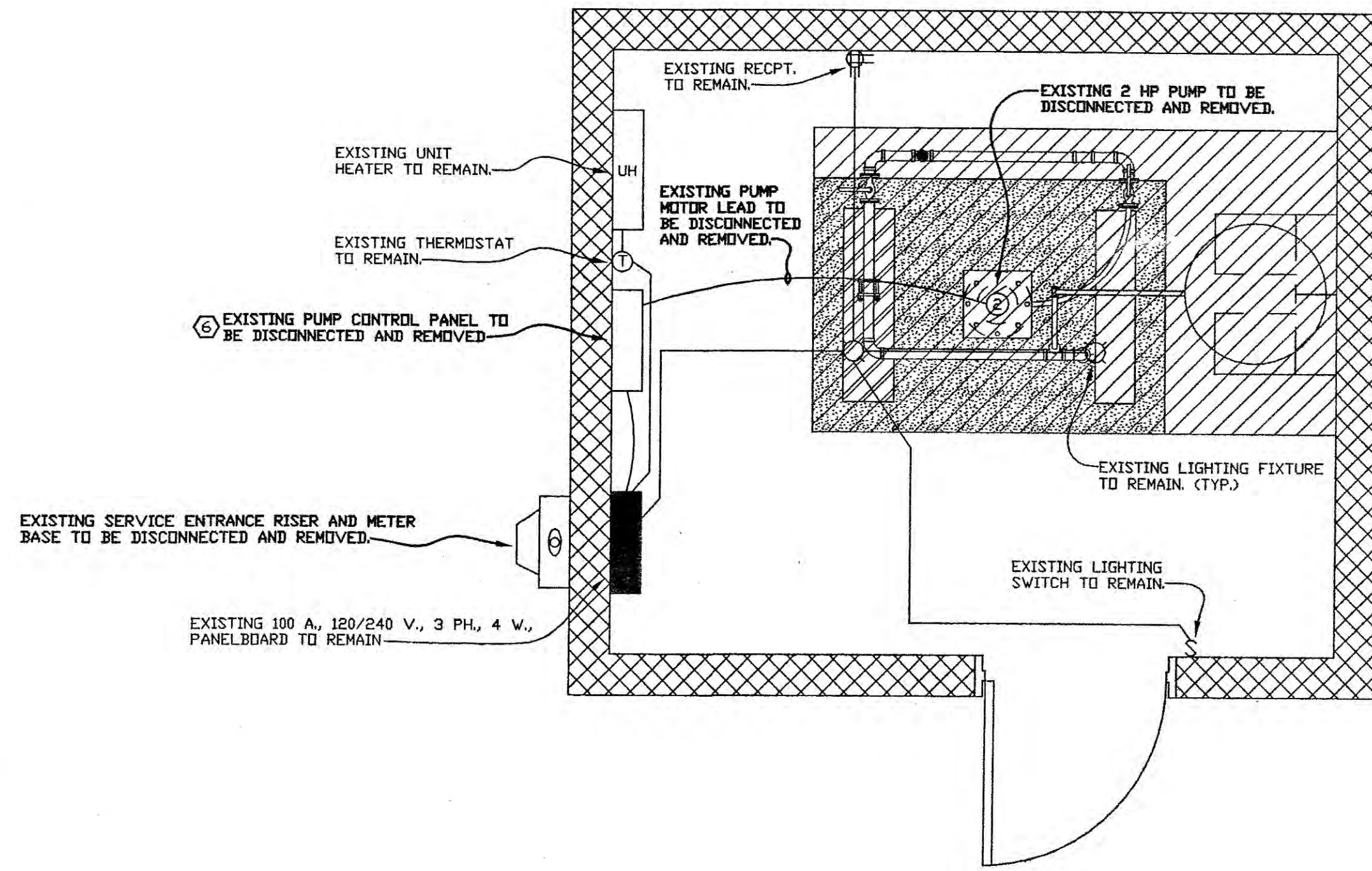
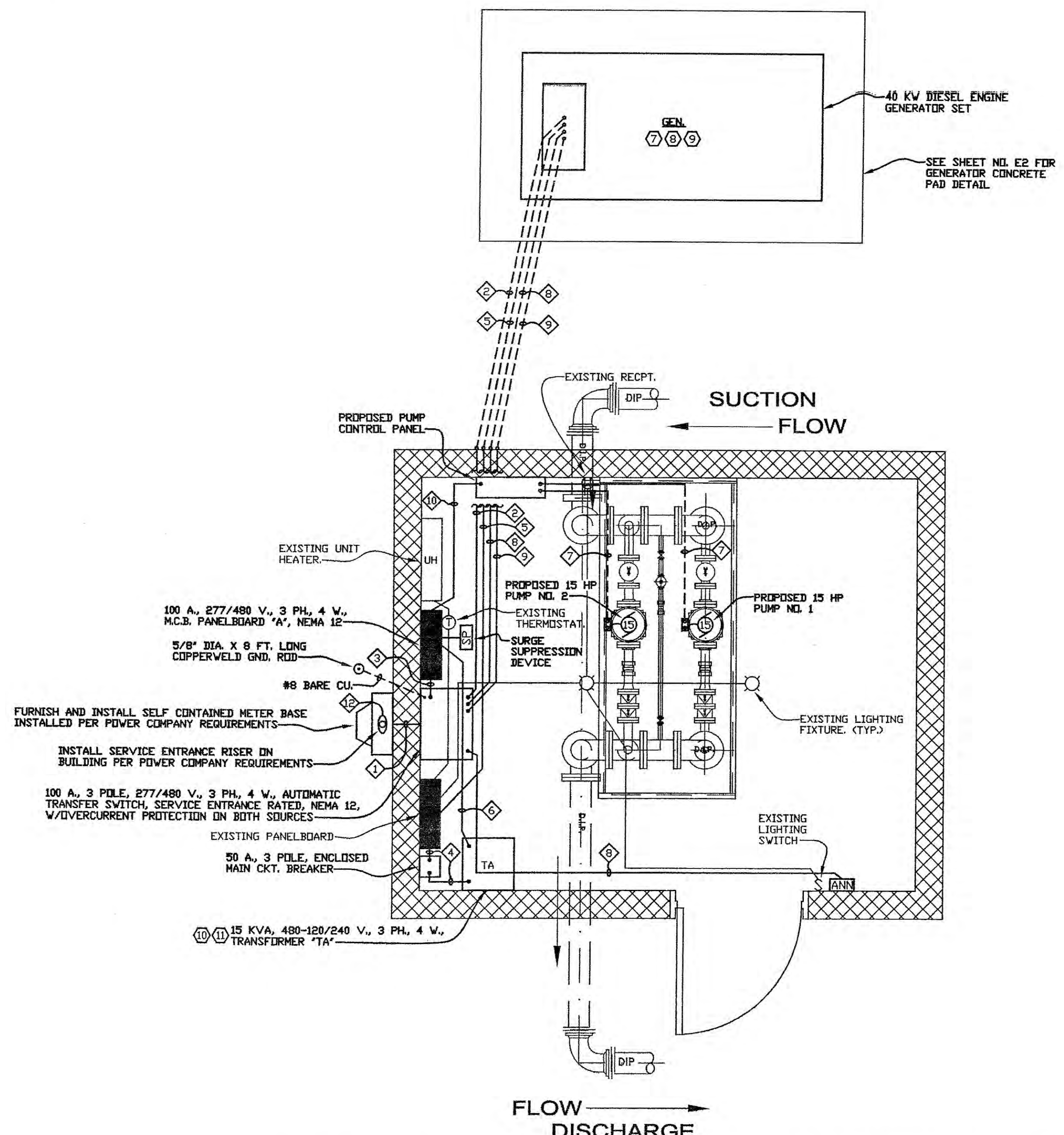




EXISTING PUMPSTATION - ELECTRICAL DEMOLITION PLAN

- DEMOLITION NOTES:**
1. FOR ALL EQUIPMENT AND DEVICES SHOWN TO BE REMOVED, DISCONNECT AND REMOVE EXISTING CONDUIT, WIRING, DISCONNECTING MEANS, AND CONTROLLING DEVICE BACK TO NEAREST JUNCTION BOX. PROPERLY TERMINATE AND INSULATE CONDUCTORS. DISCONNECT ALL CIRCUITS IN PANELBOARDS AND LABEL CIRCUIT BREAKERS AS "SPARE". ALL BRANCH CIRCUITS CONTINUING TO OTHER DEVICES OR UNITS SHALL BE RE-ROUTED OR MADE CONTINUOUS FOR PROPER OPERATION OF REMAINING DEVICES OR EQUIPMENT. NO ELECTRICAL CIRCUITS OR SYSTEMS IN REMAINING AREAS SHALL BE LEFT INCOMPLETE.
 2. ALL ABANDONED CIRCUITS AND CONDUITS SHALL BE DISCONNECTED AND REMOVED.
 3. ALL DEMOLITION WORK AND INSTALLATION OF PROPOSED ELECTRICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH GENERAL CONTRACTOR'S DETAILED PHASING SEQUENCE. ALL NECESSARY EXISTING & PROPOSED PANELBOARDS AND CIRCUITS SHALL BE TEMPORARILY POWERED AS REQUIRED.
 4. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL CIRCUITS BEFORE DISCONNECTION OF EXISTING CIRCUITS AND RECONNECTION OF PROPOSED CIRCUITS. LABEL PANEL DIRECTORIES AS REQUIRED.
 5. ELECTRICAL CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING ELECTRICAL SERVICE WITH POWER COMPANY.
 6. EXISTING SERVICE ENTRANCE AND PANELBOARD TO REMAIN CONNECTED DURING PUMP STATION MODIFICATIONS AND INSTALLATION OF NEW 277/480 VOLT SERVICE ENTRANCE. COORDINATE WITH OWNER THE TEMPORARY RELOCATION OF PUMP CONTROL AND INSTALLATION OF TEMPORARY CONDUITS AND WIRING TO MAINTAIN OPERATION OF PUMP MOTOR AND CONTROL AND MONITORING EQUIPMENT DURING PUMP STATION MODIFICATIONS.
 7. DISCONNECT AND REMOVE THE EXISTING MAIN BONDING JUMPER IN EXISTING PANELBOARD TO ISOLATE THE GROUNDING CIRCUIT CONDUCTOR FROM THE EQUIPMENT GROUNDING CONDUCTOR. PROVIDE GROUNDING IN ACCORDANCE WITH NEC 250.28, 250.30.



