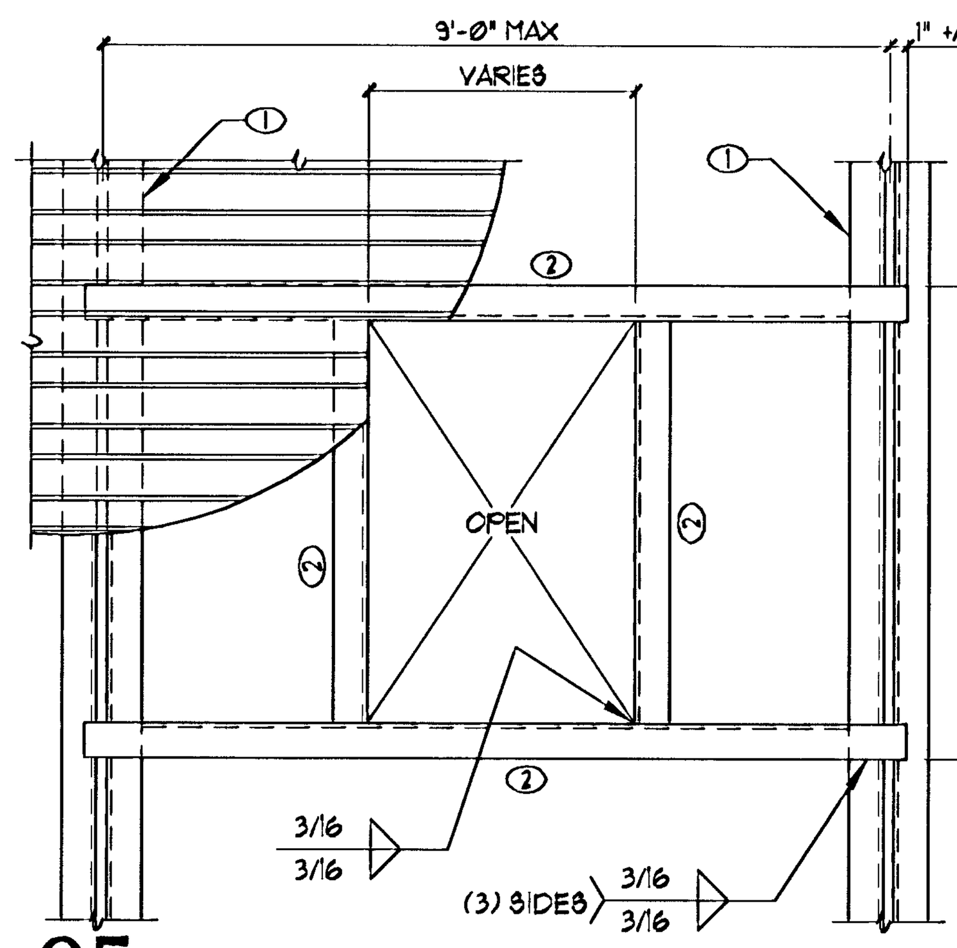
④ CLEARANCE EQUAL TO SLEEVE DIA. (6" MIN.).

⑤ NO PIPE TRENCH EXCAVATION ALLOWED BELOW THIS LINE.

A. PIPES SHALL NOT PASS THRU FOOTING NOR BE LOCATED BENEATH ISOLATED PAD FOOTING.

F01-01 030715 — NO SCALE

05 TYPICAL OPENING IN ROOF



① STEEL JOIST PER PLAN

② STEEL ANGLE PER SCHEDULE BELOW. COPE VERTICAL LEG AT STEEL JOIST

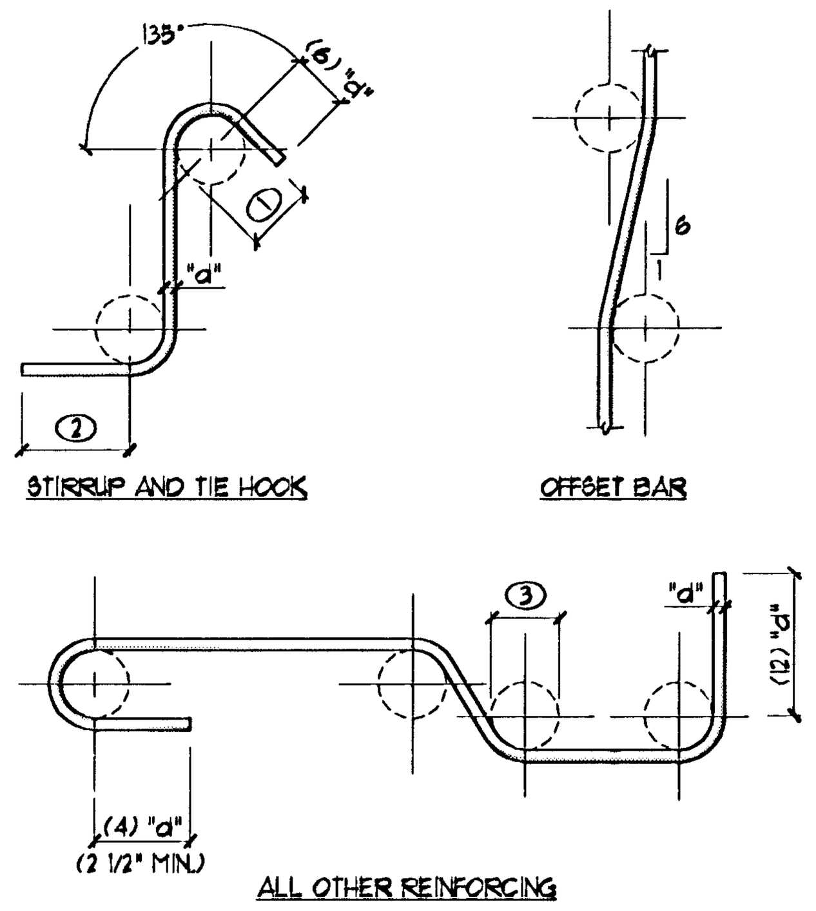
ANGLE LENGTH	ANGLE SIZE
UP TO 6'-0"	L3x3x1/4
6'-1" TO 8'-0"	L4x3x1/4 (L.L.V.)
8'-1" TO 9'-4"	L5x3x1/4 (L.L.V.)

A. VERIFY LOCATION AND SIZE OF OPENING w/ ARCH'L. AND MECH.

B. FOR SMALL OPENINGS, SEE TYPICAL SMALL OPENING IN ROOF DECK DETAIL

S01-03 040512 — NO SCALE

02 STANDARD REBAR BEND DETAILS



① MINIMUM FINISHED BEND DIA. FOR STIRRUPS AND TIES ONLY (4) "d" FOR #5 BAR AND SMALLER, (6) "d" FOR #6 THRU #8. TYPICAL

② (6) "d" FOR #5 AND SMALLER (12) "d" FOR #6 THRU #8

③ MINIMUM FINISHED BEND DIA. FOR ALL REINFORCING EXCEPT STIRRUPS AND TIES (6) "d" UP TO #8 BAR, (8) "d" FOR #9 THRU #11, (12) "d" FOR #14 AND #18.

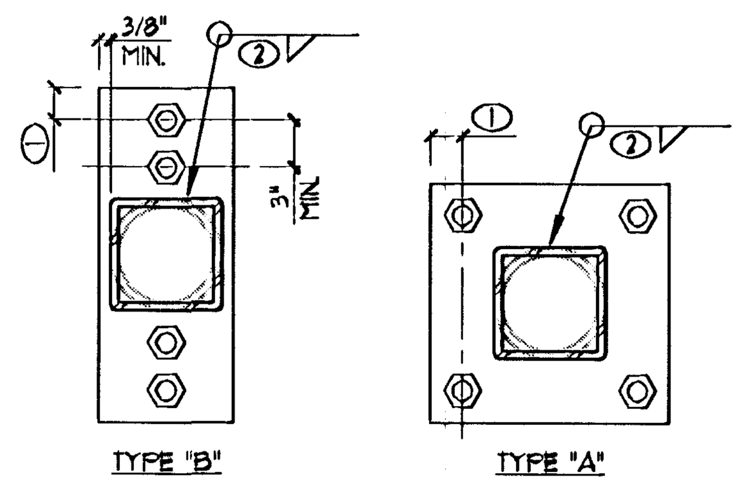
A. "d" = BAR DIA.

B. ALL REINFORCEMENT SHALL BE BENT COLD UNLESS NOTED OTHERWISE ON PLANS OR DETAILS

C. REINFORCING PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS SPECIFICALLY NOTED ON PLANS OR DETAILS

C01-01 030109 — NO SCALE

08 TYPICAL COLUMN BASE PLATE SCHEDULE



① AISC MIN. EDGE DISTANCE OR EDGE DISTANCE TO ACCOMMODATE PLATE WASHER AND WELDS, WHICHEVER IS GREATER

② 1/4" OR MIN. WELD SIZE PER AISC MANUAL TABLE J2.4, WHICHEVER IS GREATER, FOR BASE PLATES UP TO 3/4" THICK. 5/16" FOR BASE PLATES OVER 3/4" THICK

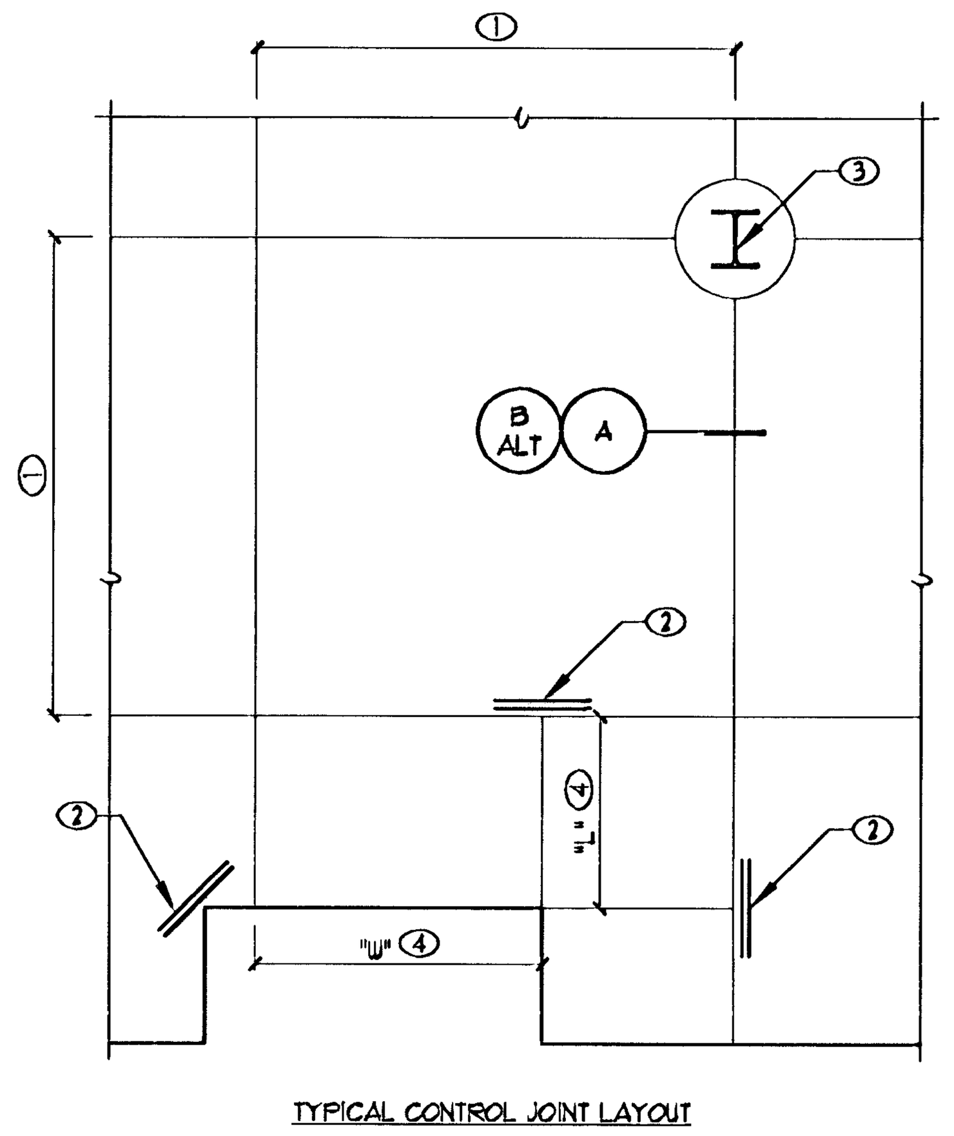
A. SEE PLAN OR SCHEDULE FOR BASE PLATE DIMENSIONS.

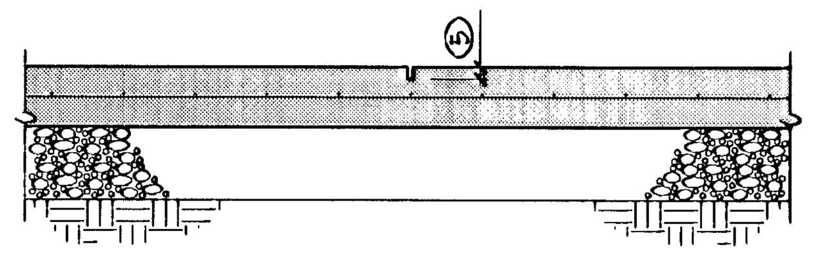
B. BASE PLATE CONNECTIONS MAY REQUIRE MORE ANCHOR BOLTS THAN SHOWN. SEE PLAN OR SCHEDULE FOR SIZE, TYPE, AND NUMBER OF BOLTS. SEE SCHEDULE BELOW FOR MAX. ANCHOR BOLT HOLE DIA.

BOLT DIA. (db)	MAX. HOLE DIA.
3/4" TO 1"	db + 5/16"
1" TO 2"	db + 1/2"
OVER 2"	db + 1"

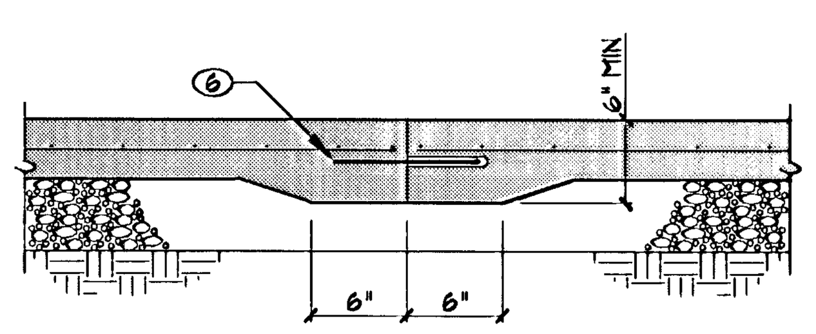
08-SN24341 — NO SCALE

06 TYPICAL CONTROL JOINT IN SLAB ON GRADE





A SAWCUT JOINT



B DOWELED JOINT

① JOINT SPACING PER SCHEDULE

② PROVIDE (2) #4 x 48" MID-HEIGHT SLAB BARS ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS.

③ ALIGN CONTROL JOINTS w/ COLUMN (WHERE OCCURS)

④ WHERE CONTROL JOINT SECTIONS ARE RECTANGULAR, THE WIDTH "W" SHALL NOT EXCEED 1.5 TIMES THE LENGTH "L"

⑤ DEPTH EQUAL TO 1/4 SLAB THICKNESS

⑥ 1/2" DIA. x 12" SMOOTH DOWEL AT 24" o.c. WRAP ONE END TO PREVENT BOND TO CONCRETE. CENTER IN SLAB THICKNESS AT POUR JOINT

JOINT SPACING SCHEDULE	
SLAB THICKNESS	MAX SPACING
4"	10'
5"	12.5'
6"	15'
7"	17.5'
8"	18'

A. DOWELED JOINTS NEED ONLY OCCUR AT EXPOSED EDGES OF DISCONTINUOUS SLAB PLACEMENT U.N.O.

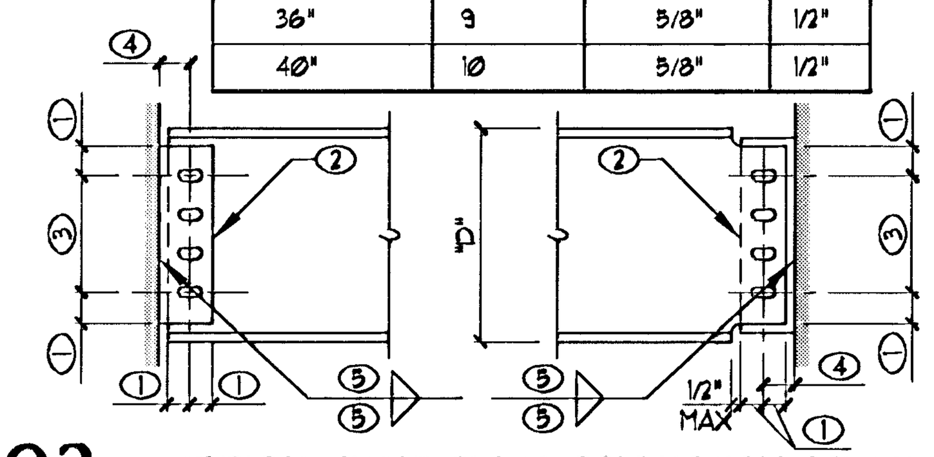
B. SAWCUTS SHALL BE MADE SOON ENOUGH TO PREVENT SHRINKAGE CRACKING, BUT NOT SO SOON AS TO CAUSE SPALLING

C. ZIP STRIP OR TOOLED JOINT MAY BE USED IN LIEU OF SAW CUT.

F01-23 030111 — NO SCALE

03 TYPICAL SHEAR PLATE CONNECTION SCHEDULE

NOMINAL BEAM DEPTH "D"	NUMBER OF BOLTS	SHEAR PLATE THICKNESS	WELD SIZE
UP TO 7"	2	3/8"	5/16"
8" TO 10"	2	3/8"	5/16"
12" TO 14"	3	3/8"	5/16"
16"	4	3/8"	5/16"
18"	5	1/2"	3/8"
21"	6	1/2"	3/8"
24" TO 27"	7	1/2"	3/8"
30"	7	5/8"	1/2"
33"	8	5/8"	1/2"
36"	9	5/8"	1/2"
40"	10	5/8"	1/2"



① AISC MIN. EDGE DISTANCE

② SHEAR PLATE THICKNESS PER SCHEDULE

③ HORIZ. SHORT-SLOTTED HOLES AT 3" o.c. MIN. IN EITHER BEAM OR SHEAR PLATE PER AISC SPECS. STANDARD ROUND HOLES IN MATING PIECE

④ 2 1/2" MAX. FOR 7/8" DIA. BOLTS. 3" MAX. FOR 1 1/8" DIA. BOLTS

⑤ WELD SIZE PER SCHEDULE

A. TYP. CONNECTION CONSISTS OF SINGLE SHEAR PLATE WITH 7/8" DIA. BOLTS. USE 1 1/8" DIA. BOLTS WHERE "D" = 30" OR GREATER. SEE G.S.N. FOR BOLT SPECS.

B. DO NOT RETURN FILLET WELDS ACROSS TOP AND BOTTOM EDGES OF SHEAR PLATE

SCH02-01 TRP.040428 — NO SCALE

CYPRESS GROVE
WATER PUMP STATION
TYPICAL DETAILS

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

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www.wrightengineers.com
WE# 8C24149

SHEET AD1
JOB NO. 8138-E

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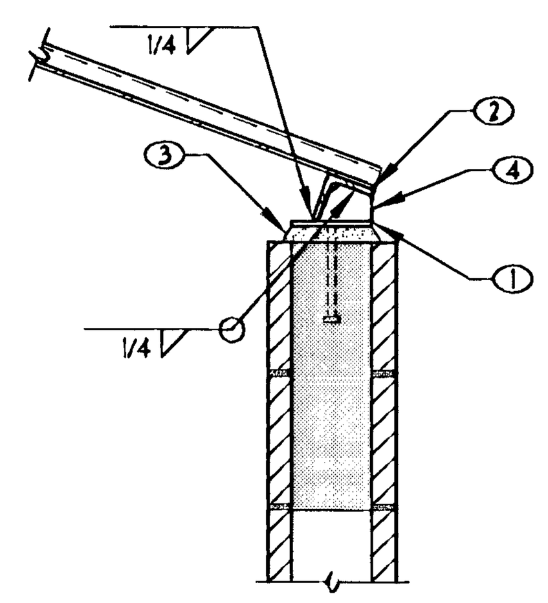


① EMBED PLATE 3/8" x 5" x Ø'-10" w/ (3) 1/2" DIA. x 6" NELSON STUDS

② 3/16" x CONT. EDGE ANGLE. ATTACH STEEL DECK TO ANGLE PER G.S.N.

③ 1" +/- GROUT OR DRYPACK

④ 1/4" PLATE CUT TO FIT. (1) PER EMBED PLATE

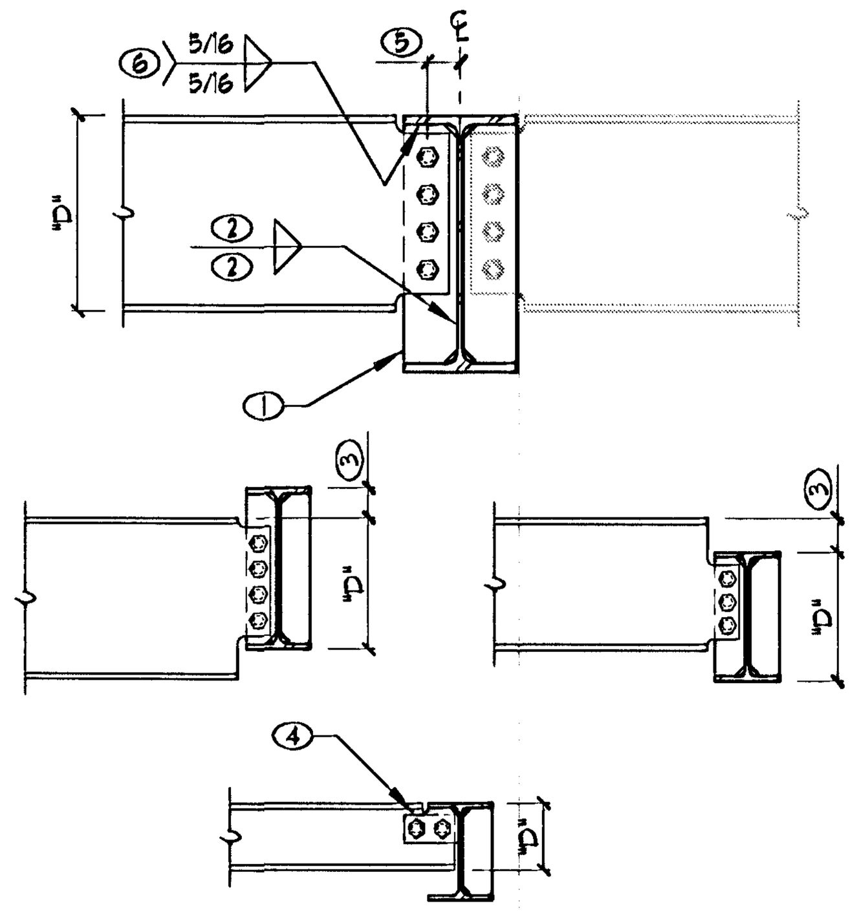
A. MIN. (2) EMBED PLATES PER EDGE ANGLE

B. MAX. EMBED PLATE SPACING 4'-Ø" o.c.

C. WALL VERTICAL REINFORCING NOT SHOWN FOR CLARITY

208 STEEL DECK AT MASONRY WALL

208-SC24149 WRS050110 — NO SCALE



① SHEAR PLATE AND SIZE AND NUMBER OF BOLTS PER TYPICAL SHEAR PLATE CONNECTION SCHEDULE

② WELD SIZE PER TYPICAL SHEAR PLATE CONNECTION SCHEDULE

③ OFFSET TOP OF BEAM TO MATCH ADJACENT STEEL JOIST BEARING DEPTH AS OCCURS

④ (2) BOLTS HORIZ AT "D" = 7" OR LESS. WELD PLATE TO BEAM AT (2) EDGES

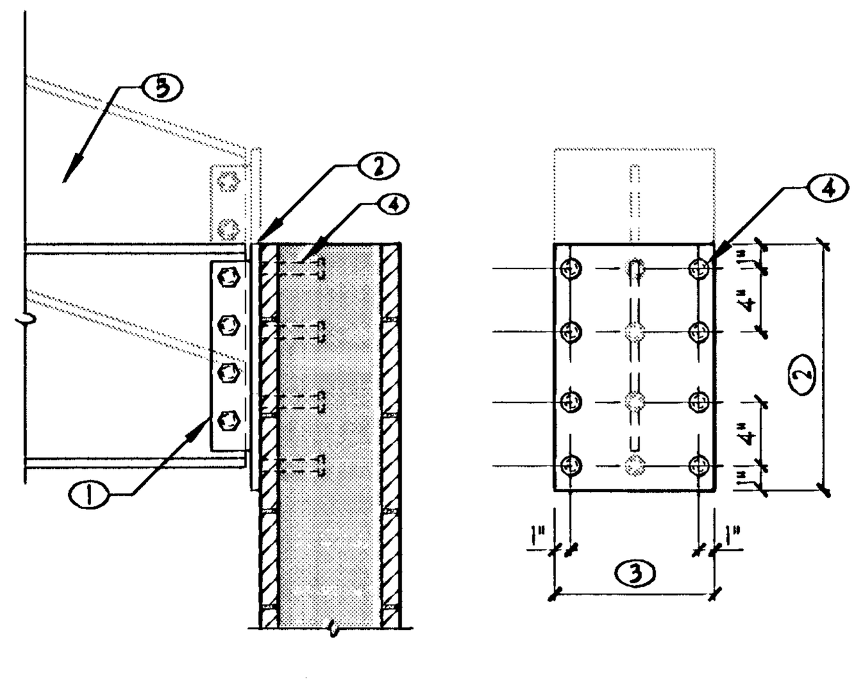
⑤ 2 1/2" MAX. FOR 7/8" DIA. BOLTS. 3" MAX. FOR 1 1/8" DIA. BOLTS

⑥ SHEAR PLATE TO BEAM FLANGE, TYP.

A. AT ONE-SIDED CONNECTIONS, PROVIDE 3/8" STIFFENER OPPOSITE SHEAR PLATE

205 STEEL BEAM TO BEAM SHEAR PLATE CONNECTION

8802-12 040601 — NO SCALE



① SHEAR PLATE SIZE AND NUMBER OF BOLTS PER TYPICAL SHEAR PLATE CONNECTION SCHEDULE

② 3/4" EMBED PLATE. DEPTH EQUAL TO BEAM DEPTH (14" MIN.)

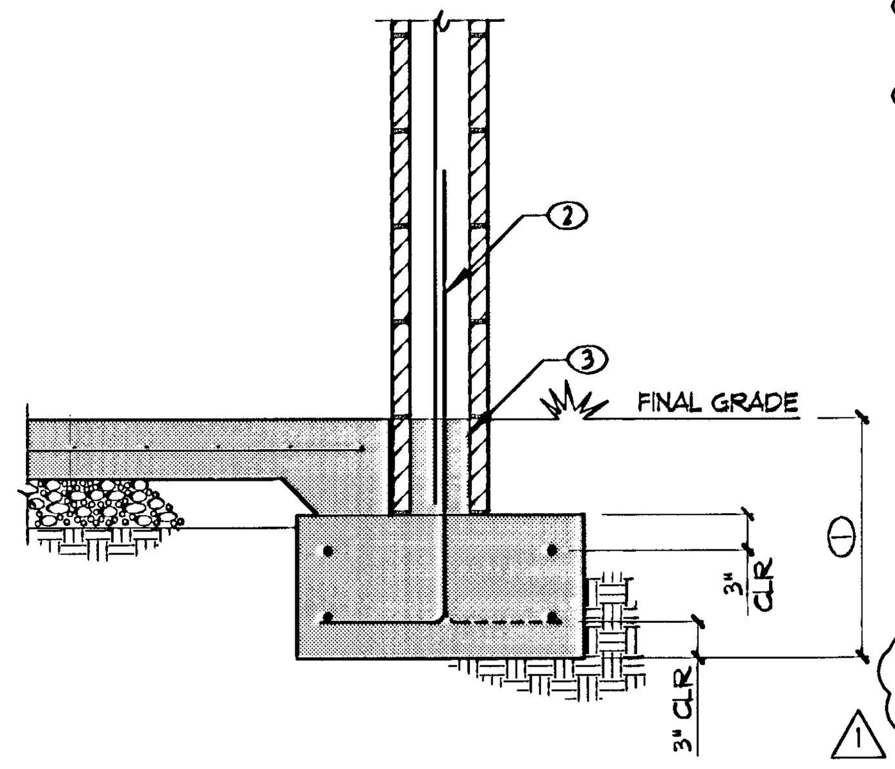
③ 9" FOR BEAMS UP TO 18" DEEP. 12" FOR BEAMS UP TO 24" DEEP

④ 3/4" DIA. x 5" NELSON STUDS. (8) FOR BEAMS UP TO 18" DEEP. (12) FOR BEAMS UP TO 24" DEEP

⑤ SLOPED BEAM AS OCCURS

202 STEEL BEAM AT MASONRY WALL

202-SC24149 — NO SCALE



① EMBEDMENT PER FOOTING SCHEDULE

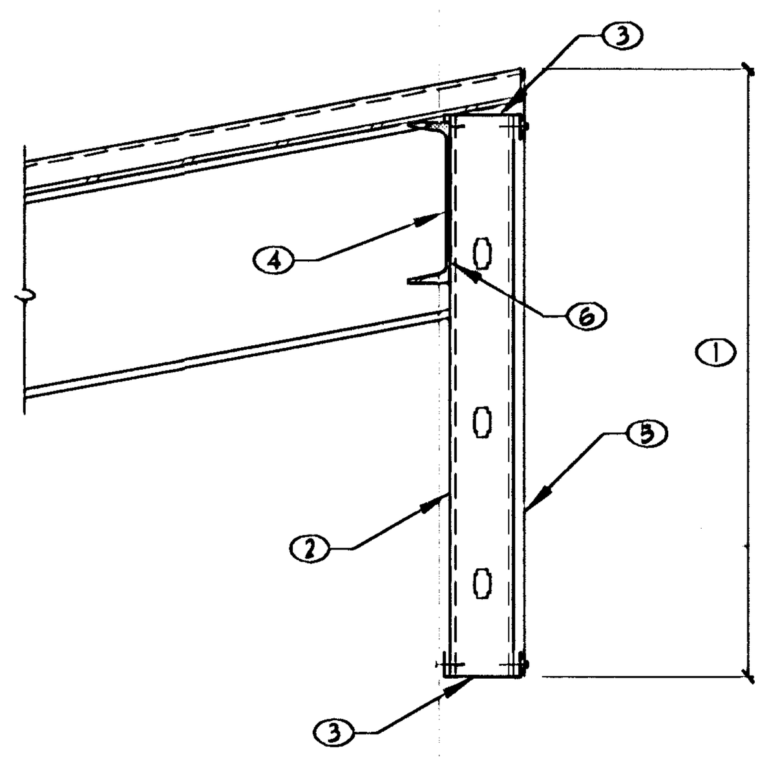
② DOWEL TO MATCH AND LAP WITH VERTICAL WALL REINFORCING

③ GROUT SOLID BELOW FINISH FLOOR

A. GROUT AT WALL VERTICAL REINFORCING NOT SHOWN FOR CLARITY

101 MASONRY WALL AT FOOTING

101-SC24149 — NO SCALE



① DEPTH PER ARCH'L (36" MAX.)

② 400S162-54 STEEL STUDS AT 24" o.c.

③ 400T150-54 TOP & BOTTOM TRACK w/ #10 SCREW INTO EACH STUD EACH SIDE

④ CHANNEL TO BEAM ATTACHMENT PER TYPICAL DETAIL

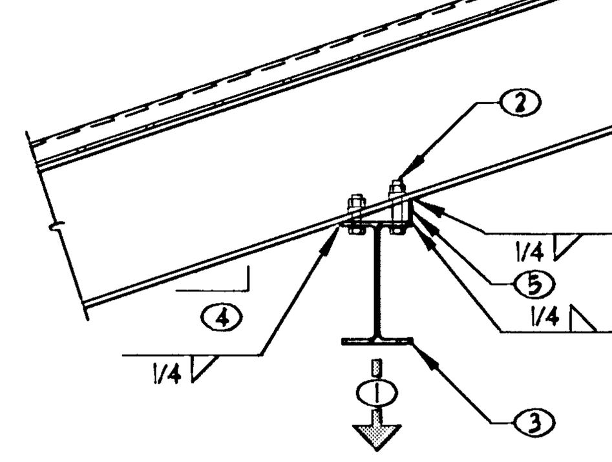
⑤ FINISH PER ARCH'L

⑥ WELD STUD TO BEAM WEB w/ 1/8" x 2" FILLET WELD AT 12" o.c.

A. PROVIDE 16 GAGE ANGLED PLATE ON C-CHANNEL TOP FLANGE WHERE REQ'D TO CONNECT STEEL DECK PER GSN. WELD ANGLED PLATE TO C-CHANNEL TOP FLANGE w/ 1/8" x 2" FILLET WELDS AT 12" o.c.

206 FACADE AT STEEL BEAM

206-SC24149 WRS050107 — NO SCALE



① MAX. CRANE LOAD TO BEAM FROM CRANE SHALL NOT EXCEED 7500# UNFACTORED TOTAL LOAD

② (4) 3/4" DIA. BOLTS w/ BEVELED WASHERS (BEVEL TO MATCH ROOF SLOPE)

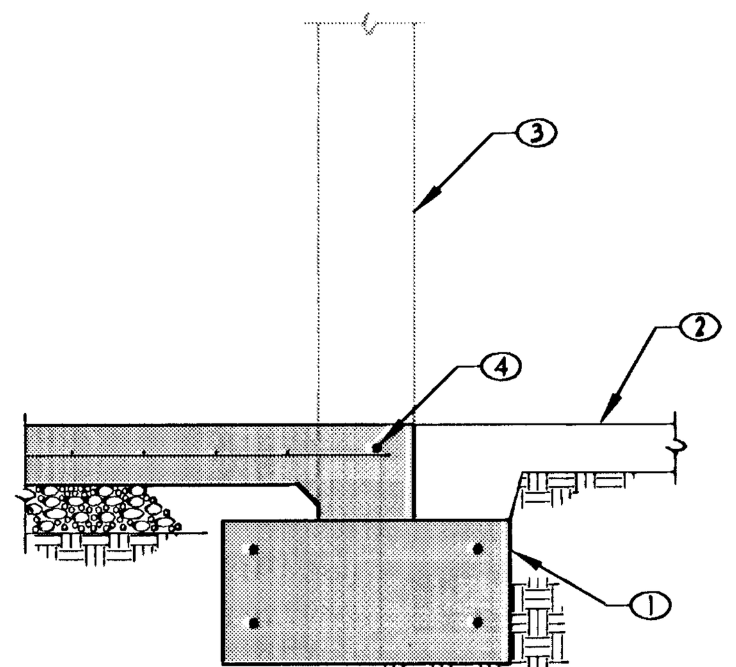
③ CRANE RAIL PER PLAN

④ SLOPE PER ARCH'L

⑤ 1/4" STEEL PLATE. LENGTH TO MATCH WIDTH OF SLOPED BEAM

203 CRANE RAIL SUPPORT AT SLOPED STEEL BEAM

203-SC24149 — NO SCALE



① FOOTING CONTINUOUS FROM BEYOND

② FINISH GRADE OR EXTERIOR SLAB AS OCCURS.

