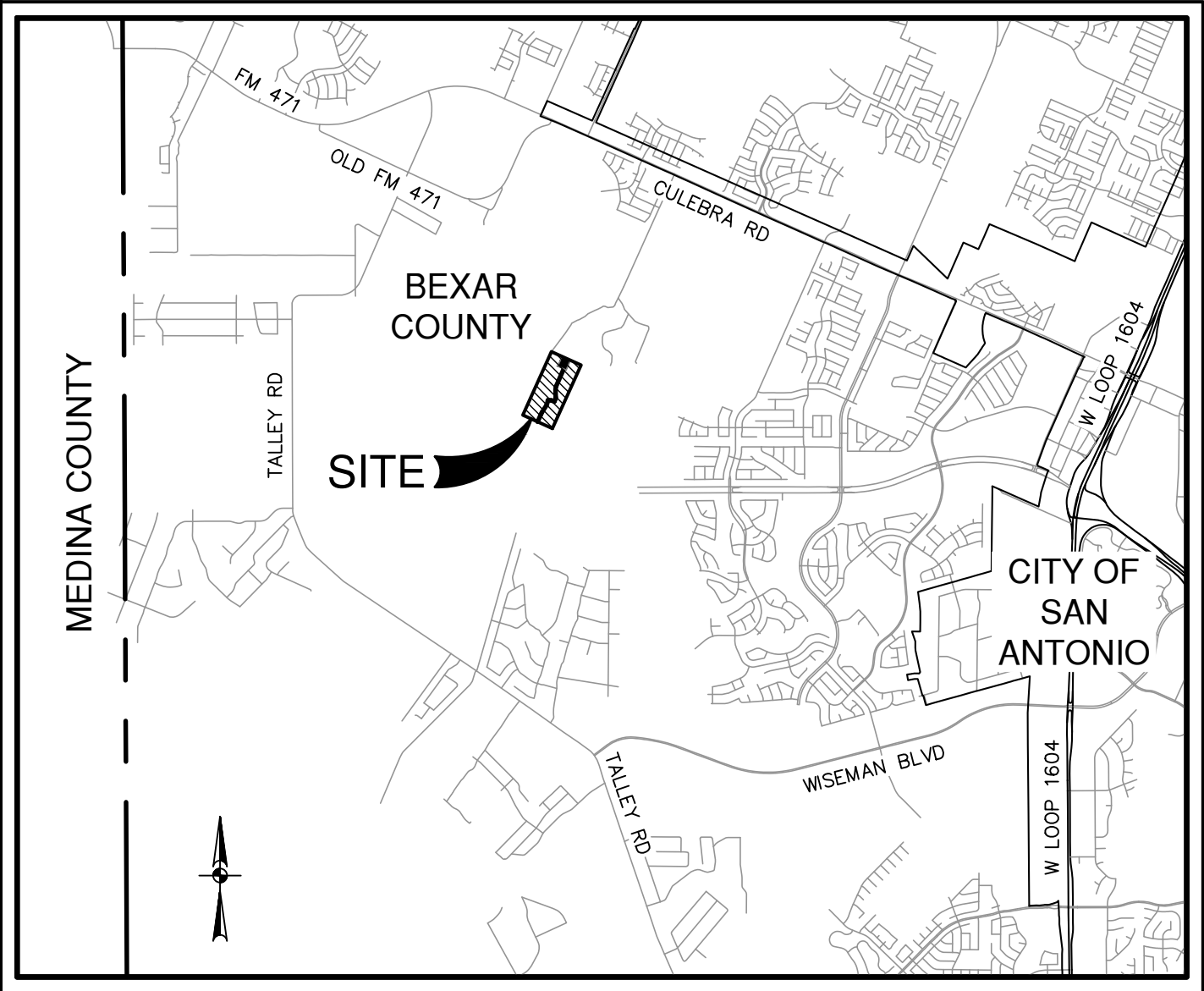


RIVERSTONE LIFT STATION POD F AND FORCE MAIN

BEXAR COUNTY, TEXAS

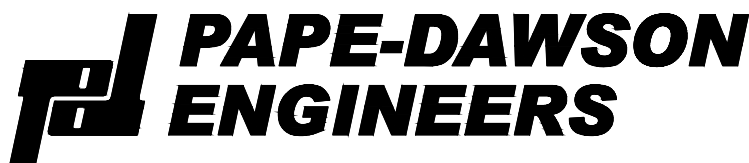
SAWS JOB NO. 21-1719



LOCATION MAP
N.T.S.

D.R. HORTON
211 NORTH LOOP 1604, SUITE 130
SAN ANTONIO, TEXAS 78232

AUGUST 2023



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



SHEET INDEX

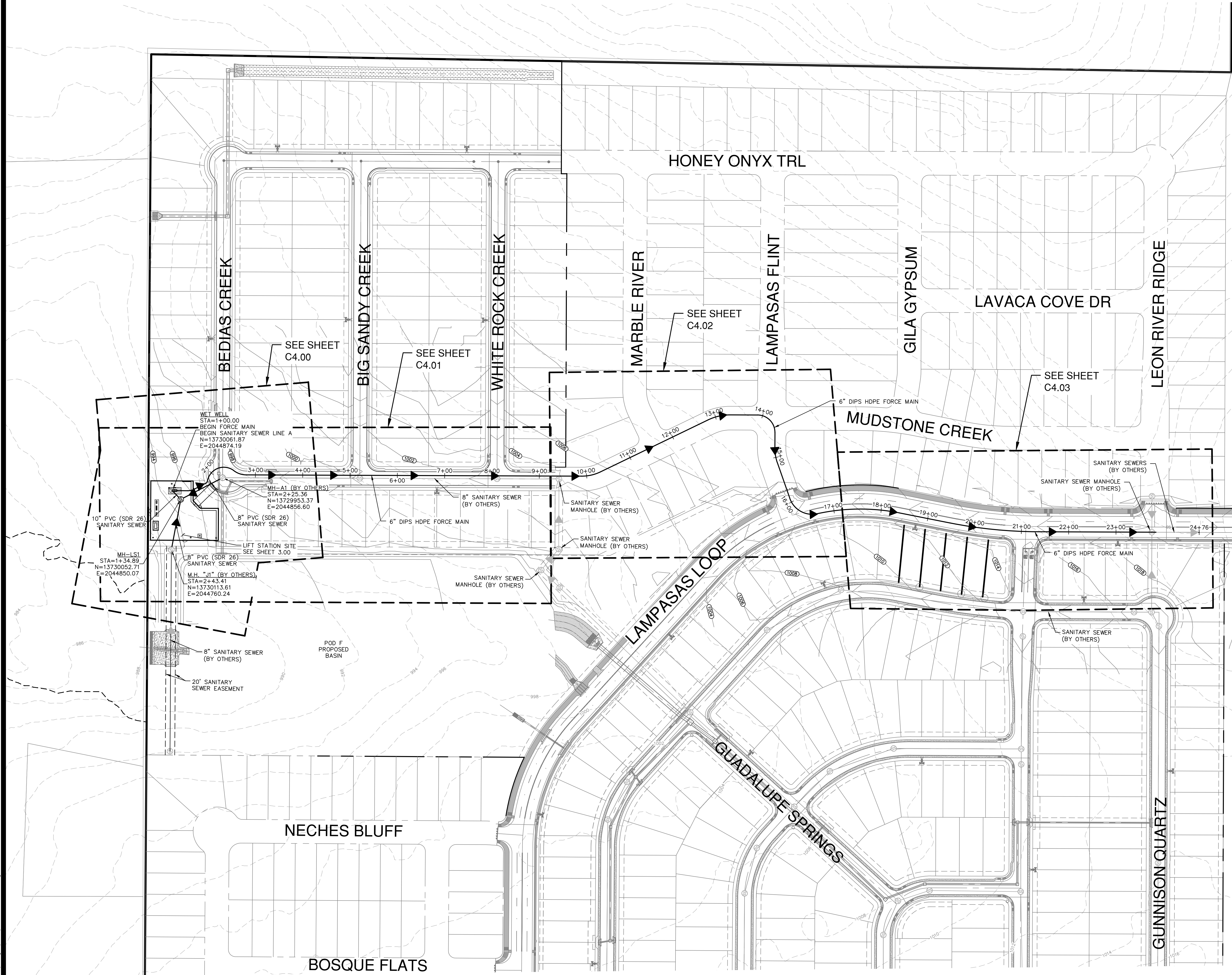
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OVERALL SEWER PLAN	C2.00
SITE PLAN	C3.00
DIMENSIONAL CONTROL PLAN	C3.01
SANITARY SEWER LINE A & LINE B PLAN AND PROFILE	C4.00
SANITARY SEWER FORCE MAIN PLAN AND PROFILE	C4.01
SANITARY SEWER FORCE MAIN PLAN AND PROFILE	C4.02
SANITARY SEWER FORCE MAIN PLAN AND PROFILE	C4.03
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LIFT STATION DETAILS	C5.01
LIFT STATION DETAILS	C5.02
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LIFT STATION JUNCTION BOXES AND INSTRUMENTATION	E12
LIFT STATION DUCTBANK AND GROUNDING DETAILS	E13
LIFT STATION GENERATOR DETAILS	E14
LIFT STATION P&ID	E15
STRUCTURAL	
NOTES, SECTIONS AND DETAILS	S1.00
PARTIAL SITE & FOUNDATION PLAN	S2.00
DETAILS AND CANOPY ROOF PLAN	S3.00

SHEET C0.00

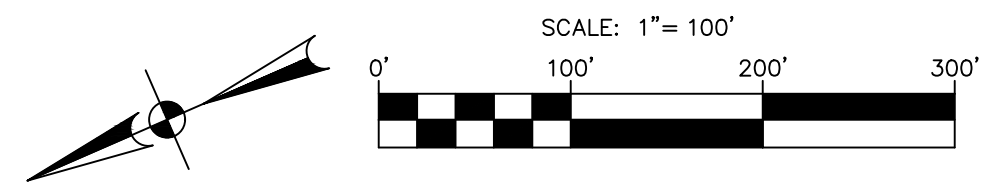
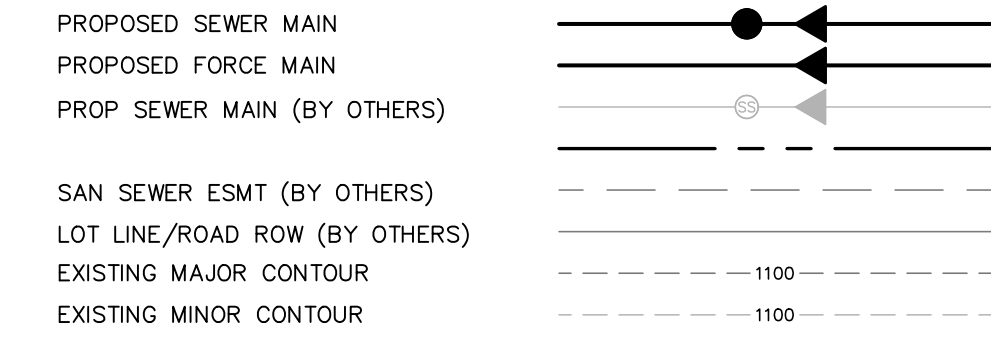
DEVELOPER'S NAME: D.R. HORTON	
ADDRESS: 211 NORTH LOOP 1604, SUITE 130	
CITY: SAN ANTONIO	STATE: TEXAS
PHONE #: (210) 496-2668	ZIP: 78232
TOTAL LINEAR FOOTAGE OF PIPE: 208 LF ~ 8" SS	FAX #: N/A
2,275 LF ~ 10" SS	TOTAL ACREAGE: 58
2,275 LF ~ 6" FM	TOTAL EDU'S: 560
SAWS BLOCK MAP: 074596, 074598	SAWS JOB NO.: 21-1719

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LEGEND



CAUTION OVERHEAD UTILITIES

CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUND ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH THE LOCAL UTILITY PROVIDER.

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HDPE PIPE & FITTINGS NOTE

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TRENCH EXCAVATION SAFETY PROTECTION

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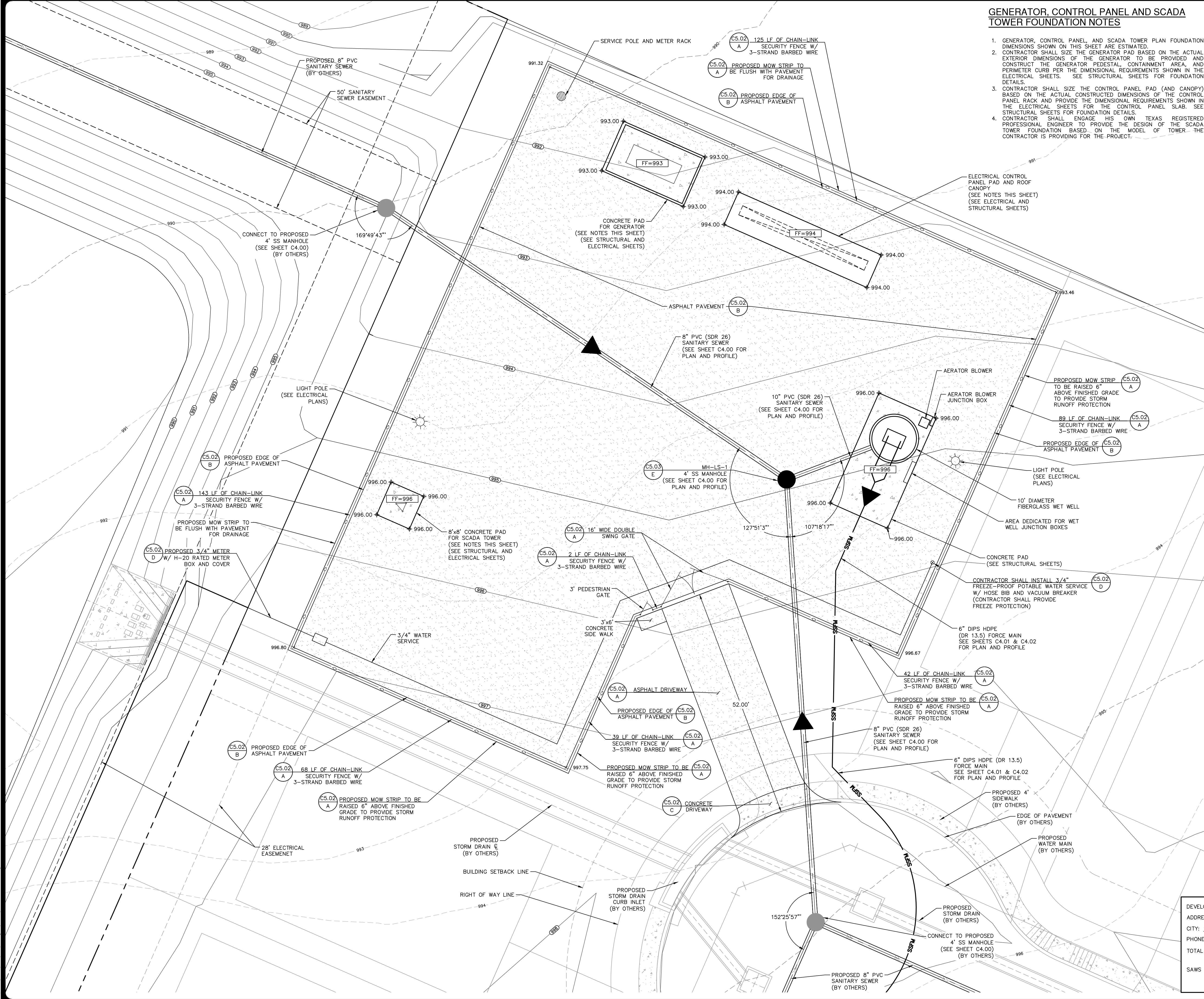


PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
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TPE FIRM REGISTRATION #470 | TPELS FIRM REGISTRATION #10028800

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS
OVERALL SEWER PLAN

SAWS JOB NO. 21-1719
JOB NO. 12175-01
DATE AUGUST 2023
DESIGNER JK
CHECKED RM DRAWN RJ
SHEET C2.00

Date: Aug 16, 2023, 11:27am User: ID: rchbajrjns
File: P:\21\25\01\Design\CHA\SP-1217501.dwg
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1. GENERATOR, CONTROL PANEL, AND SCADA TOWER PLAN FOUNDATION DIMENSIONS SHOWN ON THIS SHEET ARE ESTIMATED.