PROPOSED PUMPSTATION - ELECTRICAL MODIFICATIONS

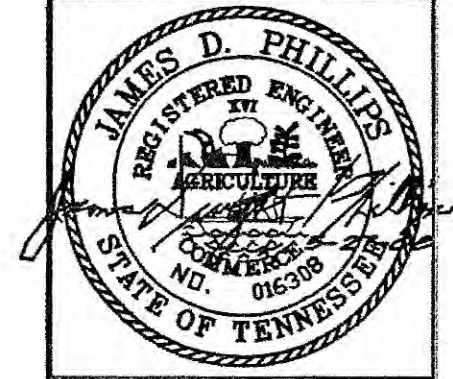
- NOTES:**
1. THE ELECTRICAL CONTRACTOR SHALL REFER TO THE CIVIL, ARCHITECTURAL, STRUCTURAL, MECHANICAL AND PLUMBING DRAWINGS FOR THE EXACT BUILDING AND ROOM LAYOUTS, ALL DIMENSIONS, SECTIONS, DETAILS, ELEVATIONS, VOLTAGE REQUIREMENTS AND PHYSICAL SIZE OF ALL EQUIPMENT FURNISHED BY OTHER TRADES. COORDINATE AND ADJUST ALL ELECTRICAL INSTALLATIONS ACCORDINGLY.
 2. THE ELECTRICAL CONTRACTOR IS TO CONFIRM ALL SERVICE ENTRANCE INSTALLATIONS WITH THE LOCAL POWER COMPANY AND COMPLY WITH ALL NECESSARY REQUIREMENTS.
 3. ALL CONDUIT ROUTING SHOWN IS DIAGRAMMATIC. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL OF THE RACEWAY INSTALLATIONS WITH OTHER TRADES TO AVOID INTERFERENCES WITH STRUCTURES AND PIPING. MAINTAIN APPROX. 24" CLEARANCE BETWEEN BURIED CONDUIT AND ALL STRUCTURES.
 4. ALL PROPOSED POWER, CONTROL, AND SIGNAL WIRING & CABLES SHALL BE PROPERLY IDENTIFIED AND LABELED WITH AN APPROVED MARKING SYSTEM AT ALL LOCATIONS AS CALLED FOR IN THE DETAILED SPECIFICATIONS. ALL POWER AND BRANCH CIRCUIT WIRING SHALL BE TAGGED TO MATCH MOTOR CONTROL CENTER OR PANEL SCHEDULES. ALL MOTOR LEAD WIRING SHALL BE TAGGED TO MATCH MOTOR NUMBERS WITH T1, T2, T3 IDENTIFYING EACH LEAD. ALL CONTROL AND SIGNAL WIRING SHALL BE TAGGED TO MATCH THE EQUIPMENT VENDOR'S DETAILED INTERCONNECTION DRAWINGS.
 5. MAINTAIN PROPER CLEARANCE REQUIREMENTS FOR ALL ELECTRICAL EQUIPMENT PER NEC.
 6. INSTALL A FULL SIZE NEUTRAL FOR EACH CIRCUIT. GROUP HOME RUN CIRCUITS PER NEC ARTICLE 310, TABLE 310.15(C)(2)(A).
 7. VERIFY STUD-UP LOCATIONS, NUMBER AND SIZE OF INTERCONNECTION CONDUCTORS, EXACT TERMINATION POINTS, ETC. AND ADJUST CONDUIT AND RACEWAYS ACCORDINGLY PER GENERATOR, TRANSFER SWITCH AND MANUFACTURER'S SHOP DRAWINGS.
 8. PROVIDE GENERATOR CONTROL WIRING AND BATTERY CHARGING CIRCUIT.
 9. CONNECT WIRING FROM GENERATOR CONTROL PANEL TO TRANSFER SWITCH AND ROUTE APPROPRIATE WIRING TO GENERATOR REMOTE ANNUNCIATOR PANEL. FURNISH AND INSTALL ALL CONTROL INTERFACES FOR REMOTE MONITORING OF GENERATOR STATUS THRU OWNER FURNISHED RADIO TELEMETRY PANEL.
 10. DO NOT CONNECT ANY 120 V., 1 PH, 1 POLE CIRCUITS TO THE "B" PHASE ON ANY THREE PHASE PANELBOARD.
 11. IDENTIFY THE "B" PHASE OR "HI-LEG" CONDUCTOR BY AN OUTER FINISH THAT IS ORANGE IN COLOR AT EACH POINT WHERE A CONNECTION IS MADE IF THE NEUTRAL CONDUCTOR IS ALSO PRESENT.

PHILLIPS ENGINEERING, INC.
P.O. Box 585 - 617 S. First Street - Union City, TN 38261
Phone: (731) 885-9532 Fax: (731) 885-2106
Email: pei@phillipsengr.com

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PUMP STATION
ELECTRICAL MODIFICATIONS

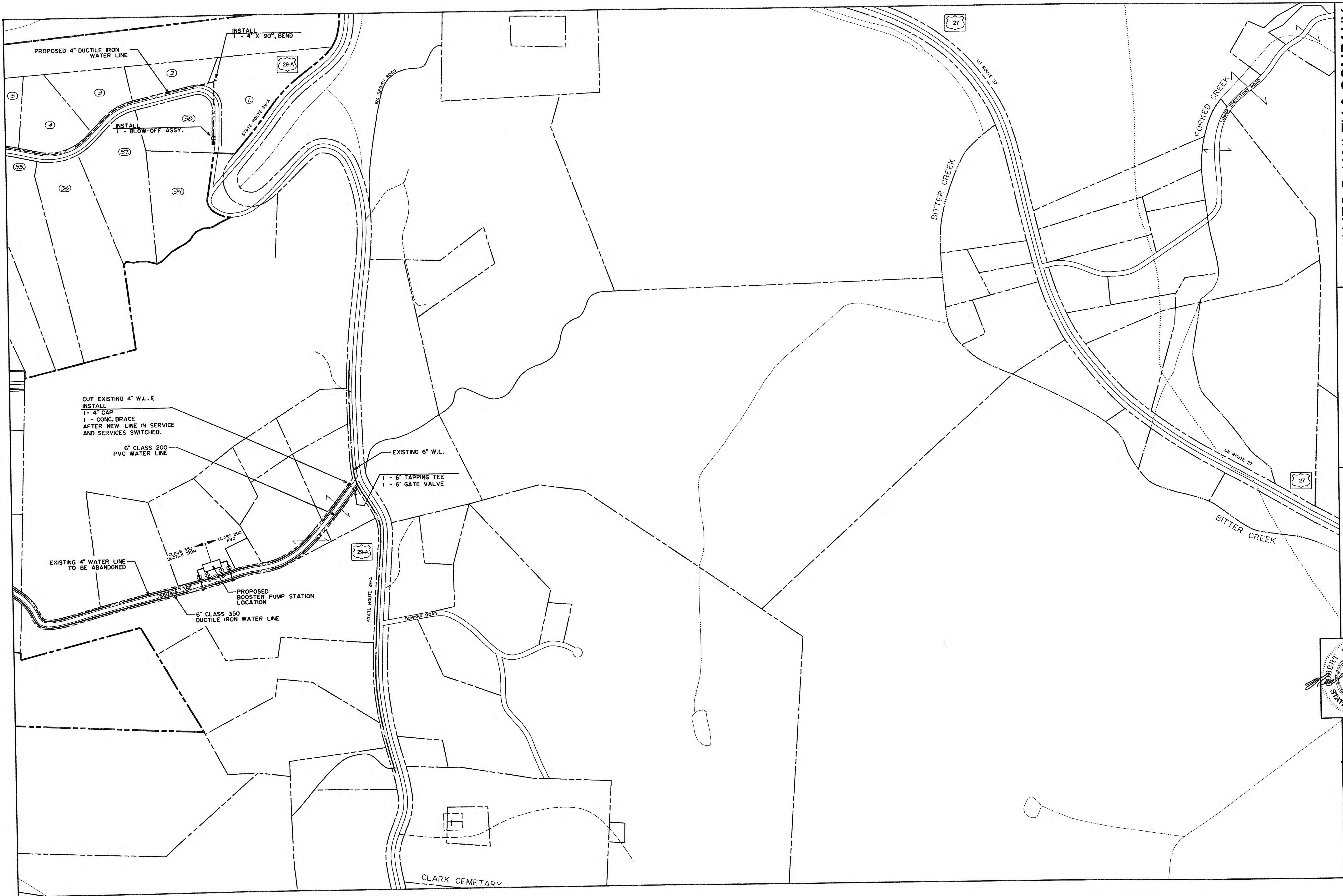
HERITAGE HILLS
Roane County, Tennessee



DESIGN	JJP
DRAWN	JCB
CHECKED	JDP
DATE	FEB 2008
SCALE	1/2"=1'-0"
PROJECT NO.	07197
SHEET	E1

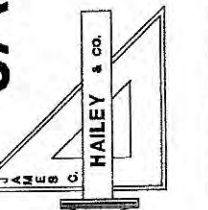
E1

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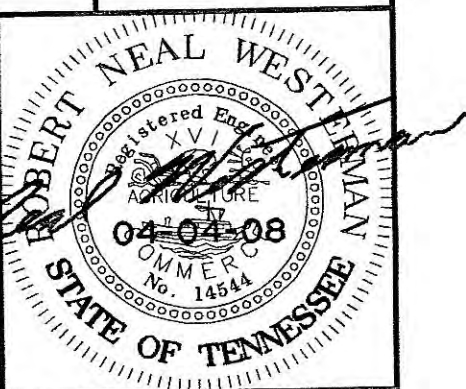
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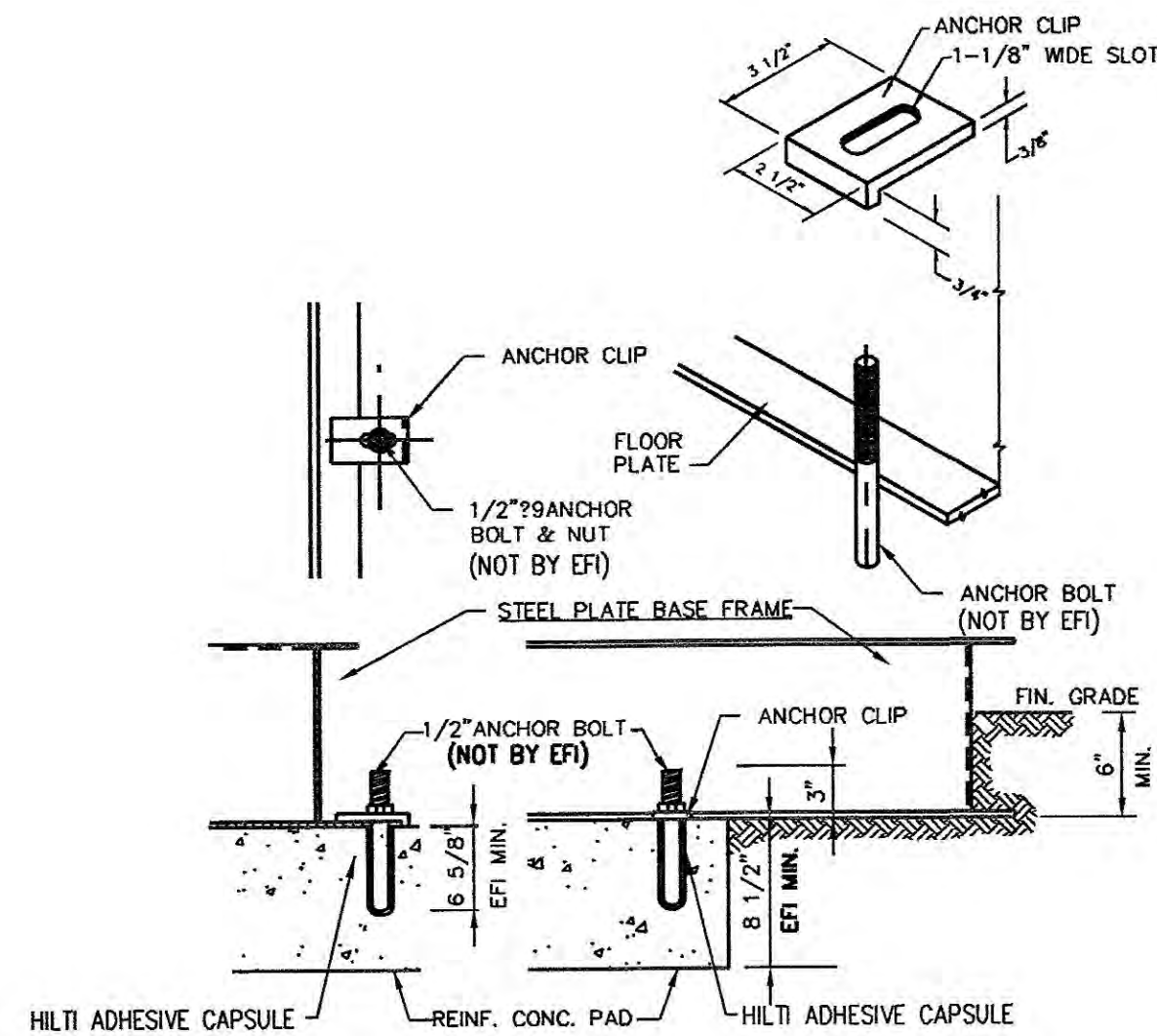