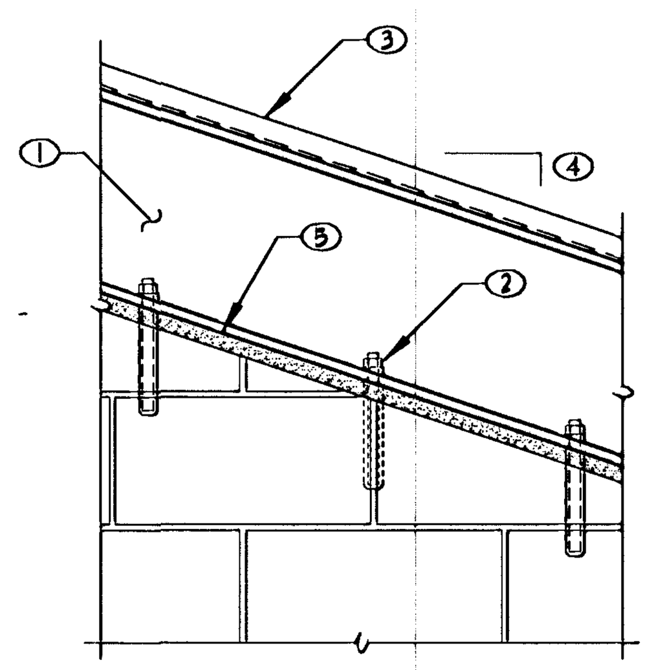
③ LINE OF WALL BEYOND AS OCCURS

④ #4 CONTINUOUS EDGE BAR

A. SEE … FOR EDGE TOOLING REQU…EMENTS

102 TYPICAL SLAB AT WALL OPENING

MF01-11 030709 — NO SCALE



① STEEL BEAM PER PLAN. CENTER BEAM ON WALL

② 5/8" DIA. x 6 5/8" EMBEDMENT EPOXY BOLT AT 16" o.c. STAGGER BOLTS ON EITHER SIDE OF BEAM WEB. PROVIDE BEVEL WASHERS TO MATCH SLOPE OF BEAM

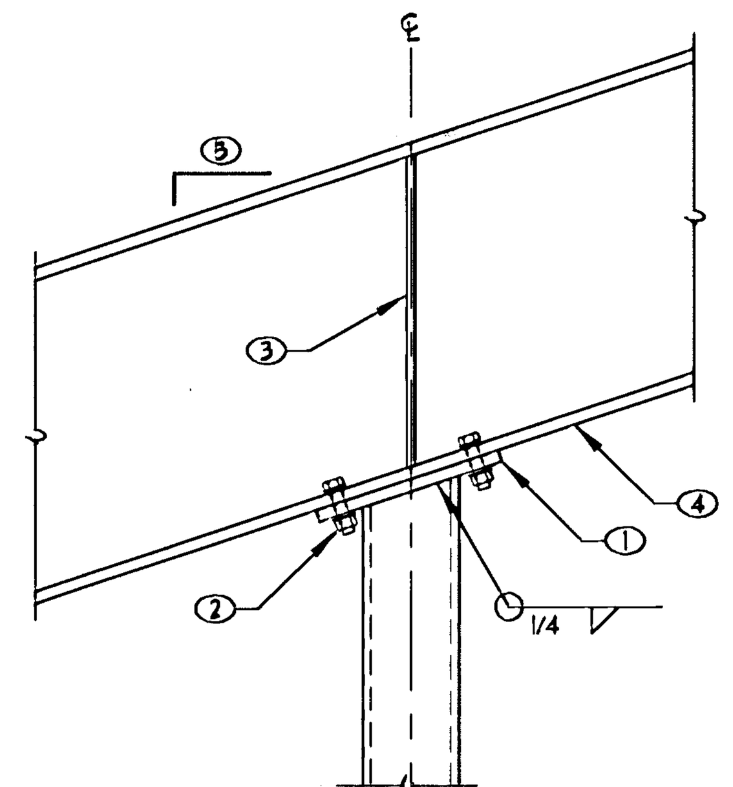
③ STEEL DECK PER PLAN.

④ SLOPE PER ARCH'L

⑤ 1" +/- GROUT OR DRYPACK

207 STEEL BEAM AT MASONRY WALL

207-SC24149 WRS050107 — NO SCALE



① 3/4" CAP PLATE

② (4) 3/4" DIA BOLTS

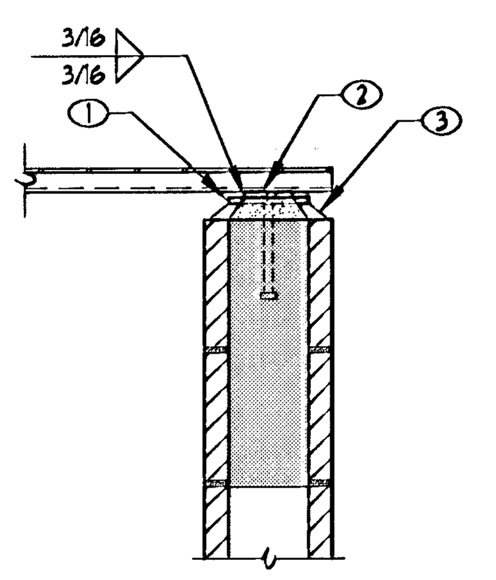
③ 1/2" STIFFENER

④ CONTINOUS/CANTILEVER BEAM AS OCCURS

⑤ SLOPE PER ARCH'L

204 SLOPED STEEL BEAM AT STEEL COLUMN

204-SC24149 — NO SCALE



① EMBED PLATE 3/8" x 5" x Ø'-5" w/ (2) 1/2" DIA x 6" NELSON STUDS

② 3/8" x 3" x CONT. DECK BEARING PLATE

③ 1" +/- GROUT OR DRYPACK

A. MAX. EMBED PLATE SPACING 4'-Ø" o.c.

B. WALL VERTICAL REINFORCING NOT SHOWN FOR CLARITY

201 STEEL DECK AT MASONRY WALL

201-SC24149 — NO SCALE

WRIGHT ENGINEERS
19200 Von Karman Ave.
Suite 600
Irvine, California 92612
(949) 477-4001 Fax (949) 477-4009
www.wrightengineers.com
WE# SC24149

NO	BY	DATE	REVISIONS	DATE	APP.
1	WRS	3/31/05	PLAN CHECK		

RECORD DRAWINGS

REGISTERED PROFESSIONAL ENGINEER — SCOTT N. JONES — No. C 63292 — Exp. 06/30/06 — CIVIL — STATE OF CALIFORNIA

MAY 04 2005

PREPARED BY
PROJECT ENGINEER
R.C.E. NO. — —
EXP.
DRAWN | SCALE
DESIGNED
CHECKED | DATE

CYPRESS GROVE WATER PUMP STATION

FOUNDATION AND FRAMING DETAILS

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET AD2

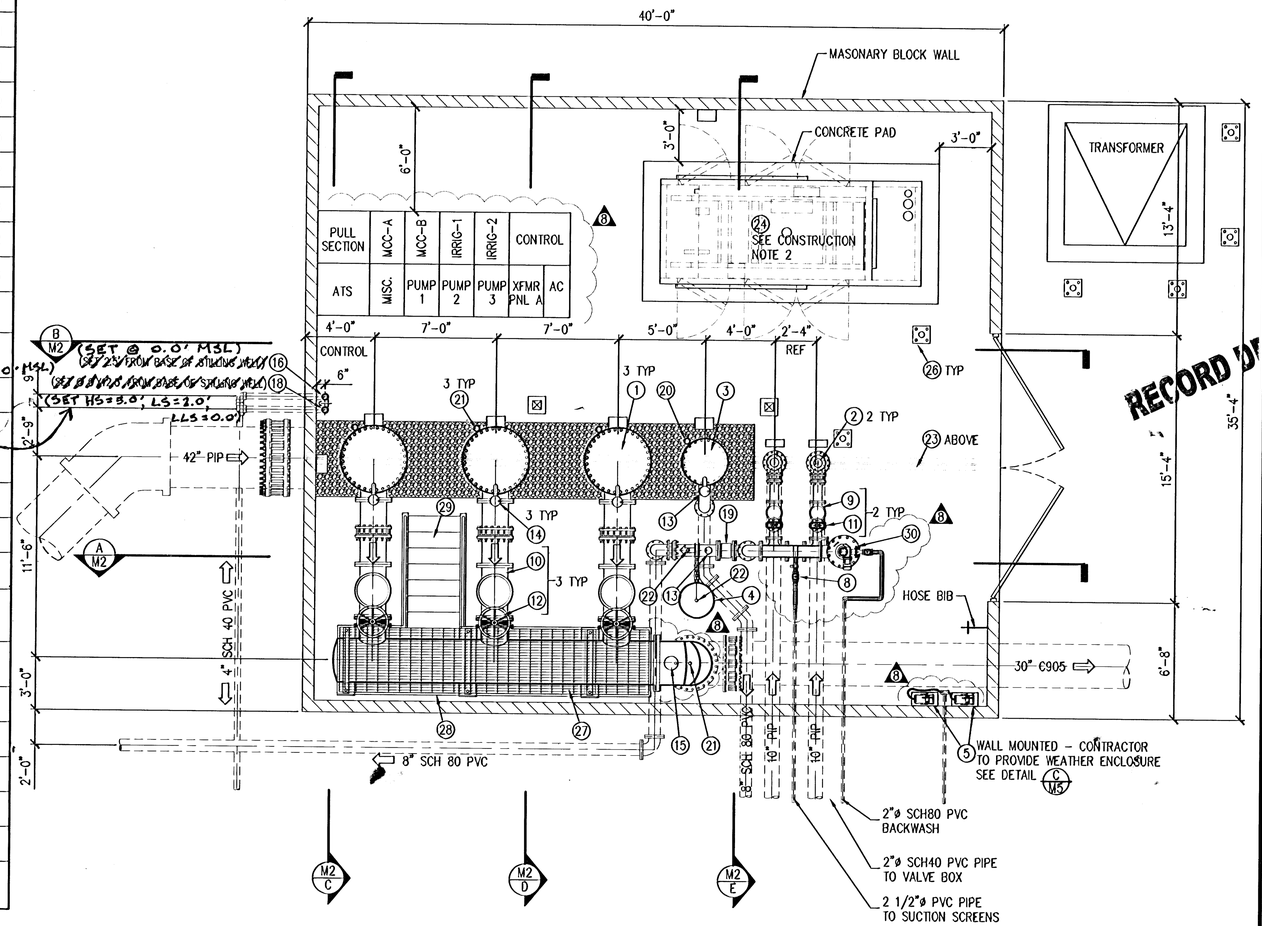
JOB NO. 8138-E

k:\2004SC\SC24149\AD2D-SC24149-D.dwg - Tab: Model By: dovidh on May. 04, 2005 at 08:23 am
Xrefs: X-SC24149-TB.dwg
Dimscale = 12; LTscale = 6; PSltscale = 1; Acad Ver. = 16.1s (LMS Tech); Maretcin = 1

EQUIPMENT LIST

ITEM	NAME	MANUFACTURER	MODEL	DESCRIPTION	QTY
①	SUBMERSIBLE STORMWATER PUMP	FLYGT	LL 3400/715	7900 GPM @ 30' TDH; SINGLE SPEED DRIVE, 110 HP, 460V, 3 PH, 60 HZ, FM RATED	3
②	SUBMERSIBLE IRRIGATION PUMP	GRUNDFOS	385S	450 GPM @ 90 PSI; VFD; 30 HP, 460V, 3 PH, 60 HZ; MANUFACTURER'S SUCTION SCREEN	2
③	SUBMERSIBLE RECIRCULATION PUMP	FLYGT	LL 3127.090	800 GPM @ 18 TDH; SINGLE SPEED DRIVE; 10 HP, 460V, 3 PH, 60 HZ; FM RATED	1
④	BLADDER TANK	WELL MATE	COMMERCIAL CLASS	200 GALLON CAPACITY WITH BLADDER; 125 P.S.I. RATED; VERTICAL TANK	1
⑤	AIR COMPRESSOR	GAST	1023	WALL MOUNTED AERATION UNIT; 3/4 HP; 8.5 CFM PER 10 P.S.I. AIR COMPRESSOR; 120V SINGLE PHASE (C/M5)	2
⑥	2 1/2" Y-STRAINER	–	–	Y-STRAINER SHALL BE PROVIDED BY THE IRRIGATION SUCTION SCREEN MANUFACTURER (BRONZE CONSTRUCTION)	1
⑦	2 1/2" BALL VALVE	SPEARS	TRU UNION 2000	150 P.S.I. RATED; INDUSTRIAL STANDARD; TRUE UNION BALL VALVE; FLANGED END CONNECTIONS	1
⑧	PRESSURE REDUCING CONTROL VALVE	CLA VALVE	100-01	2.5" FLANGED; ADJUSTABLE; 150 P.S.I. RATED; DUCTILE IRON BODY	1
⑨	6" CHECK VALVE	VAL-MATIC	VM506A	"SWING-FLEX" MODEL; ANSI CLASS 125 (200 PSI RATED, NON SLAM FEATURE)	2
⑩	18" CHECK VALVE	VAL-MATIC	FM518A	"SWING-FLEX" MODEL; ANSI CLASS 125 (200 PSI RATED, NON SLAM FEATURE)	3
⑪	6" KNIFE GATE VALVE	DeZURICK	KGL	STAINLESS STEEL; 304 S.S., KNIFE GATE; NBR SEAT TYPE C PACKING; WITH HANDWHEEL OPERATOR	2
⑫	18" KNIFE GATE VALVE	DeZURICK	KGL	STAINLESS STEEL; 304 S.S., KNIFE GATE; NBR SEAT TYPE C PACKING; WITH HANDWHEEL OPERATOR	3
⑬	1" AIR COMBINATION VALVE	VAL-MATIC	201C.2	SINGLE HOUSING TYPE; ANSI 125 CLASS THREADED INLET; RATED FOR 150 P.S.I.	2
⑭	3" AIR COMBINATION VALVE	VAL-MATIC	203C.2	SINGLE HOUSING TYPE; ANSI 125 CLASS THREADED INLET; RATED FOR 150 P.S.I.	3
⑮	6" AIR COMBINATION VALVE	VAL-MATIC	106/38	CUSTOM BUILT SINGLE HOUSING TYPE; ANSI 125 CLASS FLANGED INLET; RATED FOR 150 P.S.I. SEE DETAIL (A/M3)	1
⑯	LEVEL TRANSDUCER	KPSI	735	SUBMERSIBLE HYDROSTATIC LEVEL TRANSDUCER; ACCURACY UP TO ±0.5% F.S.; WELDED 316 S.S. CONSTRUCTION; ANALOG OUTPUTS OF 4-20mA (SET @ 2.5' FROM BASE OF STILLING WELL) (SET @ 0.0' M3L)	1
⑰	PRESSURE TRANSDUCER	KPSI	28	PRESSSURE TRANSDUCER ACCURACY UP TO ±0.5% F.S.; WELDED 316 S.S. CONSTRUCTION; ANALOG OUTPUTS OF 4-20mA	1
⑱	LIQUID LEVEL PROBES	WARRICK	SERIES 3Y PROBES	SUBMERSIBLE LIQUID PROBES; PROBE MATERIAL 316 S.S., SHIELD MATERIAL: TEFLON (SET @ 8.5 INCH FROM BASE OF STILLING WELL)	1
⑲	8" MAGNETIC FLOW METER (8)	SIEMENS	MAGFLO MAG 5100 W	COMBINED TYPE, AWWA/ANSI 150 LB FLANGES, 4-20 mA OUTPUTS, ± 0.1% UNCERTAINTY	1
⑳	PRESSURE GAUGE	WIKA	233.34-9834800-833	15 P.S.I. 1/2"NPT; 4.5" CASE; 233.34 MODEL – LIQUID (GLYCERINE) FILLED; 316 S.S. WETTED PARTS; POCAN CASE	1
㉑	PRESSURE GAUGE	WIKA	233.34-9834800-833	30 P.S.I. 1/2"NPT; 4.5" CASE; 233.34 MODEL – LIQUID (GLYCERINE) FILLED; 316 S.S. WETTED PARTS; POCAN CASE	4
㉒	PRESSURE GAUGE	WIKA	233.34-9834800-833	200 P.S.I. 1/2"NPT; 4.5" CASE; 233.34 MODEL – LIQUID (GLYCERINE) FILLED; 316 S.S. WETTED PARTS; POCAN CASE	2
㉓	BRIDGE CRANE	DEMAG	HOIST: DKUN16-1600V1-2/1F4 TROLLEY: EU36DK	3.0 TON OVERHEAD BRIDGE CRANE; LIFT: 20'-0" (OR AS REQUIRED) ACTIVE LIFT @ 16/4 FPM; 4.02/0.99 AMPS (AT FULL LOAD); 6.4/32; VOLTAGE: 460/3/60	1
㉔	BACKUP GENERATOR (8)	GENERAC	SD0250-K3612	250 KW STANDBY POWER GENERATOR, 12 HOUR FUEL TANK (277/480 VAC, 3 PH, 60 HZ)	1
㉕	MOTOR CONTROL CENTER	CUTLER-HAMMER	–	MCC ENCLOSURE RATED NEMA 3R; 480 VAC	1
㉖	BOLLARD	–	–	4" DIA. x 36" HIGH, CEMENT FILLED, PAINTED YELLOW, SEE DETAIL (F/M4)	3
㉗	SAFETY GRATE WALKWAY	SYRACUSE CASTINGS	–	PEDESTRIAN RATED, SEE DETAIL (C/M4)	–
㉘	HANDRAILING	–	–	PER DETAIL (A/M4)	–
㉙	STAIRWAY	–	–	PER DETAIL (B/M4)	1
㉚	BRUSH FILTER (8)	AMIAD	3-1087-1110-3500	900 GPM, 300 MICRON WEDGE WIRE SCREEN, 150 PSI RATED, CARBON STEEL HOUSING, STAINLESS STEEL INTERNALS, FILTER CONTROL PANEL, 8" GEAR OPERATED BFV, (230V, 1Ø)	1

*NOTE – ALL EQUIPMENT SHOWN ABOVE HAS BEEN PRE-APPROVED PER THE SPECIFICATIONS.
ALL PROPOSED EQUIPMENT MODIFICATIONS MUST BE APPROVED BY THE ENGINEER "AS EQUAL"
(I.E. MUST SATISFY THE REQUIREMENTS OF THE SPECIFICATION).



MECHANICAL PLAN - TANK & BASIN

1/4" = 1'-0"

CONSTRUCTION NOTES

1. CONTRACTOR TO PROVIDE NECESSARY PIPE SUPPORTS, HARNESS, STRAPS, THRUST BLOCKS, ETC. AS REQUIRED TO SECURE PIPING AND EQUIPMENT PER SPECIFICATIONS.
2. GENERATOR LOCATION AND DIMENSIONS ARE BASED UPON KOHLER GENERATOR SPECIFICATIONS. IF A DIFFERENT GENERATOR MANUFACTURER IS SELECTED, THE CONTRACTOR SHALL REVISE THE BUILDING ACCORDINGLY.
3. CONTRACTOR SHALL CONSULT GEOTECHNICAL REPORT PRIOR TO ALL CONSTRUCTION.
4. CONTRACTOR TO COORDINATE WITH PUMP MANUFACTURER FOR BASE MOUNTING DETAILS AND ELECTRICAL CABLE RETAINING MECHANISM.

NO	BY	DATE	REVISIONS	DATE APP.
1	JP	4/6/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
3	DC	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
4	DC	5/19/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
5	BR	7/8/05	IRRIGATION FILTER	
6	BR	9/21/05	WETLAND PLANTER	
7	BR	9/26/05	HYDROSTATIC RELIEF	
8	DC	12/22/05	RECORD DRAWINGS	

RECORD DRAWINGS

PREPARED BY
ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. — # C 64928
EXP. 6/30/07

DRAWN: SL/A.K.
DESIGNED: J.A.M.
CHECKED: A.K.
SCALE: 1/4" = 1'
DATE: APR 2005

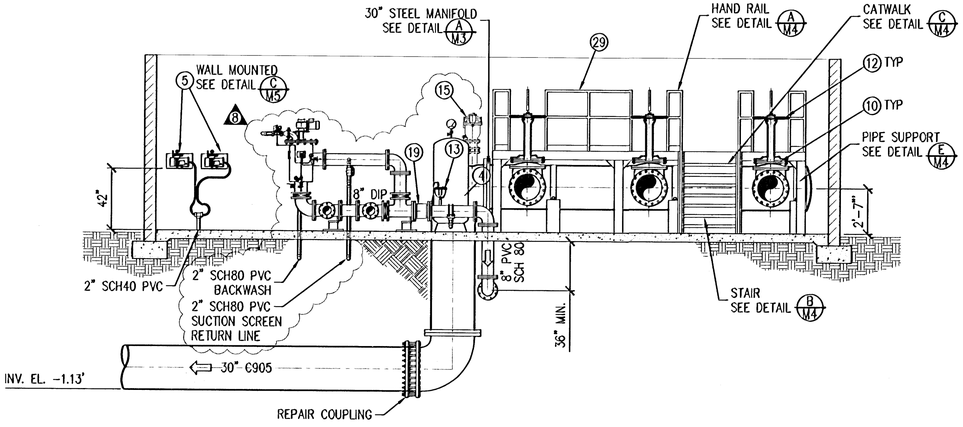
CYPRESS GROVE
WATER PUMP STATION

MECHANICAL BELOW TANK PLAN

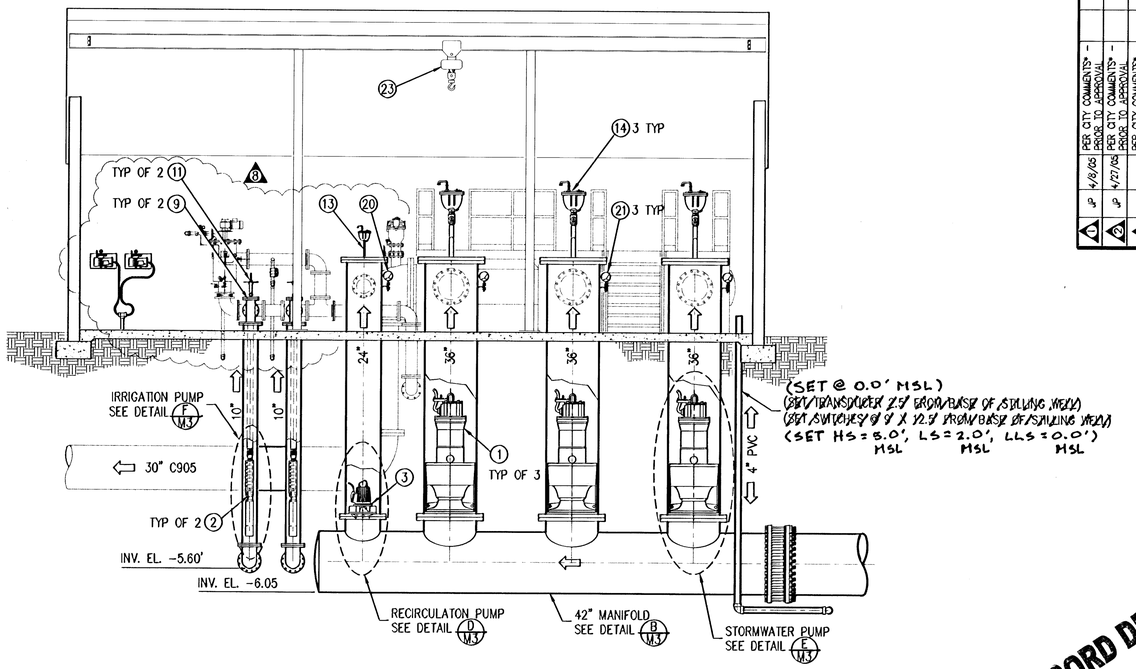
PACIFIC ADVANCED CIVIL ENGINEERING
1750 SOUTH TUSTIN STREET, SUITE 200
TUSTIN, CALIFORNIA 92780-6495
PH (714) 481-7300 FAX (714) 481-7299

SHEET
M1

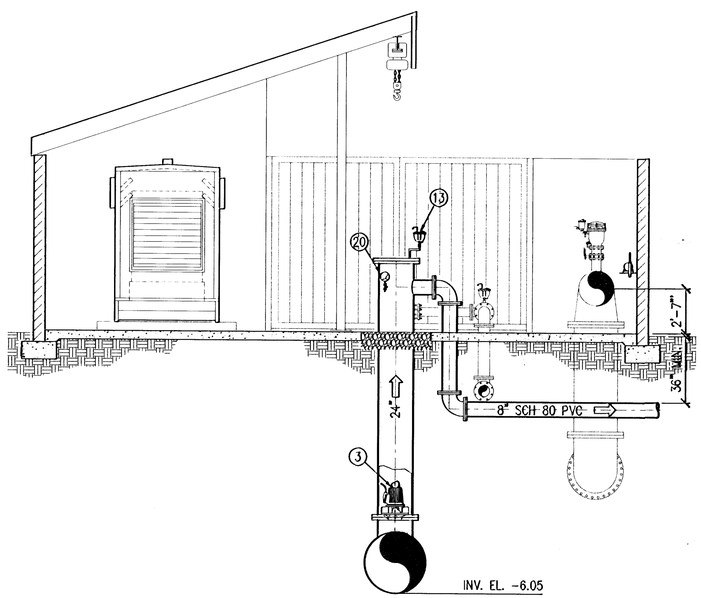
JOB NO. 8138-E



SECTION A
1/4" = 1'-0"



SECTION B
1/4" = 1'-0"



SECTION C
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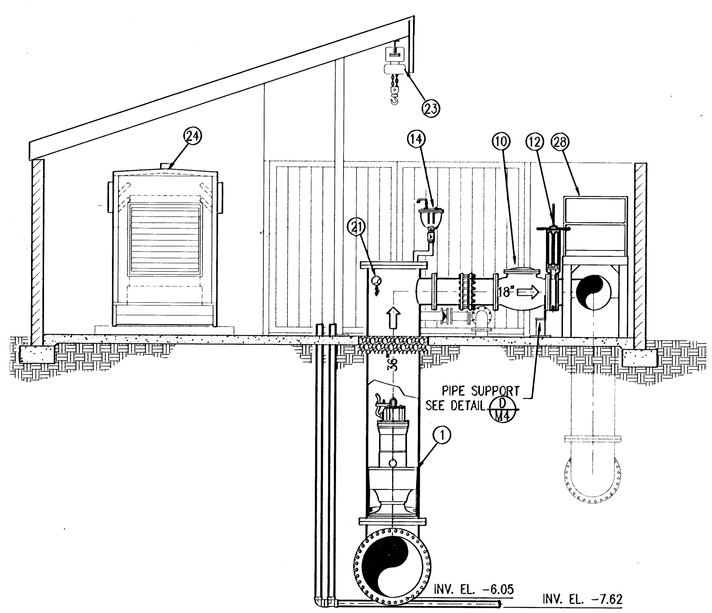

SECTION D
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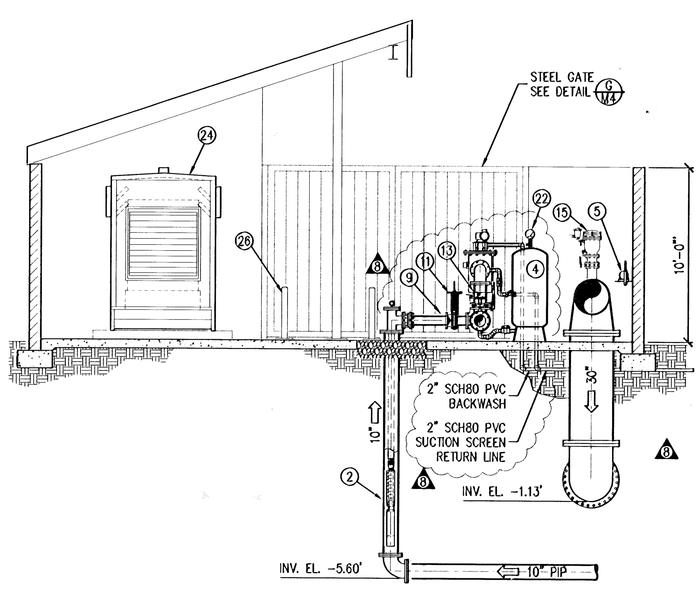

SECTION E
1/4" = 1'-0"

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2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
3	DG	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
4	DG	5/19/05	PER CITY COMMENTS - PRIOR TO APPROVAL	
5	BR	7/8/05	IRRIGATION FILTER	
6	BR	9/21/05	WETLAND PLANTER	
7	BR	9/26/05	HYDROSTATIC RELIEF	
8	DG	12/22/05	RECORD DRAWINGS	

RECORD DRAWINGS

PREPARED BY ANDREW T. KOMOR PROJECT ENGINEER R.C.E. NO. — # C 64928 EXP: 6/30/07

DRAWN S.L./A.K. | DESIGNED J.A.M. | CHECKED A.K. | SCALE 1/4" = 1' | DATE APR 2005

CYPRESS GROVE WATER PUMP STATION

MECHANICAL SECTIONS

PACE PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET M2

JOB NO. 8138-E

Xrefs: 8138-10-Title.dwg; 8138-SECTIONS.dwg
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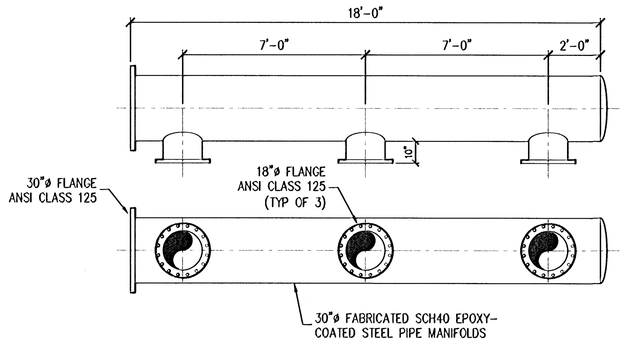
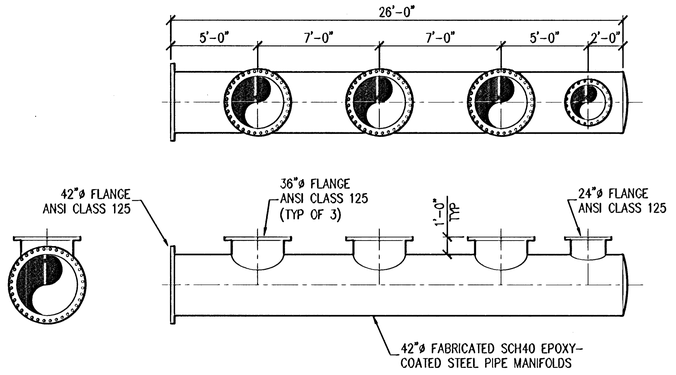


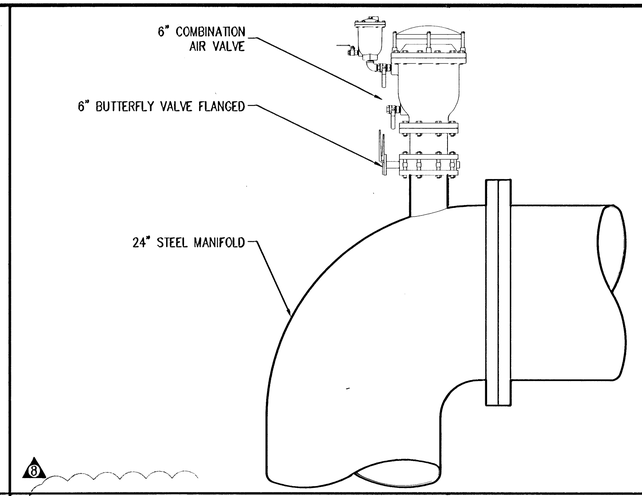
30" STEEL MANIFOLD (8)

SCALE: 3/8"=1'-0" | A



42" STEEL MANIFOLD

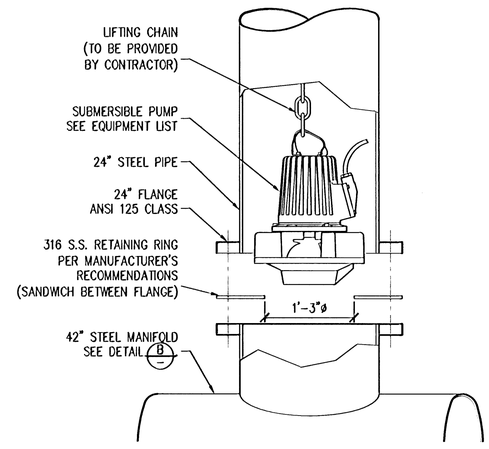
SCALE: 1/4"=1'-0" | B



(8)