2. CONTRACTOR SHALL SIZE THE GENERATOR PAD BASED ON THE ACTUAL EXTERIOR DIMENSIONS OF THE GENERATOR TO BE PROVIDED AND CONSTRUCT THE GENERATOR PEDESTAL, CONTAINMENT AREA, AND PERIMETER CURB PER THE DIMENSIONAL REQUIREMENTS SHOWN IN THE ELECTRICAL SHEETS. SEE STRUCTURAL SHEETS FOR FOUNDATION DETAILS.

3. CONTRACTOR SHALL SIZE THE CONTROL PANEL PAD (AND CANOPY) BASED ON THE ACTUAL CONSTRUCTED DIMENSIONS OF THE CONTROL PANEL RACK AND PROVIDE THE DIMENSIONAL REQUIREMENTS SHOWN IN THE ELECTRICAL SHEETS FOR THE CONTROL PANEL SLAB. SEE STRUCTURAL SHEETS FOR FOUNDATION DETAILS.

4. CONTRACTOR SHALL ENGAGE HIS OWN TEXAS REGISTERED PROFESSIONAL ENGINEER TO PROVIDE THE DESIGN OF THE SCADA TOWER FOUNDATION BASED ON THE MODEL OF TOWER THE CONTRACTOR IS PROVIDING FOR THE PROJECT.

SCALE: 1"= 10'

0' 10' 20' 30'

LEGEND

PROPOSED GRAVITY MAIN

PROPOSED FORCE MAIN

ASPHALT PAVEMENT

CONCRETE PAD

FENCE

PROPOSED LIGHT POLE

PROPOSED ELECTRIC METER POLE

PROPERTY LINE

PROPOSED EASEMENT LINE

FINISHED FLOOR ELEVATION

EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

PROPOSED MAJOR CONTOUR

PROPOSED MINOR CONTOUR

CAUTION OVERHEAD UTILITIES

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CITY: SAN ANTONIO STATE: TEXAS ZIP: 78232

PHONE #: (210) 496-2668 FAX #: N/A

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SAWS BLOCK MAP: 074596, 074598

SAWS JOB NO.: 21-1719

TOTAL ACRES: 58

TOTAL EDU'S: 560

SAWS JOB NO.: 21-1719

DATE

NO. REVISION

STATE OF TEXAS

KIM KEEFER

117744

PROFESSIONAL ENGINEER

8/16/2023

PAPE-DAWSON

ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TYPE FIRM REGISTRATION #070 | TBPUS FIRM REGISTRATION #1008890

RIVERSTONE LIFT STATION POD F AND FORCE MAIN

BEXAR COUNTY, TEXAS

SITE PLAN

SAWS JOB NO. 21-1719

JOB NO. 12175-01

DATE AUGUST 2023

DESIGNER JK

CHECKED RM DRAWN RJ

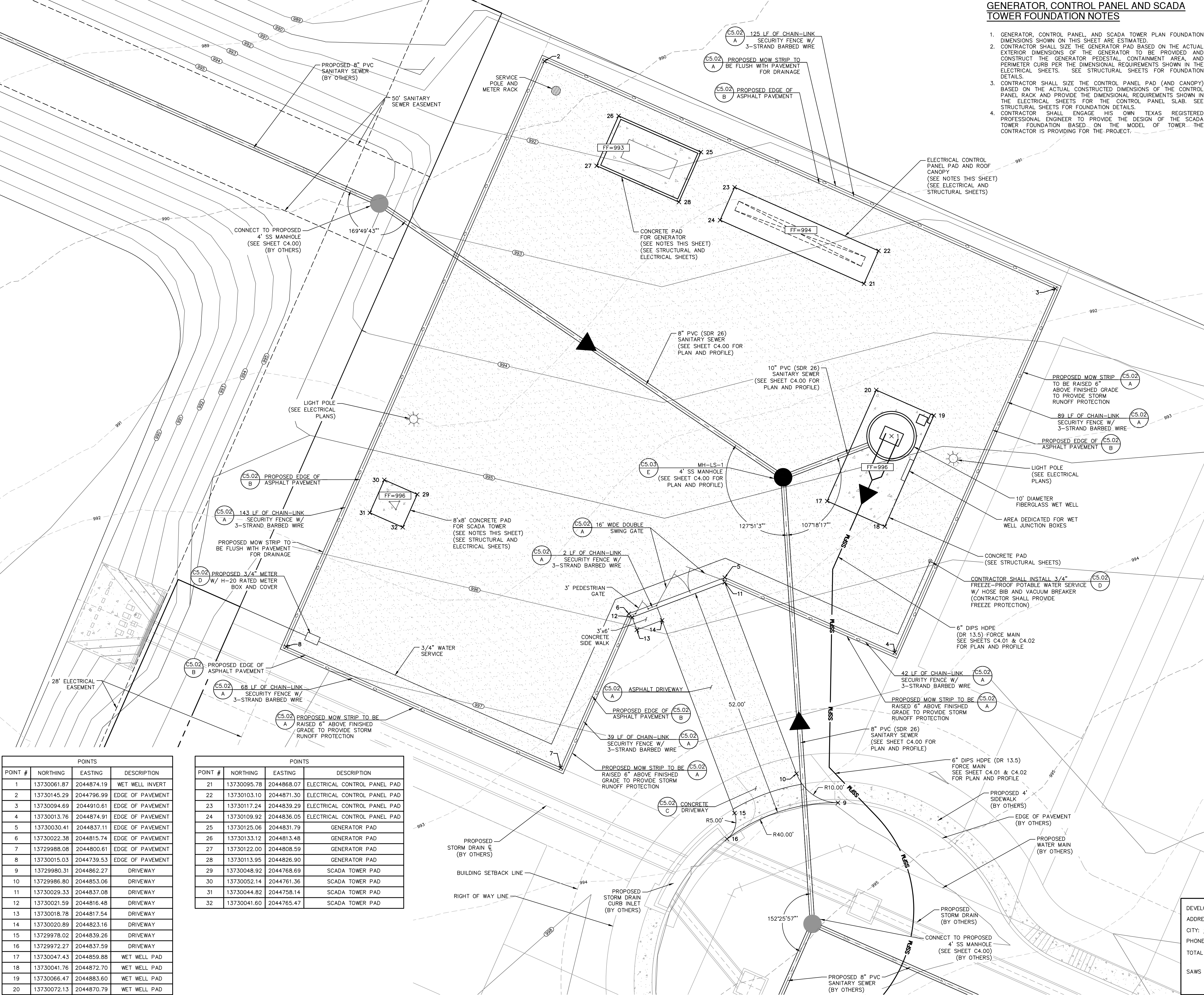
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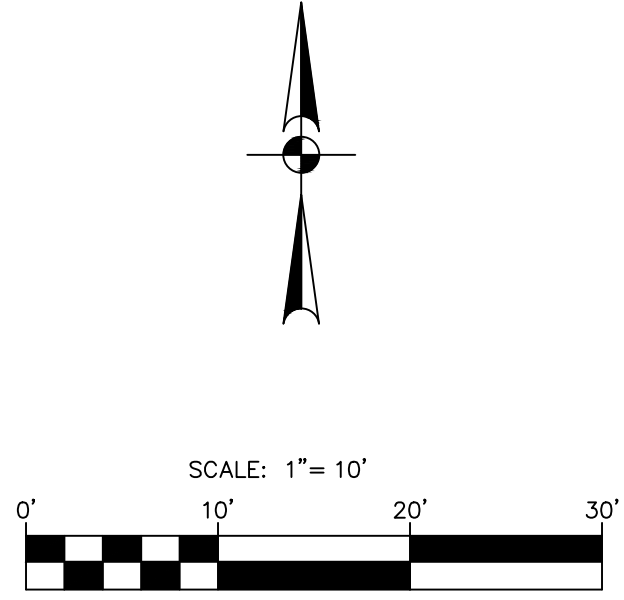
POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
1	13730061.87	2044874.19	WET WELL INVERT
2	13730145.29	2044796.99	EDGE OF PAVEMENT
3	13730094.69	2044910.61	EDGE OF PAVEMENT
4	13730013.76	2044874.91	EDGE OF PAVEMENT
5	13730030.41	2044837.11	EDGE OF PAVEMENT
6	13730022.38	2044815.74	EDGE OF PAVEMENT
7	13729988.08	2044800.61	EDGE OF PAVEMENT
8	13730015.03	2044739.53	EDGE OF PAVEMENT
9	13729980.31	2044862.27	DRIVEWAY
10	13729986.80	2044853.06	DRIVEWAY
11	13730029.33	2044837.08	DRIVEWAY
12	13730021.59	2044816.48	DRIVEWAY
13	13730018.78	2044817.54	DRIVEWAY
14	13730020.89	2044823.16	DRIVEWAY
15	13729978.02	2044839.26	DRIVEWAY
16	13729972.27	2044837.59	DRIVEWAY
17	13730047.43	2044859.88	WET WELL PAD
18	13730041.76	2044872.70	WET WELL PAD
19	13730066.47	2044883.60	WET WELL PAD
20	13730072.13	2044870.79	WET WELL PAD

POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
21	13730095.78	2044868.07	ELECTRICAL CONTROL PANEL PAD
22	13730103.10	2044871.30	ELECTRICAL CONTROL PANEL PAD
23	13730117.24	2044839.29	ELECTRICAL CONTROL PANEL PAD
24	13730109.92	2044836.05	ELECTRICAL CONTROL PANEL PAD
25	13730125.06	2044831.79	GENERATOR PAD
26	13730133.12	2044813.48	GENERATOR PAD
27	13730122.00	2044808.59	GENERATOR PAD
28	13730113.95	2044826.90	GENERATOR PAD
29	13730048.92	2044768.69	SCADA TOWER PAD
30	13730052.14	2044761.36	SCADA TOWER PAD
31	13730044.82	2044758.14	SCADA TOWER PAD
32	13730041.60	2044765.47	SCADA TOWER PAD



GENERATOR, CONTROL PANEL AND SCADA TOWER FOUNDATION NOTES

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LEGEND

PROPOSED GRAVITY MAIN	
PROPOSED FORCE MAIN	
ASPHALT PAVEMENT	
CONCRETE PAD	
FENCE	
PROPOSED LIGHT POLE	
PROPOSED ELECTRIC METER POLE	
PROPERTY LINE	
PROPOSED EASEMENT LINE	
FINISHED FLOOR ELEVATION	
EXISTING MAJOR CONTOUR	
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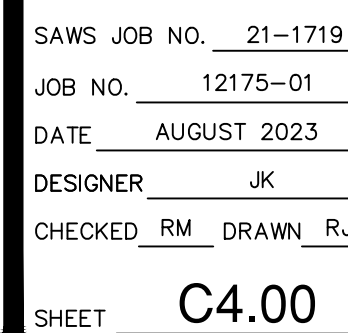
NO.	REVISION	DATE



PAPE-DAWSON ENGINEERS
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TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #1008880

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS
DIMENSIONAL CONTROL PLAN

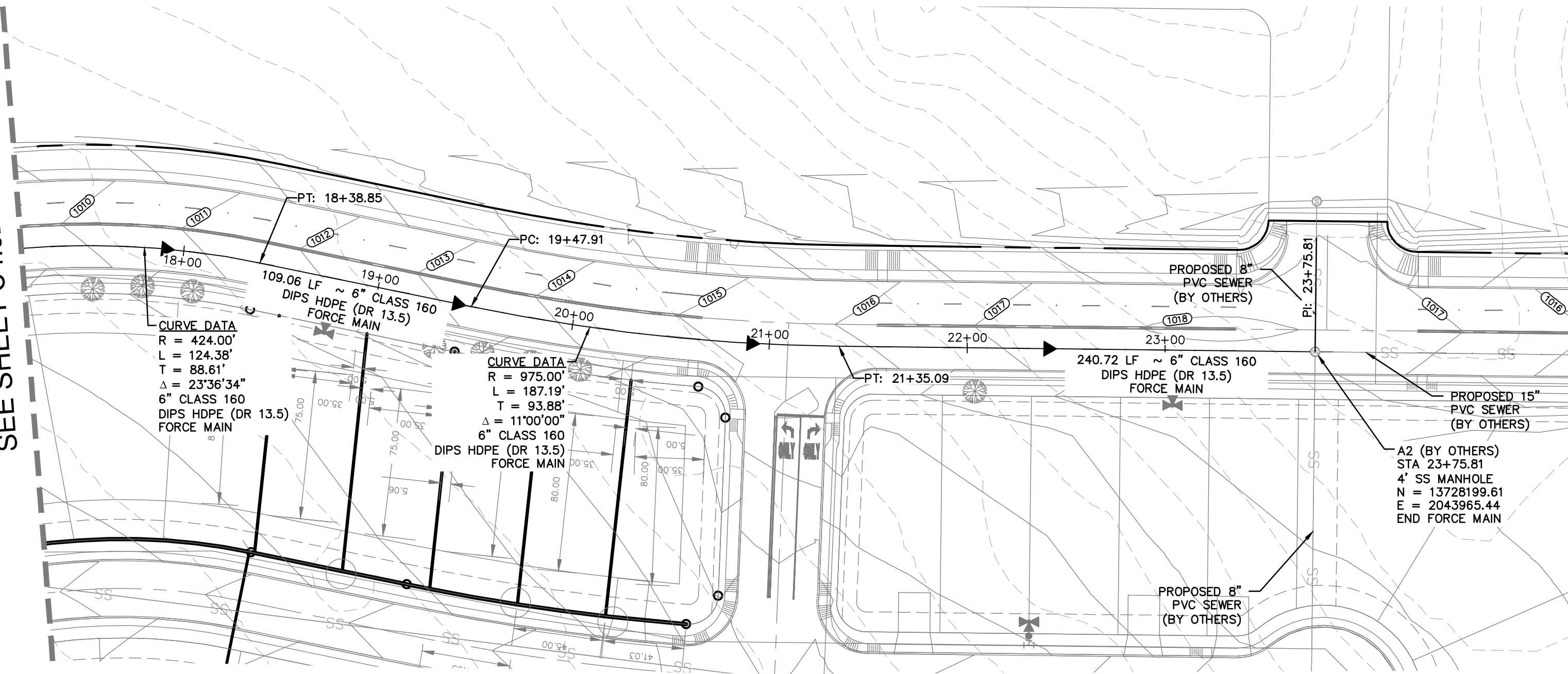
SAWS JOB NO.	21-1719
JOB NO.	12175-01
DATE	AUGUST 2023
DESIGNER	JK
CHECKED	RM
DRAWN	RJ
SHEET	C3.01



Date: Sep 12, 2023, 7:32am User: D: draughting
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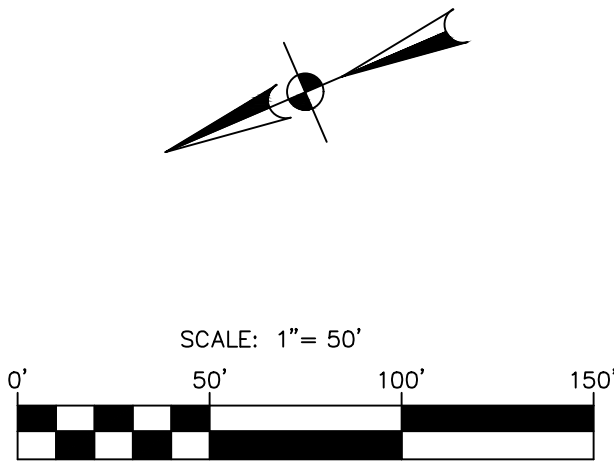
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MATCHLINE STA 17+00
SEE SHEET C4.02



LEGEND

PROPOSED SEWER MAIN	
PROPOSED FORCE MAIN	
PROP SEWER MAIN (BY OTHERS)	
PROP WATER MAIN	
PROPERTY LINE	
SAN SEWER ESMT (BY OTHERS)	
LOT LINE (BY OTHERS)	
EXISTING MAJOR CONTOUR	
EXISTING MINOR CONTOUR	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	



CAUTION OVERHEAD UTILITIES

CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUND ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH THE LOCAL UTILITY PROVIDER.