**PUMP STATION RENOVATION
SITE PLAN**

HERITAGE HILLS
Roane County, Tennessee

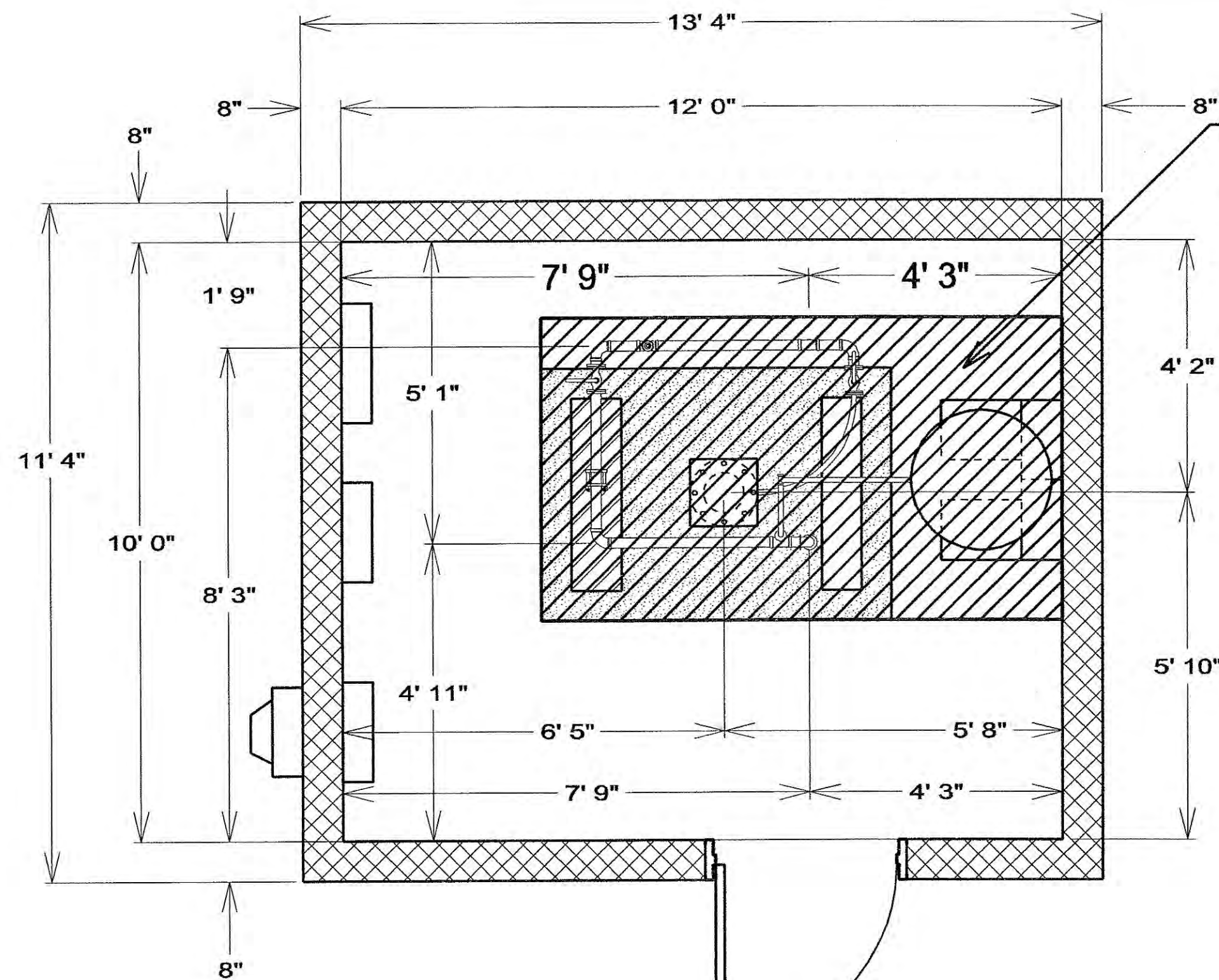


DESIGN	RNW
DRAWN	BKQ
CHECKED	RNW
DATE	FEB 2008
SCALE	1"=200'-0"
PROJECT NO.	07197
SHEET	1



TYPICAL ANCHOR DETAIL

NOTE: ANCHOR CLIPS FURNISHED BY MANUFACTURER
ANCHOR BOLTS & NUTS BY INSTALLER



EXISTING PUMPSTATION - DEMOLITION PLAN

GENERAL SPEC:

FURNISH & INSTALL (1) ONE DUPLEX WATER BOOSTER PUMPING SYSTEM COMPLETE AS MANUFACTURED BY N.D.M. SERVICE ASSOCIATES, INC., CHARLESTON, TN. THIS SYSTEM TO INCLUDE (2) TWO VERTICAL MULTI-STAGE TURBINE PUMP UNITS MOUNTED TO A FABRICATED STEEL FRAME/SKID ARRANGEMENT FOR INSTALLATION ON A CONCRETE PAD. SUCTION AND DISCHARGE PIPING MANIFOLDS TO BE BRASS AND/OR STAINLESS STEEL PIPING AND FITTINGS UP TO 2" SIZE, AND DUCTILE IRON PIPING AND FITTINGS 3" AND LARGER, AND TO INCLUDE ISOLATION BALL VALVES OR GATE VALVES AND DOUBLE CHECK VALVES FOR EACH PUMP ASSEMBLY. THE AUTOMATIC PRESSURE SWITCH SERIES CONTROL PANEL TO INCLUDE A NEMA 3R STAINLESS STEEL OUTDOOR ENCLOSURE SUITABLE FOR MOUNTING ADJACENT TO THE BOOSTER PUMPS.

OPERATING CONDITIONS:

BOOSTER PUMPS:

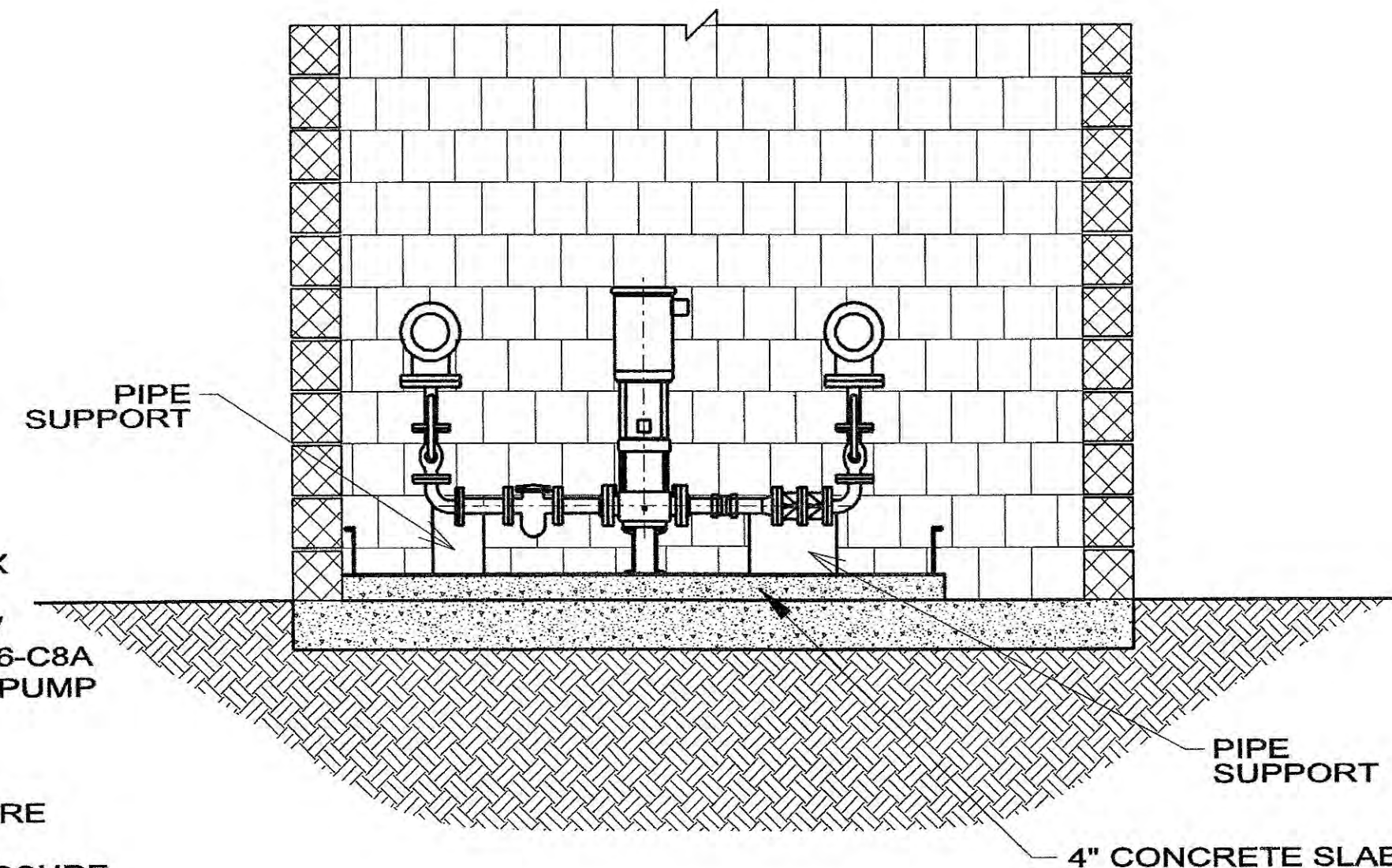
EACH PUMP SHALL HAVE THE CAPACITY OF 100 GPM @ 385' T.D.H. THE PUMP MOTORS TO BE 15 H.P., AND WILL OPERATE ON 460 VOLT 3 PHASE POWER, AT 3525 RPM WITH 21.0 FLA. THE PUMP UNITS TO BE GOULD MODEL 4SVB1M5HO.

PIPING SPEC:

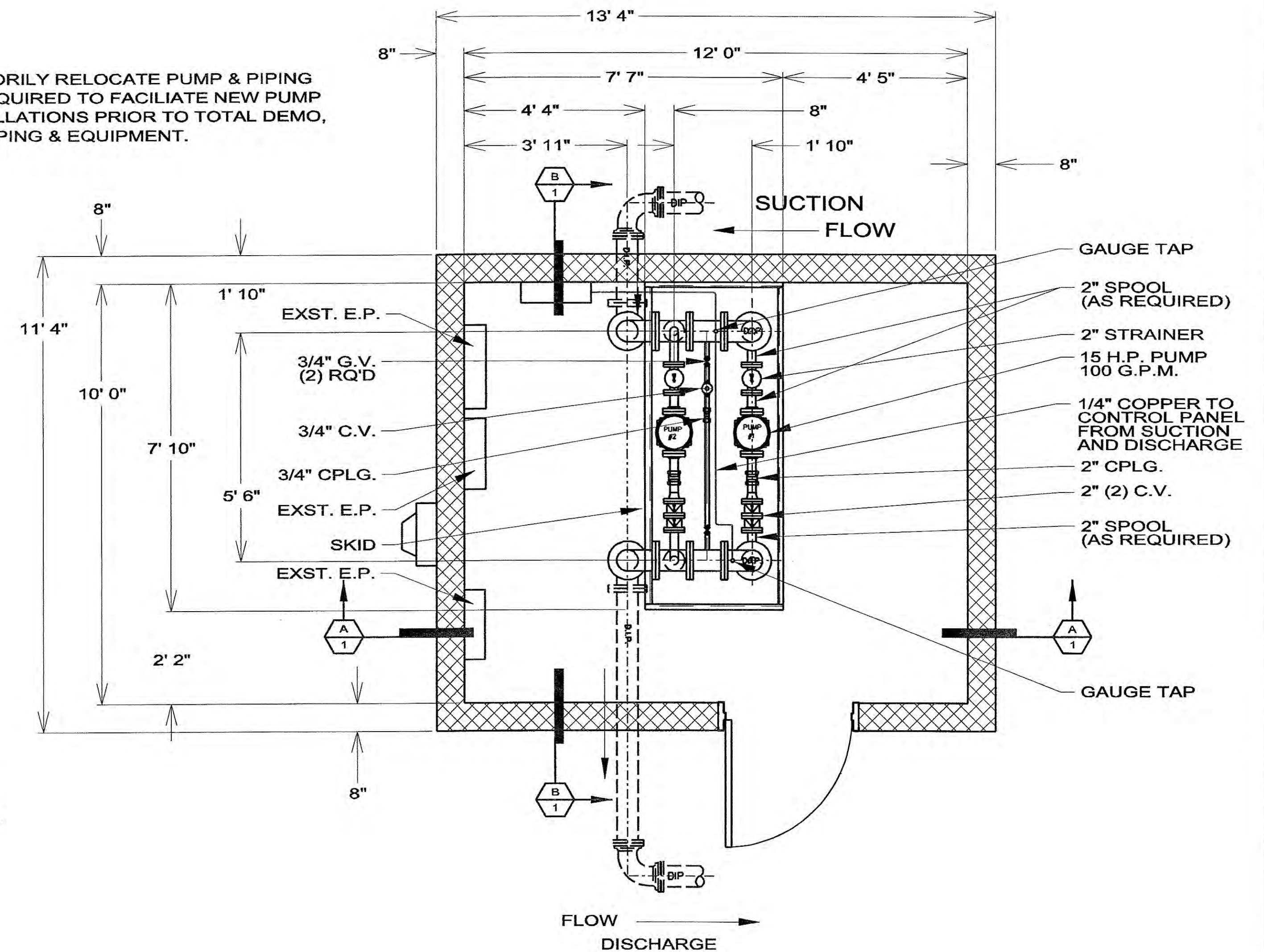
ALL SUCTION PIPING TO BE 6" D.I. TO 2" BRASS AND TO INCLUDE ISOLATION BALL VALVES. ALL DISCHARGE PIPING TO BE 2" BRASS TO 6" D.I. AND INCLUDE ISOLATION BALL VALVES AND DOUBLE SPRING LOADED CHECK VALVES FOR EACH PUMP UNIT.