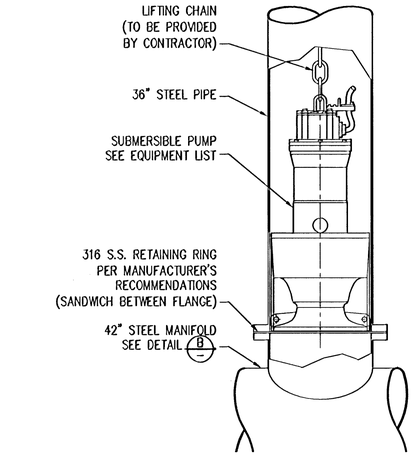
COMBINATION AIR VALVE DETAIL

SCALE: 1"=1'-0" | C



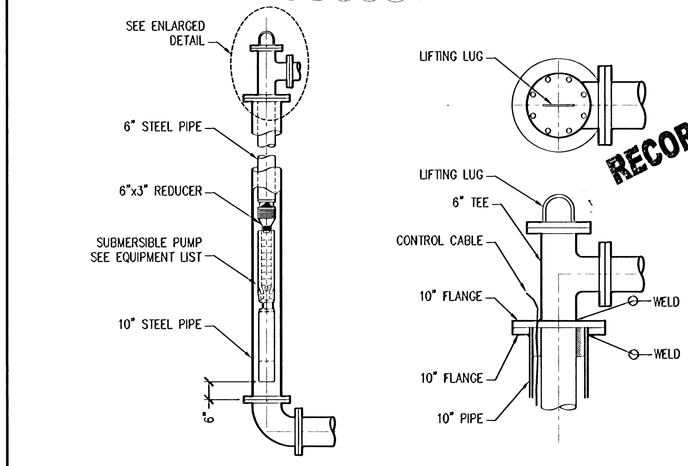
RECIRCULATION PUMP DETAIL

SCALE: 1"=1'-0" | D



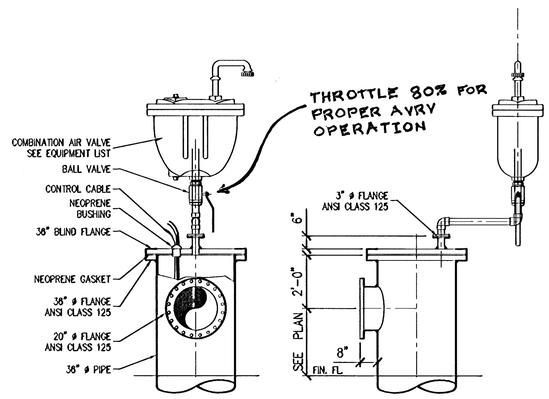
STORMWATER PUMP DETAIL

SCALE: 1/2"=1'-0" | E



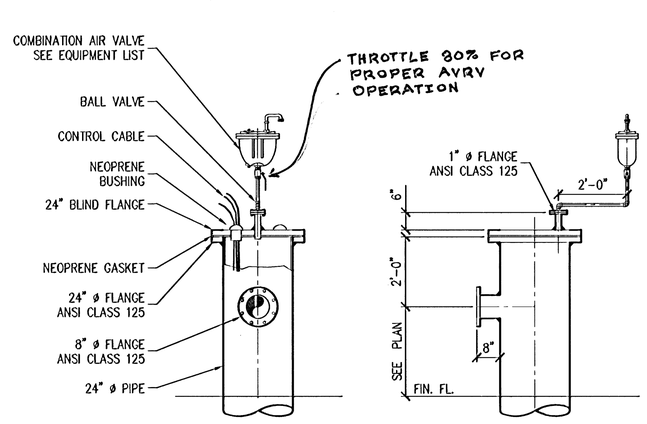
IRRIGATION PUMP DETAIL

SCALE: 1/2"=1'-0" | F



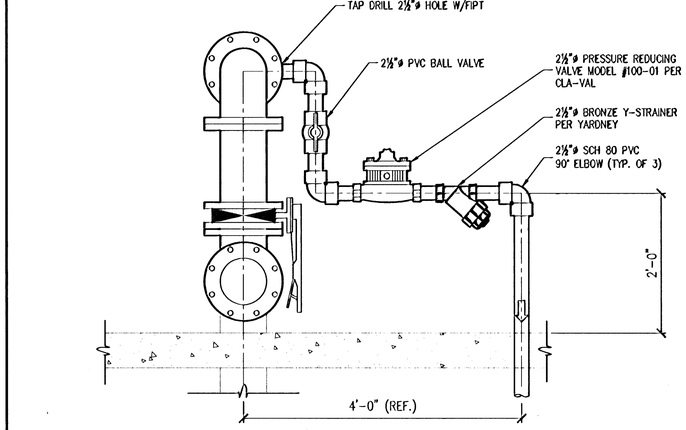
TOP OF 36" CAN DETAIL

SCALE: 3/8"=1'-0" | G



TOP OF 24" CAN DETAIL

SCALE: 1/2"=1'-0" | H



SUCTION SCREEN RETURN LINE (8)

SCALE: 1"=1'-0" | I

NO	BY	DATE	REVISIONS	DATE	APP.
1	JP	4/8/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
2	JP	4/27/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
3	DG	5/05/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
4	DG	5/19/05	PER CITY COMMENTS - PRIOR TO APPROVAL		
5	BR	7/8/05	IRRIGATION FILTER		
6	BR	9/21/05	WETLAND PLANTER		
7	BR	9/26/05	HYDROSTATIC RELIEF		
8	DG	12/22/05	RECORD DRAWINGS		

RECORD DRAWINGS

PREPARED BY
ANDREW T. KOMOR
R.C.E. PROJECT ENGINEER # C 64928
EXP. 6/30/07

SCALE 1/4" = 1'
DRAWN S.L./A.K.
DESIGNED J.A.M.
CHECKED A.K.
DATE APR 2005

CYPRESS GROVE
WATER PUMP STATION

MECHANICAL DETAILS

PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET
M3

JOB NO. 8138-E

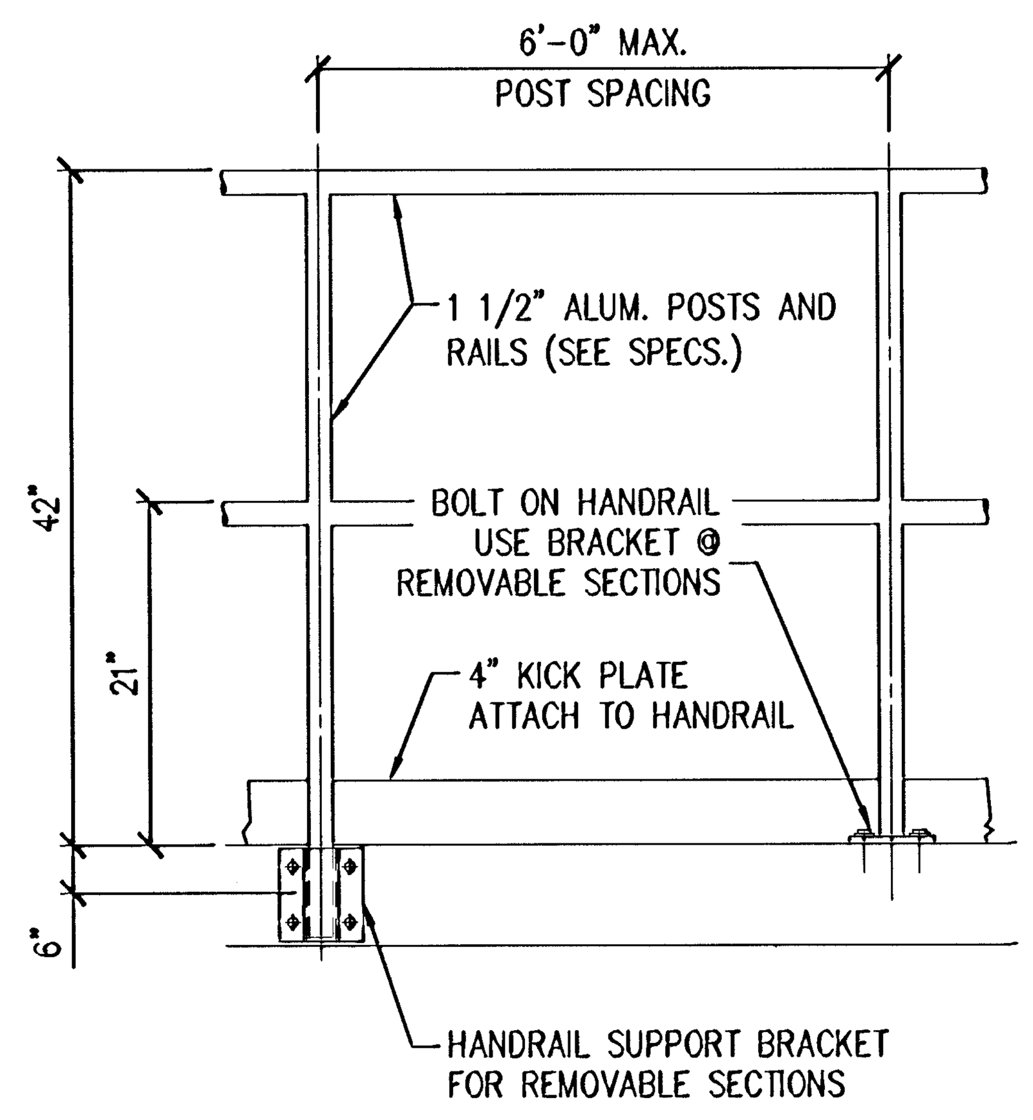
Xrefs: 8138-10-Tbl.dwg
Dimscale = 32; LTscale = 0.5; PSltscale = 1; Acad Ver. = 16.0s (LMS Tech); Variation = 1

P:\8138E\Engineering\Submittals\Record Drawings\Sheets\8138-10-SHEET-M03.dwg - Tab: LAYOUT1 By: sgallano on Jan. 04, 2006 at 03:22 pm

NOTES:
1.

2. TOP RAIL AT END POST SHALL BEND DOWN ON 1" MAX. CENTER LINE RADIUS. TOP RAIL AT CORNERS SHALL BE A SIDE OUTLET ELBOW (OR OFFSET CORNER POST 6" AND USE 3" CENTER LINE RADIUS HORIZ. BEND IN ALL RAILS AND TOEBOARD).

3. PROVIDE EXPANSION JOINTS IN HANDRAILING PER MANUFACTURER RECOMMENDATIONS.



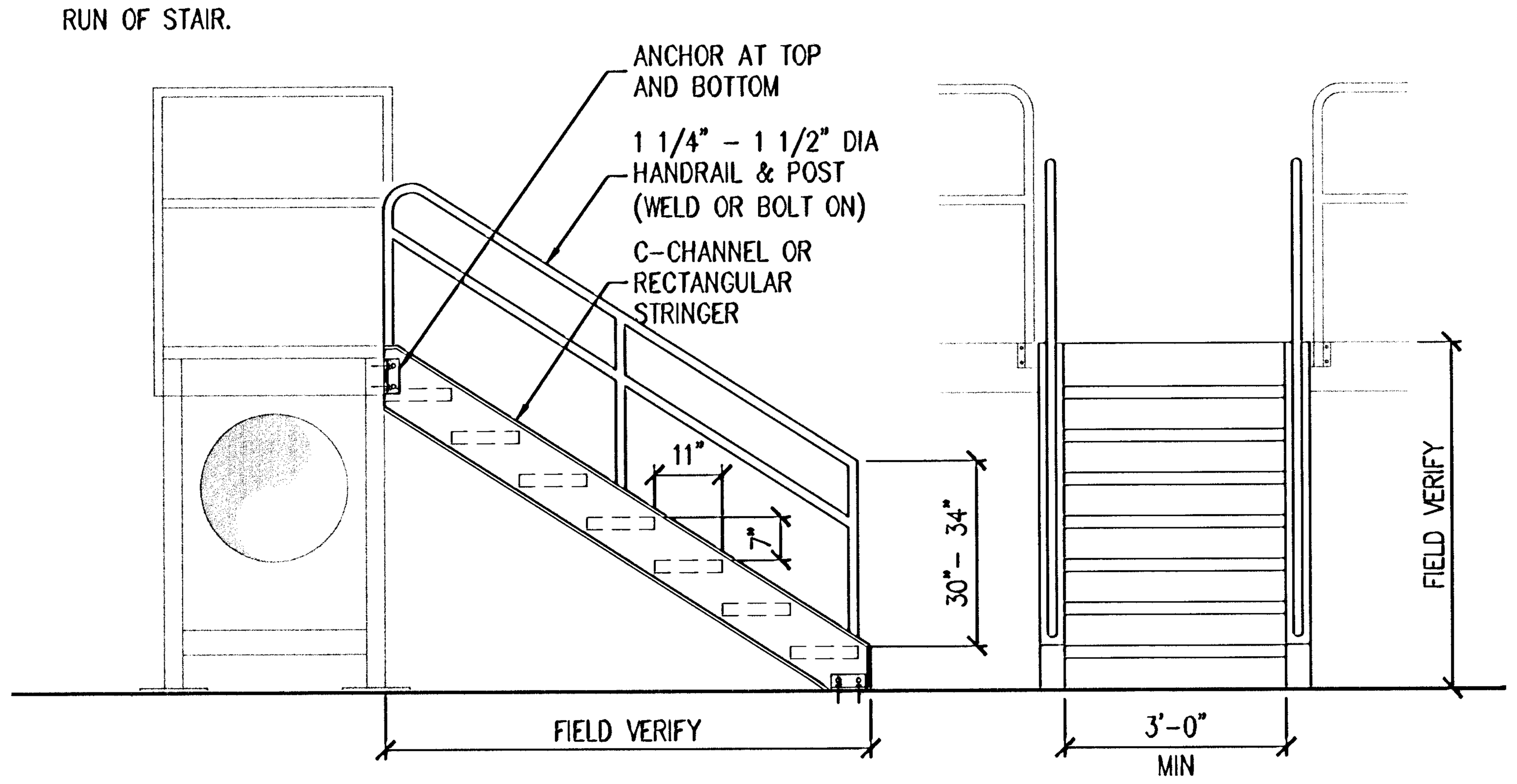
HANDRAIL DETAIL

SCALE: 1"=1'-0" A

NOTE:
1. STAIR TREAD WIDTH TO BE A MINIMUM OF 11" BY 36".

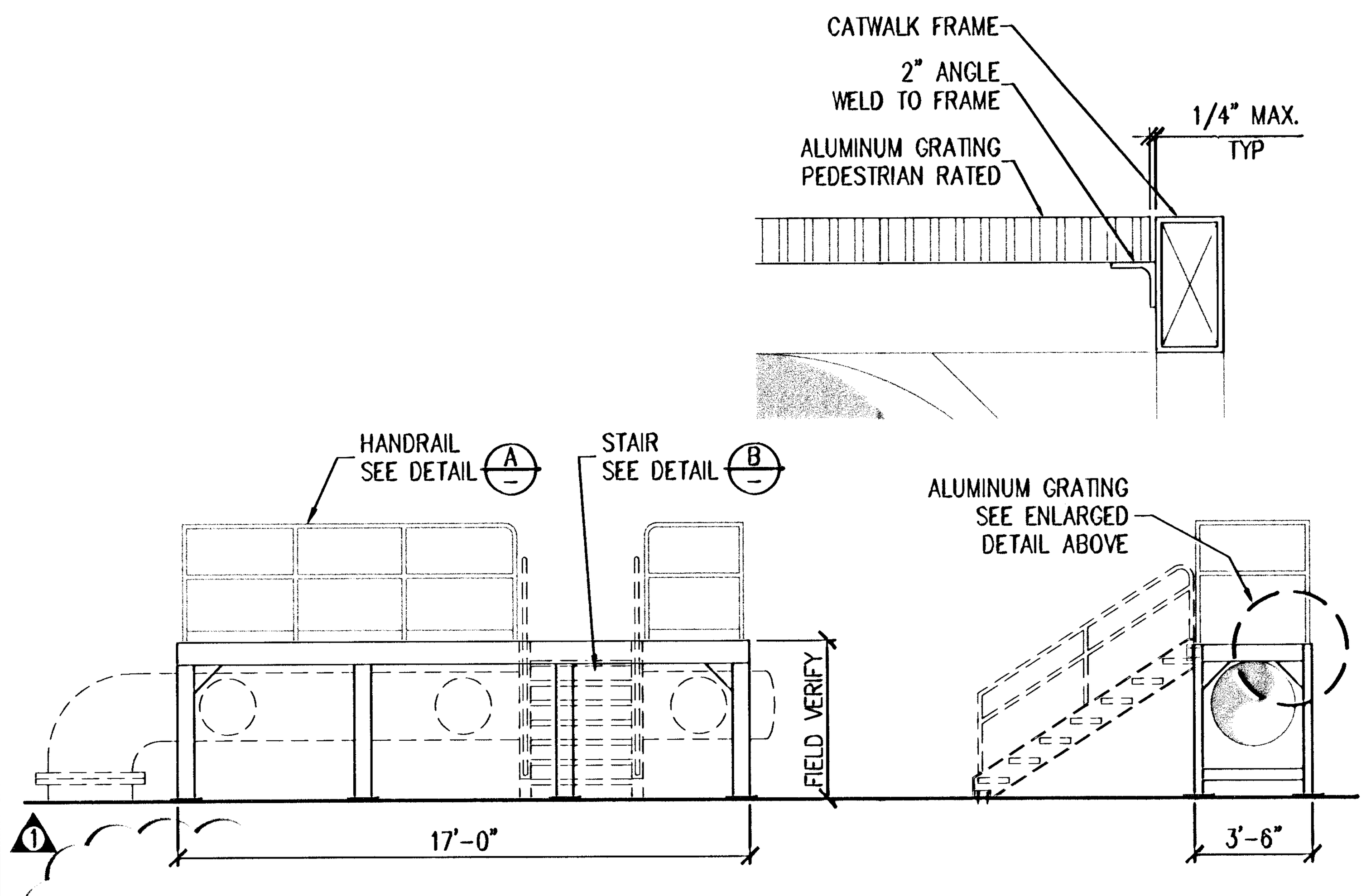
2. VERTICAL DISTANCE BETWEEN STEPS SHALL NOT EXCEED 8".

3. CONTRACTOR TO FIELD VERIFY DIMENSIONS FOR RISE AND RUN OF STAIR.



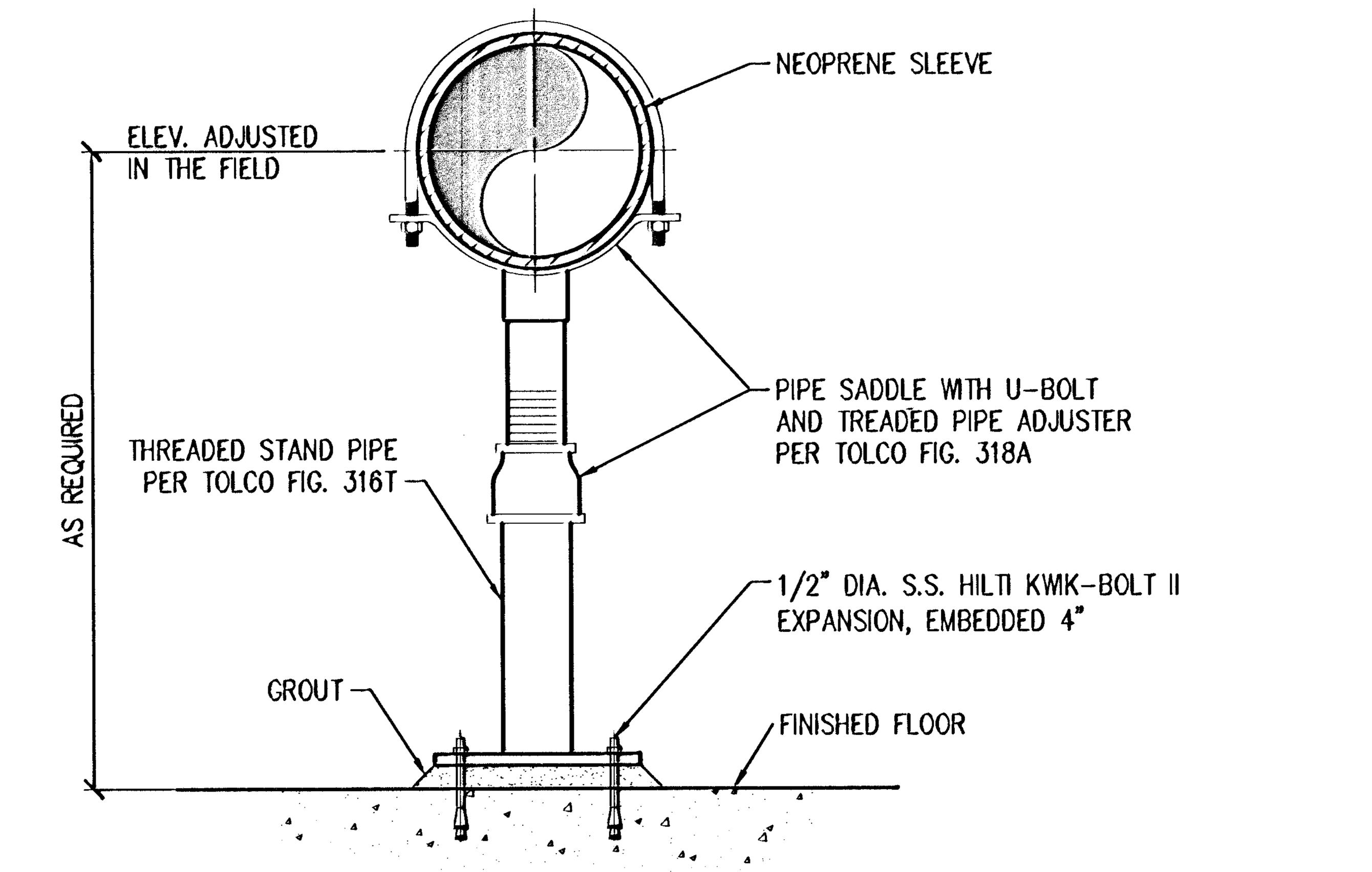
STAIR DETAIL

SCALE: 1/2"=1'-0" B



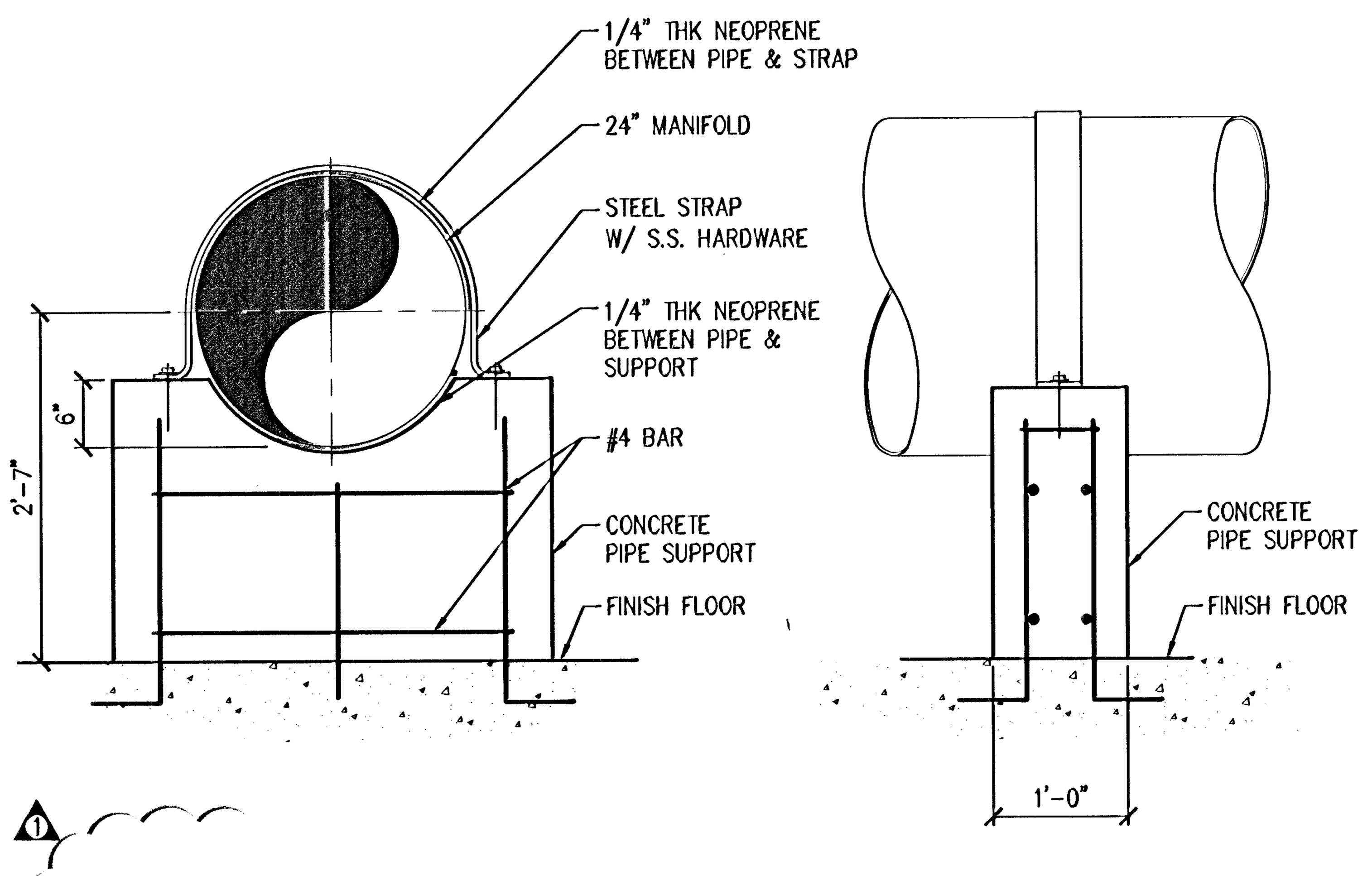
SERVICE CATWALK

SCALE: 1/4"=1'-0" C



PIPE SUPPORT

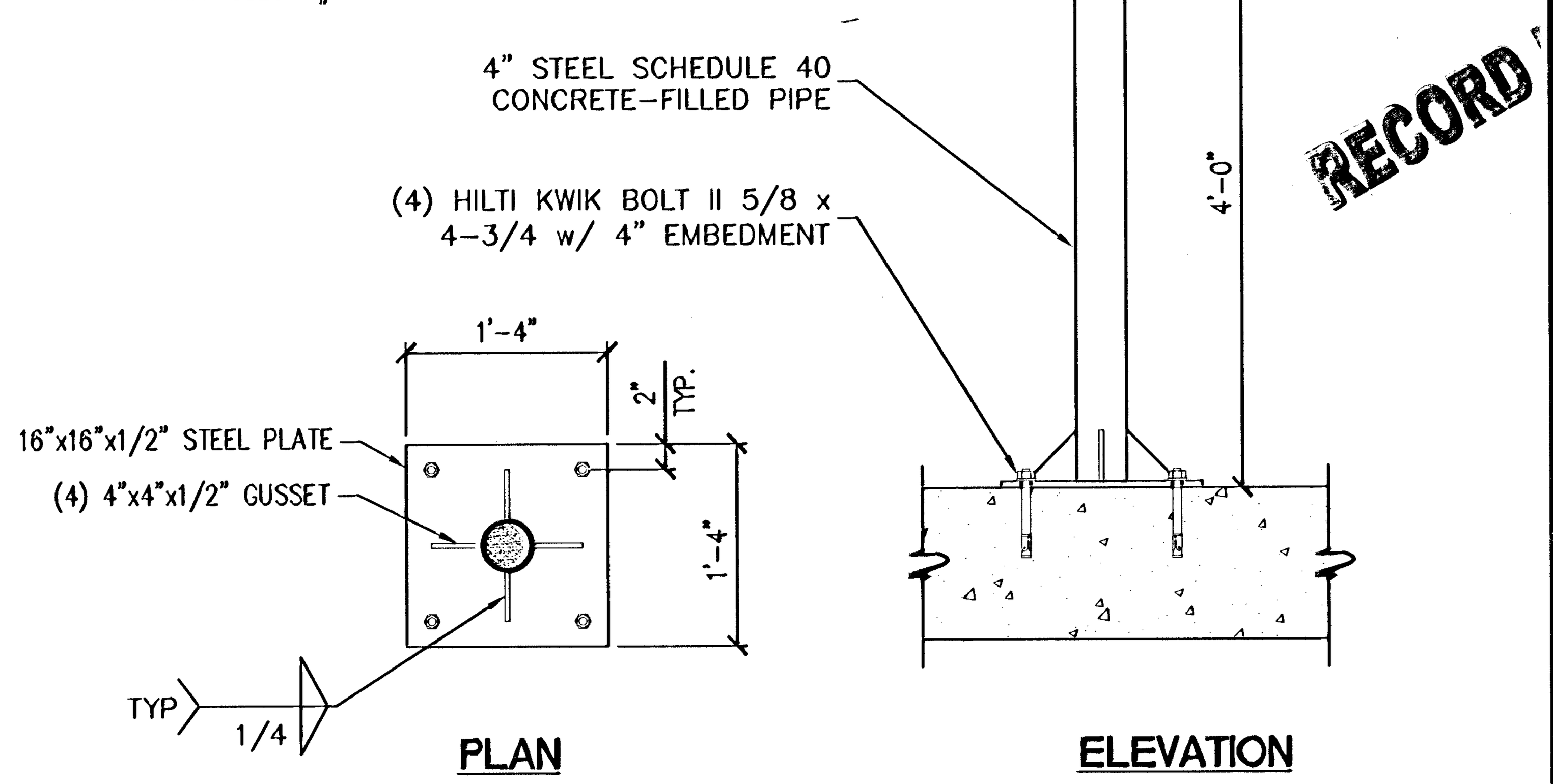
SCALE: 1"=1'-0" D



PIPE SUPPORT

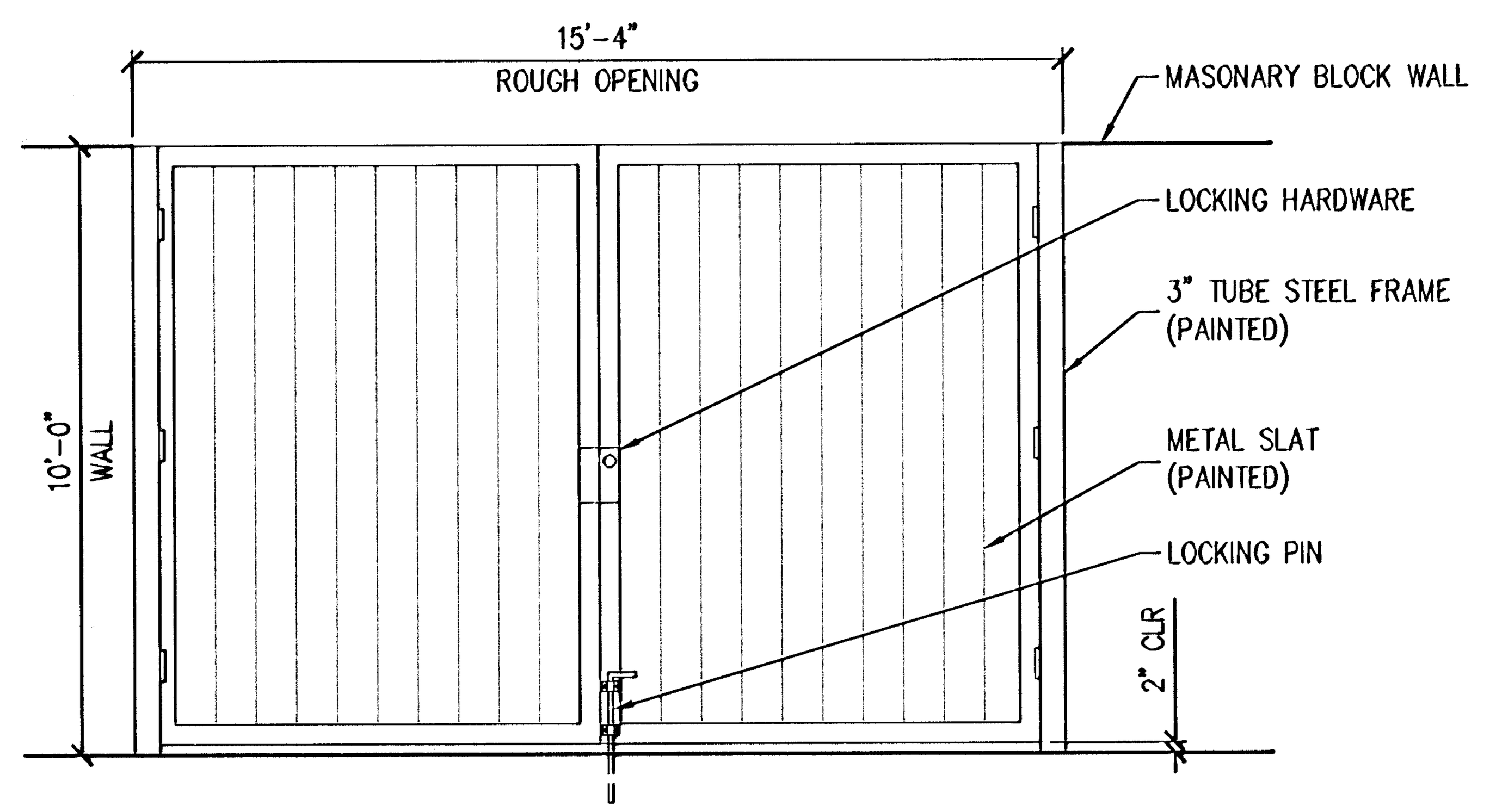
SCALE: 1"=1'-0" E

NOTE:
STEEL SHALL BE PAINTED A MINIMUM OF 2 FIELD COATS OF RED PRIMER RUST-OLEUM #769 AND 1- FINISH COAT OF YELLOW RUST-OLEUM #944



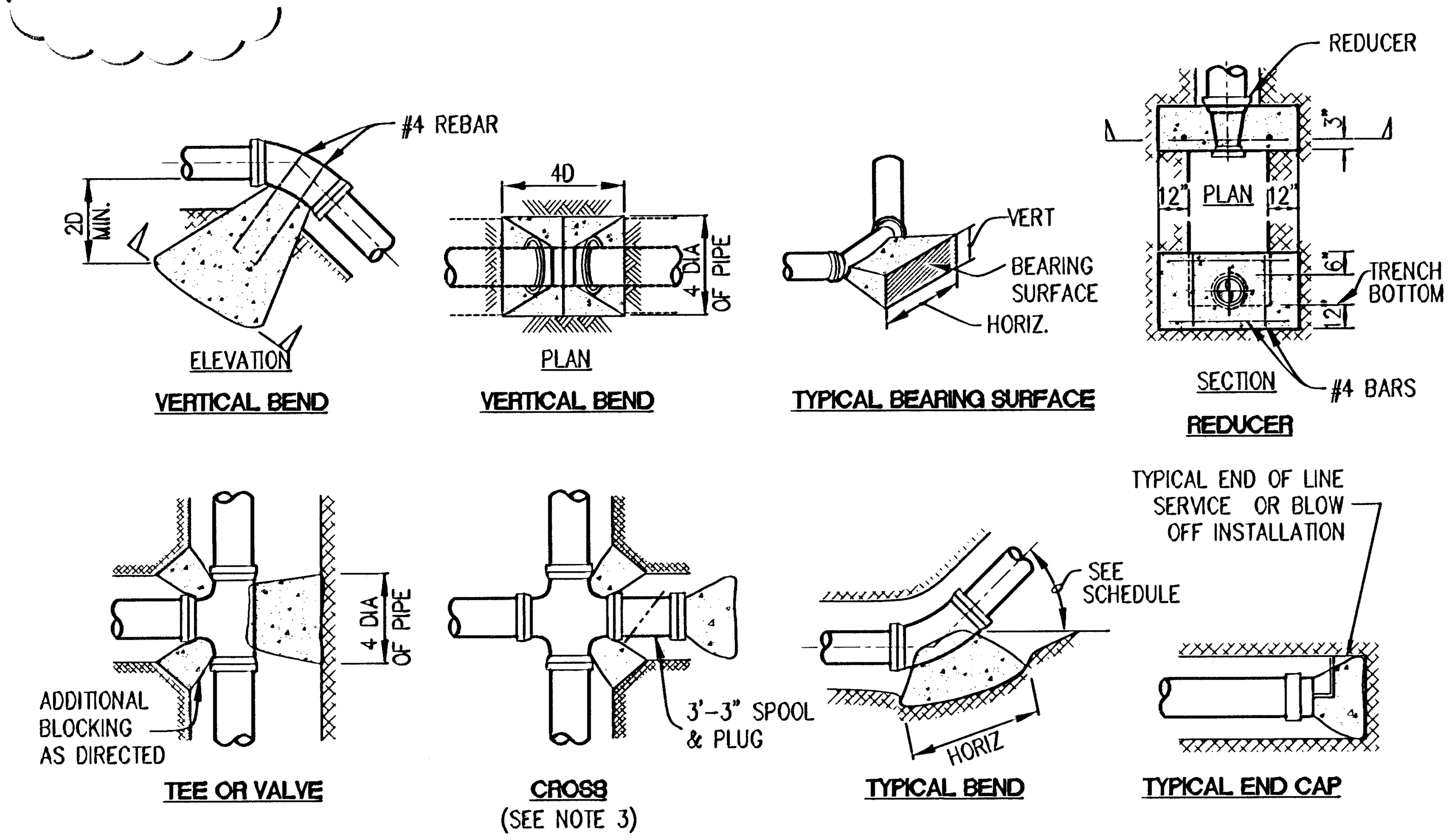
BOLTED BOLLARD DETAIL

SCALE: 1"=1'-0" F



STEEL GATE

SCALE: 3/8"=1'-0" G



NOTES:

1. THRUST BLOCK BEARING AREA BASED ON ALLOWABLE SOIL BEARING VALUE OF 2000 psf PRESSURE AND 150 psi LINE PRESSURE WITH 3'-0" COVER MINIMUM.
2. PORTLAND CEMENT CONCRETE SHALL BE 420-C-2000 CONCRETE. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
3. THRUST BLOCKS ON CROSSES SHALL BE USED ONLY WHEN THERE IS A STUB-OUT ON ONE OR MORE SIDES.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A15 AND A305 INTERMEDIATE GRADE.
5. CONCRETE SHALL NOT EXTEND INTO FLANGE OR ADJOINING PIPE.
6. THRUST BLOCK BEARING AREAS HAVE BEEN CALCULATED WITH A SAFETY FACTOR OF 1.5.