CAUTION UNDERGROUND UTILITIES

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE, AND FIBER OPTIC LINES, SITE LIGHTING, ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. THE CONTRACTOR MUST CONTACT 1-800-DIG-TESS AND CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION AND/OR START OF CONSTRUCTION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

COMPACTION NOTE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT A LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/ TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THE REQUIREMENT BEING MET AND VERIFIED BY PROVING ALL NECESSARY DOCUMENTED TEST RESULTS.

HDPE PIPE & FITTINGS NOTE

ALL HDPE PIPE AND FITTINGS SHALL BE FUSED UNLESS SHOWN OTHERWISE AND SHALL BE 6" DIPS HDPE PE 4710 (OR 13.5) FORCE MAIN.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/ EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

DEVELOPER'S NAME: D.R. HORTON

ADDRESS: 211 NORTH LOOP 1604, SUITE 130

CITY: SAN ANTONIO

STATE: TEXAS

ZIP: 78232

PHONE #: (210) 496-2668

FAX #: N/A

TOTAL LINEAR FOOTAGE OF PIPE: 208 LF ~ 6" SS

TOTAL ACREAGE: 58

26 LF ~ 10" SS

TOTAL EDU'S: 560

2,275 LF ~ 6" FM

SAWS BLOCK MAP: 074596, 074598

SAWS JOB NO.: 21-1719

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS

SANITARY SEWER FORCE MAIN PLAN AND PROFILE
STA. 17+00 TO STA. END

SAWS JOB NO. 21-1719

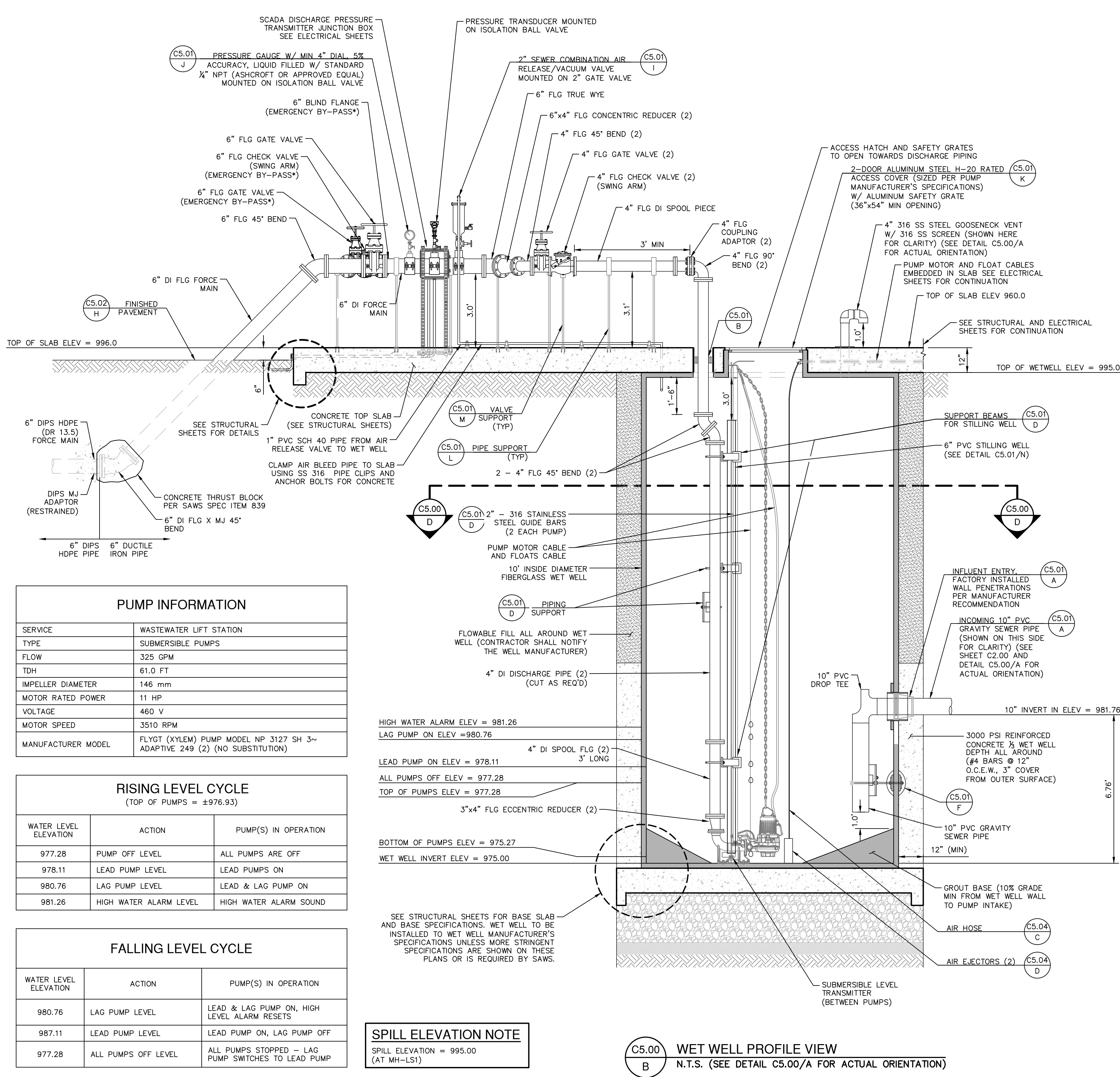
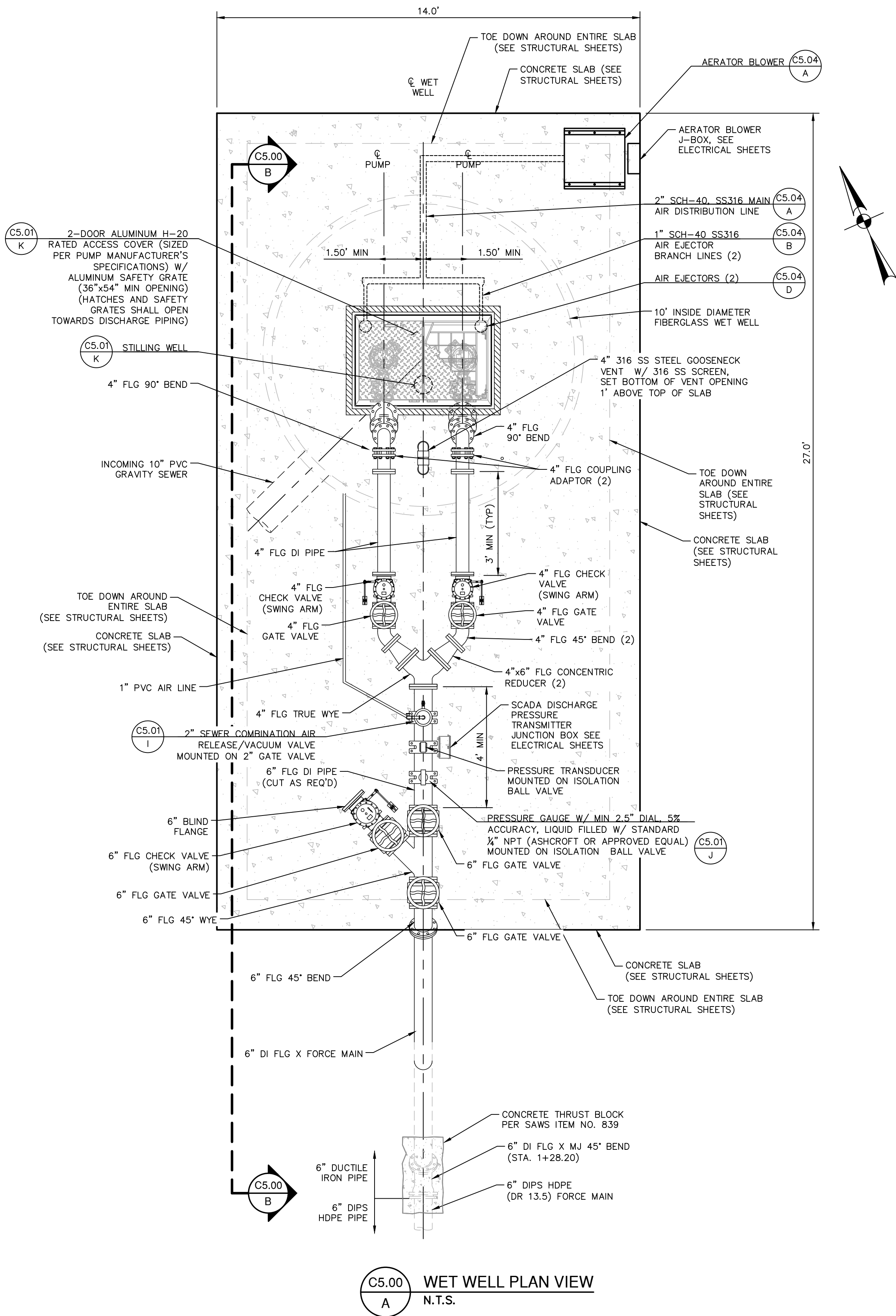
JOB NO. 12175-01

DATE SEPTEMBER 2023

DESIGNER JK

CHECKED RM DRAWN RJ

SHEET C4.03



PUMP INFORMATION	
SERVICE	WASTEWATER LIFT STATION
TYPE	SUBMERSIBLE PUMPS
FLOW	325 GPM
TDH	61.0 FT
IMPELLER DIAMETER	146 mm
MOTOR RATED POWER	11 HP
VOLTAGE	460 V
MOTOR SPEED	3510 RPM
MANUFACTURER MODEL	FLYGT (XYLEM) PUMP MODEL NP 3127 SH 3~ ADAPTIVE 249 (2) (NO SUBSTITUTION)

RISING LEVEL CYCLE (TOP OF PUMPS = ±976.93)		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
977.28	PUMP OFF LEVEL	ALL PUMPS ARE OFF
978.11	LEAD PUMP LEVEL	LEAD PUMPS ON
980.76	LAG PUMP LEVEL	LEAD & LAG PUMP ON
981.26	HIGH WATER ALARM LEVEL	HIGH WATER ALARM SOUND

FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
980.76	LAG PUMP LEVEL	LEAD & LAG PUMP ON, HIGH LEVEL ALARM RESETS
987.11	LEAD PUMP LEVEL	LEAD PUMP ON, LAG PUMP OFF
977.28	ALL PUMPS OFF LEVEL	ALL PUMPS STOPPED - LAG PUMP SWITCHES TO LEAD PUMP

SPILL ELEVATION NOTE
SPILL ELEVATION = 995.00
(AT MH-LS1)

WET WELL PROFILE VIEW
N.T.S. (SEE DETAIL C5.00/A FOR ACTUAL ORIENTATION)

NOTE TO CONTRACTOR

- NO MODIFICATIONS CAN BE MADE TO THE LIFT STATION PRIOR TO APPROVAL BY THE ENGINEER AND SAWS. CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE SAWS INSPECTOR WHEN LIFT STATION CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES.
- THE CONTRACTOR SHALL NOTIFY THE PROJECT GEOLOGIST AND TCEQ FOR OBSERVATION IF ANY SENSITIVE FEATURES ARE DISCOVERED IN ACCORDANCE WITH 30 TAC 213.5 (f)(2).
- WHEN LIFT STATION PUMPS ARRIVE AT THE SITE.
- PRIOR TO PLACEMENT OF HMA, AND CONCRETE DRIVEWAY.
- PIPELINE AND WET WELL HYDROSTATIC TESTING, FACILITY STARTUP, ALL FUNCTIONAL TESTING, PROJECT WALKTHROUGH(S), AND FINAL ACCEPTANCE.
- COMPLETION OF STRUCTURAL STEEL PLACEMENT AND ERECTION OF FORMS, BUT PRIOR TO CONCRETE PLACEMENT OF ALL CONCRETE FOUNDATIONS, AND PADS.
- UPON COMPLETION OF CONTROL PANEL CANOPY ERECTION.
- SEE SHEET E.2 FOR ELECTRICAL, AND SCADA CONSTRUCTION OBSERVATION MILESTONES.

WORK SHALL NOT CONTINUE ON THE LIFT STATION UNTIL THE ENGINEER AND SAWS HAVE HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND SAWS 48 HOURS ADVANCED NOTICE PRIOR TO THE TIME THAT THE LIFT STATION WILL BE AT THE REQUIRED STAGE.

NOTES

- EPOXY GROUT SEAL PIPING GOING THROUGH WALLS.
- WET WELLS MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC 213.5(c) (3) (E) AND 30 TAC 217.60 (b).
- ALL HARDWARE (BRACKETS, SCREWS, ETC.) IN WET WELL SHALL BE 316 STAINLESS STEEL.
- ALL EXPOSED PIPE, VALVES AND FITTINGS OUTSIDE THE WET WELL MUST RECEIVE, AFTER INSTALLATION, AN EPOXY COATING SYSTEM WITH A TOP COAT SYSTEM OF URETHANE SUITABLE FOR THE ENVIRONMENT. APPLY PANTONE 431U GRAY FINISH COAT. APPROVED MANUFACTURERS ARE TNEC, CARBOLINE, SHERWIN-WILLIAMS, PPG AND M.A.B. PAINTS.
- ALL PUMP DISCHARGE PIPE AND FITTINGS WITHIN WET WELL, EXCEPT SS 316, MUST RECEIVE, AFTER INSTALLATION, A 100% COAL TAR EPOXY COATING SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. APPROVED MANUFACTURERS ARE TNEC, CARBOLINE, SHERWIN-WILLIAMS, PPG AND M.A.B. PAINTS.
- ALL FORCE MAIN PIPING WITHIN LIFT STATION SITE SHALL BE RESTRAINED.
- TRACER WIRE SHALL BE BURIED AT A MAXIMUM DEPTH OF 4 FEET ALONG ENTIRE LENGTH OF FORCE MAIN. TRACER WIRE SHALL BE OF SOLID CORE (14 GAUGE INSULATION), AND SHALL BE CONNECTED TO THE MAIN AT 10' INCREMENTS. WIRE SHALL ALSO COME UP TO THE TOP OF AIR RELEASE, VACUUM VALVES, COMBINATION VALVES AND TOP OF GROUND AT LIFT STATION SITE AND AT THE DISCHARGE POINT.

BLOWER/AIR EJECTOR NOTES

- BLOWER MOTOR, AIR EJECTORS(2), AND AIR SUPPLY HOSES SHALL BE SUPPLIED BY RELIANT WATER TECHNOLOGIES (504-400-1239). BLOWER MOTOR, AIR EJECTORS(2), AIR SUPPLY HOSES, AND ALL OTHER EQUIPMENT SHALL BE INSTALLED PER RELIANT WATER TECHNOLOGIES RECOMMENDATIONS.
- BLOWER MOTOR SHALL BE FPZ MODEL R20-MD, 1.5 HP, 60 HZ, 460V.
- AIR EJECTORS SHALL BE PLACED ON A FLAT SURFACE OF THE WETWELL FLOOR.
- ALL AIR DISTRIBUTION PIPING, VALVES, AND HARDWARE SHALL BE 316SS.
- AIR DISTRIBUTION PIPING SHALL BE EMBEDDED WITHIN THE TOP WETWELL SLAB WITH A MINIMUM CONCRETE COVER OF 3"; AND SHALL BE PLACED SO AS NOT TO CONFLICT WITH ANY ELECTRICAL CONDUITS WITHIN THE SLAB.
- SEE THIS SHEET AND C5.04 FOR DETAILS

RESTRAINED NOTE
ALL DI FORCE MAIN PIPING SHALL BE FLANGED. ALL HDPE FORCE MAIN PIPING SHALL BE FUSED.

FREEZE PROTECTION NOTE
ALL ABOVE-GROUND PIPING 6" AND SMALLER SHALL HAVE FREEZE PROTECTION CONSISTING OF FOAM TUBING INSULATION.

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2,275 LF ~ 6" FM TOTAL EDU'S: 560
SAWS BLOCK MAP: 074596_074598 SAWS JOB NO.: 21-1719

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS

LIFT STATION PLAN AND PROFILE VIEW DETAILS

SAWS JOB NO. 21-1719
JOB NO. 12175-01
DATE AUGUST 2023
DESIGNER JK
CHECKED RM DRAWN RJ
SHEET C5.00

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TPE FIRM REGISTRATION #270 | TPELS FIRM REGISTRATION #10028890

STATE OF TEXAS
KIM KEEFER
117744
LICENSED PROFESSIONAL ENGINEER
8/16/2023

DATE	NO.	REVISION

C5.01 WET WELL INFLOW PENETRATION DETAIL
A N.T.S.