CONTROL PANEL SPEC:

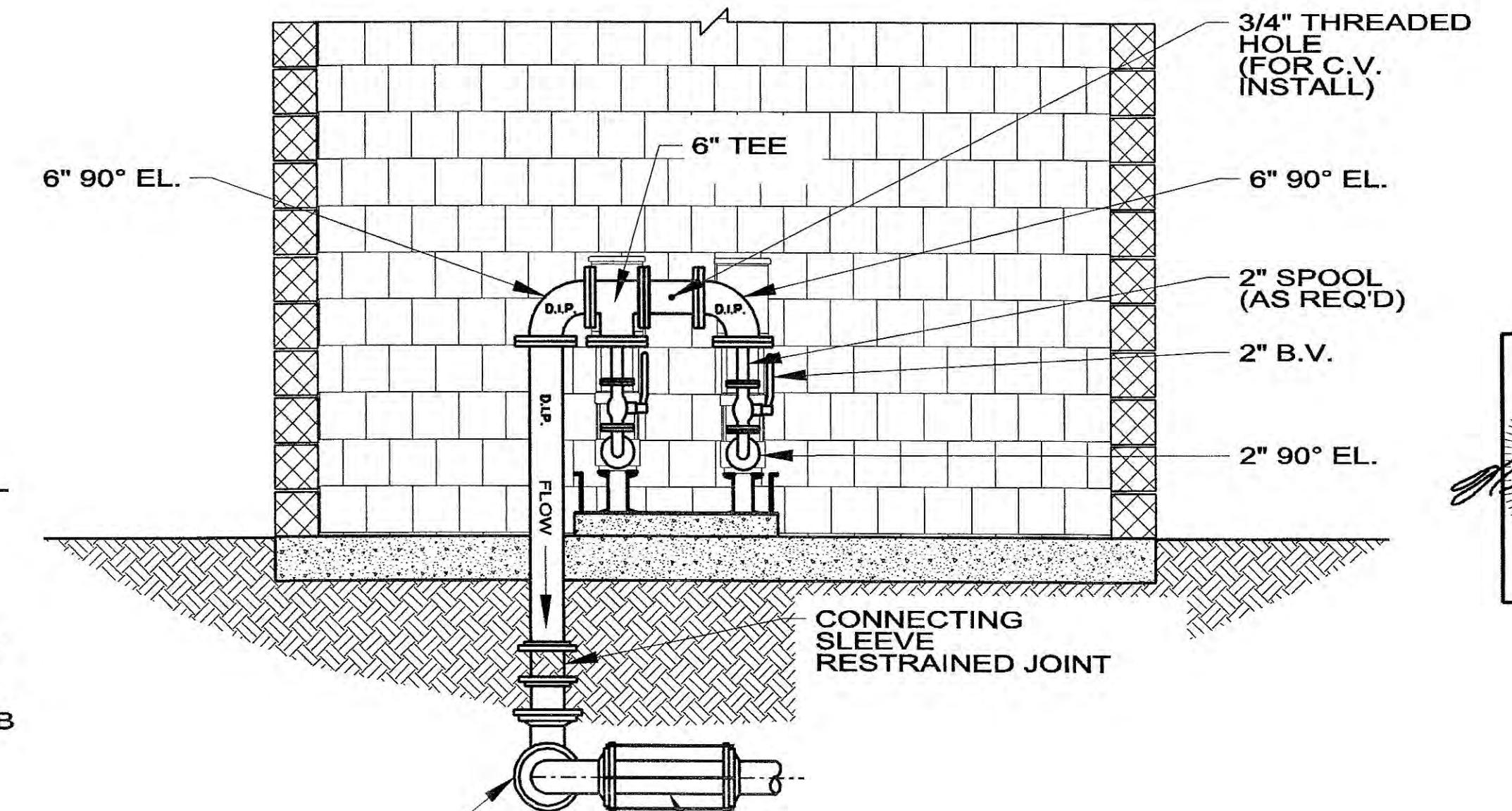
THE AUTOMATIC PRESSURE SWITCH SERIES CONTROL PANEL TO INCLUDE THE NEMA 3R STAINLESS STEEL OUTDOOR ENCLOSURE WITH ALUMINUM DEADFRONT INNER DOOR, SUITABLE FOR MOUNTING ADJACENT TO THE BOOSTER PUMPS, AND ALSO INCLUDE SEPARATE CIRCUIT BREAKERS, STARTERS WITH ADJUSTABLE OVERLOAD RELAYS, H-O-A SELECTOR SWITCHES, GREEN RUN LIGHTS AND ELAPSED TIME METERS FOR EACH PUMP MOTOR. ON DUPLEX AND/OR TRIPLEX PUMP STATIONS, AN ALTERNATOR RELAY WITH SELECTOR SWITCH TO BE SUPPLIED AND ON 3 PHASE PANELS, A PHASE MONITOR RELAY IS TO BE SUPPLIED FOR SINGLE PHASE PROTECTION AND HIGH/LOW VOLTAGE PROTECTION. THE (4) FOUR ALLEN BRADLEY PRESSURE SWITCH CONTROLS TO BE MODEL 836-C8A (UP TO 250 PSI) AND TO INCLUDE THE LOW SUCTION PRESSURE CUTOFF SWITCH, LEAD PUMP AND LAG PUMP OPERATION, AND HIGH PRESSURE OVERRIDE SHUTDOWN SWITCH. DRY CONTACTS FOR TANK LEVEL TELEMETRY / REMOTE CONTROLLED OPERATION TO ALSO BE INCLUDED (FOR FUTURE INSTALLATION) AS WELL AS A BACK-UP 24 HOUR TIME CLOCK CONTROL. A SELECTOR SWITCH WILL BE PROVIDED AND INSTALLED ON THE DEADFRONT INNER DOOR TO SELECT THE MODE OF OPERATION BETWEEN PRESSURE SWITCH CONTROL, TELEMETRY CONTROL OR CONTROL. RED ALARM INDICATOR LIGHTS TO ALSO BE MOUNTED ON THE ALUMINUM DEADFRONT INNER DOOR TO INDICATE A LOW SUCTION OR HIGH PRESSURE ALARM CONDITION, AND A LOSS OF PHASE CONDITION ON 3 PHASE SYSTEMS. ALSO MOUNTED ON THE ALUMINUM DEADFRONT INNER DOOR IS A DUPLEX GFI, AND THE ENTIRE CONTROL PANEL



TEMPORILY RELOCATE PUMP & PIPING AS REQUIRED TO FACILITATE NEW PUMP INSTALLATIONS PRIOR TO TOTAL DEMO, ALL PIPING & EQUIPMENT.



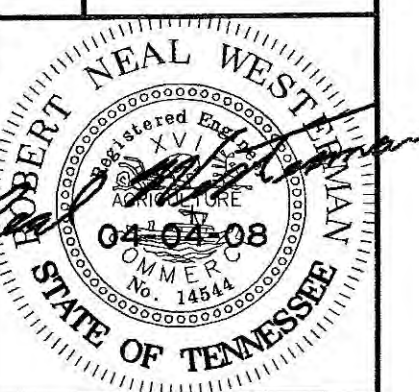
PROPOSED PUMPSTATION - PLAN



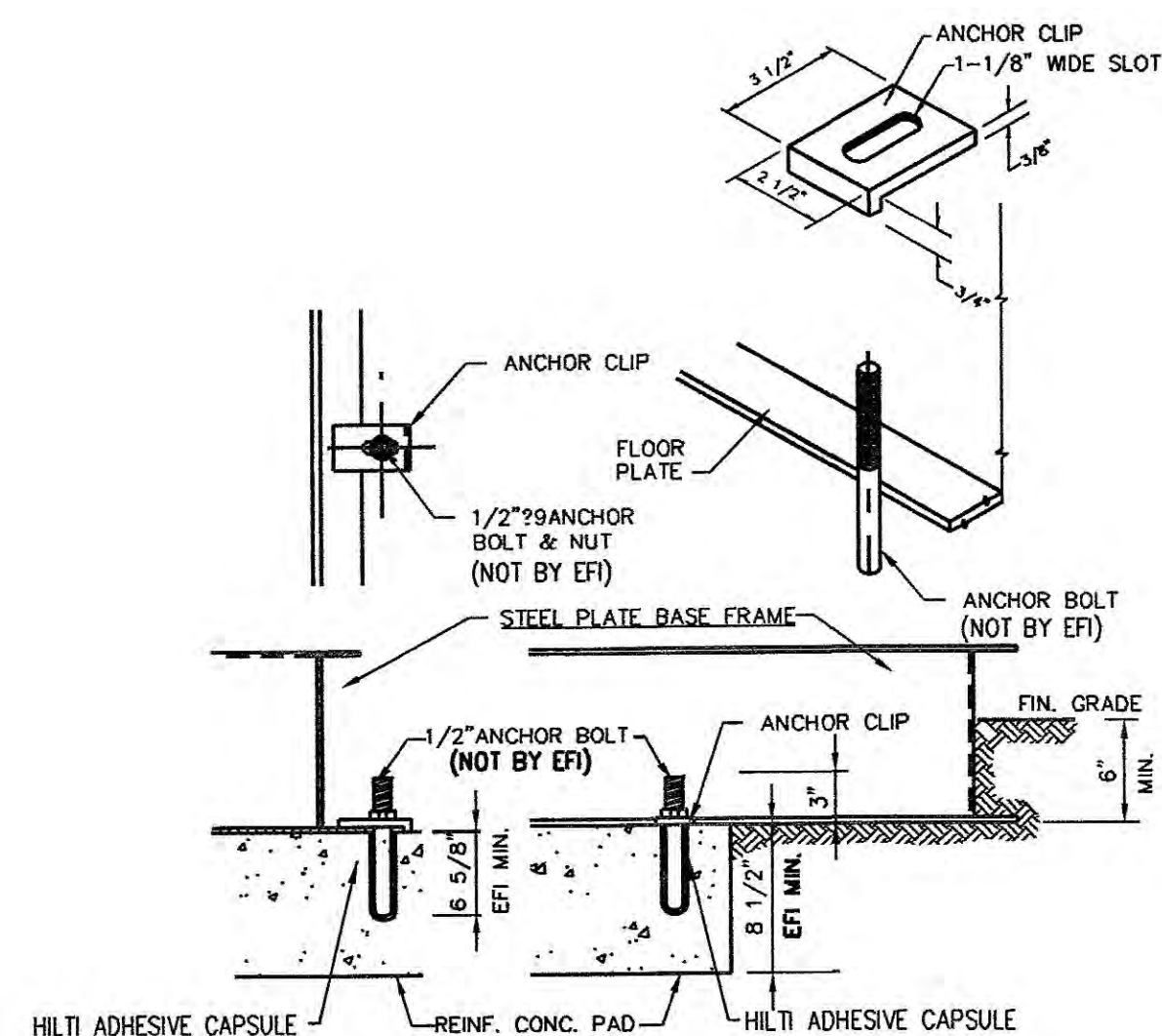
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PUMP STATION RENOVATION
PLANS