BEARING AREA TABLE

PIPE	11 1/4° BEND		22 1/2° BEND		45° BEND		90° BEND		TEE		END CAP	
SIZE	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
4"	1'-0"	0'-6"	1'-0"	0'-9"	1'-3"	1'-0"	1'-0"	1'-0"	1'-6"	1'-0"	1'-6"	1'-0"
6"	1'-0"	0'-9"	1'-3"	1'-0"	2'-0"	1'-6"	2'-3"	2'-0"	2'-0"	1'-9"	2'-0"	1'-9"
8"	1'-3"	1'-0"	1'-6"	1'-6"	2'-6"	2'-0"	3'-0"	2'-9"	3'-0"	2'-0"	3'-0"	2'-0"
10"	1'-9"	1'-0"	2'-0"	1'-9"	3'-0"	2'-6"	4'-0"	3'-3"	4'-0"	2'-3"	4'-0"	2'-3"
12"	2'-0"	1'-3"	2'-6"	2'-0"	3'-6"	3'-0"	4'-6"	4'-0"	4'-0"	3'-3"	4'-0"	3'-3"
15"	2'-0"	2'-0"	3'-0"	2'-9"	4'-0"	4'-0"	6'-0"	4'-9"	5'-0"	4'-0"	5'-0"	4'-0"

THRUST BLOCK

SCALE: NTS H

NO	BY	DATE	REVISIONS	DATE	APP.
1	SL	4/5/5	PER CITY COMMENTS		

RECORD DRAWINGS

REGISTERED PROFESSIONAL ENGINEER ANDREW T. KOMOR No. C 64928 Exp. 6-30-07 CIVIL STATE OF CALIFORNIA

6-4-05

PREPARED BY ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. -- # C 64928
EXP. 6/30/07

DRAWN S.L./N.K. | SCALE 1/4" = 1' | DESIGNED J.A.M. | CHECKED A.K. | DATE APR 2005

CYPRESS GROVE WATER PUMP STATION

MECHANICAL DETAILS

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET M4

JOB NO. 8138-E

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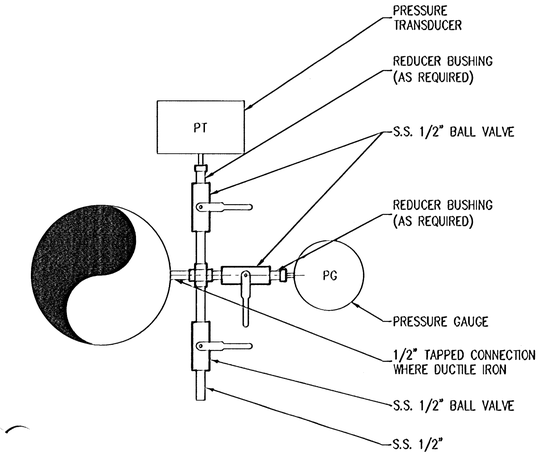
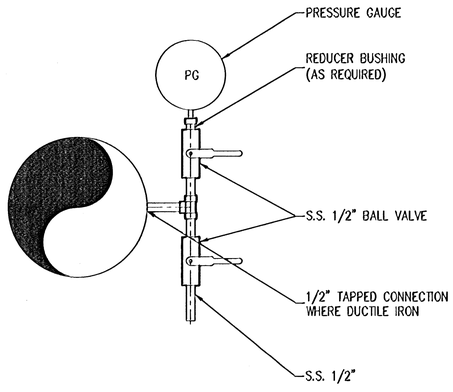


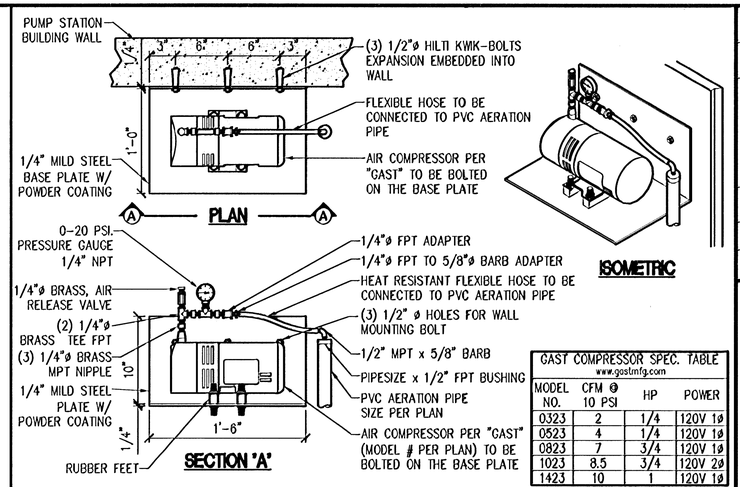
PRESSURE TRANSDUCER

SCALE: NONE



PRESSURE GAUGE

SCALE: NONE



CAST COMPRESSOR SPEC. TABLE
www.gastmfg.com

MODEL NO.	CFM @ 10 PSI	HP	POWER
0323	2	1/4	120V 1ø
0523	4	1/4	120V 1ø
0823	7	3/4	120V 1ø
1023	8.5	3/4	120V 2ø
1423	10	1	120V 1ø

COMPRESSOR - WALL MOUNTED

SCALE: 1/8"=1'-0"

NO.	BY	DATE	REVISIONS	DATE APP.
1	SL	4/5/05	PER CITY COMMENTS	

RECORD DRAWINGS 5-4-05

REGISTERED PROFESSIONAL ENGINEER ANDREW T. KOMOR No. C 64928 Exp. 6/30/07 CIVIL

PREPARED BY / ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. # C 64928
EXP. 6/30/07

DRAWN SL/A.K.
DESIGNED A.T.K.
CHECKED A.K.
SCALE 1/4" = 1'
DATE APR 2005

CYPRESS GROVE
WATER PUMP STATION

MECHANICAL DETAILS

PACIFIC ADVANCED CIVIL ENGINEERING
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SHEET
M5

JOB NO. 8138-E

Xrefs: 8138-10-Title.dwg
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SYMBOL	DESCRIPTION
P & I DIAGRAM SYMBOLS	
XXX XXX	FIELD MOUNTED INSTRUMENT
XXX XXX	FACE MOUNTED INSTUMENT ON LOCAL PANEL, OPERATOR ACCESSIBLE
XXX XXX	FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE
XXX XXX	INSTRUMENT MOUNTED IN LOCAL PANEL, OPERATOR INACCESSIBLE
XXX XXX	INSTRUMENT MOUNTED IN FIELD PANEL, OPERATOR INACESSIBLE
I	OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES
DWG #	– REFERENCE ELEMENTARY DWG. #
XXX XXX	PLC OR COMPUTER FUNCTION PERFORMING OPERATION WITH VISUAL INDICATION
XXX XXX	PLC OR COMPUTER FUNCTION PERFORMING OPERATION WITH VISUAL ALARM INDICATION
XXX XXX	PLC OR COMPUTER PERFORMING INTERNAL OPERATION
XXX XXX	PLC OR COMPUTER PERFORMING INTERNAL ALARM OPERATION
$\propto \int \partial/\partial t$	PROPORTIONAL, INTEGRAL, AND DIFFERENTIAL PARAMETERS
% +/–	RATIO AND BIAS PARAMETERS
	AUDIBLE ALARM (BUZZER OR HORN)
R#–C#	ANNUNCIATOR WINDOW R – ROW # C – COLUMN #
X	LAMP INDICATION (STATUS OR ALARM)
XXXXX	DISCRETE INPUT
XXXXX	DISCRETE OUTPUT
XXXXX	ANALOG INPUT
XXXXX	ANALOG OUTPUT
a XXXX / XXXX a	JUMP TAG FROM ONE AREA TO ANOTHER AREA OF DRAWING "a" TAG CONNECT POINT ON EACH DRAWING
I–X / I–X	CONTINUED ON DWG I–X
#	AUTODIALER PRIORITY # PC BASED SOFTWARE

SYMBOL	DESCRIPTION
P & I DIAGRAM SYMBOLS	
OPEN / CLOSED	VALVE (GENERAL)
OPEN / CLOSED	GATE (GENERAL)
	SWING CHECK VALVE
	BALL CHECK VALVE
	PUMP (GENERAL)
	BLOWER (GENERAL)
XXXXX	EQUIPMENT NUMBER
	ELECTRIC SIGNAL
	LOGIC OR DATA SIGNAL
	PNEUMATIC SIGNAL
	CAPILLARY TUBING (FILLED SYSTEM)
	HYDRAULIC SIGNAL
ES AS	SONIC OR ELECTROMAGNETIC SIGNAL
E	ELECTRIC SUPPLY FROM PANELBOARD CKT
SA	SERVICE AIR
IA	INSTRUMENT AIR
	BLADDER TANK

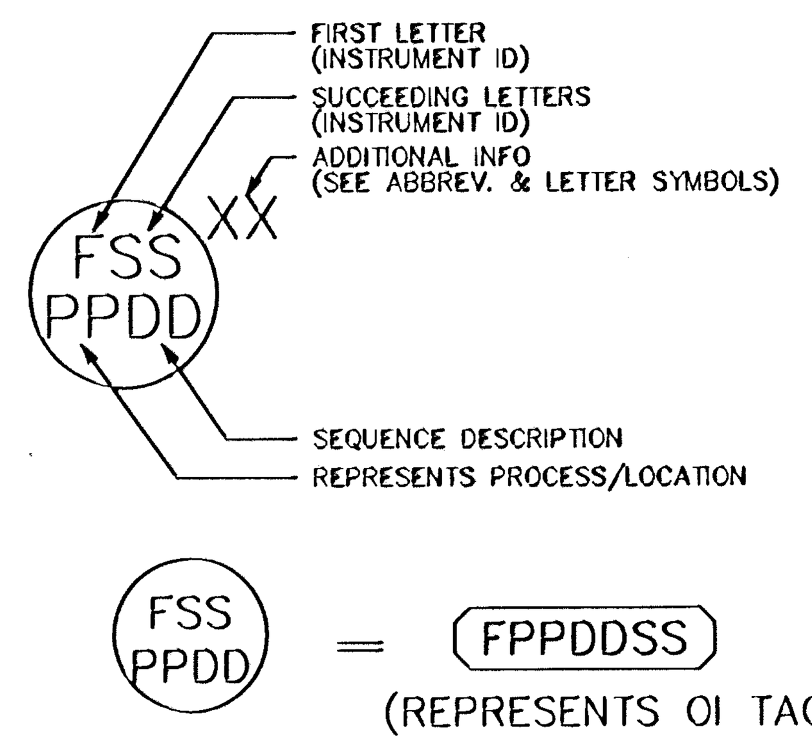
INSTRUMENT IDENTIFICATION LETTERS

	FIRST – LETTER (F)		SUCCEEDING – LETTERS (SS)		
	MEASURED OF INITIATING VARIABLE	MODIFIER	READOUT PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROLLER	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GENERAL		GLASS VIEWING DEVICE		
H	HAND				HIGH, OPENED
I	CURRENT (ELEC.)		INDICATING, INDICATOR		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW, CLOSED
M	MOISTURE	MOMENTARY			MIDDLE
N	STATUS		STATUS	USER'S CHOICE	USER'S CHOICE
O	OPERATOR		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTERGRATE, TOTALIZE			
R	RESET		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMITTER	TEST
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECH. ANALYSIS			VALVE, DAMPER LOUVER	
W	WEIGHT, FORCE		WELL		
X	SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTER, CONVERTOR	
Z	POSITION DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSEIFIED FINAL CONTROL ELEMENT	

PROCESS/LOCATION (PP)

PROCESS NUMBER	PROCESS/LOCATION
01	PUMP STATION/WELL PUMP

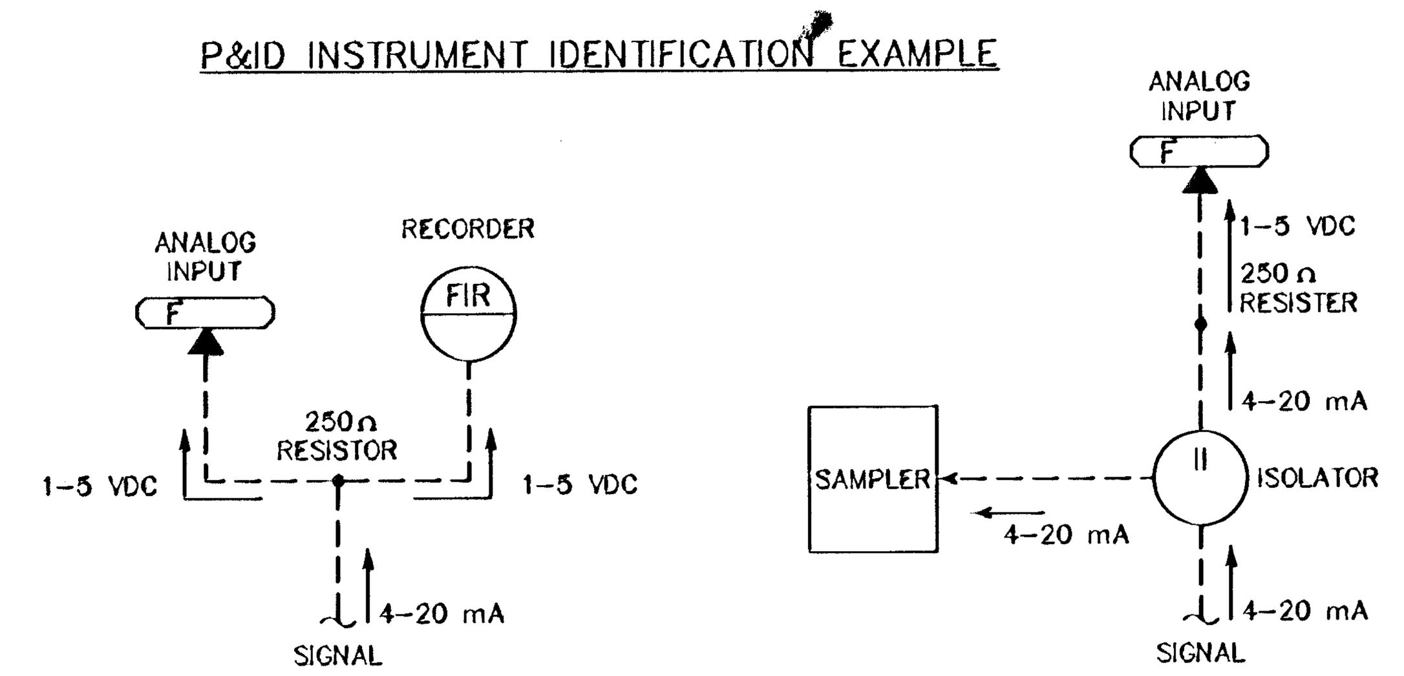
1



SEQUENCE DESCRIPTION (DD)

SEQUENCE NUMBER	SEQUENCE DESCRIPTION
01–09	ELECTRIC VALVES
11–19	PUMPS
21–29	MIXERS
31–39	BLOWERS
41–49	MISC. MECHANICAL
51–59	LEVEL DEVICES
61–69	PRESSURE DEVICES
71–79	FLOW DEVICES
81–89	ANALYTICAL DEVICES
91–99	SAFETY & SECURITY DEVICES

P&ID INSTRUMENT IDENTIFICATION EXAMPLE



TYPICAL SIGNAL FLOWS

INSTRUMENTATION ABBREVIATIONS:

A	AMPERE	MGL	MILLIGRAMS PER LITER
AI	ANALOG INPUT	MH	MANHOLE
AIC	AMPS INTERRUPTING CAPACITY	MTU	MASTER TELEMETRY UNIT
AO	ANALOG OUTPUT	NPW	NON-POTABLE WATER
AS	AIR SUPPLY	NS	NITROGEN SUPPLY
ATS	AUTOMATIC TRANSFER SWITCH	NTU	TURBIDITY
AUTO	AUTOMATIC	OCA	OPEN-CLOSE-AUTO
CB	CIRCUIT BREAKER	OCR	OPEN-CLOSE-REMOTE
CL2	CHLORINE	OIT	OPERATOR INTERFACE TERMINAL
CON	CONTRACTOR	OL	OVERLOAD
CU	COPPER, BARE	OO	ON/OFF (MAINTAINED)
CV	CONTROL VALVE	OOA	ON-OFF-AUTO
DCS	DISTRIBUTED CONTROL SYSTEM	OOR	ON-OFF-REMOTE
DI	DISCRETE INPUT	OSC	OPEN-STOP-CLOSE
DO	DISOLVED OXYGEN	PER	PERMISSIVE
DWG	DRAWING	PLC	PROGRAMMABLE LOGIC CONTROLLER
ETM	ELAPSED TIME METER	PNL	PANEL
EOL	ELECTRONIC OVERLOAD	PO	PULSE OUTPUT
EXIST	EXISTING	PPG	POUNDS PER GALLON
FA	FOUL AIR	PPH	POUNDS PER HOUR
FC	FAIL CLOSED	PPM	PARTS PER MILLION
FE	FINAL EFFLUENT	PR	PAIR
FR	FORWARD-REVERSE	PRES	PRESSURE
FS	FLOAT SWITCH/FULL SPEED 1	PS	PRESSURE SWITCH
FW	FINISHED WATER	PSI	POUNDS PER SQUARE INCH
GND	GROUND	PV	PROCESS VARIABLE
GPD	GALLONS PER DAY	R	RELAY (INTRINSIC)
GPH	GALLONS PER HOUR	RAS	RETURN ACTIVATED SLUDGE
GPM	GALLONS PER MINUTE	RAW	RAW WATER
H, HI	HIGH	REM	REMOTE
H2S	HYDROGEN SULFIDE	RF	RADIO FREQUENCY
HMI	HUMAN MACHINE INTERFACE	RIO	REMOTE INPUT OUTPUT
HOA	HAND-OFF-AUTO	RS	RAW SEWAGE
HOR	HAND-OFF-REMOTE	RSP	RAW SEWAGE PUMP
I	CURRENT	RST	RESET
IO	INPUT/OUTPUT	RTU	REMOTE TELEMETRY UNIT
IOE	INTERNAL-OFF-EXTERNAL	SEQ	SERVICE ENTRANCE EQUIPMENT
JB	JUNCTION BOX	SES	SERVICE ENTRANCE SECTION
L, LO	LOW	SLC	SINGLE LOOP CONTROLLER
LAN	LOCAL AREA NETWORK	SLOS	START-LOCK-OFF-STOP
LC	LOOP CONTROLLER	SO2	SULFUR D
LCP	LOCAL CONTROL PANEL	SP	SET POINT
LOS	LOCK-OFF-STOP	SPD	SPEED
LR	LOCAL/REMOTE	SPR	SPARE
LS	LEVEL (i.e., FLOAT) SWITCH	SS	START/STOP (MAINTAINED)
M	MOTOR	SSS	SOLID STATE STARTER (SOFT START)
MA	MANUAL/AUTO, MILLIAMP	TS	TEMPERATURE SWITCH
MC	MANUFACTURE CABLE	UG	UNDERGROUND
MCC	MOTOR CONTROL CENTER	V	VOLT
MCP	MOTOR CIRCUIT PROTECTOR	VFD	VARIABLE FREQUENCY DRIVE
MFR(S)	MANUFACTURER(S)	W	WATT, WIRE
MGD	MILLION GALLONS PER DAY	WAS	WASTE ACTIVATED SLUDGE
		ZS	POSITION (i.e., LIMIT) SWITCH

RECORD DRAWINGS

NO	BY	DATE	REVISIONS	DATE	APP.
1	DG	4/08/05	PER CITY COMMENTS		

REGISTERED PROFESSIONAL ENGINEER ANDREW T. KOMOR No. C 64928 Exp. 6-30-07 CIVIL STATE OF CALIFORNIA

5-4-05

PREPARED BY ANDREW T. KOMOR PROJECT ENGINEER R.C.E. NO. -- # C 64928 EXP. 6/30/07

DRAWN S.L./N.K. SCALE 1/4" = 1'

DESIGNED J.A.M.

CHECKED A.K. DATE APR 2005

CYPRESS GROVE WATER PUMP STATION

INDEX

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
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PH (714) 481-7300 FAX (714) 481-7299

SHEET 10

JOB NO. 8138-E

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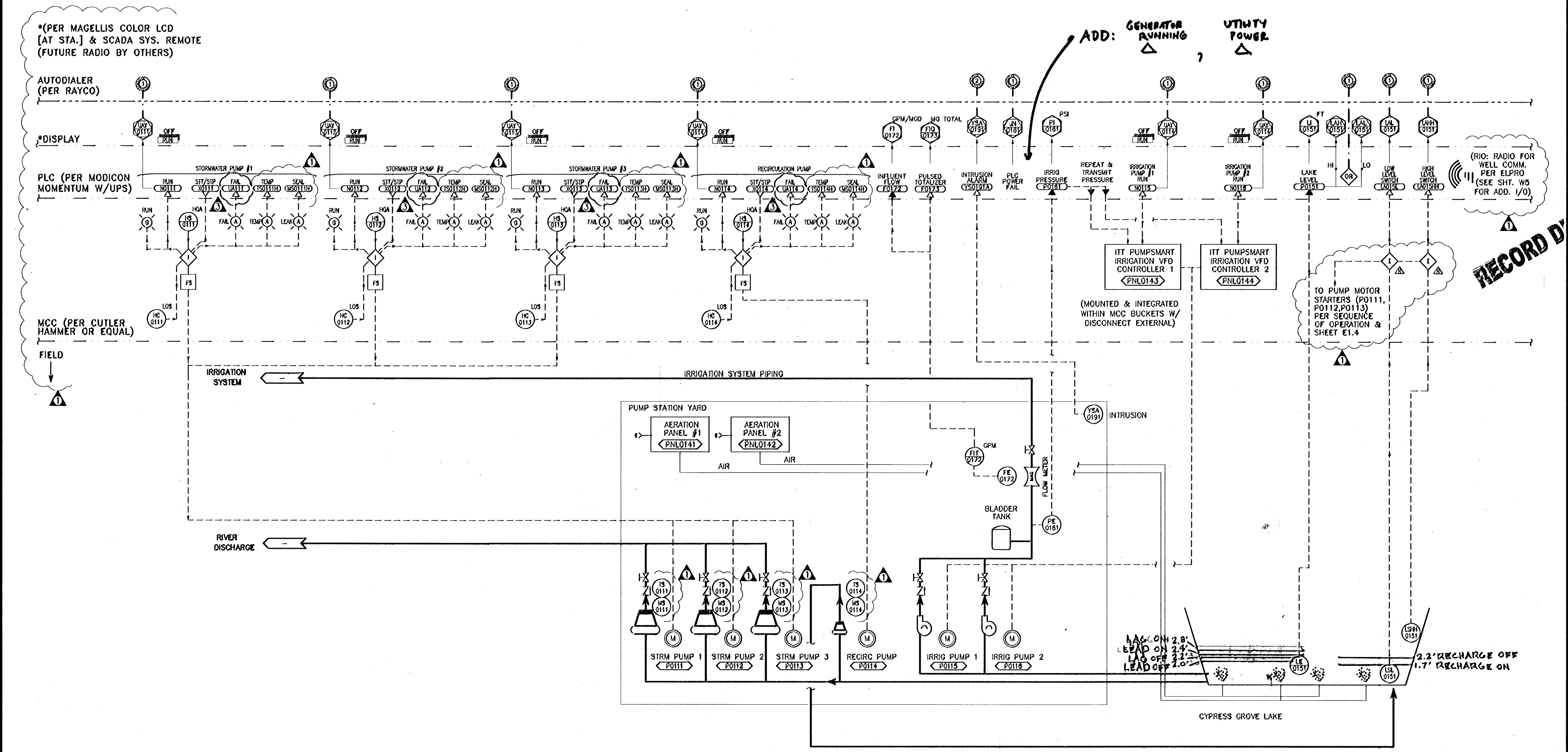

*(PER MAGELLIS COLOR LCD [AT STA.] & SCADA SYS. REMOTE (FUTURE RADIO BY OTHERS)
AUTODIALER (PER RAYCO)
*DISPLAY
PLC (PER MODICON MOMENTUM W/UPS)
MCC (PER CUTLER HAMMER OR EQUAL)
FIELD
STORMWATER PUMP #1
STORMWATER PUMP #2
STORMWATER PUMP #3
RECIRCULATION PUMP
INFLUENT FLOW
PULSED TOTALIZER
INTRUSION ALARM
PLC POWER FAIL
IRRIG PRESSURE
REPEAT & TRANSMIT PRESSURE
IRRIGATION PUMP #1 RUN
IRRIGATION PUMP #2 RUN
LAKE LEVEL
LOW LEVEL SWITCH
HIGH LEVEL SWITCH
(RIO: RADIO FOR WELL COMM. PER ELPRO (SEE SHT. W5 FOR ADD. I/O)
ADD: GENERATOR RUNNING, UTILITY POWER
ITT PUMPSMART IRRIGATION VFD CONTROLLER 1
PNL0143
ITT PUMPSMART IRRIGATION VFD CONTROLLER 2
PNL0144
(MOUNTED & INTEGRATED WITHIN MCC BUCKETS W/ DISCONNECT EXTERNAL)
TO PUMP MOTOR STARTERS (P0111, P0112,P0113) PER SEQUENCE OF OPERATION & SHEET E1.4
IRRIGATION SYSTEM
IRRIGATION SYSTEM PIPING
PUMP STATION YARD
AERATION PANEL #1
PNL0141
AERATION PANEL #2
PNL0142
AIR
INTRUSION
FLOW METER
BLADDER TANK
RIVER DISCHARGE
STRM PUMP 1
P0111
STRM PUMP 2
P0112
STRM PUMP 3
P0113
RECIRC PUMP
P0114
IRRIG PUMP 1
P0115
IRRIG PUMP 2
P0116
LAG ON 2.8'
LEAD ON 2.4'
LAG OFF 2.2'
LEAD OFF 2.0'
2.2' RECHARGE OFF
1.7' RECHARGE ON
CYPRESS GROVE LAKE
RECORD DRAWINGS
5-4-05

NO	BY	DATE	REVISIONS	DATE	APP.
1	DC	4/18/05	PER CITY COMMENTS		
2	DC	5/05/05	PER CITY COMMENTS		

PREPARED BY ANDREW T. KOMOR
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R.C.E. NO. -- #C 64928
EXP. 6/30/07

DRAWN S.L./N.K. — SCALE 1/4" = 1'
DESIGNED J.A.W. — DATE APR 2005
CHECKED A.K.

CYPRESS GROVE WATER PUMP STATION

P&ID

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PH (714) 481-7300 FAX (714) 481-7299

SHEET I1

JOB NO. 8138-E

CYPRESS GROVE STORM WATER PUMP STATION ELECTRICAL PLANS

ELECTRICAL SYMBOLS

SINGLE LINE DIAGRAMS

- AMMETER
- VOLTMETER
- METER
- KILOWATT HOUR METER
- AS — AMMETER SWITCH
- VS — VOLTMETER SWITCH
- GFI — GROUND FAULT INTERRUPTER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- POWER TRANSFORMER SEE NOTE 1.
- CONTROL TRANSFORMER SEE NOTE 2.
- DRAW OUT TYPE EQUIPMENT
- DRAW OUT TYPE HIGH VOLTAGE MOTOR STARTER
- PLUG-IN TYPE EQUIPMENT
- CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE INDICATED
- DISCONNECT SWITCH, 3 POLE UNLESS OTHERWISE INDICATED
- OIL FUSE CUTOUTS
- FUSE SEE NOTE 3.
- TRANSFER SWITCH, AUTOMATIC
- RV 1 — MAGNETIC MOTOR STARTER."1" INDICATES SIZE 1. RV INDICATES REDUCED VOLTAGE. 2S INDICATES 2 SPEED. R INDICATES REVERSING.
- SSS 1 — SOLID STATE MOTOR STARTER."1" INDICATES SIZE 1.
- MAGNETIC CONTACTOR
- (12) — CONDUIT NUMBER 12. SEE CONDUIT AND WIRING SCHEDULE FOR SIZES AND QUANTITIES OF CONDUIT AND WIRES.
- GROUND
- K — KIRK KEY INTERLOCKING OF EQUIPMENT
- 2 HP — EQUIPMENT FURNISHED, INSTALLED AND CONNECTED UNDER ANOTHER SECTION OF THE CONTRACT.
- P.F.R. — PHASE FAILURE RELAY
- S A — SURGE ARRESTER
- EXISTING MOTOR (HP SHOWN)
- NEW MOTOR (ESTIMATED HP SHOWN)
- FUTURE MOTOR (ESTIMATED HP SHOWN)
- 1 — MANHOLE

NOTES: (ELECTRICAL SYMBOLS)

1. POWER TRANSFORMERS SHALL BE DRY TYPE 480-208Y/120 VOLTS, 3 PHASE 4 WIRE UNLESS OTHERWISE INDICATED.
2. CONTROL TRANSFORMER SHALL BE DRY TYPE 480-120 VOLTS 1 PHASE UNLESS OTHERWISE INDICATED. SEE CONTROL WIRING DIAGRAMS FOR USE OF 120 VOLT CONTROL CIRCUITS CONTROL TRANSFORMERS SHALL BE SIZED TO HANDLE THE LOADS OF ALL RELAYS, PILOT LIGHTS, ETC. CONNECTED THRERTO PLUS 50 VA EXTRA CAPACITY.
3. LOCATED IN OR ON MOTOR CONTROL CENTER UNLESS OTHERWISE INDICATED.