DISCHARGE PIPE PENETRATION DETAIL

C5.01 PLATES DETAIL
E N.T.S.

C5.01 D	WET WELL PIPING SUPPORT DETAIL N.T.S.
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C5.01 WET WELL SECTION
C N.T.S.

C5.01 INFLOW TOP VIEW DETAIL
F N.T.S.

C5.01 INSERTA-TEE DETAIL
G N.T.S.

C5.01 LINK SEAL DETAIL
H N.T.S.

AIR/VACUUM RELEASE
VALVE INSTALLATION DETAIL
N.T.S.


 PRESSURE GAUGE
 INSTALLATION DETAIL
 N.T.S.

C5.01 ACCESS COVER W/ SAFETY GRATE DETAIL
K N.T.S.

SECTION VIEW

C5.01 PIPE SUPPORT DETAIL
N.T.S.

SECTION VIEW

C5.01 VALVE SUPPORT DETAIL
M N.T.S.

C5.01 N	STILLING WELL AND LEVEL TRANSDUCER DETAIL N.T.S.
------------	---


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RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS

LIFT STATION DETAILS

**PAPE-DAWSON
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2020000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TPOE FIRM REGISTRATION #201 TPOE FIRM REGISTRATION #1029460

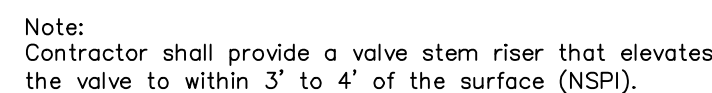
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SAWS JOB NO. 21-1719
JOB NO. 12175-01
DATE AUGUST 2023
DESIGNER JK
CHECKED RM DRAWN R
SHEET C5.01

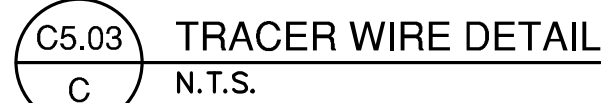
1. DEPTH OF GRAVEL SUBGRADE FILLER TO BE DETERMINED IN FIELD BY OWNER IN CONDITIONS WHERE TRENCH BOTTOM IS UNSTABLE.
2. BEDDING SHALL HAVE A MINIMUM THICKNESS OF 6-INCHES BELOW OUTSIDE DIAMETER OF PIPE AND BE PLACED AND SHAPED TO CONFORM TO PIPE BARREL AND BELL OR FLANGES SUCH THAT THE ENTIRE LENGTH OF THE BARREL IS SUPPORTED BY THE BEDDING MATERIAL, NO SEPARATE PAY ITEM (NSPI).
3. INITIAL BACKFILL TO BE A MINIMUM OF 1-FOOT ABOVE OUTSIDE DIAMETER OF PIPE PLACED WITH A TEMPORARY SHIELD OVER THE PIPE TO PROTECT THE PIPE COATING AND/OR POLYWRAP, NO SEPARATE PAY ITEM (NSPI).
4. ALL BEDDING OR GRAVEL SUBGRADE FILLER IF USED TO BE PLACED ON UNDISTURBED SOILS.
5. CONTRACTOR SHALL INCORPORATE THE USE OF A TRENCH BOX OR OTHER ACCEPTABLE SAFETY SYSTEM IN ANY TRENCH THAT EXCEEDS FIVE (5) FEET IN DEPTH.
6. ALL BACKFILL SHALL BE COMPACTED TO 98% OF THE MAXIMUM DRY DENSITY OR DETERMINED BY TxDOT TEST METHOD TEX-113E.



C5.03 TYPICAL TRENCH INSTALLATION DETAIL
A N.T.S.

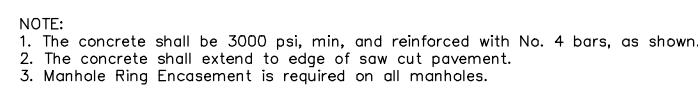


C5.03 B	INSTALLATION OF BURIED PLUG VALVE WITH VALVE BOX AND EXTENSION DETAIL
	N.T.S.



TRACER WIRE NOTE

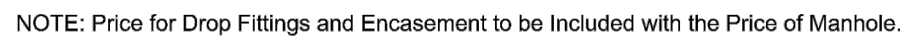
TRACER WIRE SHALL BE UTILIZED FOR LOCATION PURPOSES. TRACER WIRE SHALL BE OF SOLID CORE (14 GAUGE INSULATED) AND SHALL BE TAPED TO THE MAIN A MINIMUM OF 10" INCREMENTS. WIRE SHALL ALSO COME UP TO THE TOP OF AIR RELEASE, VACUUM VALVES, TOP OF GROUND AT LIFT STATION, AND AT THE MAIN DISCHARGE POINT.



C5.03 MANHOLE RING ENCASEMENT DETAIL
G N.T.S.



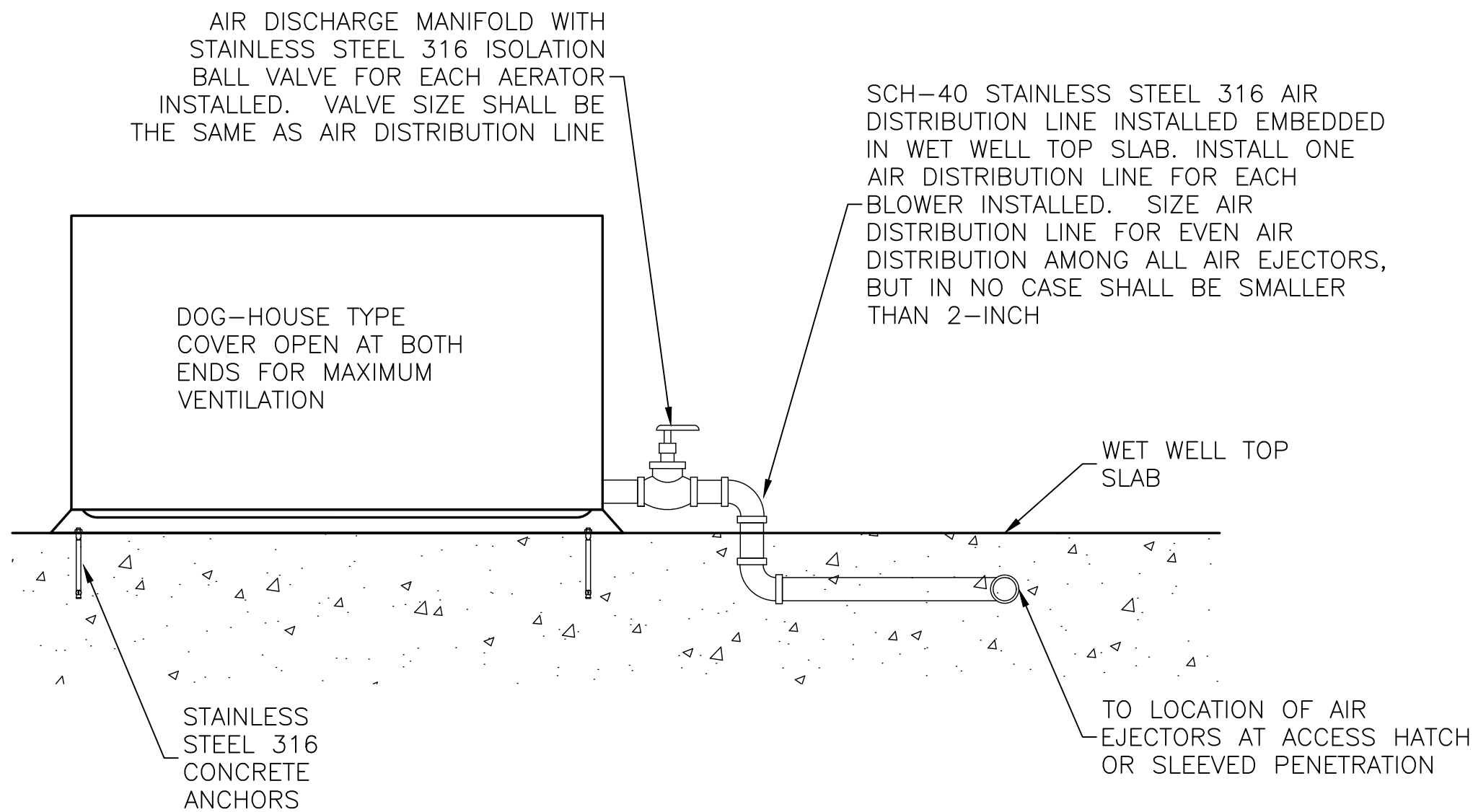
* ALL FITTINGS SHALL BE FUSIBLE HDPE
FITTINGS PRESSURE RATINGS OF ALL
FITTINGS SHALL BE EQUAL TO OR GREATER
THAN THE FORCE MAIN PIPING. THE
CONTRACTOR MAY ELECT TO BEND THE PIPE.



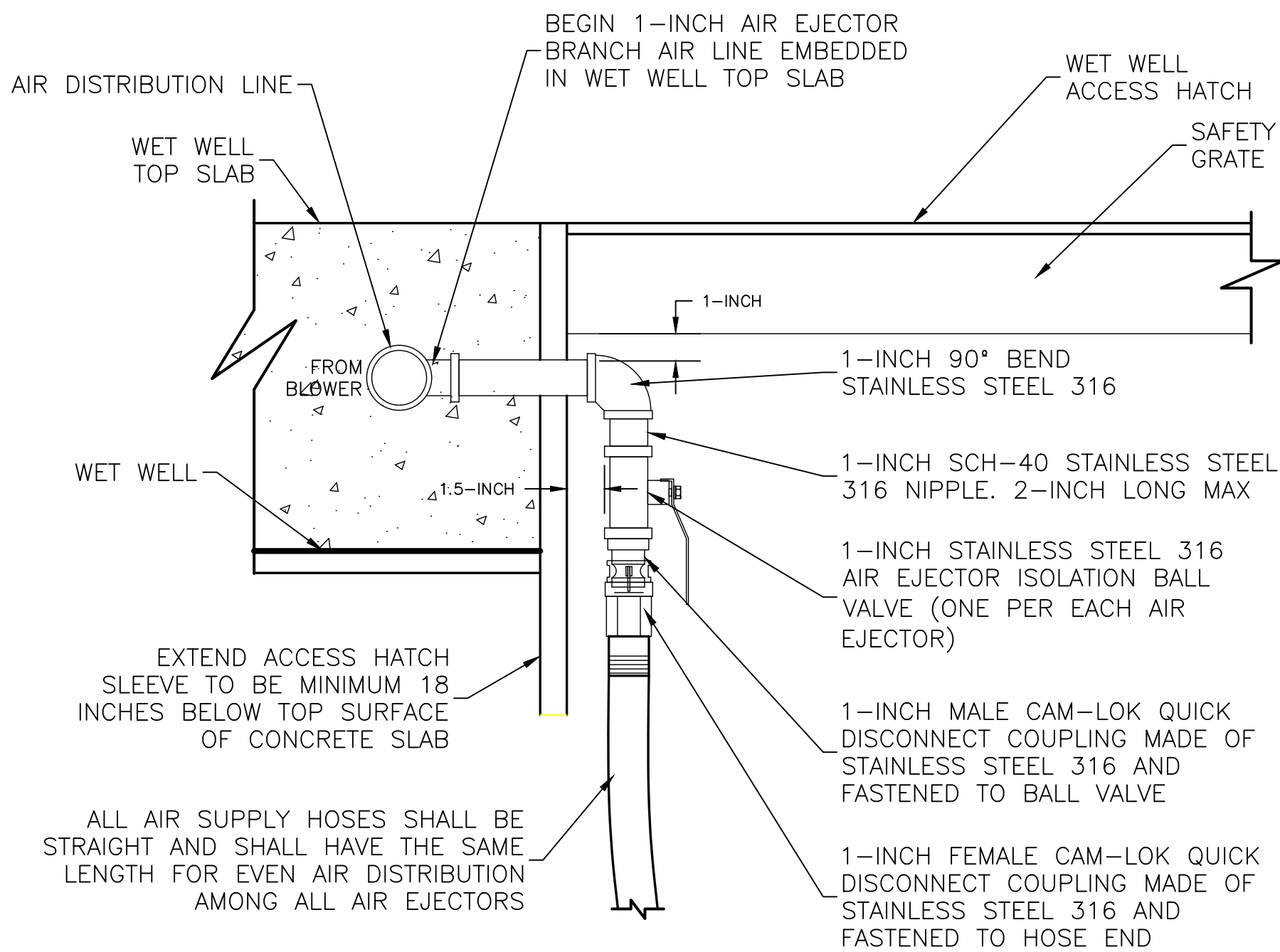
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	DROP MANHOLE DETAIL	APPROVED	REVISED
		MARCH 2008	AUG 2019
		<i>DD-852-08</i>	

SHEET
 1 OF 1

DEVELOPER'S NAME: D.R. HORTON
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CITY: SAN ANTONIO STATE: TEXAS ZIP: 78232
PHONE #: (210) 496-2668 FAX #: N/A
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SAWS BLOCK MAP: 074596, 074598 SAWS JOB NO.: 21-1719

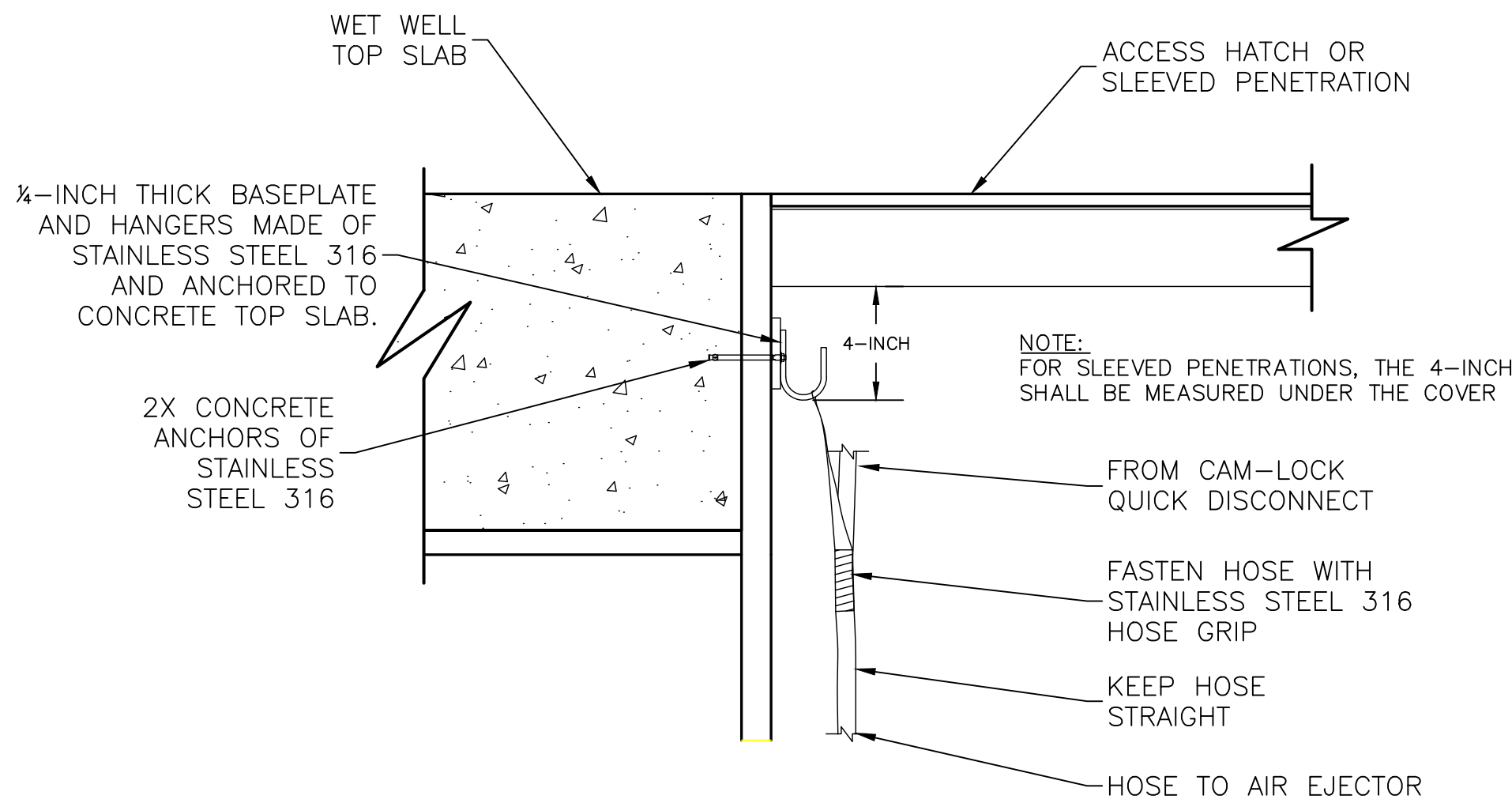


C5.04 AERATOR BLOWER INSTALLATION
A N.T.S.