HERITAGE HILLS
Roane County, Tennessee

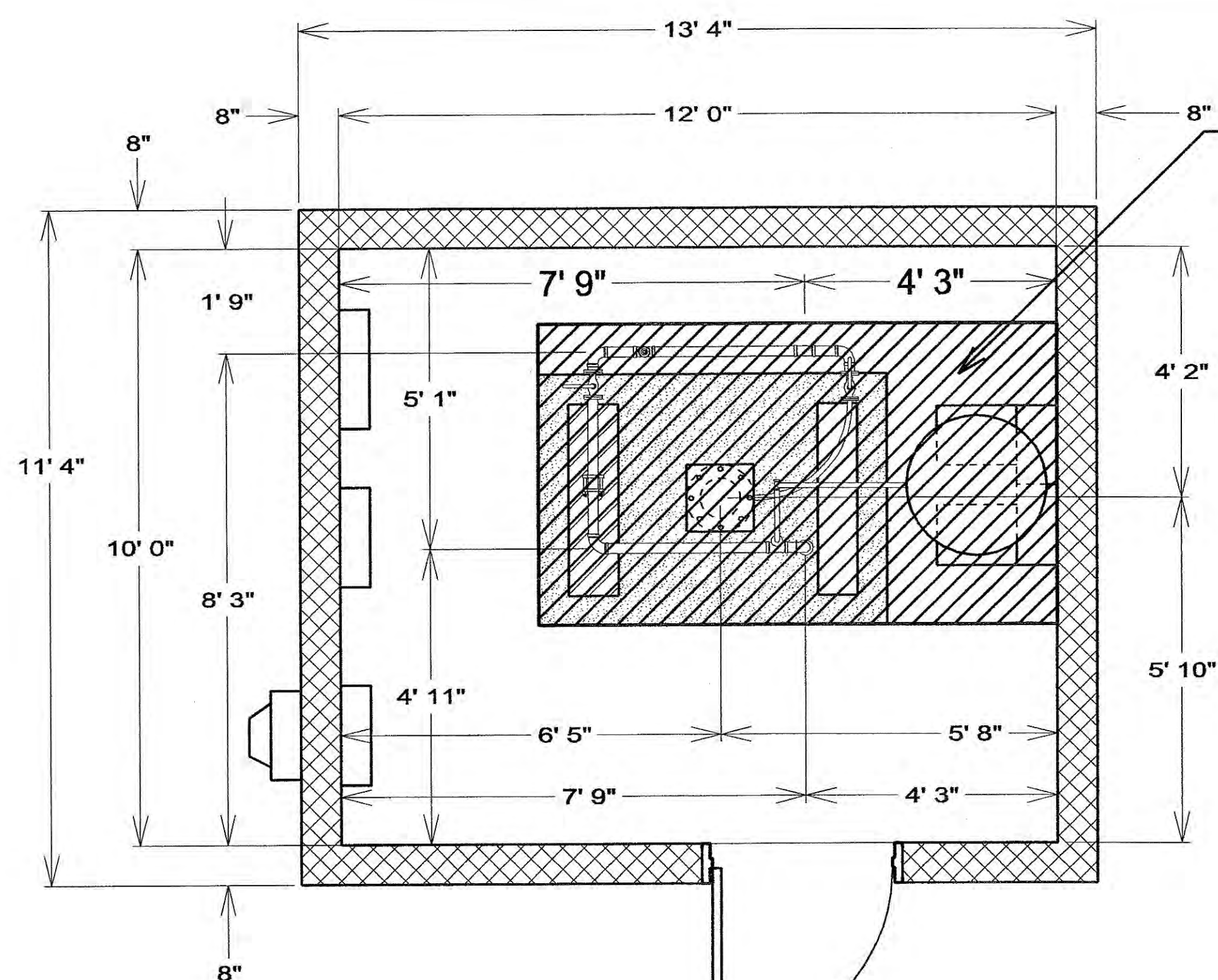


DESIGN	RNW
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CHECKED	RNW
DATE	



TYPICAL ANCHOR DETAIL

NOTE: ANCHOR CLIPS FURNISHED BY MANUFACTURER
ANCHOR BOLTS & NUTS BY INSTALLER



EXISTING PUMPSTATION - DEMOLITION PLAN

GENERAL SPEC:

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OPERATING CONDITIONS:

BOOSTER PUMPS:

EACH PUMP SHALL HAVE THE CAPACITY OF 100 GPM @ 385' T.D.H. THE PUMP MOTORS TO BE 15 H.P., AND WILL OPERATE ON 460 VOLT 3 PHASE POWER, AT 3525 RPM WITH 21.0 FLA. THE PUMP UNITS TO BE GOULD MODEL 4SVB1M5HO.

PIPING SPEC:

ALL SUCTION PIPING TO BE 6" D.I. TO 2" BRASS AND TO INCLUDE ISOLATION BALL VALVES. ALL DISCHARGE PIPING TO BE 2" BRASS TO 6" D.I. AND INCLUDE ISOLATION BALL VALVES AND DOUBLE SPRING LOADED CHECK VALVES FOR EACH PUMP UNIT.

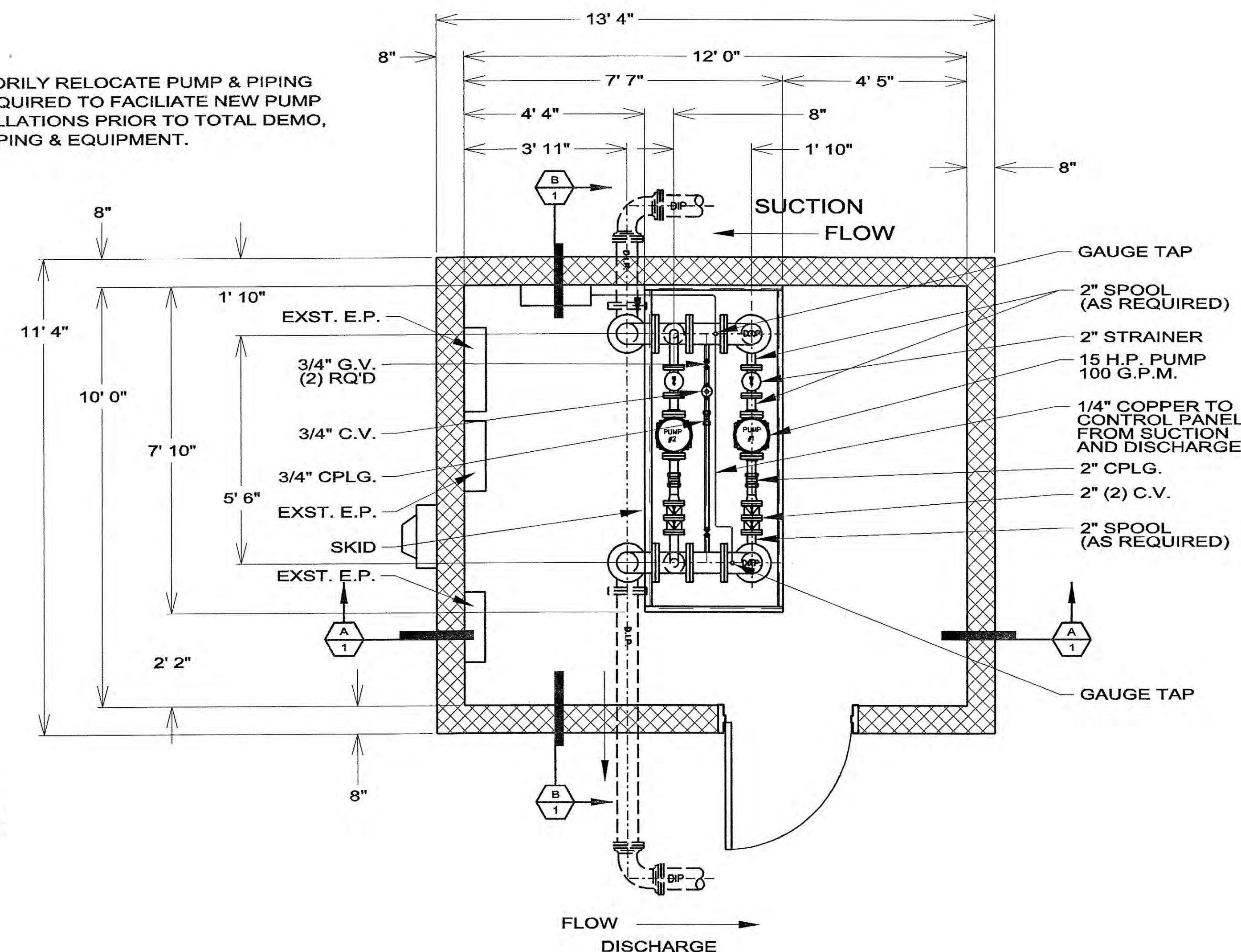
CONTROL PANEL SPEC:

THE AUTOMATIC PRESSURE SWITCH SERIES CONTROL PANEL TO INCLUDE THE NEMA 3R STAINLESS STEEL OUTDOOR ENCLOSURE WITH ALUMINUM DEADFRONT INNER DOOR, SUITABLE FOR MOUNTING ADJACENT TO THE BOOSTER PUMPS, AND ALSO INCLUDE SEPARATE CIRCUIT BREAKERS, STARTERS WITH ADJUSTABLE OVERLOAD RELAYS, H-O-A SELECTOR SWITCHES, GREEN RUN LIGHTS AND ELAPSED TIME METERS FOR EACH PUMP MOTOR. ON DUPLEX AND/OR TRIPLEX PUMP STATIONS, AN ALTERNATOR RELAY WITH SELECTOR SWITCH TO BE SUPPLIED AND ON 3 PHASE PANELS, A PHASE MONITOR RELAY IS TO BE SUPPLIED FOR SINGLE PHASE PROTECTION AND HIGH/LOW VOLTAGE PROTECTION. THE (4) FOUR ALLEN BRADLEY PRESSURE SWITCH CONTROLS TO BE MODEL 836-C8A (UP TO 250 PSI) AND TO INCLUDE THE LOW SUCTION PRESSURE CUTOFF SWITCH, LEAD PUMP AND LAG PUMP OPERATION, AND HIGH PRESSURE OVERRIDE SHUTDOWN SWITCH. DRY CONTACTS FOR TANK LEVEL TELEMETRY / REMOTE CONTROLLED OPERATION TO ALSO BE INCLUDED (FOR FUTURE INSTALLATION) AS WELL AS A BACK-UP 24 HOUR TIME CLOCK CONTROL. A SELECTOR SWITCH WILL BE PROVIDED AND INSTALLED ON THE DEADFRONT INNER DOOR TO SELECT THE MODE OF OPERATION BETWEEN PRESSURE SWITCH CONTROL, TELEMETRY CONTROL OR CONTROL. RED ALARM INDICATOR LIGHTS TO ALSO BE MOUNTED ON THE ALUMINUM DEADFRONT INNER DOOR TO INDICATE A LOW SUCTION OR HIGH PRESSURE ALARM CONDITION, AND A LOSS OF PHASE CONDITION ON 3 PHASE SYSTEMS. ALSO MOUNTED ON THE ALUMINUM DEADFRONT INNER DOOR IS A DUPLEX GFI, AND THE ENTIRE CONTROL PANEL ASSEMBLY TO BE UL-508 LABELED, THE ELECTRICAL SERVICE TO OPERATE THIS SYSTEM TO BE 460 VOLT, 3 PHASE, 4 WIRE.