CONTROL WIRING DIAGRAMS

NORMALLY OPEN | NORMALLY CLOSED | DEVICE

- CONTACT
- LIMIT SWITCH
- LIMIT SWITCH HELD CLOSED
- LIMIT SWITCH HELD OPEN
- PRESSURE OR VACUUM SWITCH
- LIQUID LEVEL SWITCH
- TEMPERATURE ACTUATED SWITCH
- FLOW SWITCH (AIR, WATER, ETC.)
- PUSH BUTTON SINGLE CIRCUIT MOMENTARY CONTACT. SEE NOTE 3.
- PUSH BUTTON SINGLE CIRCUIT LOCK-OUT(LOCATED AT MOTOR UNLESS OTHERWISE NOTED)
- TIMED CONTACT- CONTACT ACTION RELAY ON ENERGIZATION.
- TIMED CONTACT- CONTACT ACTION RELAY ON DE-ENERGIZATION.
- G — PILOT LIGHT, Y=YELLOW, R=RED, A=AMBER, B=BLUE, W=WHITE, G=GREEN, SEE NOTE 3.
- STOP START — STOP -START PUSHBUTTON STATION (MAINTAINED CONTACTS). SEE NOTE 3.
- H O A — HAND-OFF-AUTO SELECTOR SWITCH. SEE NOTE 3. (THREE POSITION)
- BELL
- HORN OR SIREN
- TWO POSITION SELECTOR SWITCH SEE NOTE 3.
- POWER FLOOR OUTLET
- STANCHION,
- CR — CONTROL RELAY. SEE NOTE 3.
- M — STARTER COIL. SEE NOTE 3.
- TDR — TIME DELAY RELAY. (0-30 SECONDS UNLESS OTHERWISE NOTED). SEE NOTE 3.
- OL'S — MOTOR STARTER OVERLOAD RELAY CONTACTS
- CONTROL TRANSFORMER. SEE NOTES 2
- MANUAL MOTOR STARTER
- ON-OFF SWITCH. SEE NOTE 3.
- SOLENOID OPERATED CONTROL VALVE
- 120 VOLT, 1 PHASE, MOTOR
- RTM — RUNNING TIME METER. (ELAPSED TIME METER) SEE NOTE 3.
- SPACE HEATERS. (LOCATED AT MOTOR UNLESS OTHERWISE NOTED).
- TERMINALS IN MOTOR CONTROL CENTER/MCP
- CONTACT OR DEVICE REMOTE FROM MOTOR CONTROL CENTER/MCP
- TERMINALS IN MOTOR CONTROL CENTER /MCP
- CONTACT IN MOTOR CONTROL CENTER FOR CONNECTION TO REMOTE DEVICE /MCP
- O/L — MOTOR STARTER OVERLOAD AUXILIARY (ALARM) NORMALLY CLOSED CONTACT
- ESB — EMERGENCY STOP PUSH BUTTON (MAINTAINED CONTACT)
- DEVICE SIGNAL OUTPUT
- DEVICE SIGNAL INPUT

PLANS

- CONDUIT RUN CONCEALED UNDER SLAB OR BELOW GRADE. (CONCEALED IN SLAB WHERE SO NOTED OR WHERE ALLOWED PER SPECIFICATIONS).
- CONDUIT RUN EXPOSED UNLESS OTHERWISE NOTED
- EXISTING CONDUIT RUN
- HASH MARKS INDICATE QUANTITY OF #12 WIRES IN CONDUIT (PLUS 1#12 GROUND WIRE) EXCEPT NO HASH MARKS=3/4", 2#12 (PLUS 1#12 GROUND WIRE) UNLESS OTHERWISE NOTED.
  - 3/4", 3#12 — 1", 6#12
  - 3/4", 4#12 — 1", 7#12
  - 3/4", 5#12 — 1", 8#12
- L-1,3 — HOMERUN TO PANEL L, CIRCUITS 1 AND 3
- GROUND WIRE
- CONDUIT UP (OUT TOP OF EQUIPMENT)
- CONDUIT DOWN (OUT BOTTOM OF EQUIPMENT)
- CONDUIT STUBBED OUT AND CAPPED
- RECESSED MOUNTED LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- PARABOLIC TROFFER LIGHTING FIXTURE
- FLUORESCENT LIGHTING FIXTURE
- POLE MOUNTED LIGHT FIXTURE
- EXIT LIGHT WITH EGRESS LIGHTING
- A 1/75 — LIGHTING FIXTURE TYPE A, 75 WATTS, WITH 1 LAMP. SEE LIGHTING FIXTURE SCHEDULE
- S — SINGLE POLE, SINGLE THROW TOGGLE SWITCH
- S_2 — DOUBLE POLE, SINGLE THROW TOGGLE SWITCH
- S_3 — THREE-WAY TOGGLE SWITCH
- S_4 — FOUR-WAY TOGGLE SWITCH
- S_M — MANUAL MOTOR STARTER

  (AT +48" OR AS NOTED)
- S_a — OUTLETS SHOWN WITH SUBSCRIPT "a" ADJACENT TO THEM SHALL BE CONTROLLED BY S a
- DUPLEX CONVENIENCE RECEPTACLE AT +12" OR AS NOTED
- SINGLE CONVENIENCE RECEPTACLE AT +12" OR AS NOTED
- SPECIAL PURPOSE RECEPTACLE AT +12" OR AS NOTED, RATING AS INDICATED
- J — JUNCTION BOX, SIZE AS REQUIRED BY CODE
- T — THERMOSTAT OUTLET AT +54"
- CLOCK OUTLET AT +7'-6" OR AS NOTED
- TELEPHONE OUTLET AT +12" OR AS NOTED
- TELEPHONE FLOOR OUTLET
- HORN
- P — CONTROL DEVICE
  - P = PRESSURE SWITCH
  - ZS = LIMIT SWITCH
  - L = LEVEL SWITCH
  - V = CONTROL VALVE
- CONTROL STATION: PUSHBUTTON STATION OR SELECTOR SWITCH. SEE CONTROL WIRING DIAGRAMS FOR REQUIREMENTS.
- M — NEW MOTOR
- M — EXISTING MOTOR
- M — FUTURE MOTOR
- GROUND WELL
- GROUND ROD
- DISCONNECT SWITCH. SEE SINGLE LINE DIAGRAM FOR SIZE.
- LIGHTING PANEL. SURFACE MOUNTED.
- SWITCHBOARD, DISTRIBUTION PANEL OR MOTOR CONTROL CENTER
- (12) — CONDUIT NUMBER 12. SEE CONDUIT AND WIRING SCHEDULE FOR SIZES AND QUANTITIES OF CONDUIT AND WIRES.
- +12" — INDICATES HEIGHT FROM FINISHED FLOOR OR GRADE TO CENTERLINE OF DEVICE.
- (1) — INDICATES TO REFER TO NOTE (1) ON DRAWING
- W.P. — WEATHERPROOF. PROVIDE GASKETS AS REQUIRED
- C.O. — CONDUIT ONLY
- FE-184 — INSTRUMENTATION DEVICE. SEE PROCESS AND INSTRUMENTATION DRAWINGS FOR DESCRIPTIONS.
- PULL BOX (SIZE AS REQUIRED)
- OUTPUT TERMINAL
- INPUT TERMINAL

ABBREVIATIONS

AMP	AMPERE	GND	GROUND	N.C.	NORMALLY CLOSED
AL	ALUMINUM	HP	HORSEPOWER	NEC	NATIONAL ELECTRICAL CODE
APS	ARIZONA POWER SERVICE	HPS	HIGH PRESSURE SODIUM	N.O.	NORMALLY OPEN
ATS	AUTOMATIC TRANSFER SWITCH	HZ	HERTZ (CYCLES PER SECOND)	NO.	NUMBER
AWG	AMERICAN WIRE GAUGE	IC	INTERRUPTING CAPACITY	PLC	PROGRAMABLE LOGIC CONTROLLER
BRK	BREAKER	KV	KILOVOLTS	PNL	PANEL
CAT	CATALOG	LCL	LONG CONTINUOUS LOAD	PR	PAIR
CIRC. MIL	CIRCULAR MILS (AWG)	LTG	LIGHTING	PVC	POLYVINYL CHLORIDE
C.O.	CONDUIT ONLY	MAX	MAXIMUM	REC	RECEPTACLE
CKT	CIRCUIT	MCC	MOTOR CONTROL CENTER	RGS	RIGID GALVANIZED STEEL
CP	CONTROL PANEL	MCP	MAIN CONTROL PANEL	SES	SERVICE ENTRANCE SECTION
DIA	DIAMETER	MCM	THOUSAND CIRCULAR MIL (AWG)	SPECS	SPECIFICATIONS
DWG	DRAWING	MFGR	MANUFACTURER	SSS	SOLID STATE STARTER
EA	EACH	MIN	MINIMUM	TEL	TELEPHONE
ELECT	ELECTRICAL	MIS	MISCELLANEOUS	TDR	TIME DELAY RELAY
ELEV	ELEVATION	MTG	MOUNTING	TTB	TELEPHONE TERMINAL BACKBOARD
EXIST	EXISTING	MV	MERCURY VAPOR	TYP	TYPICAL
FLA	FULL LOAD AMPS			UCP	UNIT CONTROL PANEL
FUT	FUTURE			V	VOLTS
GFCI	GROUND FAULT CIRCUIT INTERRUPTER			WP	WEATHERPROOF
				XFMR	TRANSFORMER

GENERAL NOTES

1. ALL EXPOSED CONDUITS THAT ARE IN CLASSIFIED AREAS SHALL BE PVC COATED GRS.
2. ALL CONDUIT RUNS IN NEW BUILDING SHALL BE CONCEALED IN WALLS OR CONCRETE FLOOR TO EQUIPMENT LOCATION (OR CEILING LEVEL FOR LIGHTING CIRCUITS).
3. ALL CONDUIT TERMINATIONS AT EQUIPMENT SHALL BE METAL LIQUIDTIGHT FLEX CONDUIT AS SHOWN IN DISCONNECT DETAILS.
4. ALL EXPOSED CONDUIT IN NON-CLASSIFIED AREAS SHALL BE GRS. ALL CONDUIT EMBEDDED IN CONCRETE SHALL BE SCHEDULE 40 PVC. TRANSITION FROM PVC TO GRS SHALL BE IN CONCRETE. GRS CONDUIT IN CONRETE SHALL BE HALF LAPPED WITH 50-MIL TAPE. AS SHOWN IN STANCHION AND DISCONNECT DETAILS.
5. ALL WIRE SHALL BE TYPE XHHW STRANDED COPPER WIRE.

RECORD DRAWINGS

REGISTERED PROFESSIONAL ENGINEER RONALD S. WRIGHT No. E013216 Exp. 9-05 STATE OF CALIFORNIA

WRIGHT ENGINEERING CORPORATION
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WEC JOB# 04410

NO	BY	DATE	REVISIONS	DATE	APP.
1	EDH	04/05	PER CITY COMMENTS		
2	EDH	04/05	PER CITY COMMENTS		
3	EDH	05/05	PER CITY COMMENTS		

PREPARED BY RONALD S. WRIGHT
PROJECT ENGINEER
R.C.E. NO. --- # 013216
EXP. 9/30/2005

DRAWN E.D.H. | SCALE
DESIGNED R.J.A.
CHECKED R.S.W. | DATE May. 2005

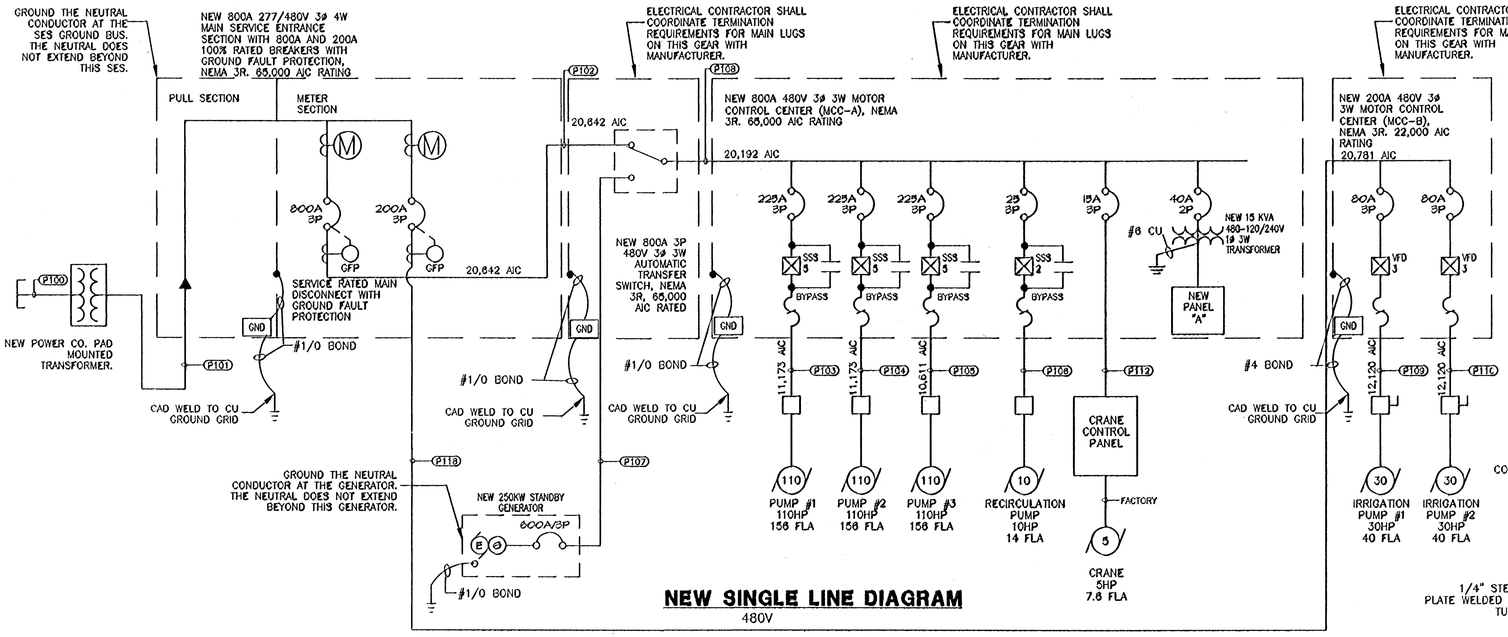
CYPRESS GROVE STORM WATER PUMP STATION ELECTRICAL PLANS COVER SHEET

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET E1.0

Xrefs: WEC-TBLK-INFO.dwg; 8072-10-Tblk.dwg
Itscale = 1; Ltscale = 1; PSltscale = 1; Acad Ver. = 16.0s (LMS Tech); Visretain = 1

\Robert\11- CYPRESS GROVE\E1.0 COVER.dwg - Tab: Layout1 By: Joshua Carroll on May 03, 2005 at 01:08 pm



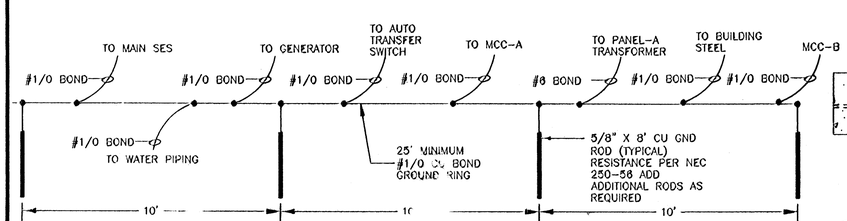
NEW SINGLE LINE DIAGRAM
480V

NEW MCC-A LOAD CALC

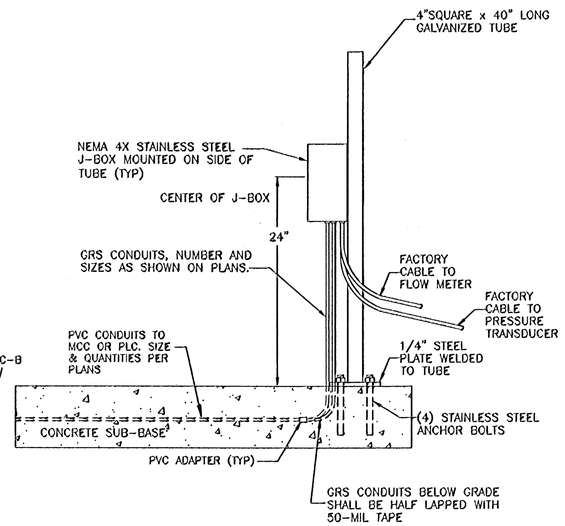
	CONNECTED		REDUNDANT	
STORMWATER PUMP #1 (110HP)	156.0	AMPS	156.0	AMPS
STORMWATER PUMP #2 (110HP)	156.0	AMPS	156.0	AMPS
STORMWATER PUMP #3 (110HP)	156.0	AMPS		AMPS
RECIRCULATION PUMP (10HP)	10.0	AMPS		AMPS
CRANE (5HP)	7.6	AMPS	7.6	AMPS
PANEL "A" (MAX LOAD)	31.0	AMPS	31.0	AMPS
TOTAL	516.6	AMPS	350.6	AMPS
25% LARGEST MOTOR LOAD	39.0	AMPS	39.0	AMPS
GRAND TOTAL	555.6	AMPS	389.6	AMPS

NEW MCC-B LOAD CALC

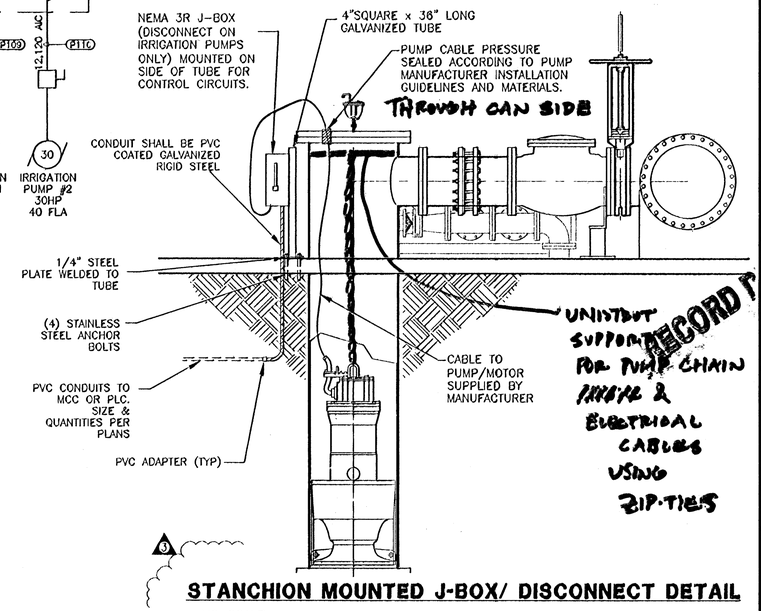
	CONNECTED		REDUNDANT	
IRRIGATION PUMP #1 (30HP)	40.0	AMPS	40.0	AMPS
IRRIGATION PUMP #2 (30HP)	40.0	AMPS	40.0	AMPS
TOTAL	80.0	AMPS	80.0	AMPS
25% LARGEST MOTOR LOAD	10.0	AMPS	10.0	AMPS
GRAND TOTAL	90.0	AMPS	90.0	AMPS



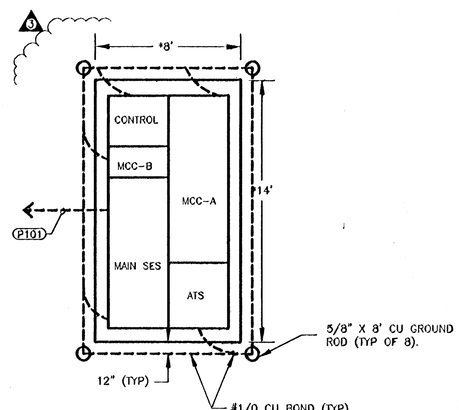
TYPICAL GROUND GRID DETAIL



STANCHION MOUNTED J-BOX FOR FLOW METER AND PRESSURE TRANSDUCER
NO SCALE



STANCHION MOUNTED J-BOX/ DISCONNECT DETAIL
NO SCALE



SES & DISTHIBUTION PLAN VIEW GROUNDING DETAIL
NO SCALE

* VERIFY DIMENSIONS PER MANUFACTURER SPECIFICATIONS.

RECORD DRAWINGS

WRIGHT ENGINEERING CORPORATION
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CHANDLER, ARIZONA 85225 FAX 480.497.5807

WEC JOB# 04410

NO	BY	DATE	REVISIONS	DATE APP.
1	EDH	04/05	PER CITY COMMENTS	
2	EDH	04/05	PER CITY COMMENTS	
3	EDH	05/05	PER CITY COMMENTS	

PREPARED BY: RONALD S. WRIGHT, PROJECT ENGINEER, R.C.E. NO. — # 013276, EXP. 9/30/2006
DRAWN: E.D.H. | DESIGNED: R.J.A. | CHECKED: R.S.W.
SCALE | DATE: Nov. 2005

CYPRESS GROVE
STORM WATER PUMP STATION
ELECTRICAL PLANS
SINGLE LINE

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA. 92708
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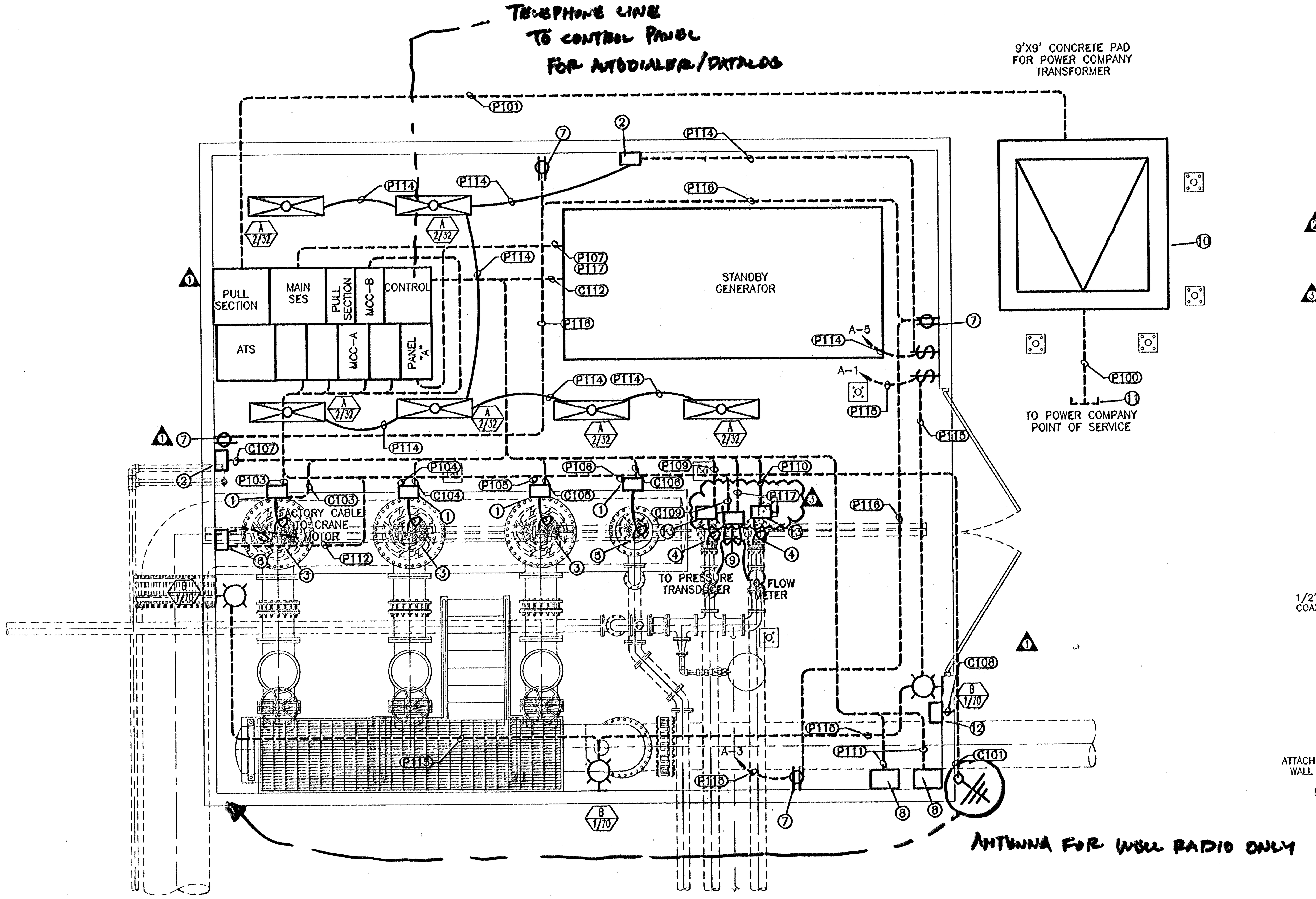
SHEET
E1.1

JOB NO. 8072-E

CONSTRUCTION NOTES

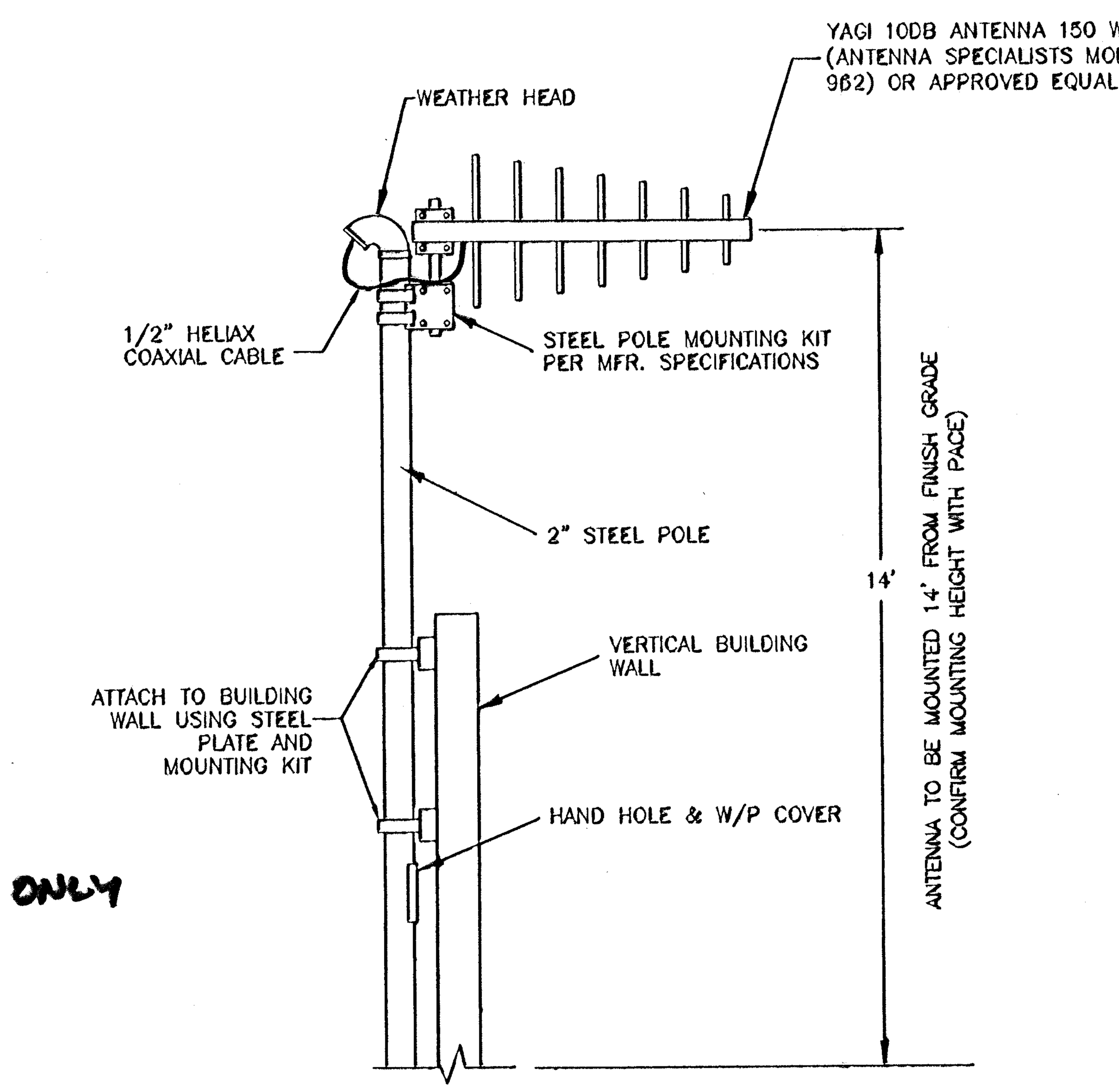
1. INSTALL STANCHION MOUNTED NEMA 3R J-BOX AT LOCATION SHOWN PER DETAIL ON SHEET E1.1.
2. INSTALL WALL MOUNTED NEMA-3R J-BOX.
3. STORMWATER PUMP (110HP) (TYPICAL OF 3). SEE CIVIL PLANS FOR DETAILS.
4. IRRIGATION PUMP (30HP).
5. RECIRCULATION PUMP (10HP). SEE CIVIL PLANS FOR DETAILS.
6. RUN POWER DIRECTLY TO CRANE (5HP) CONTROL PANEL.
7. WEATHER PROOF WHILE IN USE GFI GENERAL USE RECEPTACLE, WALL MOUNTED 44" ABOVE FINISHED GRADE. (TYPICAL OF 4)
8. AIR COMPRESSOR (3/4 HP).
9. INSTALL STANCHION MOUNTED JUNCTION BOX AT LOCATION SHOWN FOR PRESSURE TRANSDUCER/ FLOW METER PER DETAIL SHEET E1.3
10. INSTALL 9' X 9' CONCRETE PAD FOR POWER COMPANY TRANSFORMER. CONTRACTOR SHALL CONFIRM SIZE AND EXACT LOCATION WITH POWER COMPANY PRIOR TO CONSTRUCTION.
11. STUB CONDUIT TO POWER COMPANY POINT OF SERVICE. CONTRACTOR SHALL COORDINATE EXACT POINT OF SERVICE CONNECTION TO PG&E PER UTILITY CONSULTANT PRECISION PLANNING PRIOR TO CONSTRUCTION.
12. INTRUSION ALARM. ELECTRICIAN TO PROVIDE.
13. INSTALL STANCHION MOUNTED NEMA 3R DISCONNECT AT LOCATION SHOWN PER DETAIL ON SHEET E1.1.

NOTE: ALL EXPOSED CONDUITS SHALL BE PVC COATED GRS.



ELECTRICAL PLAN

SCALE: 1"=40'



YAGI ANTENNA DETAIL

NO SCALE

LIGHT FIXTURE SCHEDULE

	DESCRIPTION	MANUFACTURER	CAT #	LAMP	NO.	REMARKS
A	OVERHEAD LIGHT	KILLARK	LLN26012FN	2-32	6	OR APPROVED EQUAL
B	OUTDOOR LIGHT	MOLDCAST	MDL-1-00-70-12	1-70	3	OR APPROVED EQUAL
C						

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RECORD DRAWINGS

PREPARED BY RONALD S. WRIGHT PROJECT ENGINEER R.C.E. NO. 013216 EXP. 9/30/2005

DRAWN E.D.H. DESIGNED R.J.A. CHECKED R.S.W. DATE MAY, 2005

CYPRESS GROVE STORM WATER PUMP STATION ELECTRICAL PLANS SITE

WRIGHT ENGINEERING CORPORATION
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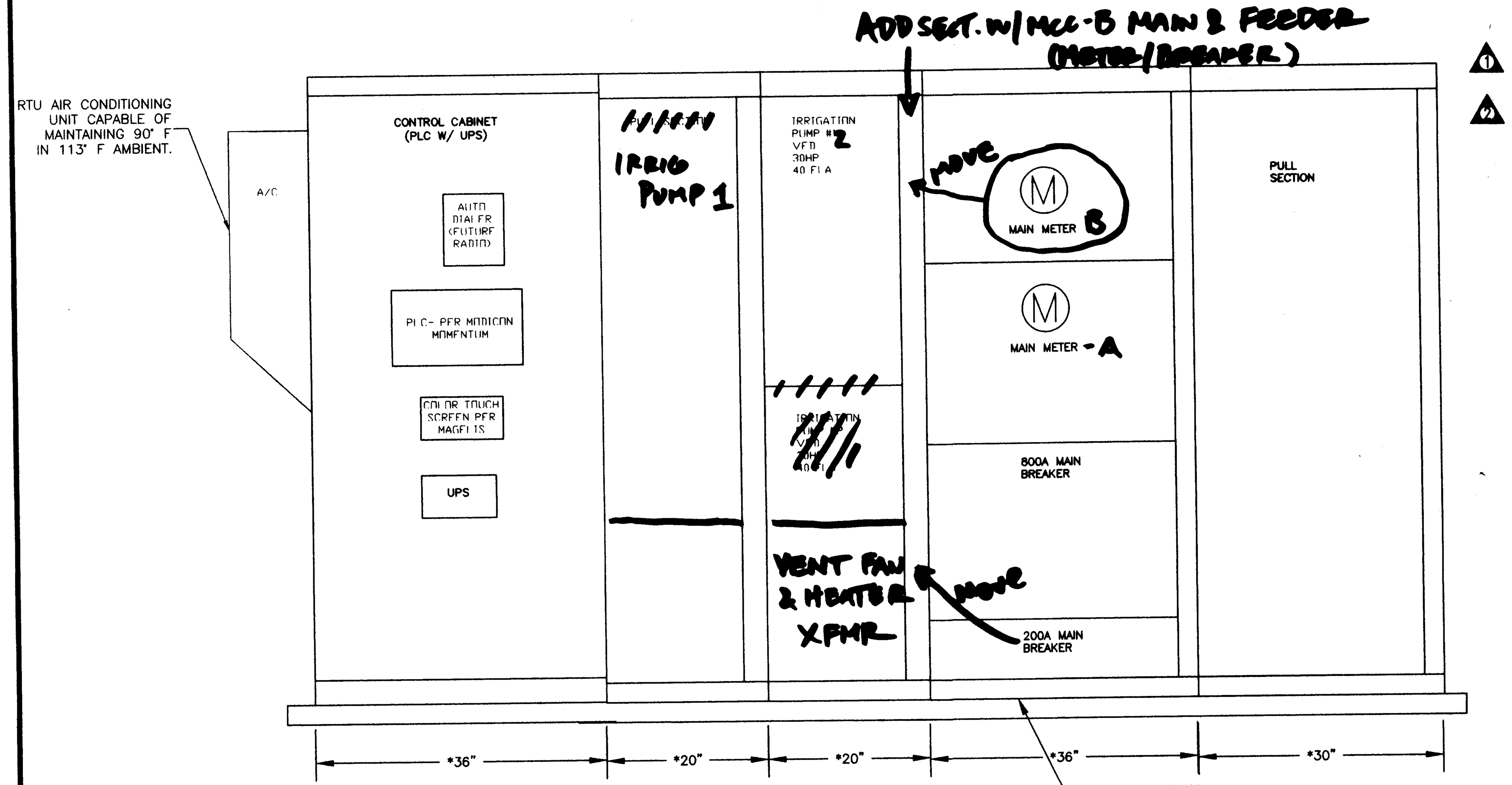
WEC JOB# 04410

SHEET E1.2

JOB NO. 8072-E

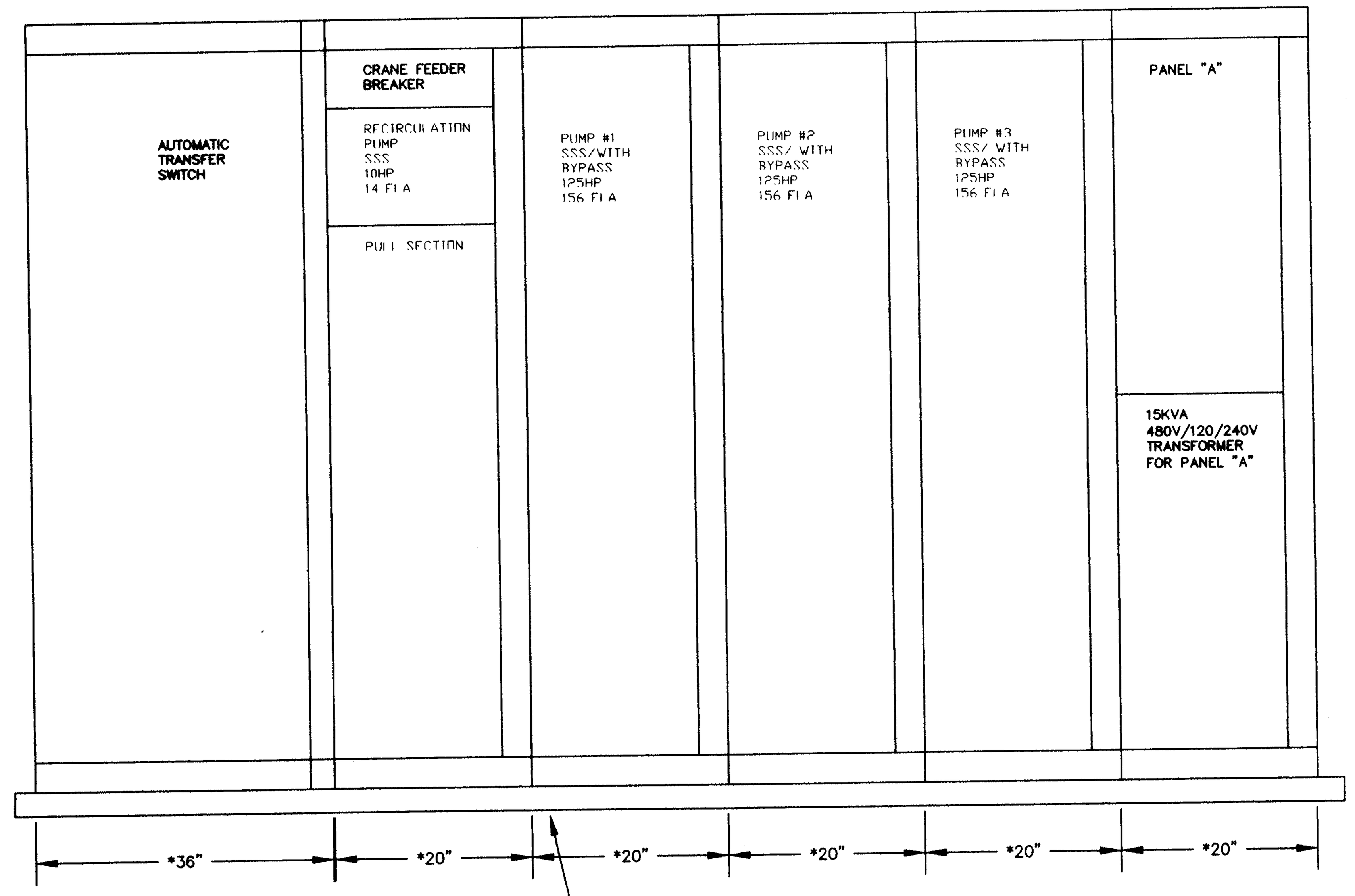


NORTH
MCC-B ELEVATION DETAIL

* CONFIRM ACTUAL SIZE WITH MANUFACTURER PRIOR TO CONSTRUCTION.