C5.04 AIR EJECTOR BRANCH LINE HOSE AND INSTALLATION ACCESS HATCH
B N.T.S.

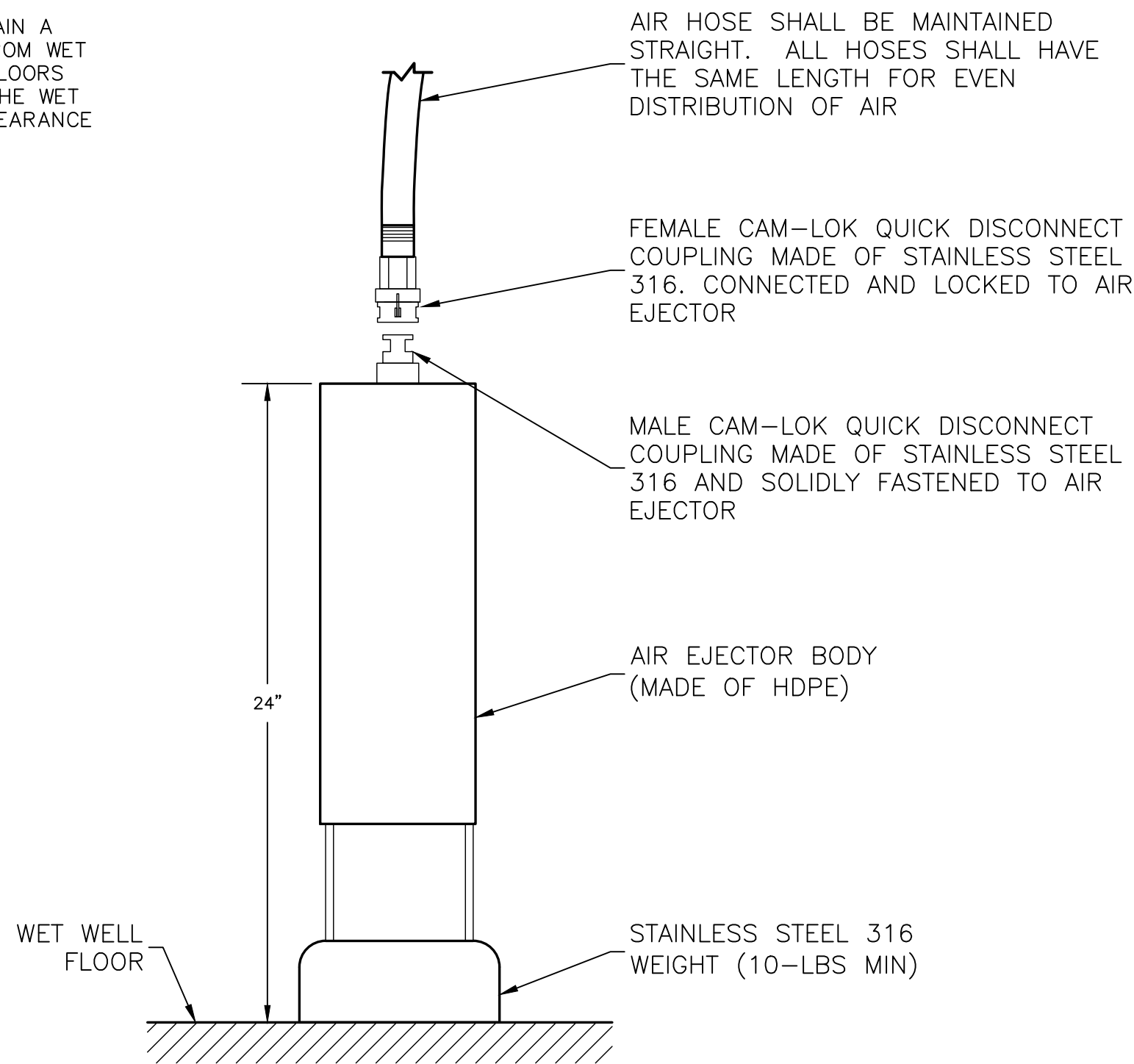
NOTE:
HANGER SHALL BE LOCATED ADJACENT TO BALL VALVE AND WITHOUT OBSTRUCTING THE BALL VALVE AND THE AIR EJECTOR



C5.04 AIR EJECTOR AIR HOSE HANGER DETAIL
C N.T.S.

NOTE:

ALL AIR EJECTORS SHALL MAINTAIN A 12-INCH MINIMUM CLEARANCE FROM WET WELL WALL, SLOPED WET WELL FLOORS, PUMPS AND ANY ITEMS WITHIN THE WET WELL, AND 24-INCH MINIMUM CLEARANCE AMONG OTHER AIR EJECTORS.



C5.04 AIR EJECTOR INSTALLATION DETAIL
D N.T.S.

NOTES:

- WHERE POSSIBLE, AIR EJECTORS SHALL TERMINATE AT ACCESS HATCHES. ANY AIR EJECTOR THAT CANNOT TERMINATE AT A WET WELL ACCESS HATCH SHALL TERMINATE AT A DEDICATED SLEEVED PENETRATION 12-INCH DIAMETER AND SHALL BE PROVIDED WITH A HEAVY DUTY POLYETHYLENE COVER FLUSHED WITH THE TOP SLAB SURFACE.
- THE LOCATION OF ALL AIR EJECTORS AND ASSOCIATED BRANCH LINES, VALVES, FITTINGS AND HANGERS SHALL BE LOCATED IN A DEDICATED AREA THAT IS FREE OF CONDUITS, CABLES, LIFTING CHAINS, TRANSDUCERS, GUIDERAILS, AND BE SET IN A MANNER THAT NO OBSTRUCTION WILL OCCUR WHEN INSTALLING AND REMOVING PUMPS, FLOATS AND LEVEL TRANSDUCERS.
- ALL PIPING, VALVES AND FITTINGS USED FOR BOTH AIR DISTRIBUTION LINES AND AIR EJECTOR BRANCH LINES SHALL BE SCHEDULE 40, THREADED AND BE MADE OF STAINLESS STEEL 316.
- ALL ANCHOR BOLTS, STRUT CHANNELS, PIPE CLAMPS AND FASTENERS USED FOR INSTALLATION OF THE AERATOR SYSTEM SHALL BE MADE OF STAINLESS STEEL 316.
- ALL THREADED JOINTS SHALL BE SEALED WITH SUFFICIENT TEFLON TAPE TO PREVENT AIR LEAK.
- THE HANGER FOR HOSE SHALL BE SET IN A MANNER THAT THE AIR HOSE IS MAINTAINED STRAIGHT AND WITHOUT BENDS. ALL HOSES SHALL HAVE THE SAME LENGTH.

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #070 | TBPUS FIRM REGISTRATION #10088800

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS

FORCE MAIN AND SANITARY SEWER DETAILS II

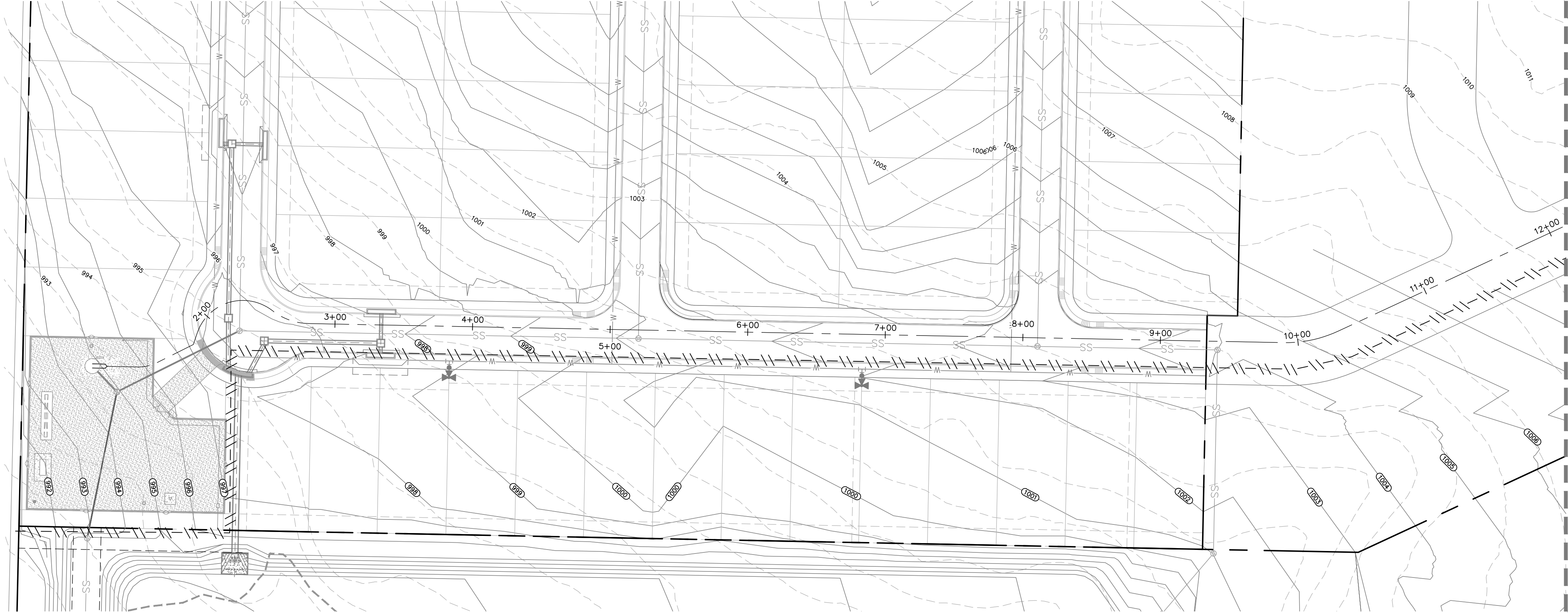
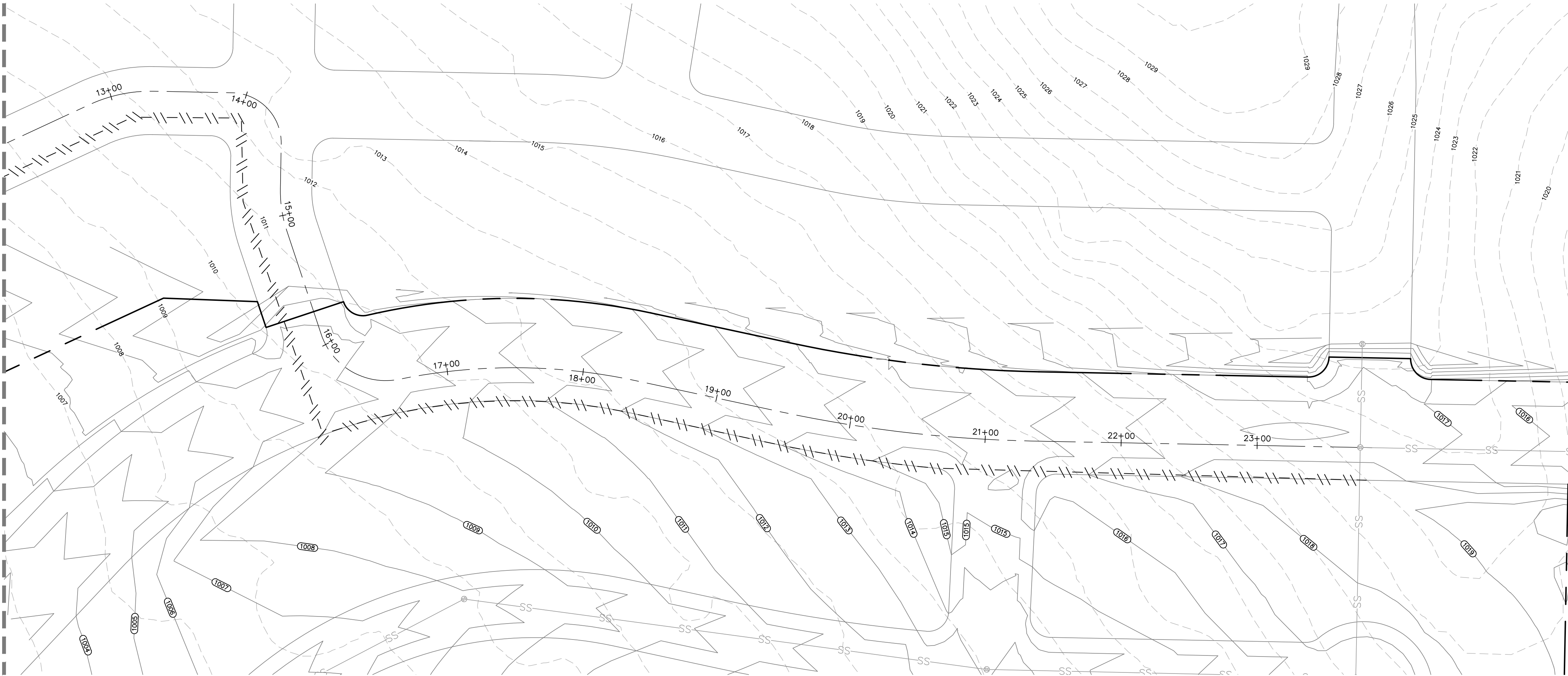
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DATE AUGUST 2023
DESIGNER JK
CHECKED RM DRAWN RJ
SHEET C5.04

Date: Aug 16, 2023 11:40am User: jk_robertson
File: P:\21175\01\Design\Chg\SWPP-21175.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

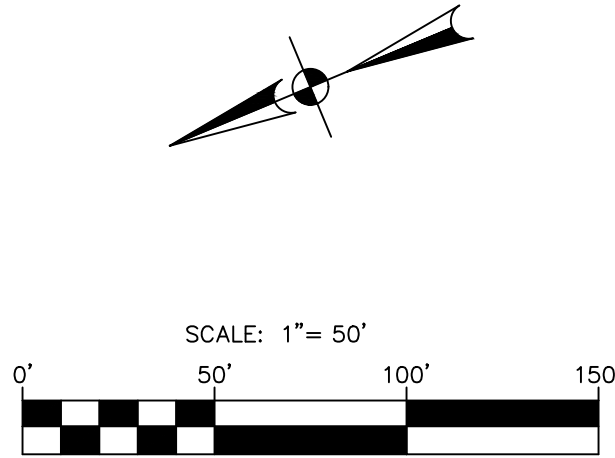
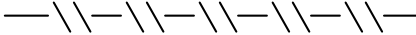
SEE THIS SHEET
MATCHLINE STA 12+00



MATCHLINE STA 12+00
SEE SHEET C4.02

SWPPP LEGEND

SILT FENCE



CAUTION OVERHEAD UTILITIES

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ALL HDPE PIPE AND FITTINGS SHALL BE FUSED UNLESS SHOWN OTHERWISE AND SHALL BE 6" DIPS HDPE PE 4710 (OR 13.5) FORCE MAIN.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/ EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

DEVELOPER'S NAME: D.R. HORTON
ADDRESS: 211 NORTH LOOP 1604, SUITE 130
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78232
PHONE #: (210) 496-2668 FAX #: N/A
TOTAL LINEAR FOOTAGE OF PIPE: 26 LF ~ 8" SS
26 LF ~ 10" SS
2,275 LF ~ 6" FM
TOTAL ACREAGE: 58
TOTAL EDU'S: 560
SAWS BLOCK MAP: 074596_074598
SAWS JOB NO: 21-1719