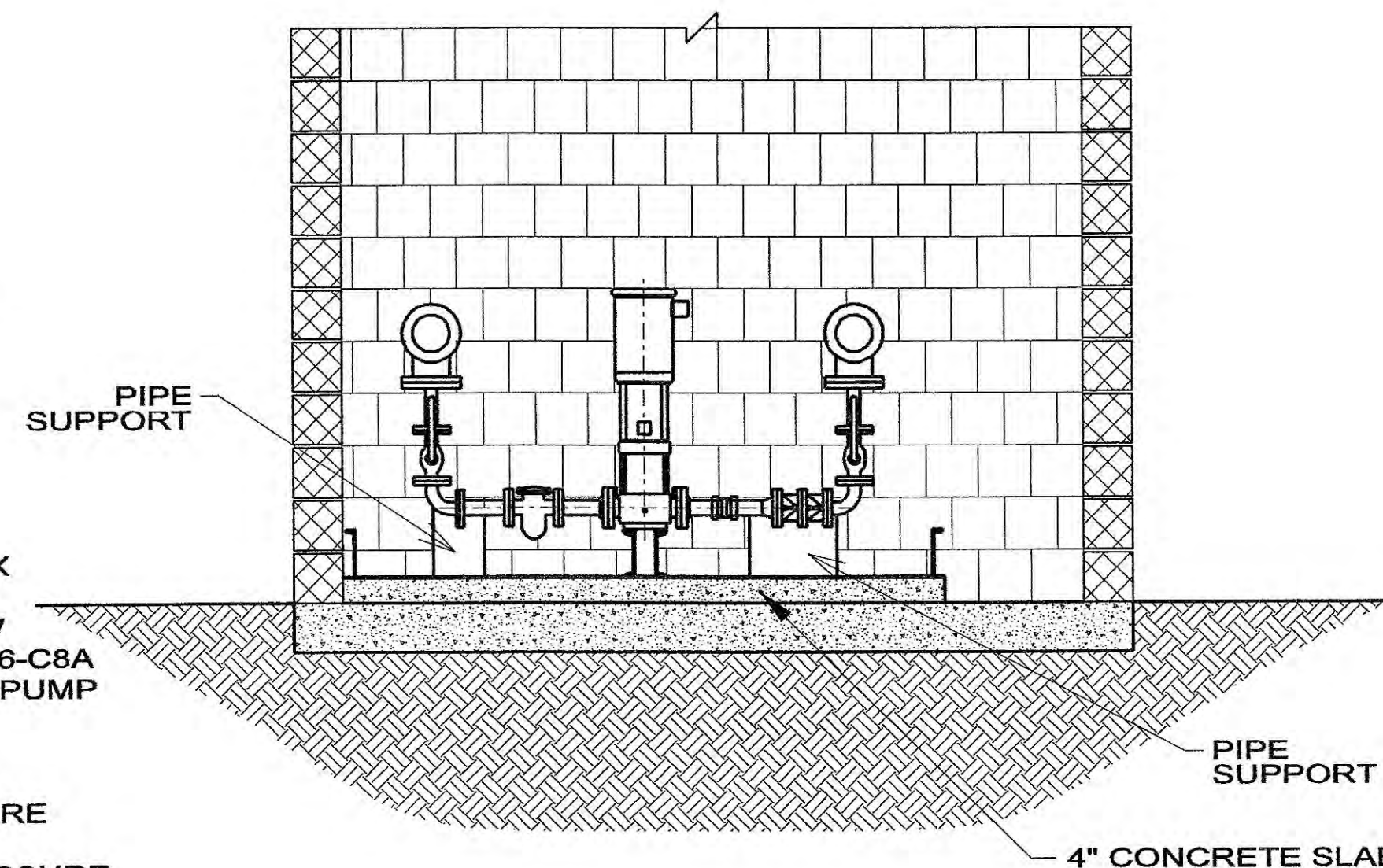
ELECTRICAL:

THE INCOMING SUPPLY TO THE BOOSTER PUMP CONTROL PANEL TO INCLUDE A METER BASE AND FUSABLE DISCONNECT THAT CAN BE POLE MOUNTED OR MOUNTED TO THE SIDE OF THE BUILDING. ALL UNDERGROUND CONDUIT TO THE METER BASE AND DISCONNECT, AND FROM THE PANEL TO THE PUMPING EQUIPMENT TO BE SCH. 80 PVC CONDUIT. AND TO CONTAIN ALL NECESSARY WIRING AND PRESSURE CONTROL LINES FOR NORMAL SYSTEM OPERATIONS.

TEMPORILY RELOCATE PUMP & PIPING AS REQUIRED TO FACILITATE NEW PUMP INSTALLATIONS PRIOR TO TOTAL DEMO, ALL PIPING & EQUIPMENT.

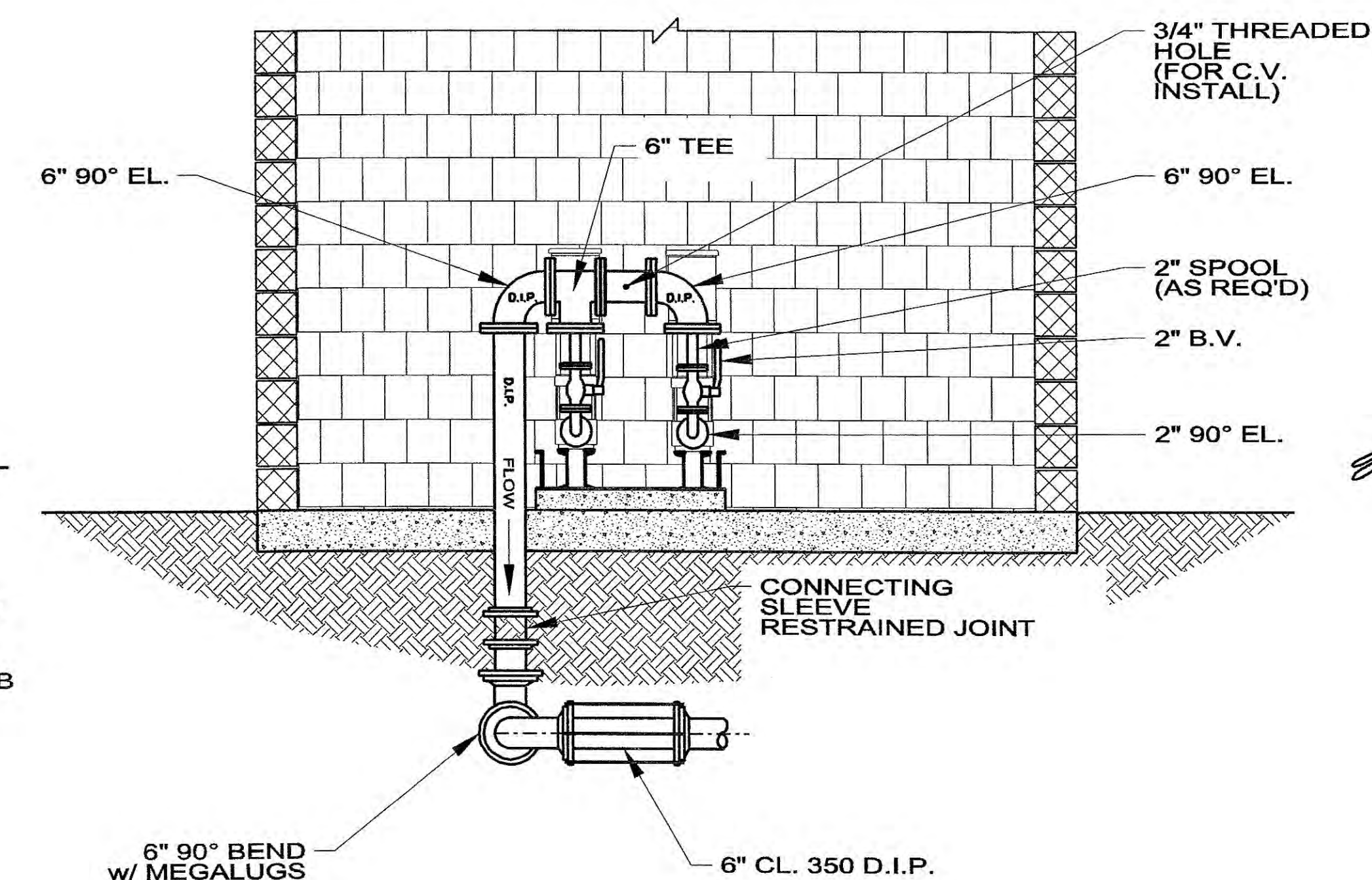


PROPOSED PUMPSTATION - PLAN

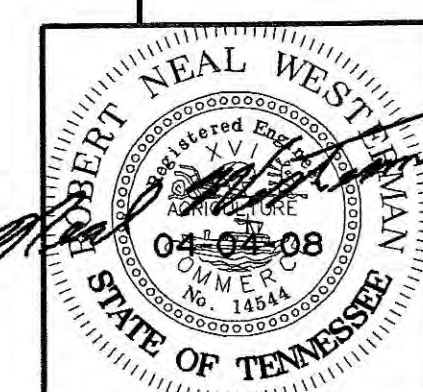


REINFORCED CONCRETE PAD ANCHOR BOLTS BY INSTALLING CONTRACTOR IN ACCORDANCE WITH DIMENSIONS SHOWN AND/OR AS DIRECTED BY THE ENGINEER.