NEW MAIN SES

* CONFIRM ACTUAL SIZE WITH MANUFACTURER PRIOR TO CONSTRUCTION.



SOUTH
MCC-A ELEVATION DETAIL

* CONFIRM ACTUAL SIZE WITH MANUFACTURER PRIOR TO CONSTRUCTION.

EXTEND 6" THICK 2500PSI CONCRETE PAD 36" IN FRONT OF ELECTRICAL EQUIPMENT AND 6" ON SIDES AND BACK. CONFIRM ACTUAL DIMENSIONS AND REINFORCMENT WITH GEAR MANUFACTURER PRIOR TO INSTALLATION.

(2)

PANEL A	TYPE: BOLT ON						100 AMP MAIN BKR
120/240V 1φ 3W	PANEL MOUNTED						NEMA 1
CIRCUIT DESCRIPTION	BKR SIZE	CIR NO.	LOAD A PHASE	LOAD B PHASE	CIR NO.	BKR SIZE	CIRCUIT DESCRIPTION
AREA LIGHTING*	20/1	1	262		2		SPACE
GFI RECEPTACLES	20/1	3		600 200	4	20/1	PLC/UPS
OVERHEAD LIGHTS*	20/1	5	480 600		6	20/	A/C UNIT FOR CONTROL
GENERATOR CONTROL/BATTERY	20/1	7		400 600	8	/2	" "
GENERATOR BLOCK HEATER	20/	9	828 480		10	20/	AIR COMPRESSOR 2
" "	/2	11		828 480	12	/2	" "
AIR COMPRESSOR 1		13	828		14		SPACE
" "		15		828	16		SPACE
SPACE		17			18		SPACE
SPACE		19			20		SPACE
SPACE		21			22		SPACE
SPACE		23			24		SPACE
CODE TOTAL VA			3478	3936	*INDICATES LOAD @ 125%		
CODE TOTAL AMPS			29.0	32.8	22,000 AIC BREAKERS		

CONDUIT AND WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	WIRE POWER	WIRE GROUND	WIRE CONTROL	FROM	TO	REMARKS
P100	INSTALL PER POWER CO. DESIGN & SPECS				POWER CO. POINT OF SERVICE	POWER CO. TRANSFORMER	
P101	2-5"	WIRE BY POWER CO.			POWER CO. TRANSFORMER	MAIN SES PULL SECTION	
P102	4-2"	4-#3/0 ea.	1-#1/0 ea.		MAIN SES	AUTO TRANSFER SWITCH	
P103	1.5"	3-#2/0	#6		MCC	STORMWATER PUMP #1	
P104	1.5"	3-#2/0	#6		MCC	STORMWATER PUMP #2	
P105	1.5"	3-#2/0	#6		MCC	STORMWATER PUMP #3	
P106	1/2"	3-#10	#10		MCC	RECIRCULATION PUMP	
P107	4-2"	4-#3/0 ea.	1-#1/0 ea.		AUTO TRANSFER SWITCH	STANDBY GENERATOR	
P108	4-2"	4-#3/0 ea.	1-#1/0 ea.		AUTO TRANSFER SWITCH	MCC	
P109	1"	3-#8	#10		MCC-B	IRRIGATION PUMP #1	
P110	1"	3-#8	#10		MCC-B	IRRIGATION PUMP #2	
P111	1"	3-#12	#12		PANEL A (10,12)(13,15)	AIR COMPRESSOR (TYPICAL)	
P112	1"	3-#10	#12		MCC	CRANE (VIA CRANE CONTROL PANEL)	
P113							
P114	1"	2-#12	#12		PANEL A-5	CANOPY LIGHTS	
P115	1"	2-#12	#12		PANEL A-1	AREA LIGHTS	
P116	1"	2-#12	#12		PANEL A-3	GENERAL USE RECEPTACLES	
P117	1"	2-#14	#14		MCC	FLOW METER J-BOX	FOR FLOW METER TOTAL
		2-#12	#12				FOR FLOW METER POWER
P118	2"	3-#3/0	#4		MAIN SES	MCC-B	
C101	3/4"			FACTORY CABLE	PLC	ANTENNA	
C102			#12	40-#14	PLC	MCC (8 CONDUCTORS PER STARTER)	LOCATED IN MCC WIREWAY
C103	3/4"		#12	4-#14	MCC	STORMWATER PUMP #1	
C104	3/4"		#12	4-#14	MCC	STORMWATER PUMP #2	
C105	3/4"		#12	4-#14	MCC	STORMWATER PUMP #3	
C106	3/4"		#12	4-#14	MCC	RECIRCULATION PUMP	
C107	3/4"			#18 TWISTED SHIELDED PAIR	MCC	LEVEL TRANSDUCER	
	3/4"			6-#14	MCC	LEVEL SWITCHES J-BOX	
C108	3/4"		#14	2-#14	MCC	INTRUSION ALARM	
C109	3/4"			#18 TWISTED SHIELDED PAIR	MCC	PRESSURE TRANSDUCER/ FLOW METER J-BOX	FOR FLOW METER
				#18 TWISTED SHIELDED PAIR			FOR PRESSURE TRANSDUCER
C112	1"			4-#14 1-#14 GND	MCC	GENERATOR	GEN RUNNING, UTILITY ON

RECORD DRAWINGS 9-05

WRIGHT ENGINEERING CORPORATION
165 EAST CHILTON DRIVE CHANDLER, ARIZONA 85225 PHONE 480.497.5829 FAX 480.497.5807

WEC JOB# 04410

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PREPARED BY RONALD S. WRIGHT
PROJECT ENGINEER
R.C.E. NO. — # 013216
EXP. 9/30/2005

DRAWN E.D.H. | SCALE
DESIGNED R.J.A.
CHECKED R.S.W. | DATE May. 2005

CYPRESS GROVE STORM WATER PUMP STATION ELECTRICAL PLANS DETAILS

PACE
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PH (714) 481-7300 FAX (714) 481-7299

SHEET E1.3

JOB NO. 8072-E

\Robert\11- CYPRESS GROVE\E1.3 ELECTRICAL DETAILS.dwg - Tab: Layout1 By: Joshua Carroll on May. 03, 2005 at 01:09 pm

Xrefs: WEC-TBLK-INFO.dwg; 8072-10-Tblk.dwg
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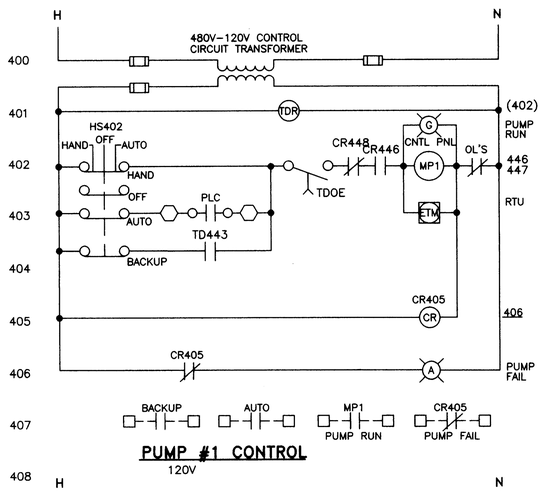
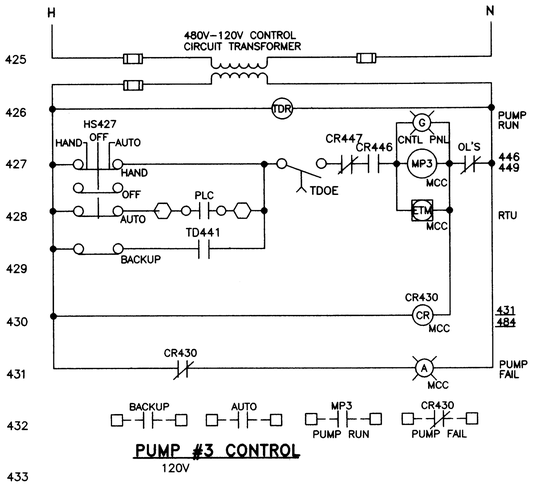
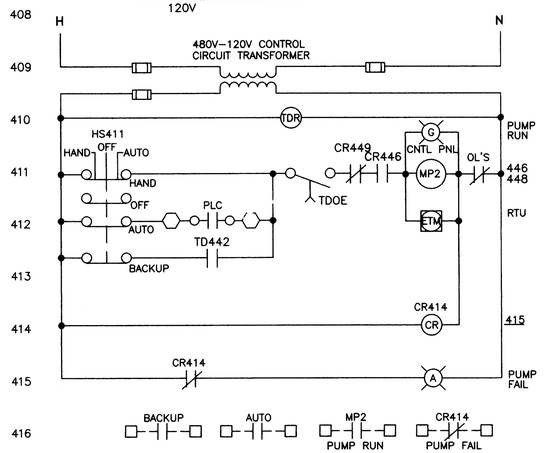


PUMP #1 CONTROL
120V



PUMP #3 CONTROL
120V

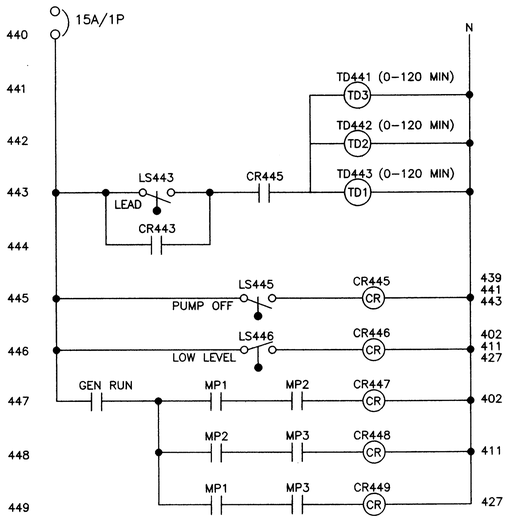


PUMP #2 CONTROL
120V

NOTE:

(1) SEE SHT. I1 FOR FULL CONTROL AND PROCESS/ INSTRUMENTATION DRAWINGS

(2) THIS SCHEMATIC IS SHOWN ONLY FOR LOCKOUT INSTALLATION PURPOSES. MOTOR CONTROL SCHEMATICS SHALL BE CONFIRMED WITH MCC AND MOTOR SUBMITTALS PRIOR TO CONSTRUCTION.



STORMWATER PUMPS INTERLOCK SCHEMATICS

NO	BY	DATE	REVISIONS	DATE	APP.
1	EDH	04/0.	PER CITY COMMENTS		
2	EDH	04/0.	PER CITY COMMENTS		
3	EDH	05/05	PER CITY COMMENTS		

RECORD DRAWINGS 9-09 Ronald Wright

PREPARED BY
RONALD S. WRIGHT
PROJECT ENGINEER
R.C.E. NO. 013216
EXP: 9/30/2005

DRAWN E.D.H.
DESIGNED R.A.A.
CHECKED R.S.W.
SCALE
DATE May, 2005

CYPRESS GROVE
STORM WATER PUMP STATION
ELECTRICAL PLANS
SCHEMATICS

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SHEET
E1.4

JOB NO. 8072-E

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CHANDLER, ARIZONA 85225 FAX 480.497.5807

WEC JOB# 04410

Xrefs: WEC-TBLK-INFO.dwg; 8072-10-Tblk.dwg
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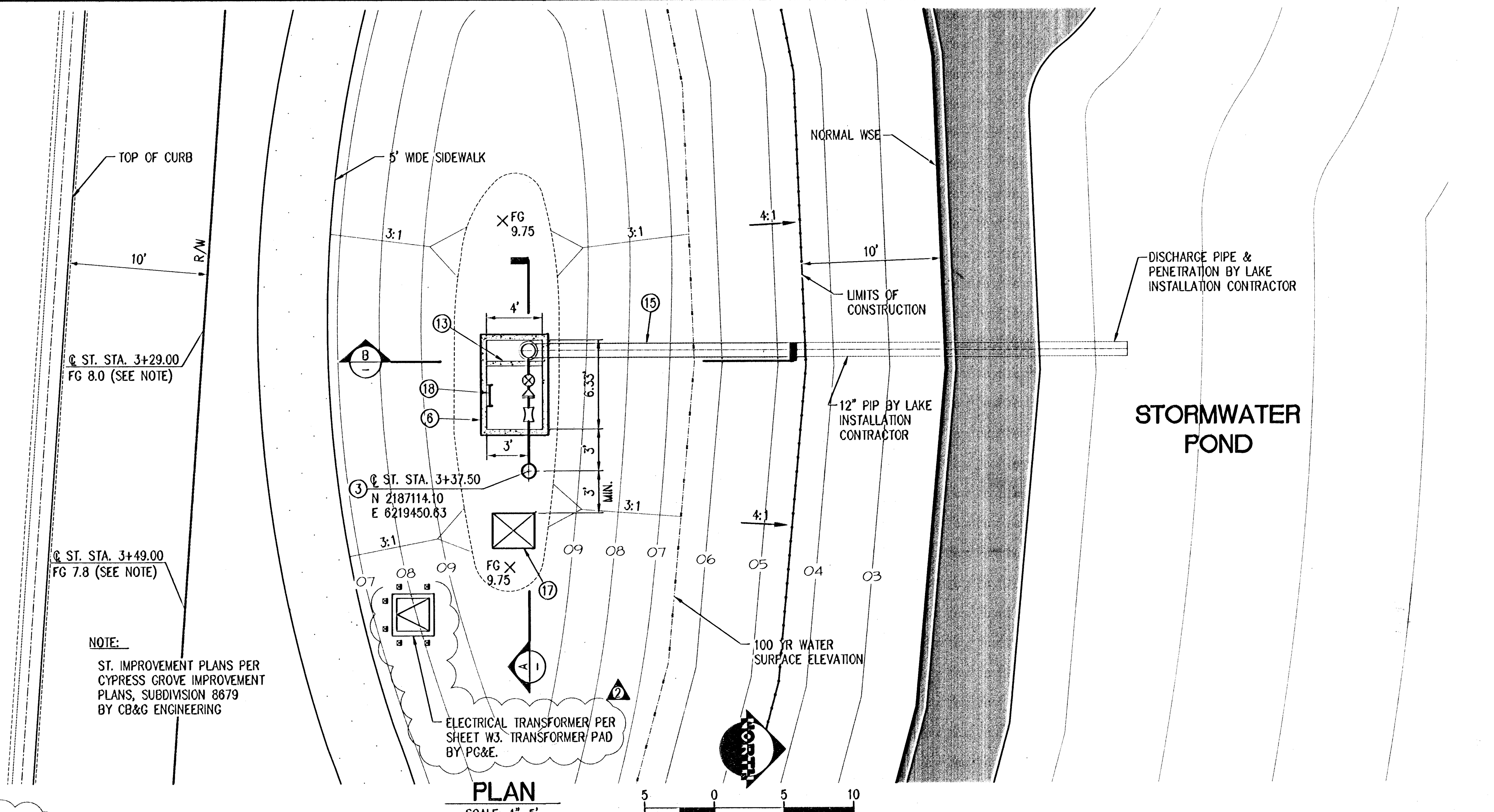
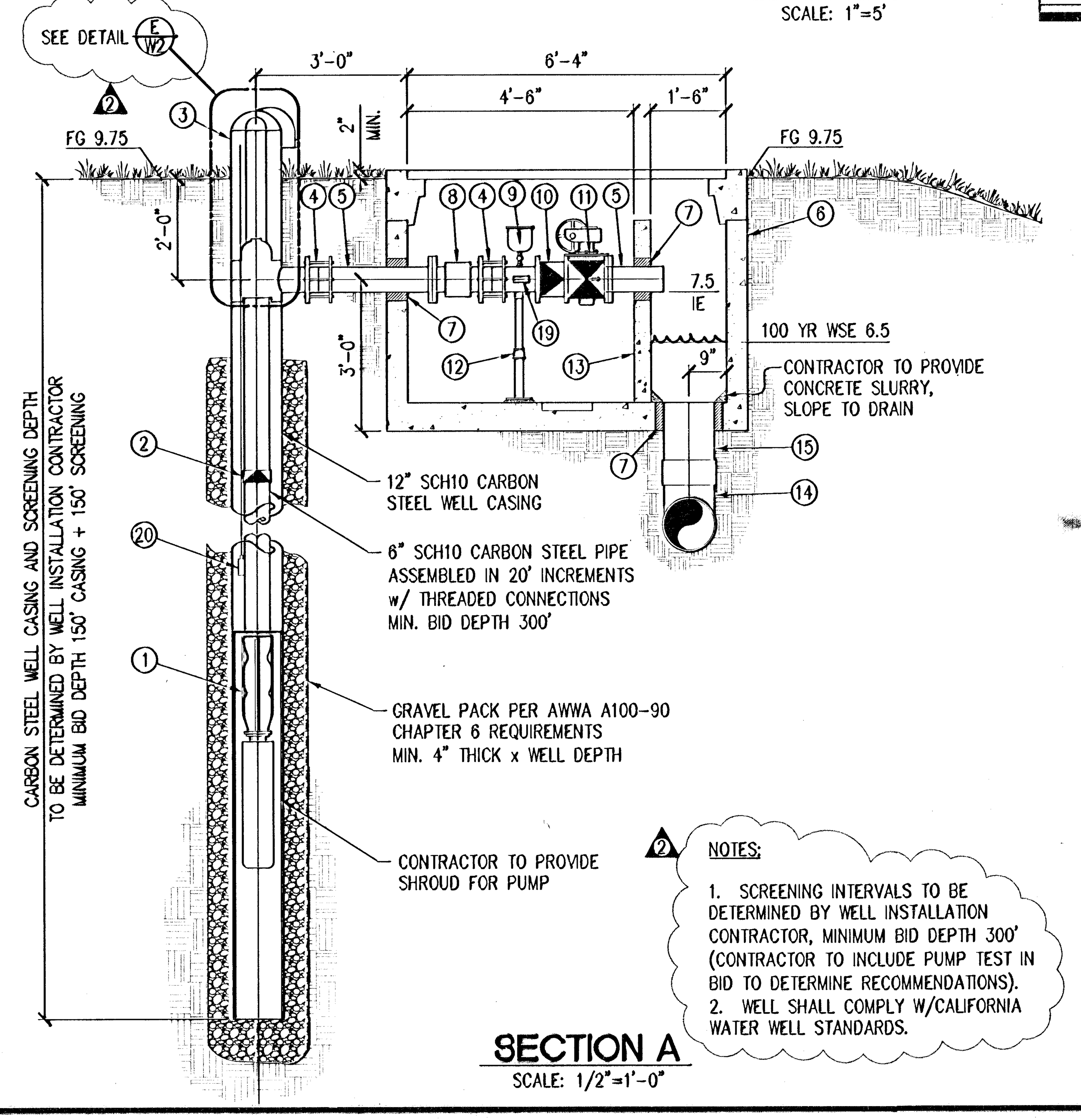
\\Robert\I1- CYPRESS GROVE\E1.4 SCHEMATICS.dwg – Tab: Layout1 By: Joshua Carroll on Oct. 3, 2005 at 01:09 pm



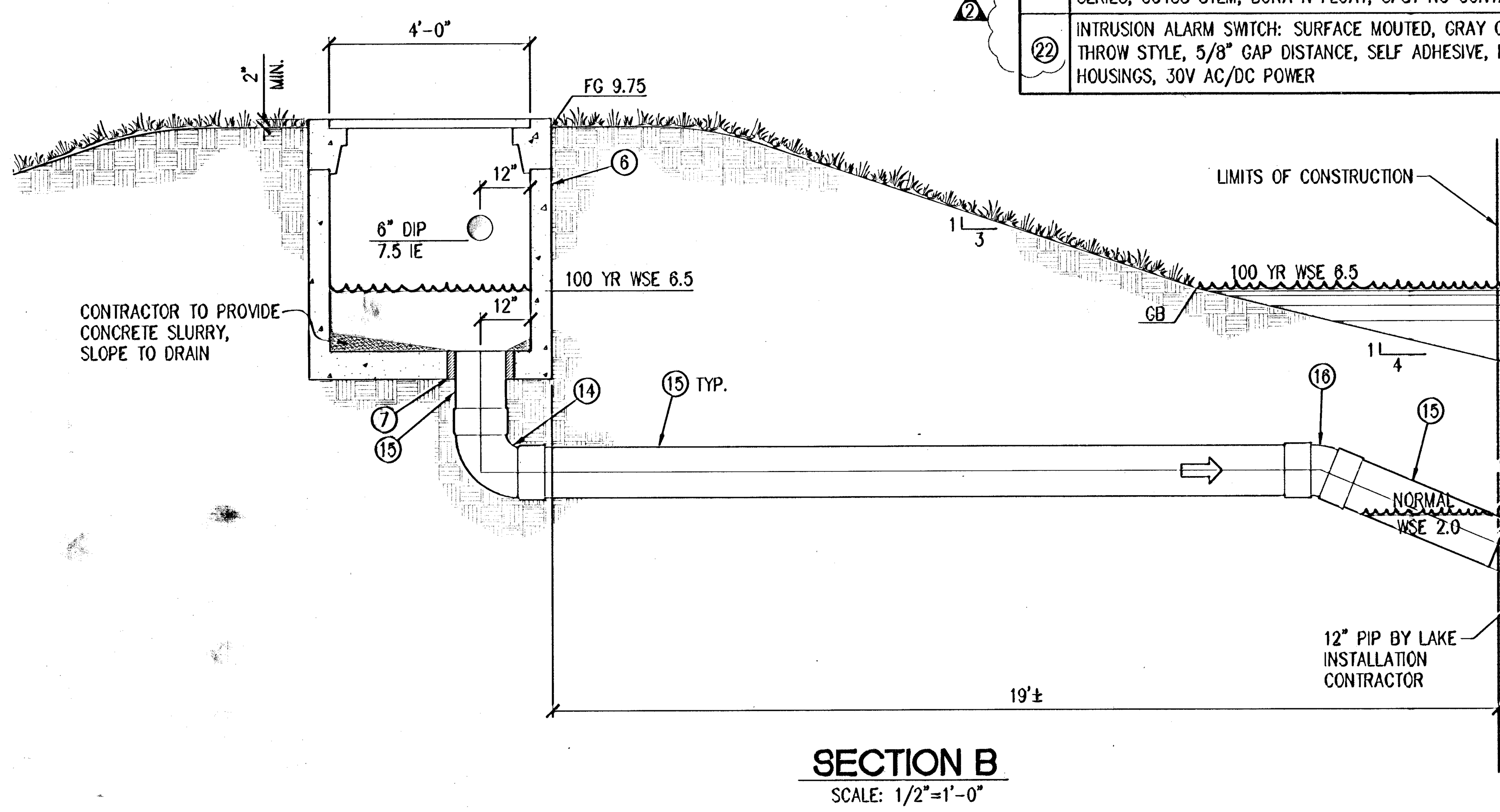
NOTE:
ST. IMPROVEMENT PLANS PER CYPRESS GROVE IMPROVEMENT PLANS, SUBDIVISION 8679 BY CB&G ENGINEERING

PLAN
SCALE: 1"=5'



NOTES:
1. SCREENING INTERVALS TO BE DETERMINED BY WELL INSTALLATION CONTRACTOR, MINIMUM BID DEPTH 300' (CONTRACTOR TO INCLUDE PUMP TEST IN BID TO DETERMINE RECOMMENDATIONS).
2. WELL SHALL COMPLY W/CALIFORNIA WATER WELL STANDARDS.

SECTION A
SCALE: 1/2"=1'-0"



SECTION B
SCALE: 1/2"=1'-0"

EQUIPMENT LIST

ITEM	DESCRIPTION
1	WELL PUMP PER GRUNDFOS MODEL #XXXX, 6" OUTLET, 600 GPM @ TDH TO BE DETERMINED, 25 HP, 3ø, 60 HZ
2	6" THREADED CHECK VALVE PER FLOMATIC MODEL #4089, EPOXY COATED DUCTILE IRON w/ S.S. COMPONENTS TO BE LOCATED AT STATIC WATER SURFACE LEVEL
3	12" WELL INDUSTRIAL PITLESS UNIT PER BAKER MFG. CO., MONITOR DIVISION, MODEL #2PS1214WBWE06F6EH
4	6" RESTRAINED FLANGE ADAPTER, EBAA IRON SERIES 2100 OR APPROVED EQUAL
5	6" DIP
6	6'-4"L x 4'W x 3'-7 1/4"H (INSIDE DIM.) PRECAST CONCRETE VAULT PER UTILITY VAULT #575-LA w/ TOP #57-T3660 OR APPROVED EQUAL, SEE DETAIL
7	LINK SEAL PER DETAIL B/W2
8	6" COMBINED MAGNETIC FLOW METER/CONVERTER PER TOSHIBA MODEL #LF430-KLCBCCAAB
9	1/2" AIR RELEASE VALVE PER VAL-MATIC MODEL #15, SINGLE LEVER TYPE (PIPE 3/8" OUTLET THROUGH BAFFLE WALL ABOVE 100 YR WSE (6.5 FL)
10	6" WAFER STYLE CHECK VALVE PER VAL-MATIC "SILENT CHECK" SERIES 1400 OR APPROVED EQUAL
11	6" PLUG VALVE PER VAL-MATIC MODEL 5806R/7A08 OR APPROVED EQUAL
12	PIPE SUPPORT PER DETAIL
13	PRECAST MFG TO PROVIDE SINGLE-CAST (CAST w/ ENTIRE VAULT), 4" THICK BAFFLE WALL AS SHOWN
14	12"-90° PIP ELBOW, 80 PSI
15	12" PIP 80 PSI
16	12"-22 1/2° PIP ELBOW, 80 PSI
17	WELL CONTROL & SES PANELS PER SHEET W3
18	GALVANIZED STEP LADDER MOUNTED TO WALL
19	PRESSURE GAUGE PER WIKA #9768700-829; 100 PSI; 1/4 NPT; 2.5" CASE; 233.53 MODEL-LIQUID (GLYCERINE) FILLED; 316 SS WETTED PARTS; 304 SS CASE, SEE DETAIL
20	KPSI MODEL 320, SUBMERSIBLE HYDROSTATIC LEVEL TRANSDUCER; ACCURACY UP TO ±0.25% FS; WELDED 316 SS CONSTRUCTION; ANALOG OUTPUTS OF 4-20 MA
21	FLOOD ALARM SWITCH: PER GEMS #43980, FLOAT TYPE LS-270 SERIES, 304SS STEM, BUNA N FLOAT, SPST NO CONTACTS
22	INTRUSION ALARM SWITCH: SURFACE MOUTED, GRAY COLOR, SINGLE-POLE DOUBLE THROW STYLE, 5/8" GAP DISTANCE, SELF ADHESIVE, HEAVY DUTY PLASTIC CONTACT HOUSINGS, 30V AC/DC POWER

RECORD DRAWING 5-4-05

NO	BY	DATE	REVISIONS	DATE	APP.
1	ATK	4/8	PER CITY COMMENTS		
2	DG	4/27/5	PER CITY COMMENTS		

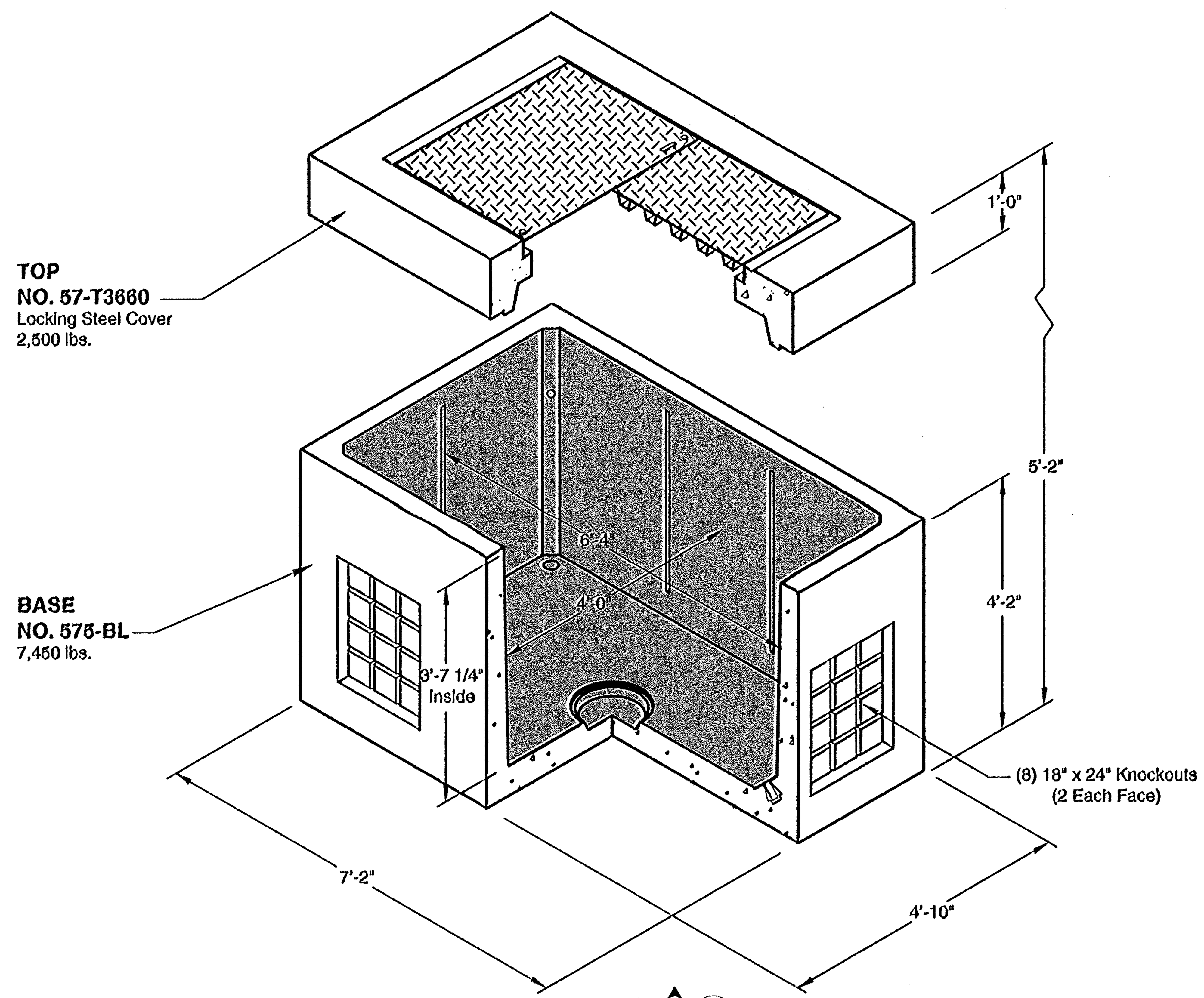
PREPARED BY ANDREW T. KOMOR, PROJECT ENGINEER, R.C.E. NO. — # C 64928, EXP. 6/30/07
DRAWN TAG | SCALE AS SHOWN
DESIGNED ATK | DATE APR 2005
CHECKED ATK

WELL PLAN AND SECTION

CYPRESS GROVE
WELL PUMP STATION

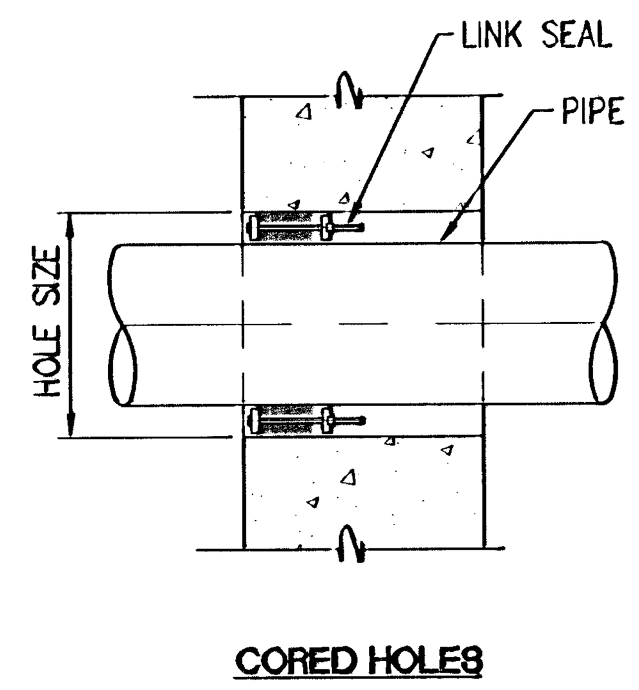
PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET W1
JOB NO. 8138-E



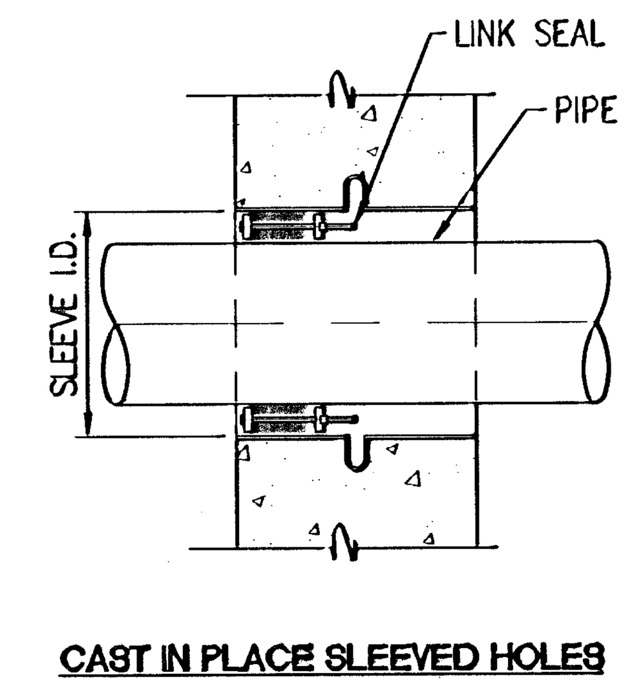
NOTE:
CONTRACTOR TO COORDINATE w/ PRECAST VAULT MANUFACTURER 4" THICK BAFFLE WALL TO BE CAST WITH VAULT AND ALL PIPE PENETRATIONS CONTRACTOR TO PROVIDE LOCKING MECHANISM.