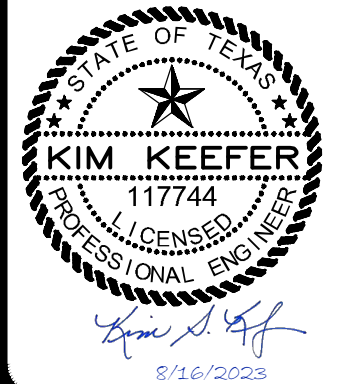
RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS

TEMPORARY EROSION CONTROL PLAN
STA. 1+00 TO STA. 9+00

SAWS JOB NO. 21-1719
JOB NO. 12175-01
DATE AUGUST 2023
DESIGNER JK
CHECKED RM DRAWN RJ

SHEET C6.00

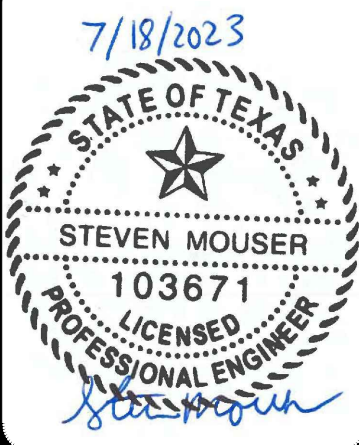
NO.	REVISION	DATE



**PAPE-DAWSON
ENGINEERS**
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPES FIRM REGISTRATION #470 | TBPES FIRM REGISTRATION #1008880

ELECTRICAL LEGEND																																																																																																																																														
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	RECEPTACLE - 240V., 1ϕ OR 208V., 1ϕ	ELECTRICAL ABBREVIATIONS					GATE VALVE																																																																																																																																							
	CONTACT - NORMALLY OPEN	<div>ATS AUTOMATIC TRANSFER SWITCH AUTO AUTOMATIC AUX AUXILIARY BC BYPASS CONTACTOR CC CONTROL CABLE CPT CONTROL POWER TRANSFORMER CR CONTROL RELAY CS CONTROL SWITCH CT CURRENT TRANSFORMER EI ELECTRICAL INTERRUPT ETM ELAPSED TIME METER FLA FULL LOAD AMPERE FU FUSE FVNR FULL VOLTAGE NON-REVERSING HOA HAND OFF AUTOMATIC SWITCH ISW ISOLATION SWITCH J,JB JUNCTION BOX KVA KILOVOLT-AMPERE KW KILOWATT LC LINE CONTACTOR</div> <div>LS,LMS LIMIT SWITCH G GREEN INDICATING LIGHT M MAGNETIC CONTACTOR COIL M ELECTRIC MOTOR M MAIN CONTACTOR AUXILIARY MIN MINUTES MTS MANUAL TRANSFER SWITCH N NEUTRAL GROUNDED CONDUCTOR OC OVERCURRENT PH PHASE RVSS REDUCED VOLTAGE SOFT START SA SURGE ARRESTOR SEC SECONDS SPD SURGE PROTECTIVE DEVICE TR TIMER V VOLT WP WEATHER PROOF XFMR TRANSFORMER</div>					PUMP																																																																																																																																							
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	THERMAL OVERLOAD HEATER - AMBIENT COMPENSATED	<div>P& ID INSTRUMENTATION IDENTIFICATION SYMBOL</div>				SYMBOL	DESCRIPTION																																																																																																																																							
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	SELECTOR SWITCH-MAINTAINED CONTACT. CHART DEFINES OPERATION: <table><tr><th></th><th colspan="3">POSITION</th><th></th></tr><tr><th>POLE</th><th>HAND</th><th>OFF</th><th>AUTO</th><th></th></tr><tr><td>1</td><td>X</td><td>0</td><td>0</td><td></td></tr><tr><td>2</td><td>0</td><td>0</td><td>X</td><td></td></tr></table> X = CLOSED CONTACT 0 = OPEN CONTACT		POSITION				POLE	HAND	OFF	AUTO		1	X	0	0		2	0	0	X		HLR	HIGH LEVEL RELAY																																																																																																																							
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	MOTOR, SQUIRREL CAGE INDUCTION-HORSEPOWER INDICATED ON ONE LINE.	LC	LINE CONTACTOR																																																																																																																																											
	LUMINAIRE, POLE MOUNTED. ● INDICATES FOUNDATION	LLR	LOW LEVEL RELAY																																																																																																																																											
	INDICATING LIGHT-PUSH TO TEST (PTT) LETTER INDICATES COLOR. A = AMBER Y = YELLOW G = GREEN B = BLUE R = RED W = WHITE	LS	LIFT STATION																																																																																																																																											
	MOTOR OR STARTER ENCLOSURE SPACE HEATER	OL	MOTOR OVERLOAD																																																																																																																																											
	BASIC RELAY SYMBOL-SOME RELAY FUNCTIONS: ALT = ALTERNATOR CR = CONTROL RELAY TR = TIMING RELAY M = MOTOR CONTACTOR	OT	OVERTEMPERATURE																																																																																																																																											
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	TEST WELL WITH GROUND ROD CONNECTION 3/4" X 10' LONG.	(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.																																																																																																																																												
	ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.																																																																																																																																													
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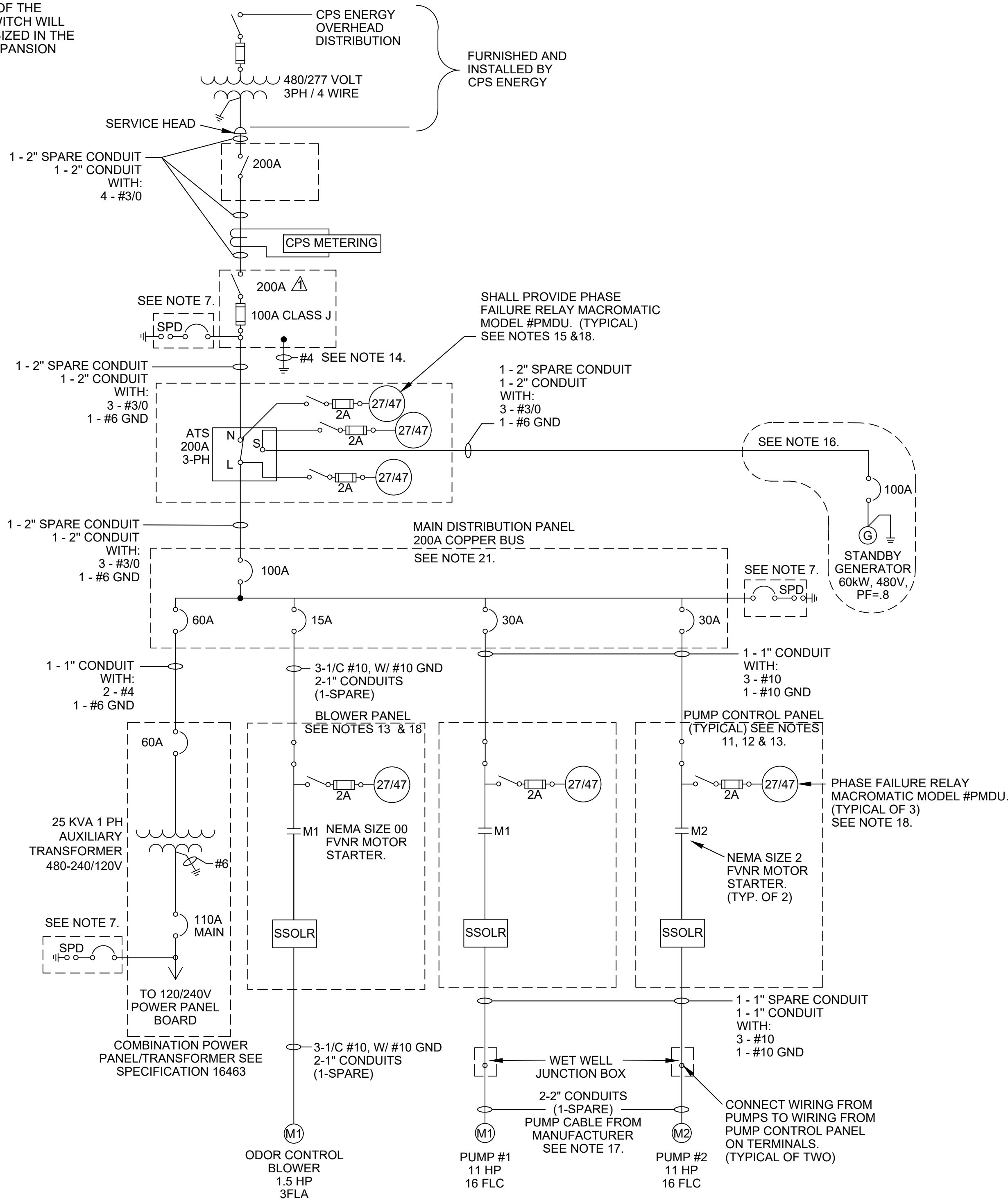




RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS
ELECTRICAL LEGEND

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028900

⚠ CABLE AND MAIN DISCONNECT SWITCH ARE SIZED FOR FUTURE EXPANSION. EQUIPMENT ON THE LOAD SIDE OF THE DISCONNECT SWITCH WILL NEED TO BE RESIZED IN THE EVENT OF AN EXPANSION



A ELECTRICAL ONE-LINE DIAGRAM
SCALE: N.T.S.

- ALL ELECTRIC CONDUIT SHALL BE CONCRETE ENCASED 24 INCHES BELOW GRADE.
- ABOVE GROUND CONDUIT SHALL BE RIGID ALUMINUM. PVC COATED ALUMINUM CONDUIT SHALL BE PROVIDED ON AREAS WHERE CONCRETE COMES IN CONTACT WITH ALUMINUM CONDUIT.
- UNDER GROUND CONDUIT SHALL BE PVC SCHEDULE 40 CONDUIT. SEE DETAILS B AND D ON SHEET E13.
- ALL ENCLOSURES AND DISCONNECT SWITCHES MUST BE PAD-LOCKABLE. PUMP CONTROL PANELS SHALL BE SINGLE DOOR, WALL MOUNTED TYPE WITH 480V EQUIPMENT LOCATED IN THE RIGHT SIDE FOR EACH PUMP INSTALLED. LEVEL CONTROL PANEL SHALL BE COMMON TO ALL PUMP CONTROL PANELS FOR AUTOMATIC CONTROL. ALL ENCLOSURES AND JUNCTION BOXES MUST BE WHITE ENAMELED COATED.
- ALL DISCONNECTS SHALL BE NEMA 4X, 316 STAINLESS STEEL.
- PROVIDE SEALING FITTINGS FOR ALL CONDUIT LEAVING THE RACK. SEALS MUST BE LOCATED WITHIN 18" OF ENCLOSURE PER NEC.
- PROVIDE A SURGE PROTECTIVE DEVICE IN A SEPARATE WHITE ENAMELED COATED ENCLOSURE ADJACENT TO THE MDP, (IF MANUFACTURER DOES NOT MAKE AN INTEGRATED SPD.) POWER PANEL AND SAFETY SWITCHES. DEVICE MUST ADHERE TO UL1449 4TH EDITION STANDARDS. REFER TO SPECIFICATION 16451. PROVIDE BREAKER FOR SURGE PROTECTIVE DEVICE AS RECOMMENDED BY MANUFACTURER. TAPPED FEEDER SIZE SHALL BE MINIMUM OF #10 AWG UNLESS REQUIRED TO BE LARGER PER MANUFACTURER REQUIREMENTS. CABLE LENGTH BETWEEN THE EQUIPMENT THE SPD IS PROTECTING AND THE SPD PANEL MUST BE AS SHORT AS POSSIBLE PER 2017 NEC ARTICLE 285.12 (2022 NEC ARTICLE 242.24) UNLESS DIRECTED OTHERWISE BY MANUFACTURER.
- NOT ALL SPARE CONDUITS ARE SHOWN ON THIS SHEET. SEE SITE PLAN FOR ADDITIONAL SPARE CONDUITS.
- GROUND RESISTANCE SHALL NOT EXCEED 5 OHMS AT ANY POINT.
- ALL ELECTRICAL COMPONENTS SHALL BE NEMA RATED.
- IF PROVIDED PUMPS ARE NOT SIZED PER PROJECT PLANS, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENGINEERING REQUIRED FOR RESIZING ALL EQUIPMENT AT NO CHARGE TO SAWS AND/OR DEVELOPER.
- PROTECTIVE DEVICES ARE SIZED PER NEC GUIDELINES. CONTRACTOR SHALL SIZE PROTECTIVE DEVICES PER NEC AND PER RESULT OF POWER SYSTEM STUDY.
- MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURE MUST BE UTILIZED DURING EQUIPMENT INSTALLATION START-UP TO AVOID EQUIPMENT DAMAGE. IF EQUIPMENT IS DAMAGED DURING START-UP DUE TO NOT FOLLOWING MANUFACTURER'S PROCEDURE, THEN CONTRACTOR IS RESPONSIBLE FOR COST ASSOCIATED

- WITH EQUIPMENT REPLACEMENT.
- BOND NEUTRAL TO GROUNDING ELECTRODE CONDUCTOR.
 - INSTALL THE THREE (3) PHASE FAILURE RELAYS FOR INCOMING POWER WITHIN THE ATS ENCLOSURE. THE ENCLOSURE OF THE ATS SHALL BE LARGE ENOUGH TO ALLOW THE INTERNAL INSTALLATION OF THE THREE PHASE LOSS RELAYS AND THEIR COMPACT CIRCUIT PROTECTORS. THESE PHASE LOSS RELAYS ARE TO PROVIDE SCADA INDICATION.
 - GENERATOR SIZE TO BE VERIFIED BY GENERATOR MANUFACTURER BASED ON PERFORMANCE TEST REQUIREMENTS IN SPECIFICATION 16600. GENERATOR SHALL BE PROVIDED WITH OVER CURRENT PROTECTION BREAKER AS RECOMMENDED BY MANUFACTURER.
 - MOTOR BRANCH CIRCUIT CONDUITS FROM WET WELL HATCH TO WET WELL JUNCTION BOX, WHERE THE MOTOR POWER CABLES WILL BE RUN. CONDUIT SHALL

- BE TWO (2) INCHES. SEE SHEET E12.
- CONTRACTOR TO PROVIDE PHASE FAILURE RELAY (PLR) MACROMATIC MODEL #PMDU. FUSES FOR PHASE FAILURE RELAY BE DISCONNECTABLE AS MANUFACTURED BY BUSSMAN MODEL CCP2-3-30CF. ROTARY HANDLE NOT REQUIRED.
 - AUTOMATIC TRANSFER SWITCH (ATS) SHALL HAVE A COMMON SOLID NEUTRAL CONDUCTOR TO THE GENERATOR AND SERVICE.
 - MAIN DISTRIBUTION PANELBOARD (MDP) SHALL BE OF THE BOLTED TYPE CIRCUIT BREAKERS.
 - ALL BREAKERS MUST BE INDIVIDUALLY LOCKABLE. LOCKING MEANS MUST NOT BE READILY REMOVABLE. PORTABLE LOCKING MEANS ARE NOT ALLOWED.

B 120/240V POWER PANEL
SCALE: N.T.S.

- NOTES:
- CONTRACTOR TO COORDINATE BREAKER AND CABLE RATING WITH GENERATOR REQUIREMENTS.
 - EACH CIRCUIT SHALL HAVE SEPARATE HOT, NEUTRAL, GROUND WIRES. DO NOT SHARE NEUTRAL GROUND WIRE FROM OTHER CIRCUITS.