SECTION B-B

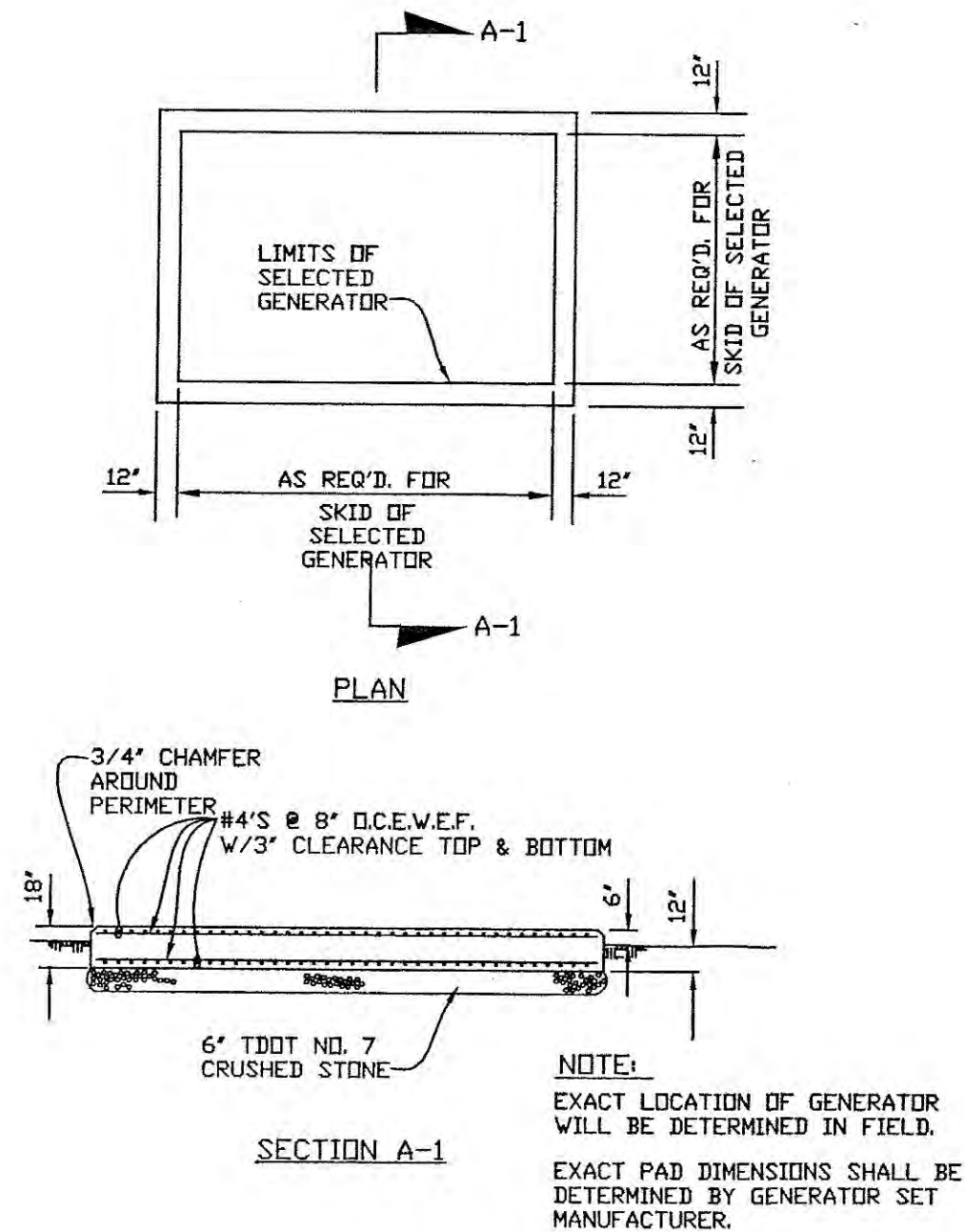


SECTION A-A

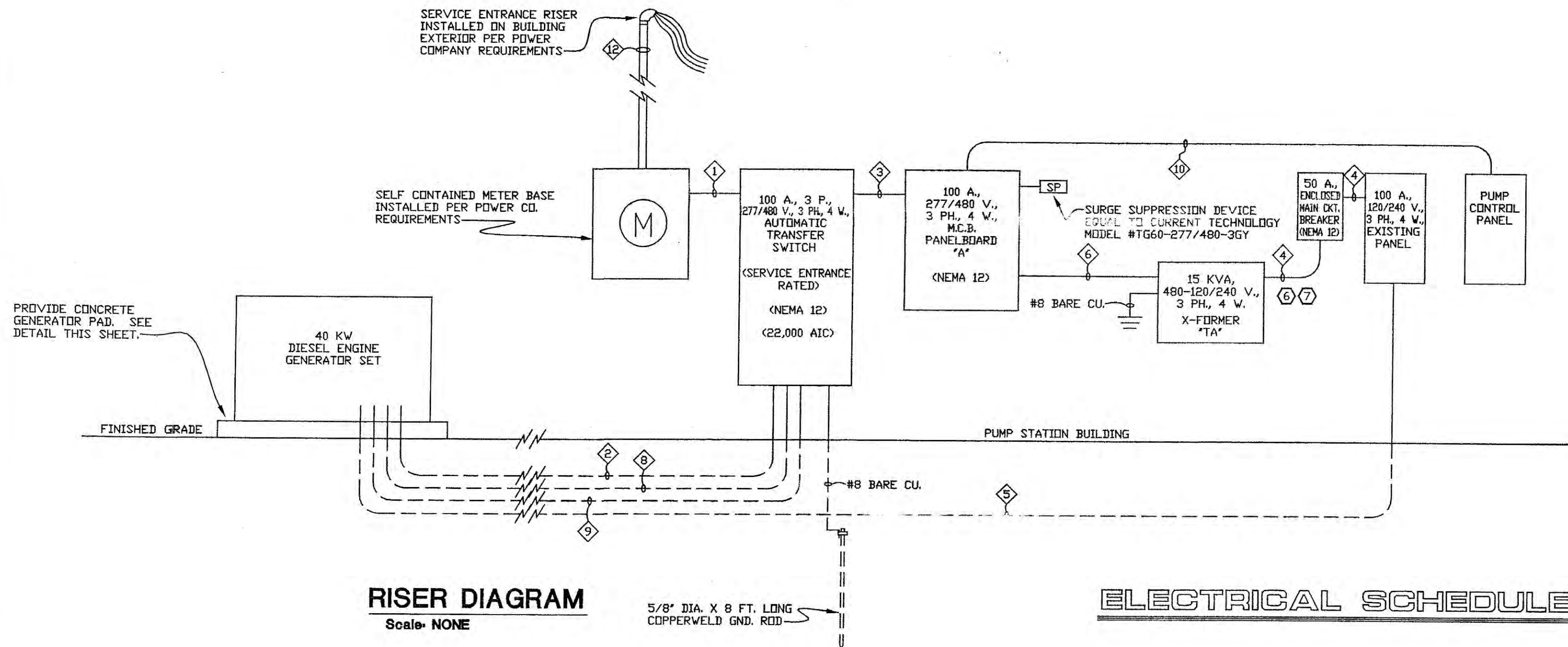


DESIGN	RNW
DRAWN	BKQ
CHECKED	RNW
DATE	FEB 2008
SCALE	1/2"=1'-0"
PROJECT NO.	07197
SHEET	

DIESEL ENGINE--GENERATOR SET SCHEDULE	
CONTINUOUS STANDBY RATING:	40 KW AT 0.80 PF, 50 KVA.
VOLTAGE & FREQUENCY:	277/480 VOLT, 3 PH., 4 WIRE, 60 HERTZ.
VOLTAGE REGULATION:	±0.5%
FREQUENCY VARIATION:	±0.25%
SKID MOUNTED FUEL TANK & SIZE:	DOUBLE WALL, 121 GALLON, SUB BASE, WITH LEAK DETECTOR
FUEL GRADE & TYPE:	NO. 2 DIESEL
ENGINE COOLING:	UNIT MOUNTED RADIATOR, HIGH AMBIENT -- 122 DEGREES F.(50C.)
ENGINE DISPLACEMENT & DESIGN:	269 C.I., 4 CYCLE, 4 CYLINDER, DIESEL
MANUFACTURER & CAT. NO.:	CATERPILLAR CAT. NO. D4P-4, WITH WEATHERPROOF HOUSING CAT. NO. CAWB.
NOTE: SEE DETAILED SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ACCESSORIES.	



CONCRETE GENERATOR PAD DETAIL
Scale: NONE



RISER DIAGRAM
Scale: NONE

TYPE:			SERVICE: 277/480 V., 3 PH., 4 W.			PANEL "A"			BUS AMPACITY: 100 A.			
POLES: 3									MAINS: 100 A.			
LOCATION: PUMP STATION									NEUTRAL: FULL			
☒ SURFACE ☐ FLUSH						* UNLESS OTHERWISE NOTED, SIZE CONDUITS PER NEC. BASE ON TYPE THHN.			SHORT CIRCUIT RATING: 22,000			
									☒ NEMA 12 ☐ NEMA 3R			
CKT. KVA		CB TRIP	CONDUIT	WIRE	LOAD NAME			LOAD NAME	WIRE	CB TRIP	CKT. KVA	
ΦA	ΦB	ΦC								ΦA	ΦB	ΦC
11.6	---	---	60/3	1" #6	PUMP CONTROL PANEL	1	2	SPARE		20/3	---	---
---	11.6	---		#6	PUMP CONTROL PANEL	3	4	SPARE			---	---
---	---	11.6		#6	PUMP CONTROL PANEL	5	6	SPARE			---	---
4.0	---	---	30/3	3/4" #10	TRANSFORMER 'TA'	7	8	SPACE			---	---
---	4.0	---		#10	TRANSFORMER 'TA'	9	10	SPACE			---	---
---	---	4.0		#10	TRANSFORMER 'TA'	11	12	SPACE			---	---
---	---	---			SPACE	13	14	SPACE			---	---
---	---	---			SPACE	15	16	SPACE			---	---
---	---	---			SPACE	17	18	SPACE			---	---
---	---	---			SPACE	19	20	SPACE			---	---
---	---	---			SPACE	21	22	SPACE			---	---
---	---	---			SPACE	23	24	SPACE			---	---
---	---	---			SPACE	25	26	T.V.S.S.		30/3	---	---
---	---	---			SPACE	27	28	T.V.S.S.			---	---
---	---	---			SPACE	29	30	T.V.S.S.			---	---
15.6	15.6	15.6	TOTAL CONNECTED KVA: 46.8									
										0.0	0.0	0.0