UTILITY VAULT 575-LA
N.T.S. A



CORED HOLES

CORED HOLES			
PIPE SIZE	HOLE SIZE	MODEL NO.	NO. OF LINKS
1"	2½"	LS - 200C	5
1½"	3"	LS - 200C	7
2"	4"	LS - 300C	6
2½"	4"	LS - 200C	9
3"	5"	LS - 300C	8
4"	6"	LS - 300C	10
5"	9"	LS - 475-C	8
6"	10"	LS - 400-C	7
8"	12"	LS - 475-C	12
10"	14"	LS - 400-C	10
12"	16"	LS - 400-C	12

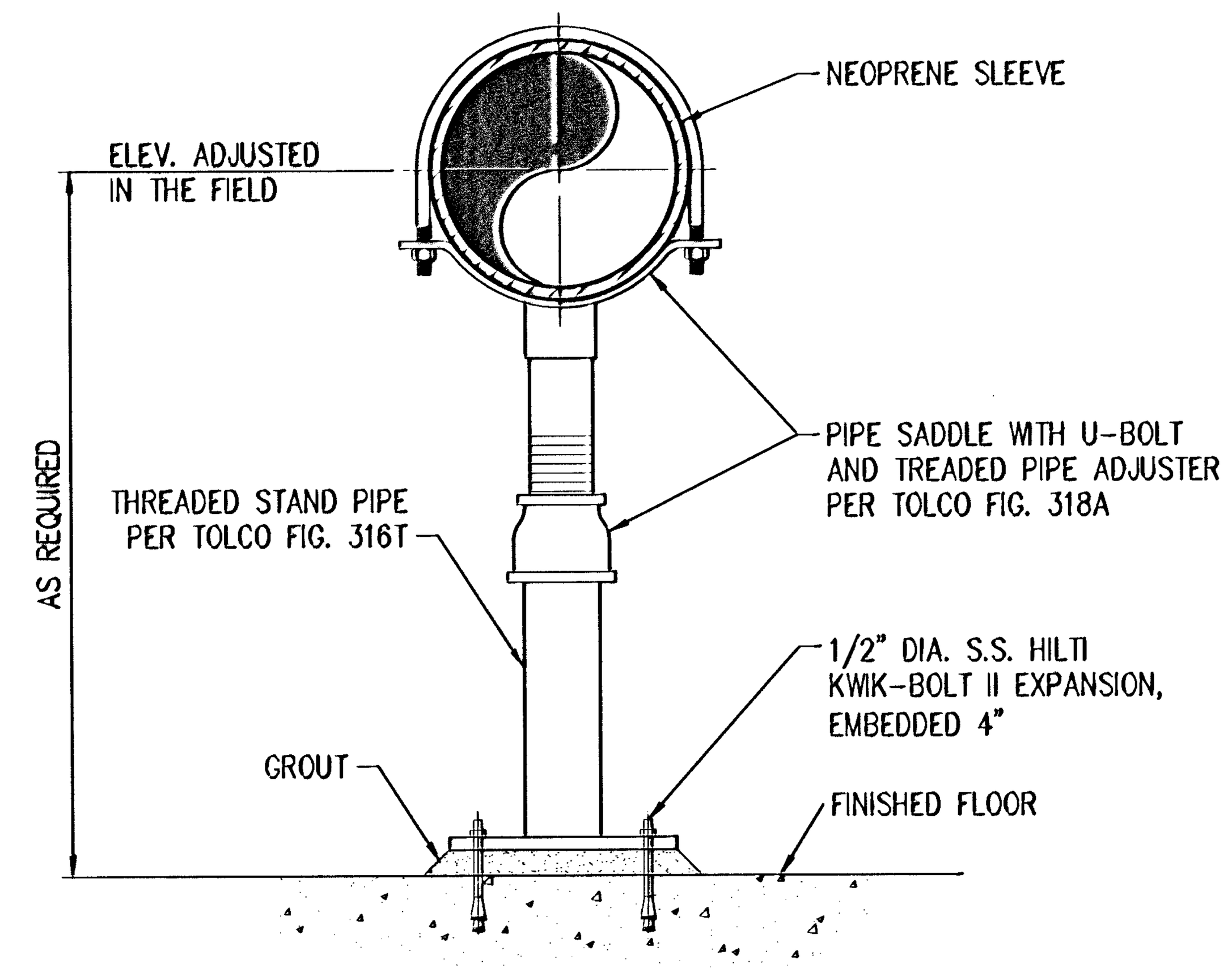


CAST IN PLACE SLEEVED HOLES

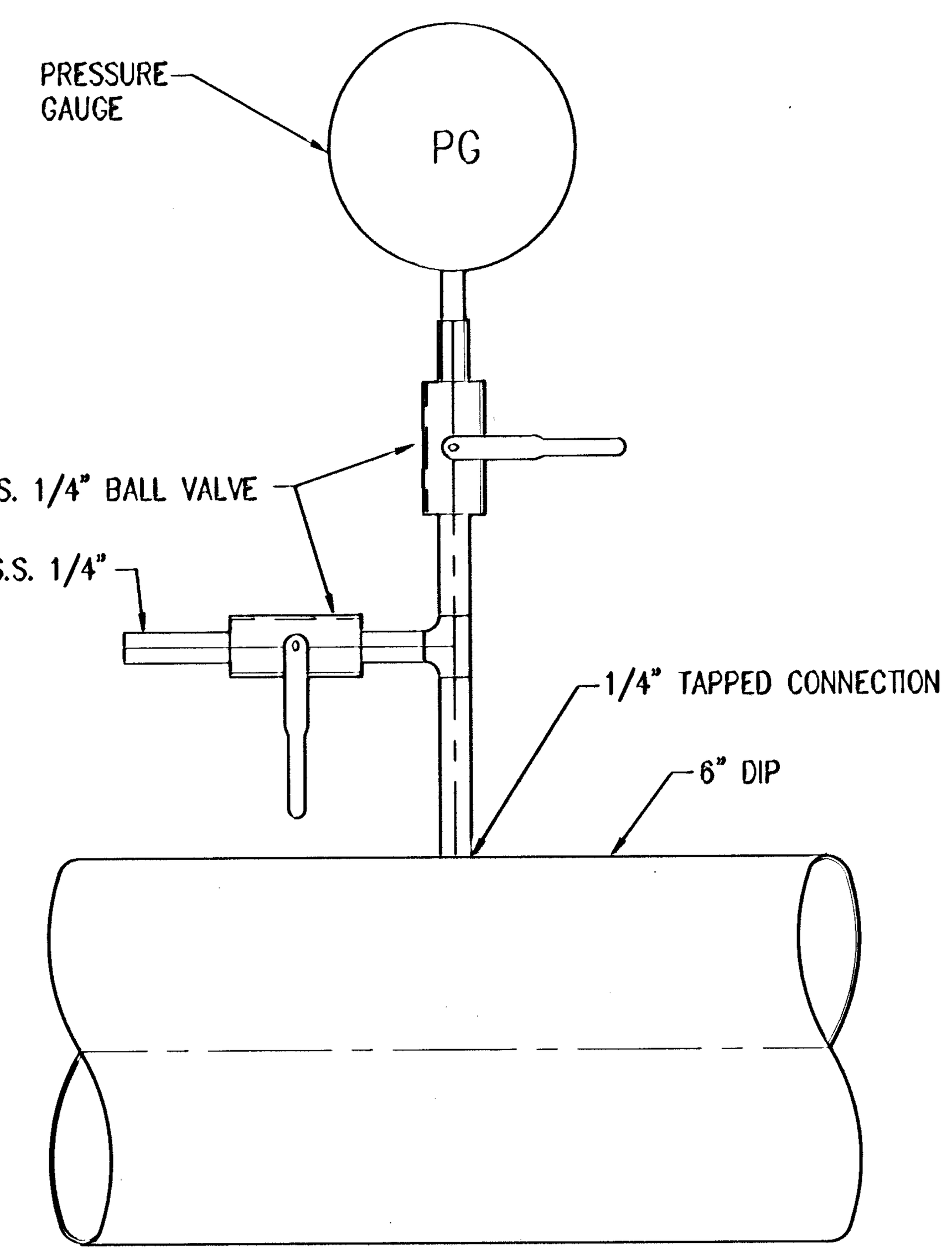
CAST IN PLACE SLEEVED HOLES					
PIPE SIZE NOMINAL	ACTUAL O.D.	CENTURY-LINE SLEEVE MODEL	SLEEVE I.D.	LINK-SEAL MODEL	LINKS PER SEAL
½"	.840	CS - 2	1.875	LS200	4
¾"	1.050	CS - 3	2.812	LS300	4
1"	1.315	CS - 3	2.812	LS300	4
1¼"	1.660	CS - 3½"	3.312	LS300	5
1½"	1.900	CS - 3½"	3.312	LS300	5
2"	2.375	CS - 4	4.000	LS200	6
2½"	2.875	CS - 4	4.000	LS200	9
3"	3.500	CS - 5	5.125	LS300	8
3½"	4.000	CS - 6	6.125	LS325	5
4"	4.500	CS - 6	6.125	LS300	11
5"	5.560	CS - 8	8.250	LS425	6
6"	6.625	CS - 8	8.250	LS300	15
6"	6.625	CS - 10	10.250	LS475	10
8"	8.625	CS - 12	12.250	LS475	12
10"	10.750		14.187	LS400	10
12"	12.750	CS - 16	16.250	LS400	12

NOTE:
PIPE THROUGH WALL SHOULD BE SEALED WITH LINK SEALS BEFORE CONNECTION TO OTHER PIPES.

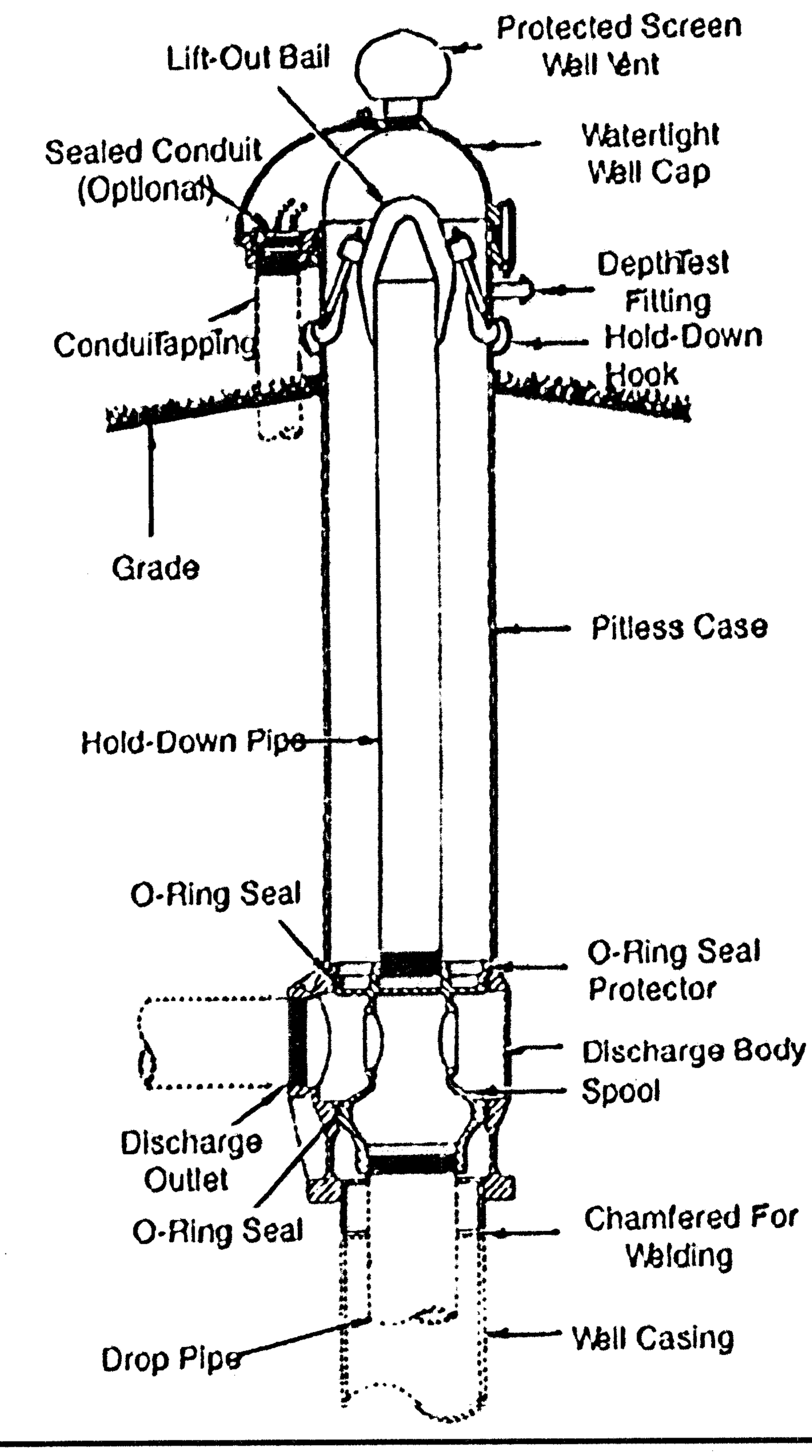
LINK SEAL
N.T.S. B



PIPE SUPPORT
N.T.S. C



PRESSURE GAUGE
N.T.S. D



PITLESS ADAPTER
N.T.S. E

NO	BY	DATE	REVISIONS	DATE	APP.
1	ATK	4/8	PER CITY COMMENTS		
2	DG	4/27/5	PER CITY COMMENTS		

RECORD DRA...

PREPARED BY ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. -- # C 64928
EXP. 6/30/07

DRAWN TAG
DESIGNED ATK
CHECKED ATK
SCALE AS SHOWN
DATE ARP 2005

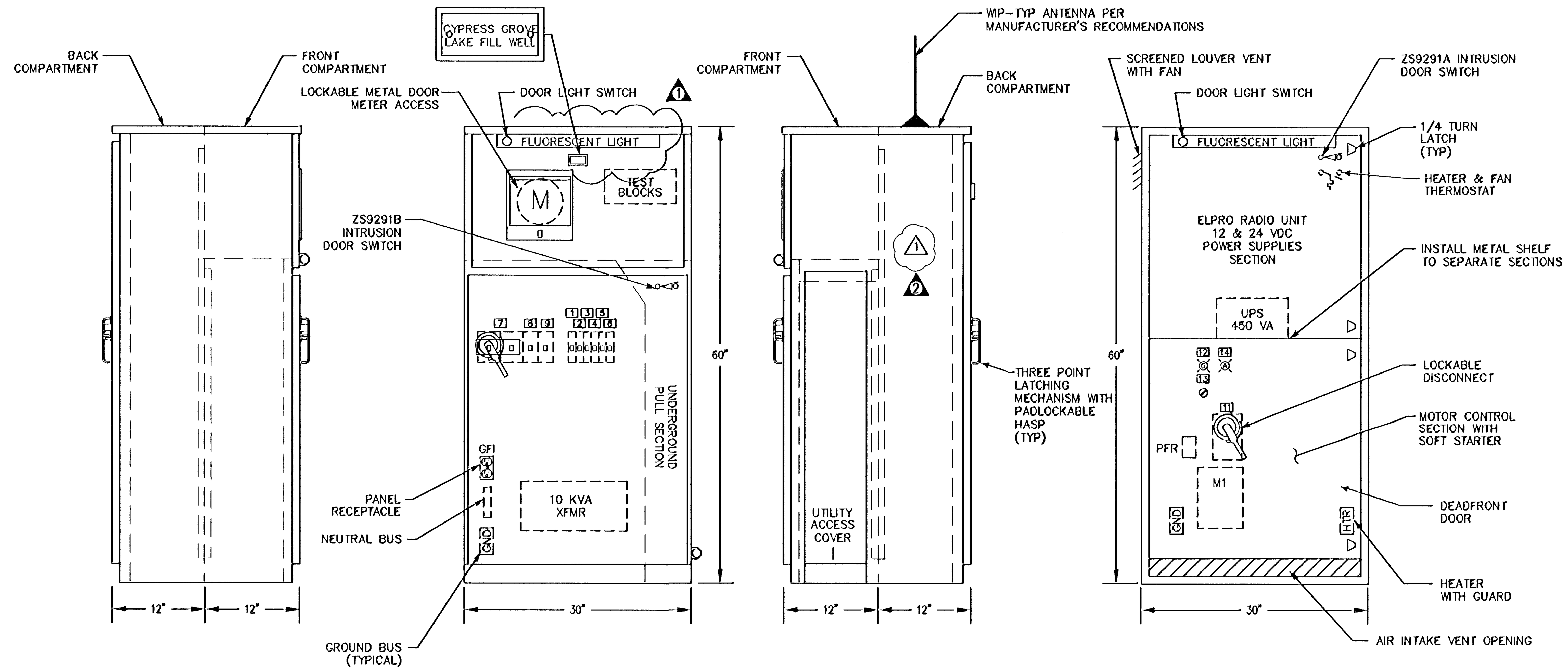
5-4-05

DETAILS

CYPRESS GROVE
WELL PUMP STATION

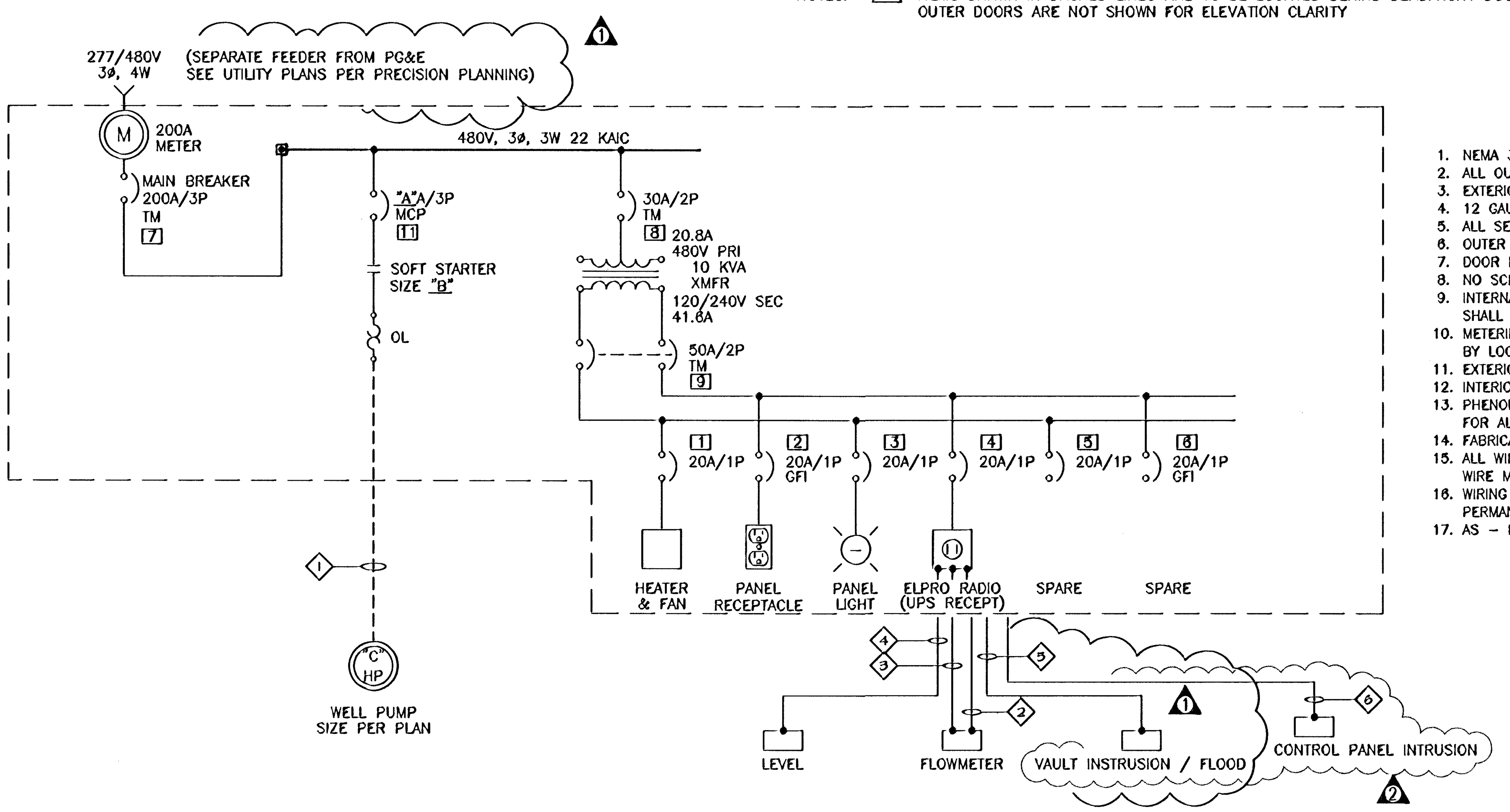
PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET W2
JOB NO. 8138-E



SIDE ELEVATION — FRONT COMPARTMENT ELEVATION — SIDE ELEVATION — BACK COMPARTMENT ELEVATION

NOTES: ⚠ ITEMS DRAWN IN DASHED LINES ARE TO BE LOCATED BEHIND DEADFRONT DOORS OUTER DOORS ARE NOT SHOWN FOR ELEVATION CLARITY



ELECTRICAL PEDESTAL ELEVATION & ONE LINE DIAGRAM

PEDESTAL FABRICATION METHODS

1. NEMA 3R WEATHER-PROOFED FOR OUTSIDE INSTALLATION.
2. ALL OUTER DOORS SEALED WITH PERMANENT TYPE GASKETING.
3. EXTERIOR FABRICATED FROM HOT DIPPED GALVANIZED SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS CONTINUOUS WELDED.
6. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
7. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE STAINLESS STEEL.
10. METERING SHALL BE U.L. LABELED AND APPROVED IN WRITING BY LOCAL POWER UTILITY.
11. EXTERIOR PANEL COLOR: ANSI 61 LIGHT GREY.
12. INTERIOR DEADFRONT DOOR COLOR: WHITE.
13. PHENOLIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
14. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
15. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
16. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
17. AS - BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

* TO BE VERIFIED BY WELL INSTALLATION CONTRACTOR.

ONELINE SIZING SCHEDULE

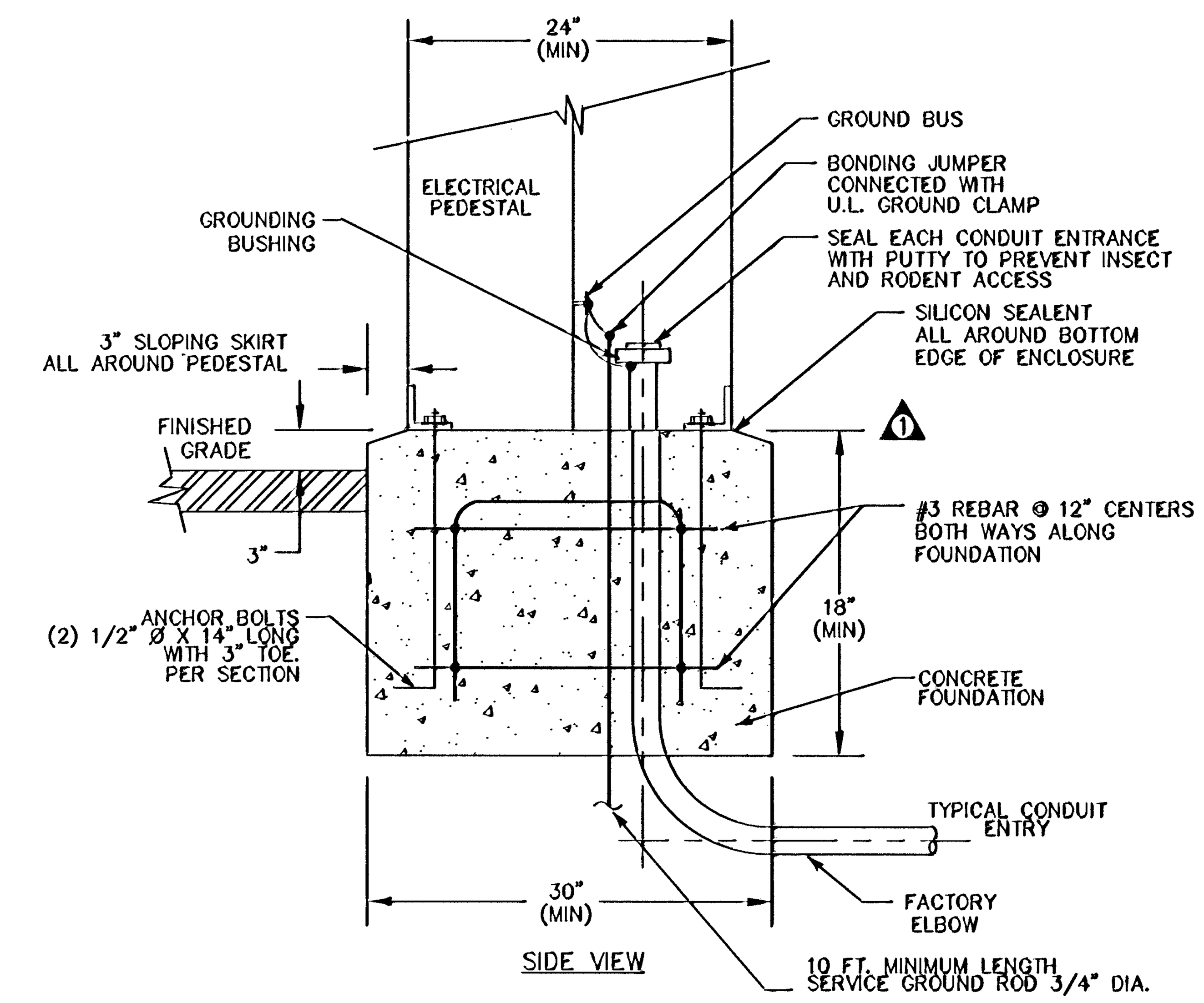
#	STATION ID	BREAKER AMP RATING "A"	STARTER SIZE "B"	MOTOR SIZE "C"	CONDUIT SIZE "D"	WIRE SIZE "E"
1	WELL PUMP	200	*30HP S.S.	30	1½"	(3)#3 + (1)#6 CU.
2	FLOWMETER				3/4" PVC	(4)#14 + (1)#14 GND
3	FLOWMETER				3/4" PVC	I TSP SHIELDED #18
4	LEVEL				3/4" PVC	FACTORY CABLE
5	VAULT INTRUSION / FLOOD				3/4" PVC	4 #14s + #14 GND
6	CONTROL PANEL INTRUSION				–	2 #14s + #14 GND

SES LOAD CALCS

WELL PUMP 1 (30HP)	=	40.0 AMPS
10 KVA / 1P XFMR	=	20.8 AMPS
25% LARGEST LOAD	=	10.0 AMPS
TOTAL	=	70.8 AMPS

NAMEPLATE SCHEDULE

KEY	DEVICE	ENGRAVING	NAMEPLATE SIZE (H x W)	LETTER SIZE
1	BREAKER	HEATER & FAN	1" x 2-1/2"	3/16"
2	BREAKER	RECEPTACLES	1" x 2-1/2"	3/16"
3	BREAKER	LIGHTS	1" x 2-1/2"	3/16"
4	BREAKER	CONTROLS - ELPRO RADIO W/UPS	1" x 2-1/2"	3/16"
5	BREAKER	VAULT INTRUSION/FLOOD	1" x 2-1/2"	3/16"
6	BREAKER	CONTROL PANEL INTRUSION	1" x 2-1/2"	3/16"
7	BREAKER	MAIN BREAKER	1" x 2-1/2"	3/16"
8	BREAKER	XFMR PRI DISC	1" x 2-1/2"	3/16"
9	BREAKER	XFMR SEC DISC	1" x 2-1/2"	3/16"
11	BREAKER	PUMP DISCONNECT	1" x 2-1/2"	3/16"
12	INDICATOR LIGHT	RUN	9/16" x 3/4"	3/16"
13	SELECTOR SWITCH	HAND - OFF - AUTO	9/16" x 3/4"	3/16"
14	INDICATOR LIGHT	FAIL	9/16" x 3/4"	3/16"



PEDESTAL BASE DETAIL

NOT TO SCALE

NO	BY	DATE	REVISIONS	DATE	APP.
1	ATK	4/8	PER CITY COMMENTS		
2	DC	4/27/5	PER CITY COMMENTS		
3	DC	5/05/5	PER CITY COMMENTS		

RECORD DRAWINGS

REGISTERED PROFESSIONAL ENGINEER ANDREW T. KOMOR No. C 64928 Exp. 6-30-07 CIVIL STATE OF CALIFORNIA

5-4-05

PREPARED BY ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. — # C 64928
EXP. 6/30/07
DRAWN TAG
DESIGNED ATK
CHECKED ATK
SCALE
DATE ARP 2005

CONTROL & SES PEDESTALS

CYPRESS GROVE WELL PUMP STATION

PACE PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET W3

JOB NO. 8138-E

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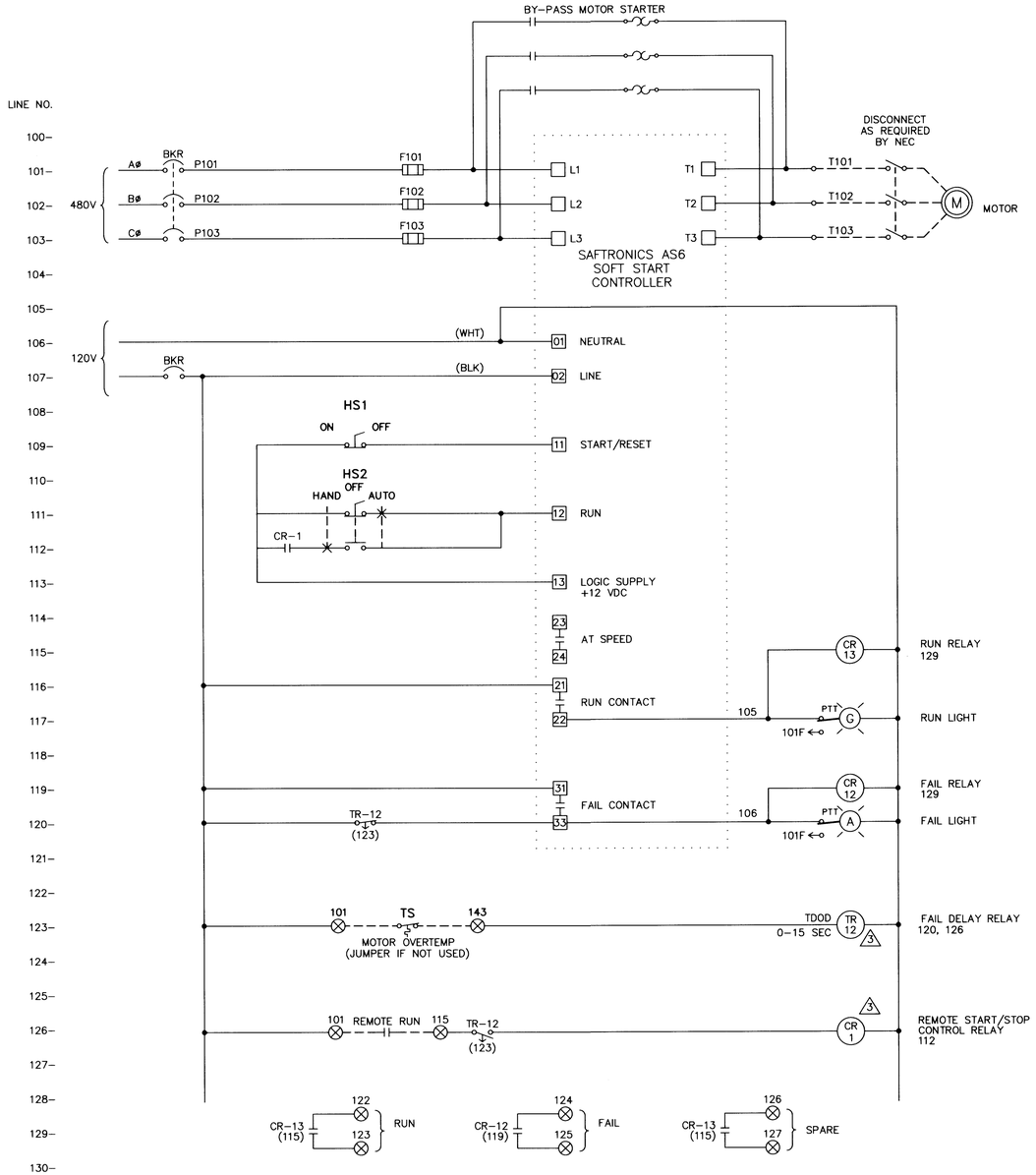
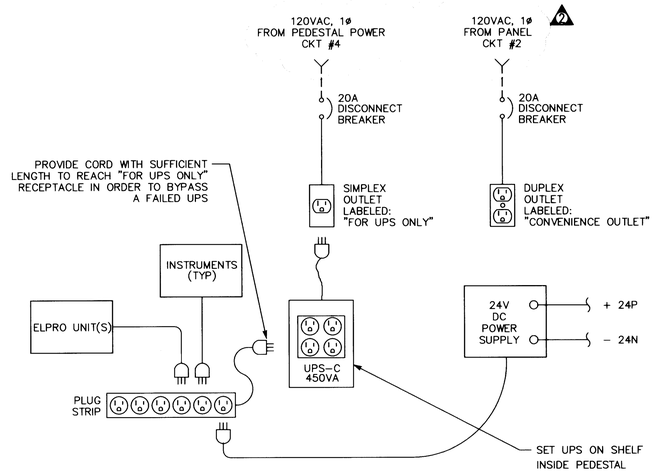


WELL SOFT START ELEMENTRY DIAGRAM

NOTE:
1. REMOTE SHUTDOWN XS => LSLL, ZSHH, PSHH, ETC., PER P&ID, JUMPER IF NOT USED. THESE ARE TO BE CONTACTS OFF OF AUXILIARY RELAY CONTACTS LOCATED IN MCC CONTROL PANEL DRIVEN FROM FIELD DEVICE.
2. USE 100 SERIES WIRES & TERMINAL #s FOR MCC 1, 200 SERIES FOR MCC 2, 300 SERIES FOR MCC 3, ETC.
3. USE STANDARD RELAYS WITH COIL, DO NOT USE SOLID STATE RELAYS.
4. MANUAL SPEED CONTROL LOCATED ON HIM.