POWER PANEL 'A'													
TYPE: 225A COPPER BUS 110A MAIN BREAKER 120/240V 1-PHASE, 3-WIRE													
LABEL	CONDUIT	WIRE	LOAD	BREAKER SIZE	POLE	CKT.	CKT.	POLE	BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL
GENERATOR BLOCK HEATER	1"	2 - #10 1 - #10 GND	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER
						3	4	1	20	0.6 KW	2 - #10 1 - #10 GND	1"	HEAT TRACE CONTROL PANEL
AREA LIGHT	1"	2 - #10 1 - #10 GND	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR
CANOPY LIGHTS	1"	2 - #10 1 - #10 GND	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1
SCADA UPS	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS
SCADA PANEL AIR COND.	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL
PUMP CONTROL PANEL #2	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER
ELECTRICAL RACK RECEPTACLE	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER
SPARE			-	20	1	17	18	1	20	-			SPARE
SPARE			-	20	1	19	20	1	20	-			SPARE
			9.3 KW							17.9 KW			
										8.6 KW			

POWER PANEL 'A'													
LABEL	CONDUIT	WIRE	LOAD	BREAKER SIZE	POLE	CKT.	CKT.	POLE	BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL
GENERATOR BLOCK HEATER	1"	2 - #10 1 - #10 GND	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER
AREA LIGHT	1"	2 - #10 1 - #10 GND	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR
CANOPY LIGHTS	1"	2 - #10 1 - #10 GND	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1
SCADA UPS	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS
SCADA PANEL AIR COND.	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL
PUMP CONTROL PANEL #2	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER
ELECTRICAL RACK RECEPTACLE	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER
SPARE			-	20	1	17	18	1	20	-			SPARE
SPARE			-	20	1	19	20	1	20	-			SPARE
			9.3 KW							17.9 KW			
										8.6 KW			

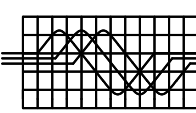
POWER PANEL 'A'													
LABEL	CONDUIT	WIRE	LOAD	BREAKER SIZE	POLE	CKT.	CKT.	POLE	BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL
GENERATOR BLOCK HEATER	1"	2 - #10 1 - #10 GND	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER
AREA LIGHT	1"	2 - #10 1 - #10 GND	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR
CANOPY LIGHTS	1"	2 - #10 1 - #10 GND	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1
SCADA UPS	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS
SCADA PANEL AIR COND.	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL
PUMP CONTROL PANEL #2	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER
ELECTRICAL RACK RECEPTACLE	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER
SPARE			-	20	1	17	18	1	20	-			SPARE
SPARE			-	20	1	19	20	1	20	-			SPARE
			9.3 KW							17.9 KW			
										8.6 KW			

POWER PANEL 'A'													
LABEL	CONDUIT	WIRE	LOAD	BREAKER SIZE	POLE	CKT.	CKT.	POLE	BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL
GENERATOR BLOCK HEATER	1"	2 - #10 1 - #10 GND	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER
AREA LIGHT	1"	2 - #10 1 - #10 GND	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR
CANOPY LIGHTS	1"	2 - #10 1 - #10 GND	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1
SCADA UPS	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS
SCADA PANEL AIR COND.	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL
PUMP CONTROL PANEL #2	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER
ELECTRICAL RACK RECEPTACLE	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER
SPARE			-	20	1	17	18	1	20	-			SPARE
SPARE			-	20	1	19	20	1	20	-			SPARE
			9.3 KW							17.9 KW			
										8.6 KW			

POWER PANEL 'A'													
LABEL	CONDUIT	WIRE	LOAD	BREAKER SIZE	POLE	CKT.	CKT.	POLE	BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL
GENERATOR BLOCK HEATER	1"	2 - #10 1 - #10 GND	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER
AREA LIGHT	1"	2 - #10 1 - #10 GND	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR
CANOPY LIGHTS	1"	2 - #10 1 - #10 GND	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1
SCADA UPS	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS
SCADA PANEL AIR COND.	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL
PUMP CONTROL PANEL #2	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER
ELECTRICAL RACK RECEPTACLE	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER
SPARE			-	20	1	17	18	1	20	-			SPARE
SPARE			-	20	1	19	20	1	20	-			SPARE
			9.3 KW							17.9 KW			
										8.6 KW			

POWER PANEL 'A'													
LABEL	CONDUIT	WIRE	LOAD	BREAKER SIZE	POLE	CKT.	CKT.	POLE	BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL
GENERATOR BLOCK HEATER	1"	2 - #10 1 - #10 GND	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER
AREA LIGHT	1"	2 - #10 1 - #10 GND	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR
CANOPY LIGHTS	1"	2 - #10 1 - #10 GND	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1
SCADA UPS	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS
SCADA PANEL AIR COND.	1"	2 - #10 1 - #10 GND	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL
PUMP CONTROL PANEL #2	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER
ELECTRICAL RACK RECEPTACLE	1"	2 - #10 1 - #10 GND	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER
SPARE			-	20	1	17	18	1	20	-			SPARE
SPARE			-	20	1	19	20	1	20	-			SPARE
			9.3 KW							17.9 KW			
										8.6 KW			

POWER PANEL 'A'													
	LOAD	BREAKER SIZE	POLE	CKT.		POLE		BREAKER SIZE	LOAD	WIRE	CONDUIT	LABEL	
D	1.0 KW	20	2	1	2	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	GENERATOR BATTERY CHARGER		
				3	4	1	20	0.6 KW	2 - #10 1 - #10 GND	1"	HEAT TRACE CONTROL PANEL		
D	0.3 KW	20	1	5	6	1	20	0.2 KW	2 - #10 1 - #10 GND	1"	SPD FOR COMBO XFMR		
D	0.2 KW	20	1	7	8	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	PUMP CONTROL PANEL #1		
D	2.0 KW	20	1	9	10	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	SCADA PANEL RECEPT. & LTS		
D	2.0 KW	20	1	11	12	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	LEVEL CONTROL PANEL		
D	1.9 KW	20	1	13	14	1	20	0.1 KW	2 - #10 1 - #10 GND	1"	SCADA HEATER		
D	1.9 KW	20	1	15	16	1	20	1.9 KW	2 - #10 1 - #10 GND	1"	ODOR CONTROL BLOWER		
	-	20	1	17	18	1	20	-			SPARE		
	-	20	1	19	20	1	20	-			SPARE		
9.3 KW				17.9 KW				8.6 KW					



GRUBB ENGINEERING, INC.

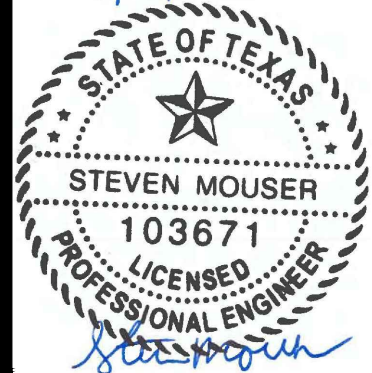
ELECTRICAL POWER SYSTEMS
DESIGN AND TESTING
TBPE FIRM REGISTRATION NO. 3904

2727 N. ST. MARY'S ST.
SAN ANTONIO, TX 78212

TEL. NO. 210-658-7250
FAX NO. 210-658-9805

DATE	
NCL	
REVISION	

7/18/2023



PAPE-DAWSON
ENGINEERS

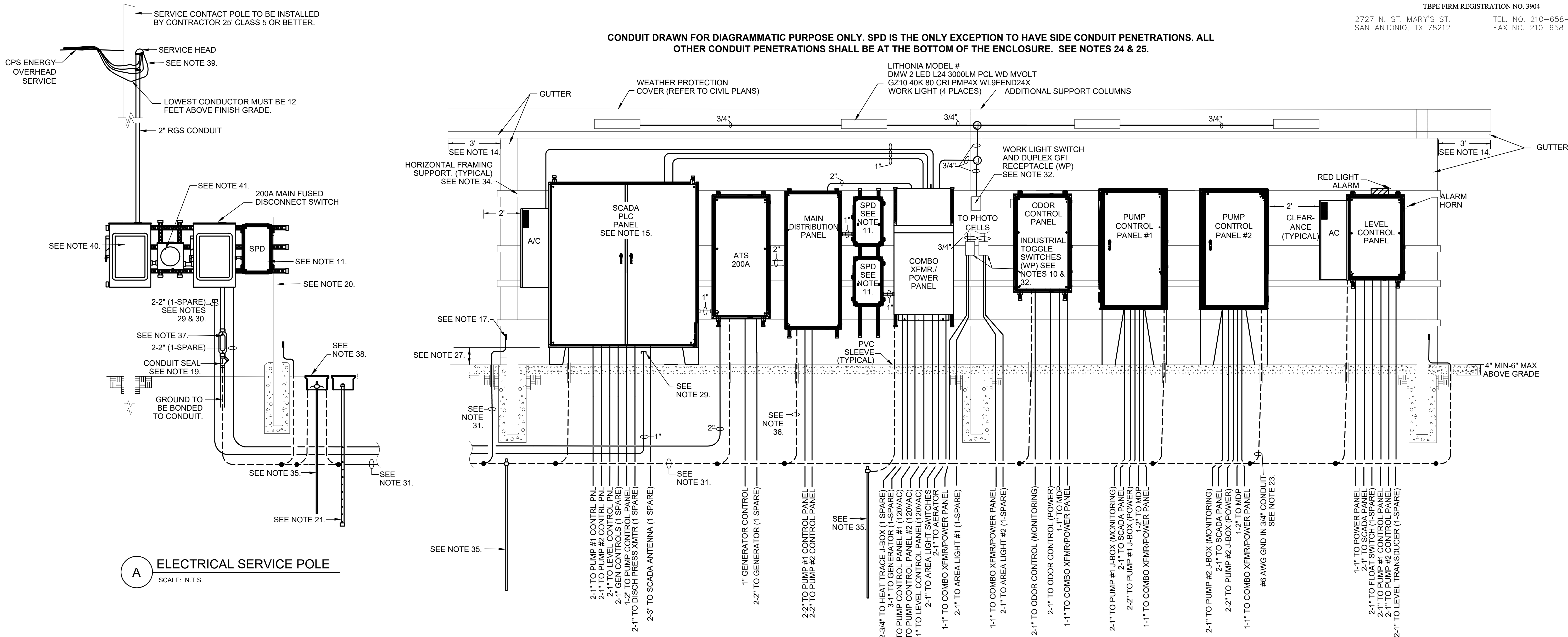
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #10028890

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS

ELECTRICAL SERVICE POLE AND RACK LAYOUT

SAWS JOB NO. 22-XXXX
JOB NO. 12632-06
DATE JULY 2023
DESIGNER BD
CHECKED SM DRAWN BD
SHEET E3

CONDUIT DRAWN FOR DIAGRAMMATIC PURPOSE ONLY. SPD IS THE ONLY EXCEPTION TO HAVE SIDE CONDUIT PENETRATIONS. ALL OTHER CONDUIT PENETRATIONS SHALL BE AT THE BOTTOM OF THE ENCLOSURE. SEE NOTES 24 & 25.

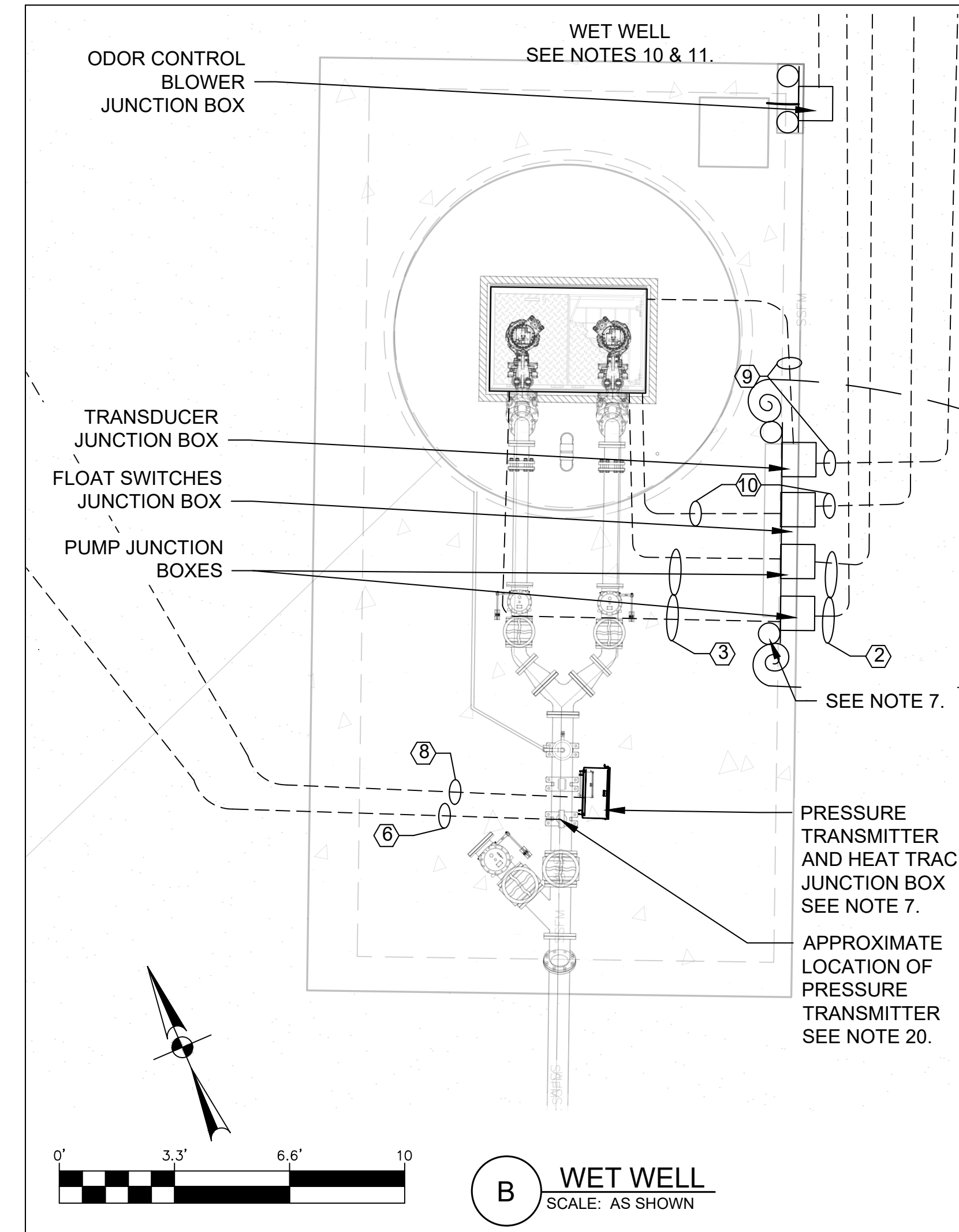
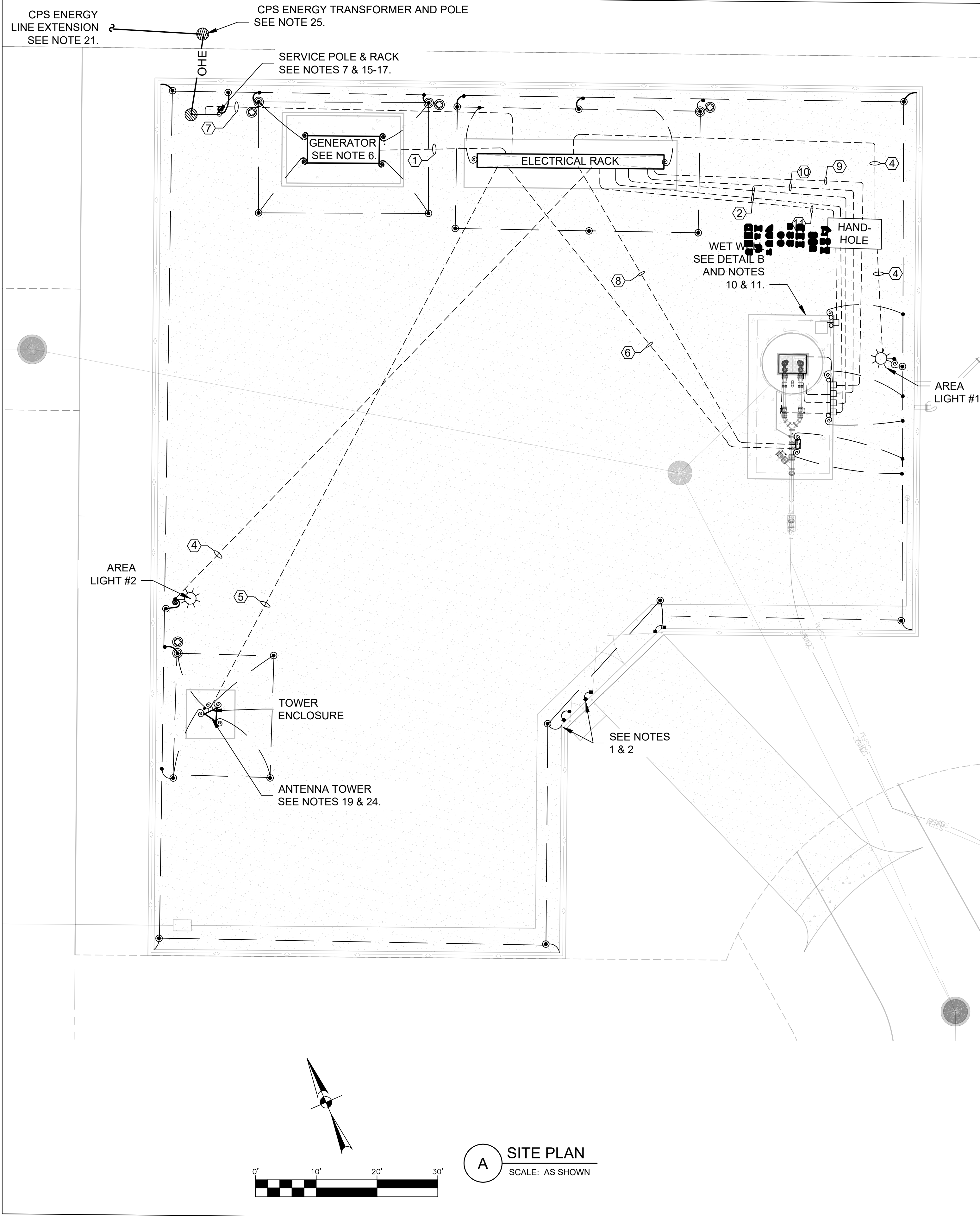


A ELECTRICAL SERVICE POLE
SCALE: N.T.S.