GENERAL SPECIFICATIONS

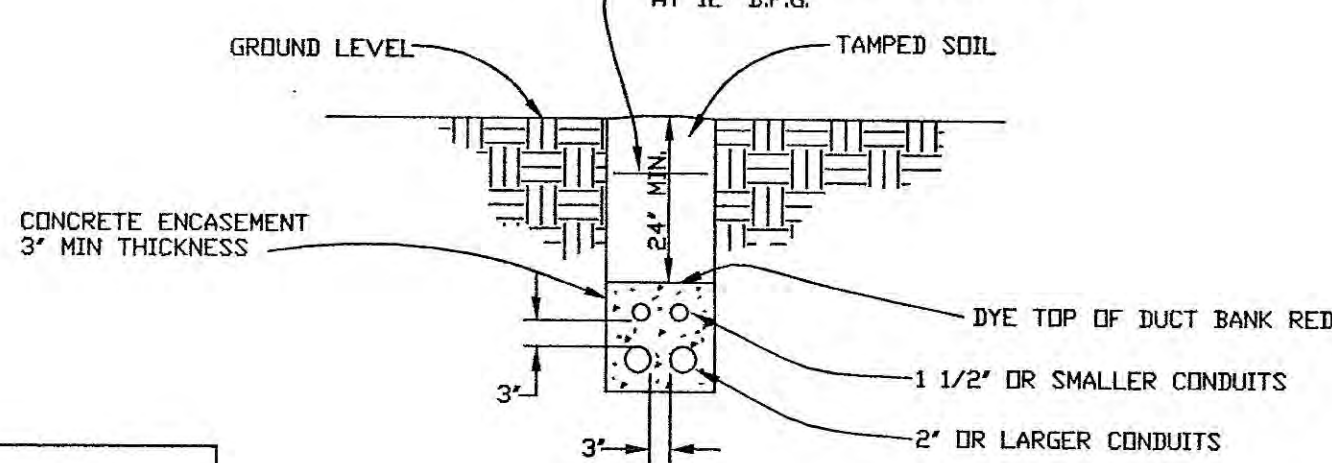
- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF THE PROPOSED WORK. THE CONTRACTOR SHALL NOT SCALE DRAWINGS FOR THE EXACT LOCATION OF EQUIPMENT AND WORK. THE EXACT LOCATION OF ALL PANELS AND EQUIPMENT TO BE CONFIRMED BY THE OWNER. THE CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED WORK TO INSURE PROPER INSTALLATION BEFORE FABRICATING AND INSTALLING ANY WORK.
- ALL WIRING SHALL BE TYPE THHN/THWN (90° C.) COPPER CONDUCTORS.
- ALL CONDUIT SHALL BE STANDARD RIGID GALVANIZED STEEL EXCEPT WHERE NOTED OTHERWISE ON THE DRAWINGS AND SPECIFIED HEREIN. USE PVC SCHEDULE 40 WHEN RUN UNDERGROUND. USE ONLY RIGID GALVANIZED WHEN EXPOSED. WHEN PVC CONDUIT IS USED, TURN UP WITH RIGID GALVANIZED ELBOWS AND PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ACCORDANCE WITH NEC ARTICLE 250.
- LIQUID TIGHT FLEXIBLE CONDUIT SHALL BE OF FLEXIBLE STEEL, SINGLE STRIP TYPE, MILD STEEL CONTINUOUS LENGTH OF UNIFORM WEIGHT AND THICKNESS WITH OUTER LIQUID TIGHT COVERING. MINIMUM SIZE SHALL BE 1/2", EXCEPT AS PERMITTED BY THE NEC.
- CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO WALLS, CEILINGS, BEAMS, OR COLUMNS, ETC. CONDUIT SHALL BE ADEQUATELY SUPPORTED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS. NO CONDUIT SHALL BE SUPPORTED BY THE EQUIPMENT TO WHICH IT IS CONNECTED.
- FINAL CONNECTION TO MOTORS SHALL BE MADE WITH FLEXIBLE STEEL CONDUIT. ALL WIRING SHALL BE COMPLETE TO MOTORS.
- FEEDER CABLES SHALL BE SPLICED ONLY AT TAP POINTS AS INDICATED ON THE DRAWINGS.
- ALL ELECTRICAL EQUIPMENT SUPPORTS AND CONDUIT SUPPORTS, ANCHORS, BOLTS, SCREWS, AND MOUNTING HARDWARE INCLUDING UNISTRUT, ANGLE IRON, AND STRUCTURAL MEMBERS SHALL BE STAINLESS STEEL OR ALUMINUM.
- SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, QUICK MAKE, QUICK BREAK WITH INTERLOCKING COVER. PROVIDE NEMA 4X, STAINLESS STEEL ENCLOSURE OR NEMA 3R ENCLOSURE AS NOTED ON THE PLANS. PROVIDE EQUIPMENT GROUND LUG IN EACH SWITCH.
- PANELBOARDS SHALL BE FACTORY ASSEMBLED, DEAD FRONT TYPE WITH COPPER BUS, LUGS, FINISH TRIM NEMA TYPE 12 AND THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS OF FRAME AND TRIP RATINGS SHOWN ON THE PLANS AS MANUFACTURED BY SQUARE D, SIEMENS OR CUTLER HAMMER.
- PANELBOARDS, POWER PANELS, SAFETY SWITCHES AND OTHER ELECTRICAL EQUIPMENT SHALL BE EQUIPPED WITH ENGRAVED LAMINATED PLATES SECURELY MOUNTED WITH SCREWS.
- PANELBOARDS SHALL BE LABELED PER THE DRAWING IDENTIFYING THE BRANCH CIRCUITS. ALL STARTERS, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES, ETC. SHALL IDENTIFY THE LOAD BEING FED.
- THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING MATERIALS AND EQUIPMENT MADE OBSOLETE BY, AND INTERFERING WITH THE ADDITIONS, ALTERATIONS, OR RAZING AS SHOWN ON THE PLANS AND SPECIFIED. MAINTAIN SUCH EXISTING EQUIPMENT AND MATERIALS INTACT AND IN EXISTING CONDITION INSOFAR AS POSSIBLE.
- ALL ELECTRICAL INSTALLATION SHALL BE MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND SUPPLEMENTS. ALL MATERIALS SHALL BEAR UNDERWRITER'S OFFICIAL LABELS WHERE SUCH LABELING IS CUSTOMARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COORDINATION OF REQUIRED ELECTRICAL INSPECTIONS AND ANY FEES AND CHARGES ASSOCIATED WITH THE INSPECTIONS.
- THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROCURE ALL PERMITS, CERTIFICATES AND LICENSE REQUIRED OF HIM BY LAW FOR THE EXECUTION OF HIS WORK. HE SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES OR RULES AND ANY REGULATIONS RELATING TO THE PERFORMANCE OF THE WORK.
- ALL CONDUITS SHALL HAVE INSTALLED A GREEN EQUIPMENT GROUNDING CONDUCTOR WHICH SHALL BE ATTACHED TO ALL FIXTURES, PANELS, DEVICES, ETC.
- THE CONTRACTOR SHALL WARRANT ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE BY THE OWNER.

TRANSFORMER SCHEDULE					
DESIG.	KVA	PHASE	VOLT-PR.	VOLT-SEC.	REMARKS
TA	15	3	480	120/240	WALL MOUNTED, LOAD-PANEL "A"

CONDUIT & WIRE DESIGNATION SCHEDULE	
DESIG.	DESCRIPTION
1	1 1/4" C., 4-#3 THHN/THWN CU.
2	1" C., 4-#6 THHN/THWN CU. & 1-#8 THHN/THWN CU. GND.
3	1 1/4" C., 4-#3 THHN/THWN CU. & 1-#8 THHN/THWN CU. GND.
4	3/4" C., 4-#8 THHN/THWN CU. & 1-#10 THHN/THWN CU. GND.
5	3/4" C., 4-#10 THHN/THWN CU. & 1-#10 THHN/THWN CU. GND.
6	3/4" C., 4-#10 THHN/THWN CU.
7	3/4" C., 3-#8 THHN/THWN CU. & 1-#10 THHN/THWN CU. GND.
8	3/4" C., J1939 TWISTED PAIR SHIELDED CABLE & 2-#14 THHN/THWN CU.
9	1" C., 12-#14 THHN/THWN CU.
10	1" C., 3-#6 THHN/THWN CU. & 1-#8 THHN/THWN CU. GND.
11	3/4" C., 2-#10 THHN/THWN CU. & 1-#10 THHN/THWN CU. GND.
12	2" C., 4-#3 THHN/THWN CU.

ELECTRICAL SCHEDULES, DETAILS, RISER DIAGRAM AND LEGEND

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	CONDUIT CONCEALED IN WALL OR CEILING
	CONDUIT CONCEALED IN FLOOR SLAB OR UNDERGROUND
	CONDUIT EXPOSED ON WALL OR CEILING
	FLEXIBLE CONDUIT
	WEATHERPROOF CABLE
	JUNCTION BOX
	SINGLE POLE SWITCH, 20 AMP, MTD. HT. PER SPECS.
	SWITCH - 3 WAY, 20 AMP, MTD. HT. PER SPECS.
	DOUBLE POLE, SINGLE THROW SWITCH, 20 AMP, MTD. HT. PER SPECS.
	MANUAL MOTOR SWITCH W/ THERMAL PROTECTION
	PHOTOELECTRIC CELL
	DUPLEX RECEPTACLE - MTD. HT. PER SPECS.
	DOUBLE DUPLEX RECEPTACLE - MTD. HT. PER SPECS.
	WEATHERPROOF DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTER TYPE
	DUPLEX RECEPTACLE, MTD. ABOVE COUNTER
	DOUBLE DUPLEX RECEPTACLE, MTD. ABOVE COUNTER
	230 VOLT RECEPTACLE
	DUPLEX RECEPTACLE - ISOLATED GROUND
	FLOOR RECEPTACLE
	FLOOR TYPE TELEPHONE OUTLET
	FLOOR TYPE TELEPHONE - COMPUTER/DATA OUTLET
	TELEPHONE OUTLET - MTG. HT. & CONDUIT SIZE PER SPECS.
	TELEPHONE OUTLET - MTD. ABOVE COUNTER, COND. SIZE PER SPECS.
	TELEVISION ANTENNA JACK
	COMPUTER TERMINAL OUTLET, 3/4" C. TO ACCESSIBLE CEILING SPACE
	SURFACE MOUNTED FIXTURE W/IDENTIFICATION, INCAND. PL. FLOOR, OR H.I.D.
	WALL BRACKET FIXTURE, INCANDESCENT OR PL. FLOOR, OR H.I.D.
	RECESSED FIXTURE, INCANDESCENT, FL. TYPE FLOOR, OR H.I.D.
	FLUORESCENT FIXTURE, SURFACE OR RECESSED, 2X2, 1X4, 2X4
	FLUORESCENT FIXTURE, OPEN TUBE STRIP, SURFACE MTD.
	DISCONNECT SWITCH, FUSIBLE, 30 AMP / 3 POLE
	DISCONNECT SWITCH, NON-FUSIBLE, 30 AMP / 3 POLE
	DISCONNECT SWITCH, NON-FUSIBLE, RAIN TIGHT, 30 AMP / 3 POLE
	EXHAUST FAN
	DISTRIBUTION PANEL
	EMERGENCY LIGHT
	EMERGENCY LIGHT / EXIT LIGHT COMBINATION
	EXIT LIGHT
	OUTSIDE LIGHTING FIXTURE, POLE TYPE
	MOTOR CONTROLLER OR STARTER
	COMBINATION STARTER AND DISCONNECT
	MOTOR W/ APPROXIMATE HORSEPOWER
	LIGHTING OR BRANCH CIRCUIT PANELBOARD
	WOOD POLE
	DESIGNATES NOTE NUMBER
	DUCT SMOKE DETECTOR



UNDERGROUND CONDUIT INSTALLATION DETAIL
Scale: NONE

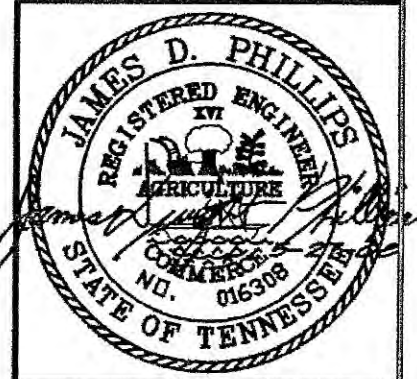
- NOTE:
- CONTACT ENGINEER FOR INSTALLATION DEPTH VARIATION IN AREAS CONTAINING BURIED PIPING AND OTHER STRUCTURES.
 - CONDUIT SEPARATION SHALL BE MAINTAINED BY USE OF PVC CONDUIT SPACERS.
- NOTES:
- THE EXACT AIC RATING OF THE AUTOMATIC TRANSFER SWITCH AND ALL PANELBOARDS SHALL BE COORDINATED WITH THE POWER COMPANY'S AVAILABLE FAULT CURRENT AND ADJUSTED ACCORDINGLY.
 - ALL PROPOSED POWER, CONTROL, AND SIGNAL WIRING AND CABLES SHALL BE PROPERLY IDENTIFIED AND LABELED WITH AN APPROVED MARKING SYSTEM AT ALL LOCATIONS AS CALLED FOR IN THE DETAILED SPECIFICATIONS. ALL POWER AND BRANCH CIRCUIT WIRING SHALL BE TAGGED TO MATCH MOTOR CONTROL CENTER OR PANEL SCHEDULES. ALL MOTOR LEAD WIRING SHALL BE TAGGED TO MATCH MOTOR NUMBERS WITH T1, T2, T3 IDENTIFYING EACH LEAD. ALL CONTROL AND SIGNAL WIRING SHALL BE TAGGED TO MATCH THE EQUIPMENT VENDOR'S DETAILED INTERCONNECTION DRAWINGS.
 - CONFIRM SERVICE ENTRANCE INSTALLATION WITH POWER CO. AND COMPLY WITH NECESSARY REQUIREMENTS.
 - COORDINATE EXACT DETAILS OF SERVICE ENTRANCE GROUNDING AND BONDING WITH LOCAL ELECTRICAL INSPECTOR AS REQUIRED PER NEC ARTICLE 250.
 - PROVIDE 4" HIGH CONCRETE PADS FOR ALL FLOOR MTD. ELECTRICAL EQUIPMENT AND ANCHOR ALL ELECTRICAL PANELS AND EQUIPMENT TO WALLS.
 - DO NOT CONNECT ANY 120 V., 1 PH., 1 POLE CIRCUITS TO THE "B" PHASE ON ANY THREE PHASE PANELBOARD.
 - IDENTIFY THE "B" PHASE OR "HI-LEG" CONDUCTOR BY AN OUTER FINISH THAT IS ORANGE IN COLOR AT EACH POINT WHERE A CONNECTION IS MADE IF THE NEUTRAL CONDUCTOR IS ALSO PRESENT.

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PUMP STATION
ELECTRICAL SCHEDULES, DETAILS,
RISER DIAGRAM AND LEGEND

HERITAGE HILLS
Roane County, Tennessee



DESIGN	JJP
DRAWN	JCB
CHECKED	JDP
DATE	FEB 2008
SCALE	NONE
PROJECT NO.	07197
SHEET	E2