PEDESTAL POWER DISTRIBUTION BLOCK DIAGRAM

RECORD DRAWINGS

NO.	BY	DATE	REVISIONS	DATE	APP.
1	ATK	4/8	PER CITY COMMENTS		
2	DG	4/27/5	PER CITY COMMENTS		

PREPARED BY: ANDREW T. KOMOR, PROJECT ENGINEER, R.C.E. NO. # 64928, EXP. 6/30/07

DRAWN TAC | DESIGNED ATK | CHECKED ATK | SCALE NONE | DATE APP 2005

WELL ELEMENTARY DIAGRAM & POWER DISTROBUTION

CYPRESS GROVE
WELL PUMP STATION

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET W4

JOB NO. 8138-E

Xrefs: 8138-80-Tblk.dwg
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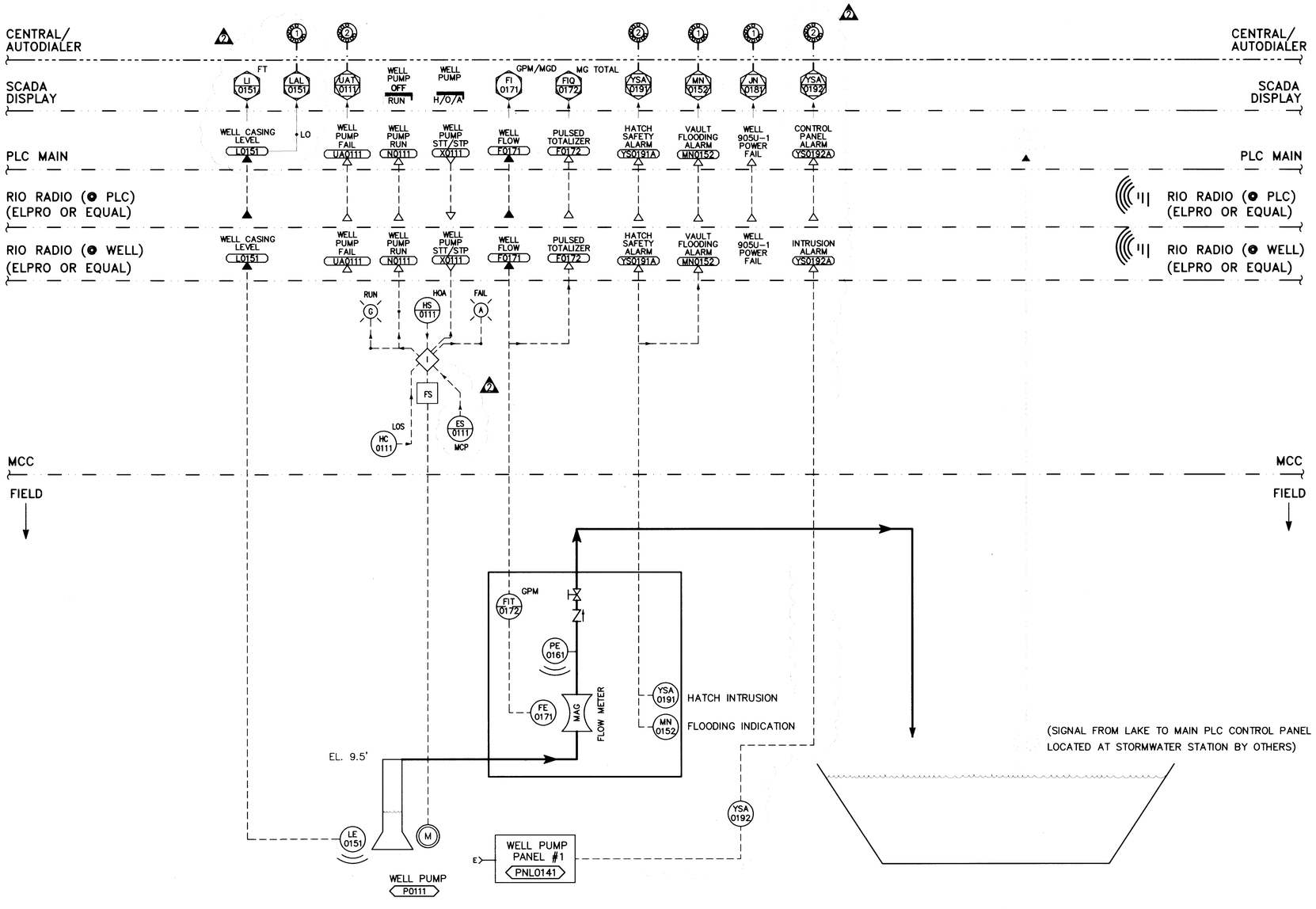

RECORD DRAWINGS

NO	BY	DATE	REVISIONS	DATE	APP.
1	ATK	4/8	PER CITY COMMENTS		
2	DG	4/27/5	PER CITY COMMENTS		

PREPARED BY ANDREW T. KOMOR
PROJECT ENGINEER
R.C.E. NO. — # C 64928
EXP. 6/30/07

SCALE NONE
DRAWN JAC
DESIGNED ATK
CHECKED ATK
DATE APR 2005

WELL ELEMENTARY P&ID

CYPRESS GROVE
WELL PUMP STATION

PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET W5

JOB NO. 8138-E

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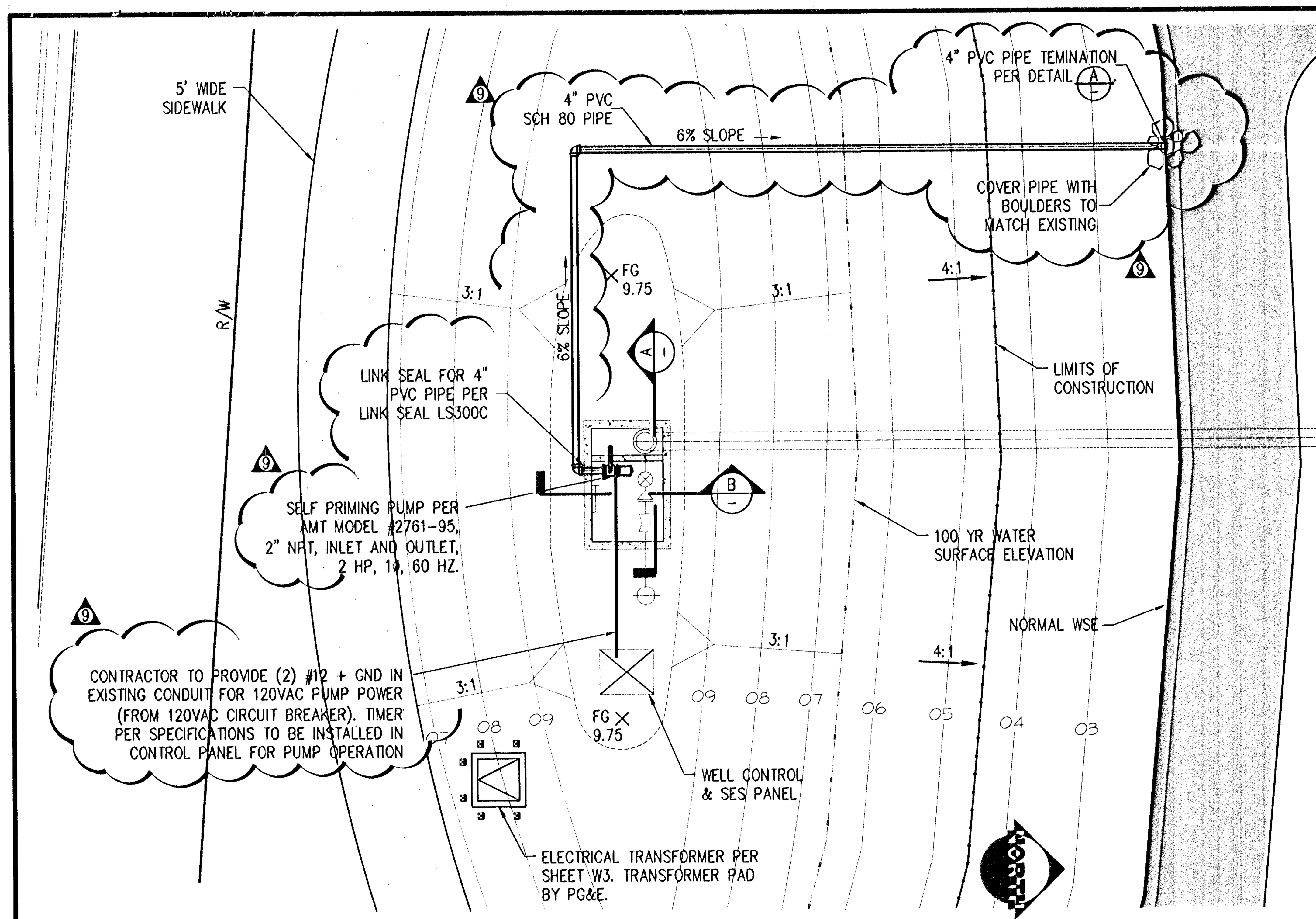
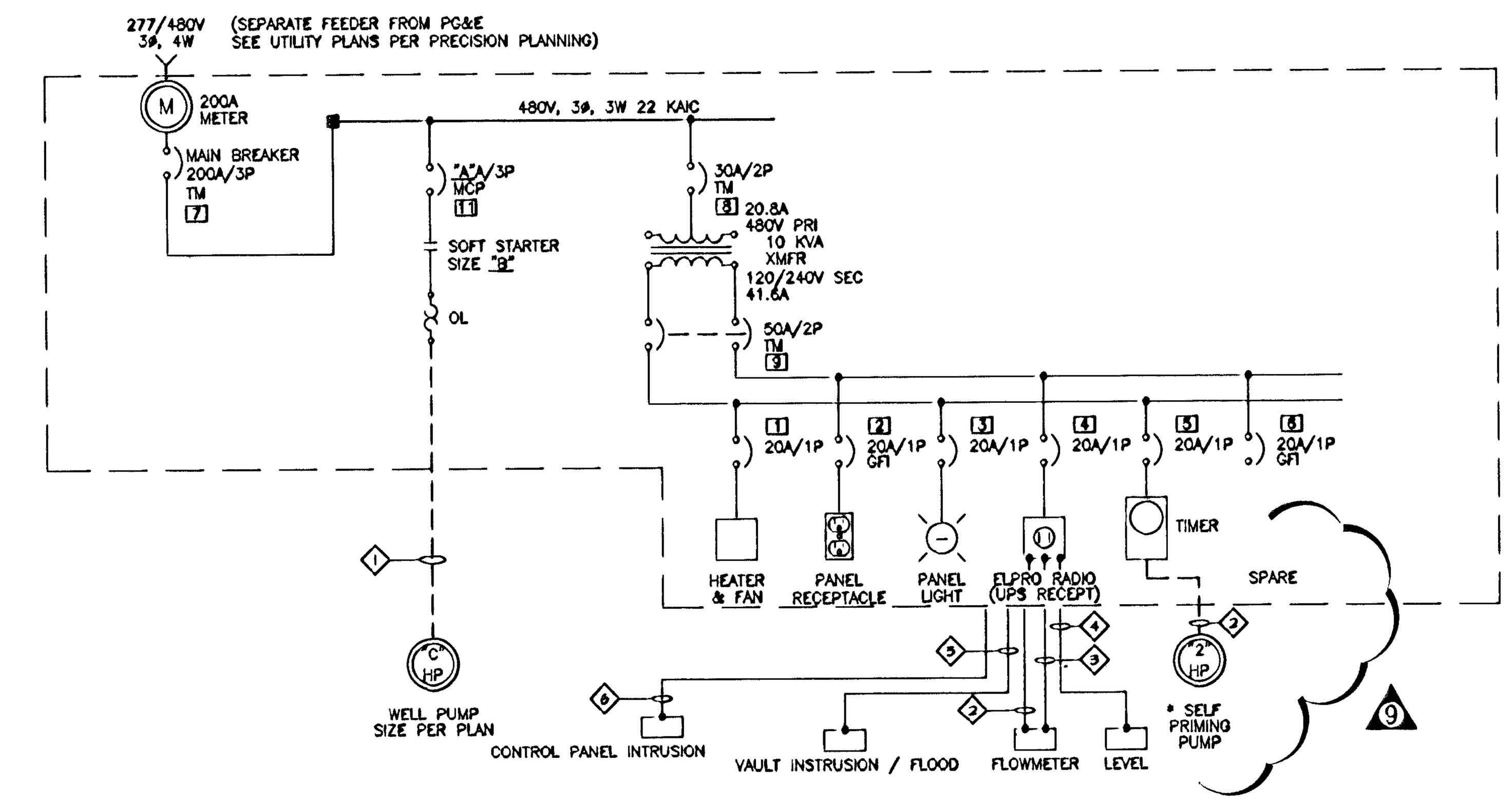
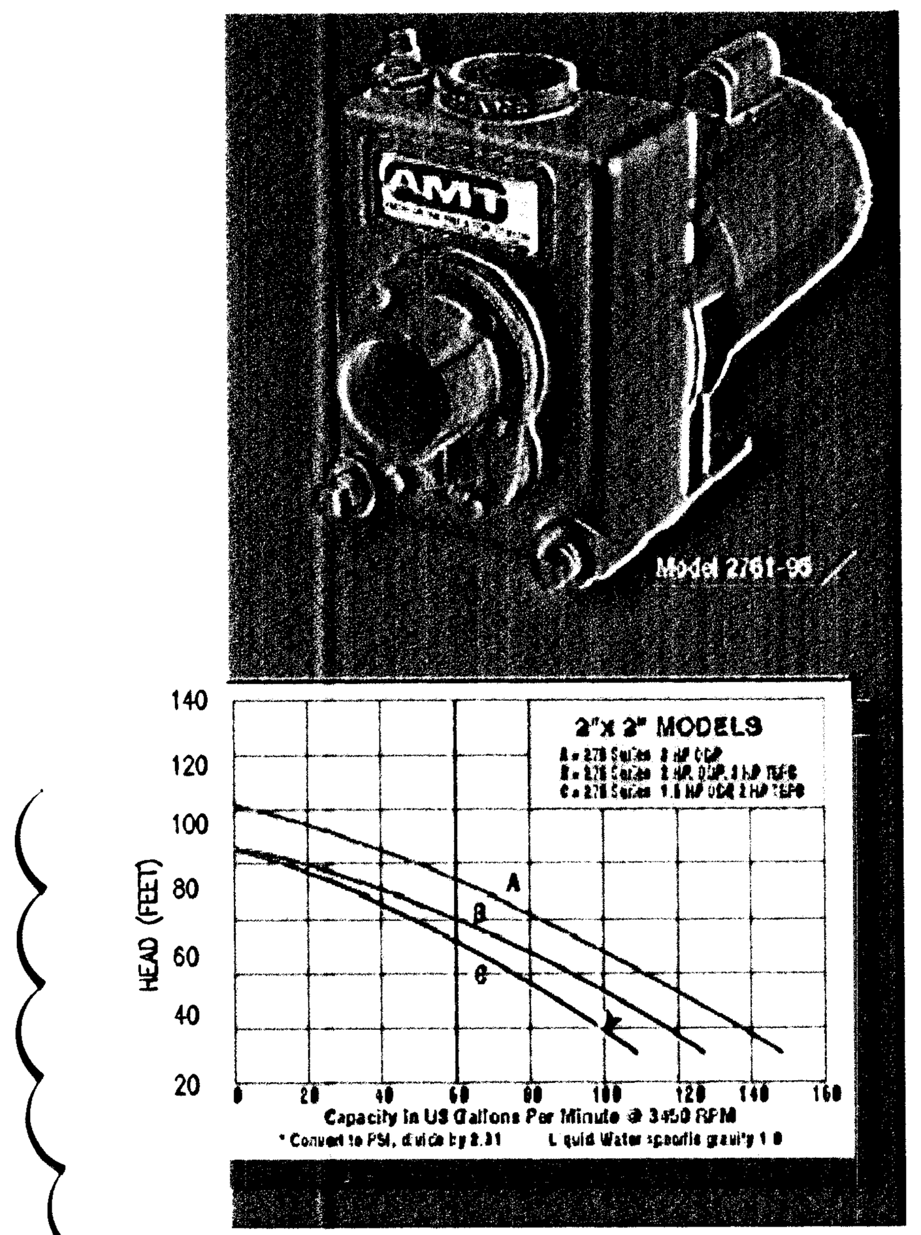


PLAN

SCALE: 1"=5'

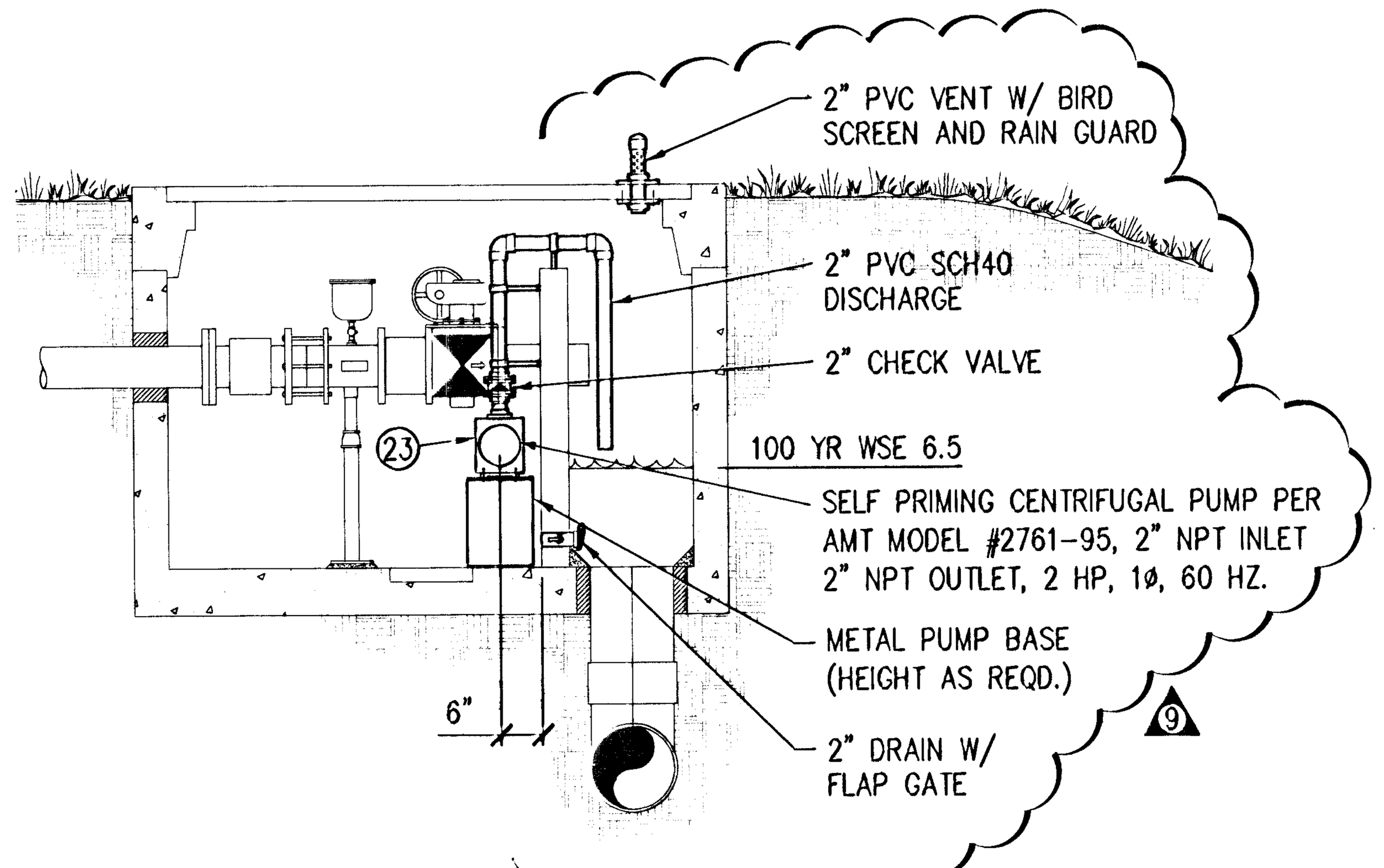


SINGLE LINE DIAGRAM



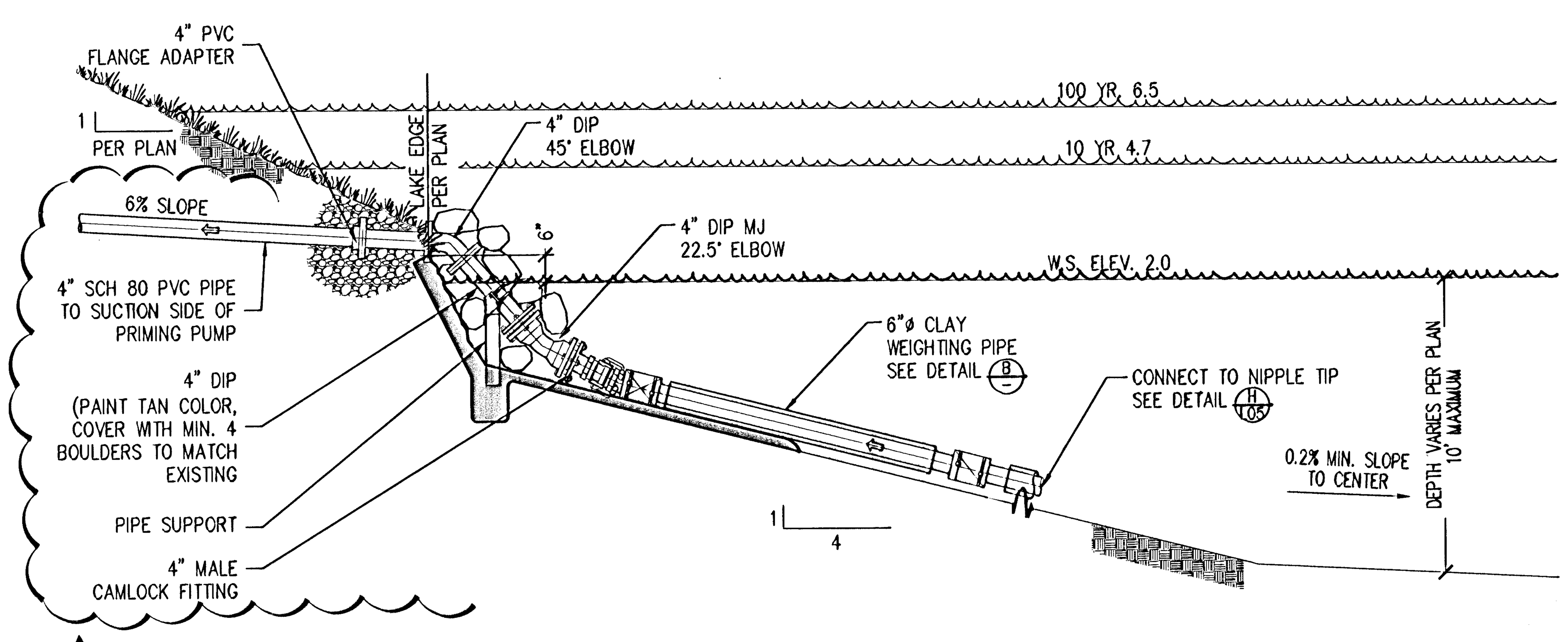
SELF PRIMING PUMP

NOT TO SCALE



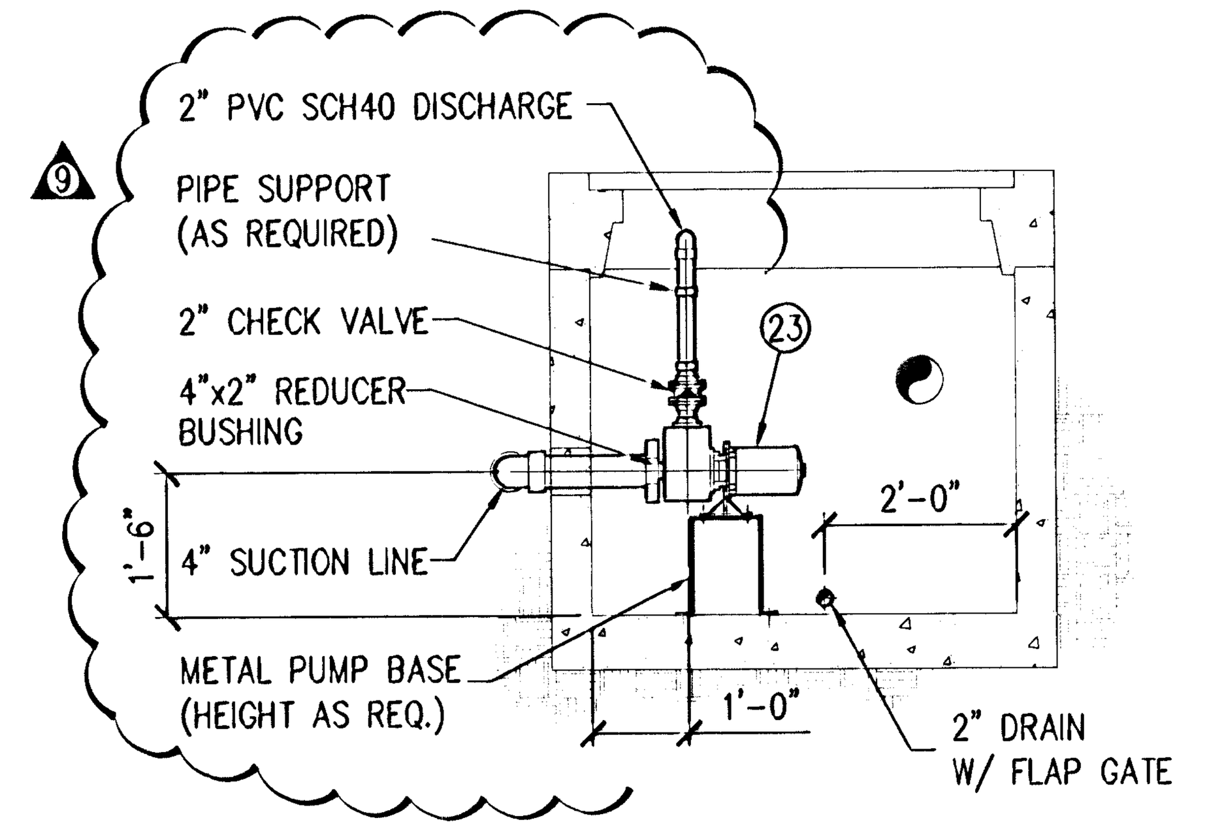
SECTION A

SCALE: 1/2"=1'-0"



WEIGHTING PIPE - DETAIL "A"

NOT TO SCALE

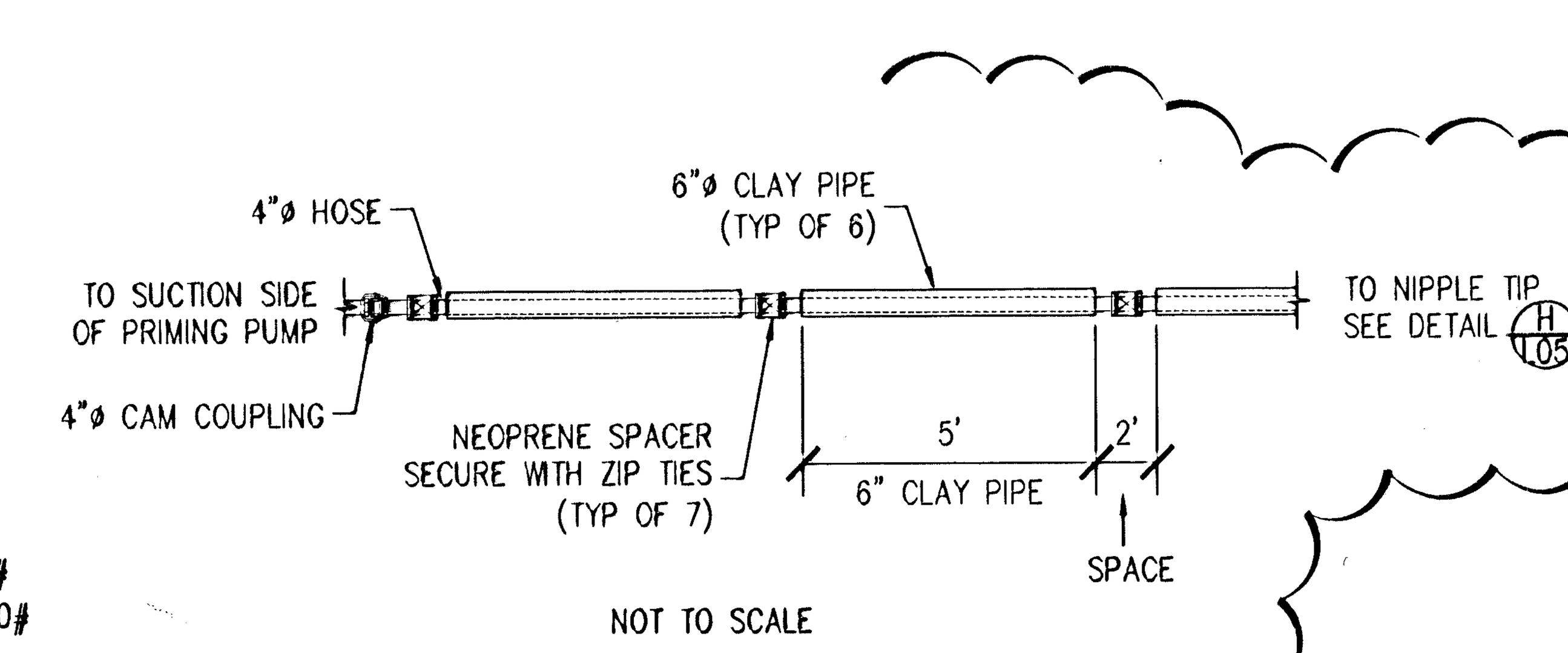


SECTION B

SCALE: 1/2"=1'-0"

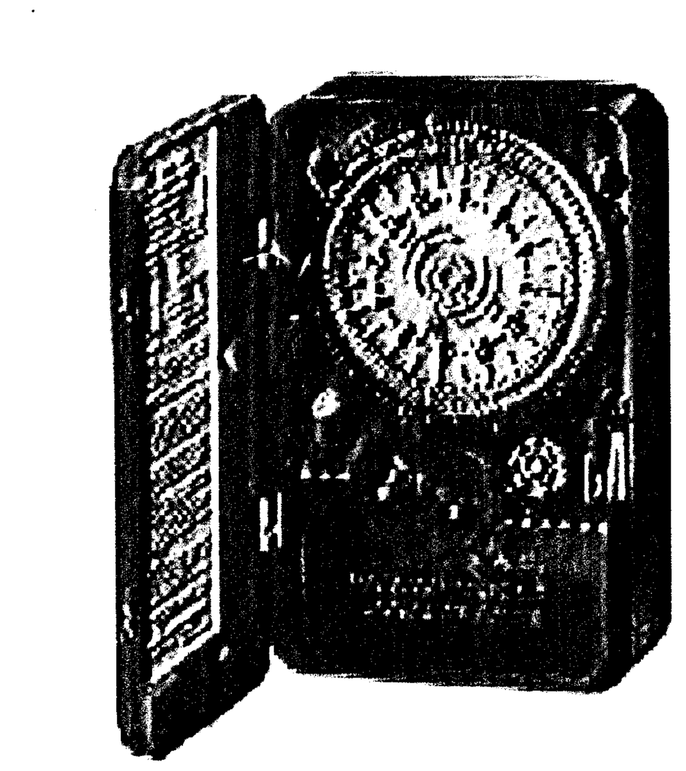
BUOYANCY FOR 17 FEET 4" HOSE:
(3.14/4)X(4/12)^{2}X17X 62.4=76.2#
BUOYANCY FOR 30 FEET 6" CLAY PIPE:
(3.14/4)X(6/12)^{2}X30X 62.4=367.4#
TOTAL BUOYANCY=76.2+367.4=443.6#

TOTAL WEIGHT OF 4"Ø PVC HOSE = 4.8X17=76.5#
TOTAL WEIGHT OF 6"Ø CLAY PIPE =15.5X30=465.0#
TOTAL WEIGHT=76.5+465.0=541.5#

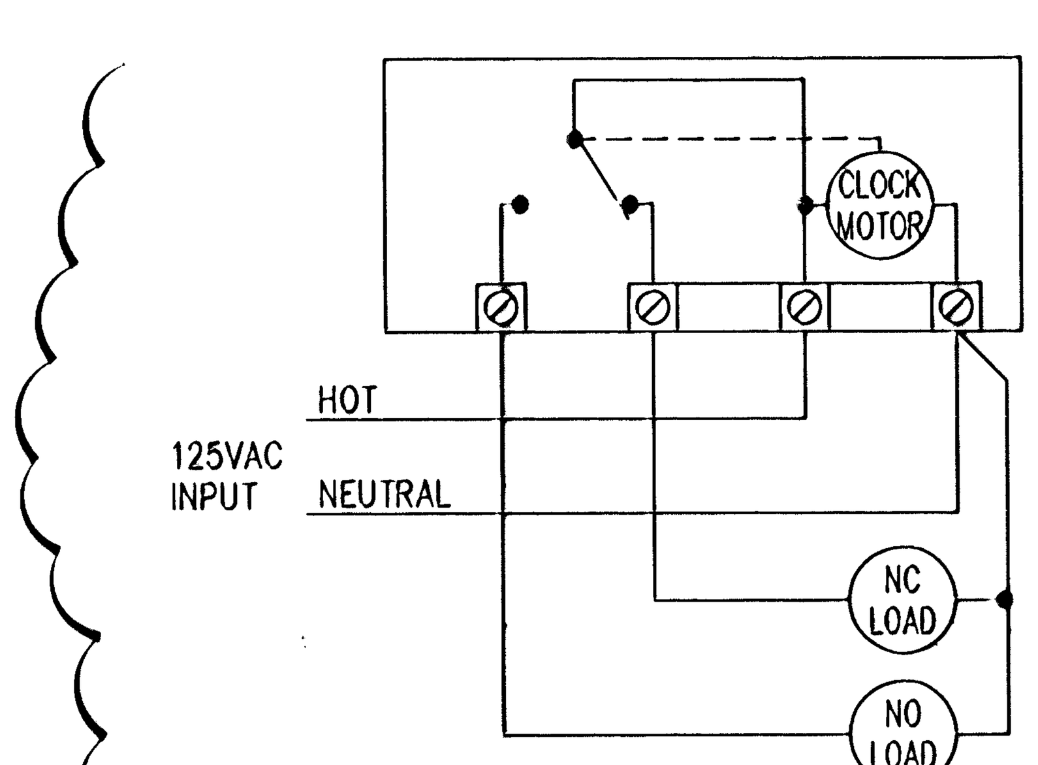


WEIGHTING PIPE - DETAIL "B"

NOT TO SCALE



INTERMATIC
MODEL # T1905
24 HOUR CYCLE TIMER



SEQUENCE OF OPERATION

THE PRIMING PUMP SHALL BE CONTROLLED BY A 24 HOUR TIMER SET TO TURN ON EVERY 4 HOURS AND SHALL BE ADJUSTABLE PER MAINTENANCE STAFF. THE DURATION OF OPERATION FOR EACH CYCLE SHALL BE 1 HOUR AND SHALL ALSO BE ADJUSTABLE BY MAINTENANCE STAFF. SEE ELECTRICAL DRAWING SHEET WD3 FOR DETAILS.

SELF PRIMING PUMP TIMER

NOT TO SCALE

NO	BY	DATE	REVISIONS	DATE	APP.
7	ATK	4/8	PER CITY COMMENTS		
8	DC	4/27/5	PER CITY COMMENTS		
9	SL	7/19/06	LAKE DEGASSING PS		

PREPARED BY ANDREW T. KOMOR
PROJECT ENGINEER R.C.E. NO. # C 64928 EXP. 6/30/07

DRAWN TAG | SCALE AS SHOWN
DESIGNED ATK
CHECKED ATK | DATE APR 2005

LAKE LINER DEGASSING SYSTEM

CYPRESS GROVE WELL PUMP STATION

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7300 FAX (714) 481-7299

SHEET W6

JOB NO. 8138-E

P:\8138E\Engineering\8138-60 (WELL PS)\sheets\8138-60-W6.dwg - Tab: Layout1 By: ogomez on Jul. 31, 2006 at 02:42 pm
Xrefs: 8138-60-Tblk.dwg; 8138-00-Topo.dwg; 8138-well-site.dwg; 8117-lake.dwg
Dimscale = 1; Ltscale = 0.5; PSltscale = 0; Acad Ver. = 16.2s (LMS Tech); Viewres = 1