B ELECTRICAL SERVICE RACK LAYOUT
SCALE: N.T.S.

NOTES:

- ALL ELECTRIC CONDUIT SHALL BE CONCRETE ENCASED 24 INCHES BELOW GRADE.
- ABOVE GROUND CONDUIT SHALL BE RIGID ALUMINUM. PVC COATED ALUMINUM CONDUIT SHALL BE PROVIDED ON AREAS WHERE CONCRETE COMES IN CONTACT WITH ALUMINUM CONDUIT.
- UNDER GROUND CONDUIT SHALL BE PVC SCHEDULE 40 CONDUIT. SEE DETAILS B AND D ON SHEET E13.
- ALL ENCLOSURES AND DISCONNECT SWITCHES MUST BE PAD-LOCKABLE. PUMP CONTROL PANEL SHALL BE SINGLE DOOR, WALL MOUNTED TYPE WITH 480V EQUIPMENT LOCATED IN THE RIGHT SIDE. INSTALL ONE PUMP CONTROL PANEL FOR EACH PUMP. LEVEL CONTROL PANEL SHALL BE COMMON TO ALL PUMP CONTROL PANELS FOR AUTOMATIC CONTROL. ALL ENCLOSURES AND JUNCTION BOXES MUST BE WHITE ENAMELED COATED ON EXTERIOR.
- ALL MOUNTING HARDWARE, FITTINGS AND STRUT CHANNEL SHALL BE 316 STAINLESS STEEL. ALL ENCLOSURES SHALL BE NEMA 4X, 316 STAINLESS STEEL WITH WHITE ENAMELED COATING ON EXTERIOR.
- ALL DISCONNECTS SHALL BE NEMA 4X, 316 STAINLESS STEEL.
- SERVICE RACK STRUTS NEED TO BE 1-1/2" MINIMUM 316 STAINLESS STEEL AND SHALL BE MOUNTED ON 4" DIAMETER, 1/2" THICK STRUCTURAL HOT DIP GALVANIZED STEEL TUBE. STRUT CHANNEL ENDS SHALL BE PROTECTED WITH END CAPS.
- THERE SHALL BE 6" MINIMUM SPACING BETWEEN EQUIPMENT MOUNTED ON THE RACK WITH THE EXCEPTION OF THE SPD. ALLOW 2 FEET CLEARANCE FOR SERVICE OF PANEL A/C UNIT.
- ELECTRICAL RACK SHALL HAVE SUPPORT COLUMNS EVERY 5 FEET.
- 20 AMP, SPDT, CENTER OFF, INDUSTRIAL TOGGLE SWITCH.
- PROVIDE A SURGE PROTECTIVE DEVICE IN A SEPARATE WHITE ENAMEL COATED EXTERIOR ENCLOSURE ADJACENT TO THE SAFETY SWITCHES, MDP AND COMBO TRANSFORMER/POWER PANEL (IF MANUFACTURER DOES NOT MAKE AN INTEGRATED SPD FOR THE MDP AND COMBO/TRANSFORMER/POWER PANEL.) DEVICE MUST ADHERE TO UL1449 4TH EDITION STANDARDS, REFER TO SPECIFICATION 16451. PROVIDE BREAKER FOR SURGE PROTECTIVE DEVICE AS RECOMMENDED BY MANUFACTURER. TAPPED FEEDER SIZE SHALL BE MINIMUM OF #10 AWG UNLESS REQUIRED TO BE LARGER PER MANUFACTURER REQUIREMENTS. LENGTH MUST BE AS SHORT AS POSSIBLE, UNLESS DIRECTED OTHERWISE BY MANUFACTURER, BETWEEN THE EQUIPMENT THE SPD IS PROTECTING TO THE SPD PANEL PER 2017 NEC ARTICLE 285.12 (2022 NEC ARTICLE 242.24)
- NOT ALL SPARE CONDUITS ARE SHOWN ON THIS SHEET. SEE SITE PLAN FOR ADDITIONAL SPARE CONDUITS.
- ALL EQUIPMENT SHALL BE MOUNTED ON THE FRONT OF THE SERVICE RACK. NO EQUIPMENT SHALL BE MOUNTED ON THE BACK OF RACK. ANY LENGTHENING OF THE RACK TO BE APPROVED BY THE STRUCTURAL ENGINEER.
- CANOPY SHALL EXTEND 3 FEET BEYOND THE ENCLOSURE SIDE EDGE. (THE AIR CONDITIONER IS CONSIDERED THE ENCLOSURES SIDE EDGE.)
- SEE SHEETS E9 AND E10 FOR SCADA PANEL INFORMATION.
- GROUND RESISTANCE SHALL NOT EXCEED 5 OHMS AT ANY POINT.
- GROUNDING CONNECTION TO SERVICE RACK. SEE SHEET E13 DETAIL A. (TYPICAL).
- ALL ELECTRICAL COMPONENTS SHALL BE NEMA RATED.
- SEALS MUST BE LOCATED WITHIN 18" OF ENCLOSURE PER NEC.
- CONTRACTOR SHALL FOLLOW CPS ENERGY STANDARDS FOR RACK INSTALLATION.
- MOISTURIZING PORT SHALL BE LOCATED ADJACENT TO TEST WELL. MOISTURIZING PORT IS 1-INCH PVC SCH 80 PIPE WITH 1/8-INCH DIAMETER PERFORATIONS TO ALLOW WATER SEEPAGE 1 FOOT AWAY FROM GROUNDING ROD.
- REFER TO STRUCTURAL DRAWINGS FOR CANOPY AND RACK STRUCTURAL DETAILS.
- ALL PANELS SHALL BE GROUNDED WITH #6 COPPER GROUNDING CONDUCTOR PER SAWS DIRECTION.
- RACK SHOWN IS FOR DIAGRAMMATIC PURPOSE ONLY. PLEASE SEE STRUCTURAL DRAWINGS FOR CANOPY AND RACK CONSTRUCTION AND FOUNDATION DETAILS.
- CONDUIT TOP PENETRATIONS, BACK PENETRATIONS AND SIDE PENETRATIONS ON ALL PANELS AND JUNCTION BOXES REGARDLESS OF LOCATION ARE NOT ALLOWED. SURGE PROTECTIVE DEVICE IS THE ONLY EXCEPTION TO HAVE SIDE PENETRATIONS. CONDUIT SHOWN ARE DRAWN FOR DIAGRAMMATIC PURPOSE ONLY.
- PROTECTIVE DEVICES ARE SIZED PER NEC GUIDELINES. CONTRACTOR SHALL SIZE PROTECTIVE DEVICES PER NEC AND PER RESULT OF POWER SYSTEM STUDY.
- 24" MINIMUM FROM GRADE TO BOTTOM OF ENCLOSURES.
- DIELECTRIC COUPLINGS SHALL BE INSTALLED BETWEEN DISSIMILAR METALS IN ALL CASES.
- TWO (2) - ONE (1) INCH CONDUITS FOR FUTURE TELEPHONE LINE. CONTRACTOR TO TERMINATE CONDUIT ON TYPE "C" CONDUIT BODIES WITH CAP OPEN END TO PREVENT INTRUSION OF MOISTURE AND DEBRIS BEHIND SCADA PANEL..
- CONTRACTOR TO TERMINATE THE SPARE CONDUITS ON TYPE "C" CONDUIT BODIES AND CAP FOR FUTURE ENCLOSURE INSTALLATION.
- #4/0 COPPER GROUND CONDUCTOR FURNISHED AND INSTALLED BY CONTRACTOR (TYPICAL).
- PROVIDE LABELS FOR LIGHT SWITCHES AND RECEPTACLE.
- EQUIPMENT MUST BE MOUNTED FACING EAST OR NORTH.
- CONTRACTOR TO MOUNT HORIZONTAL FRAMING TO SUPPORT COLUMNS USING U-BOLTS. DO NOT DRILL IN SUPPORT COLUMN.
- APPROVED GROUNDING ELECTRODE AND CLAMP FURNISHED AND INSTALLED BY CONTRACTOR. GROUND ROD SHALL BE 3/4" X 10'. CONNECTION IS TO BE MADE BELOW FINISH GRADE. GROUND RESISTANCE OF INSTALLED ROD W/O CONNECTIONS SHALL BE MEASURED AND REPORTED TO THE ENGINEER.
- #6 COPPER TINNED GROUND CONDUCTOR (TYPICAL OF 9).
- ALUMINUM CONDUIT BODY TYPE C. CONTRACTOR WILL LEAVE A GROUNDING CONDUCTOR LOOP TO ALLOW GROUND RESISTANCE MEASUREMENT
- 6" DUCTILE IRON COVER FOR GROUND TEST WELL AND MOISTURIZING PORT. PVC PIPE PROVIDED WITH THREADED CAP. SEE NOTE 21 AND 35.
- CONTRACTOR MUST PROVIDE 24" OF WIRE ENDS EXTENDING OUT OF SERVICE HEAD FOR CPS TO MAKE CONNECTIONS AND FOR FORMING A DRIP LOOP CONDUCTOR 4-3/0 CU.
- INCOMING MAIN 200A NON FUSED DISCONNECT SWITCH. TOP OF ENCLOSURE MUST BE 5 FEET ABOVE FINISHED GRADE FOR BOTH FUSED AND NON FUSED DISCONNECT SWITCHES.
- POWER METER AND CODE 06 TRANSOCKETS FURNISHED BY CPS, AND INSTALLED BY CONTRACTOR.



LEGEND			
	GROUND MOISTURIZING PORT		#4/0 STRANDED BARE TINNED COPPER WIRE, SOFT DRAWN AS SHOWN ON PLANS
	GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION		UNDERGROUND ELECTRIC DUCTBANK
	GATE FLEXIBLE GROUNDING STRAP.		OVERHEAD SERVICE
	GROUND ROD CONNECTION 3/4" X 10' LONG.		PROPOSED CPS ENERGY OVERHEAD ELECTRIC
	TEST WELL WITH GROUND ROD CONNECTION 3/4" X 10' LONG.		EXISTING CPS ENERGY OVERHEAD ELECTRIC
	ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.		

KEYED NOTES

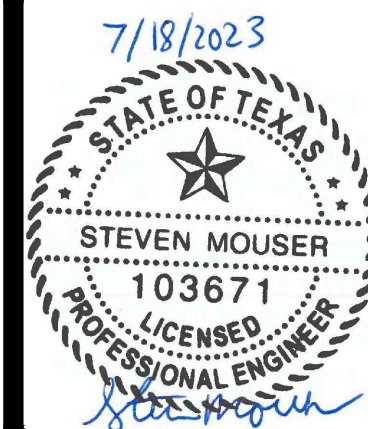
- 2-2" C TO GENERATOR (1 SPARE)
REFER TO SHEET E2 FOR CABLE SIZES.
1-1" C TO GENERATOR CONTROL
4 -1/C #12, W/ 2- #12 GND
1-1" C TO GENERATOR BATTERY CHARGER
REFER TO SHEET E2 DETAIL B FOR CABLE SIZES.
2-1" C TO GENERATOR HEATER (1 SPARE)
REFER TO SHEET E2 DETAIL B FOR CABLE SIZES.
- 2-2" C TO PUMP (1 SPARE)
REFER TO SHEET E2 FOR CABLE SIZES.
2-1" C TO PUMP MONITORING
PER CONTROLS
- 2-2" C TO PUMP (1 SPARE)
2-1" C TO PUMP MONITORING
- 2-1" C TO AREA LIGHT (1 SPARE) TYPICAL
1"C, 2-#10 W/ 1-#12GND
- 2-3" C TO ANTENNA (1 SPARE)
1-CAT6 CABLE
REFER TO SHEET E10 DETAIL D
SECTION 16920 FOR CABLE SIZES.
- 2-1" C (1 SPARE) TO DISCHARGE
PRESSURE TRANSMITTER.
2X(#16 TW/SH/PR)
SEE CIVIL DRAWINGS FOR LOCATION.
- 2-2" C TO ELECTRICAL SERVICE POLE (1 SPARE)
REFER TO SHEET E2 FOR CABLE SIZES.
2-1" C SPARE CONDUITS FOR FUTURE
TELEPHONE LINE
- 2-3/4" C (1 SPARE) TO JUNCTION BOX FOR
PRESSURE TRANSMITTER & HEAT
TRACE POWER.
SEE SHEET E11 DETAILS D AND E.
- 2-1" C TO TRANSDUCER (1 SPARE)
CABLE PER MANUFACTURER
- 2-1" C TO LEVEL FLOAT SWITCHES (1 SPARE)
8-#12
- 2-1"C TO AERATOR MOTOR(1 SPARE)
REFER TO SHEET E2 DETAILS A & B FOR
CABLE DETAILS.
2-1"C TO AERATOR CONTROLS
PER CONTROLS
- FENCE SHALL BE GROUNDED AT EACH
CORNER WITH 3/4" X 10' GROUND ROD.
RODS SHALL BE LOCATED INSIDE THE
FENCE.
- ALL GATES SHALL BE EQUIPPED WITH
GROUNDING STRAPS. SEE LEGEND.
- THERE SHALL BE A 20' SEPARATION
BETWEEN GROUND RODS. SPACING
SHOWN ON PLAN IS FOR REFERENCE ONLY
AND MIGHT NOT BE TO SCALE.
- ALL ABOVE GROUND CONDUIT SHALL BE
INSTALLED AS TO NOT CREATE A TRIPPING
HAZARD.
- PVC COATED ALUMINUM CONDUIT SHALL BE
PROVIDED IN AREAS WHERE CONCRETE
COMES INTO CONTACT WITH ALUMINUM
CONDUIT AND SHALL BE USED FOR ALL
BURIED AND CONCRETE STUB-UPS.
- GENERATOR SHALL BE BONDED TO
GROUNDING RING AT GROUNDING POINTS.
- SEE SHEET E13 DETAIL A FOR GROUNDING
DETAILS FOR ALL RACKS AND FREE
STANDING ENCLOSURES.
- CONTRACTOR SHALL OBSERVE NEC
WORKING SPACE REQUIREMENTS WHEN
LOCATING EQUIPMENT.
- PROVIDE BARRIER PER NEC IN JUNCTION
BOX TO SEPARATE POWER AND SIGNAL
CABLES.
- PANELS SHALL OPEN AWAY FROM WET
WELL.
- SEE SHEET E12 DETAILS C, D, E & F FOR
JUNCTION BOX DETAIL. SEE CIVIL
DRAWINGS FOR EXACT LOCATION OF
ACCESS COVER, STILLING WELL AND PUMP
NUMBERS. DO NOT EXTEND SPARE
CONDUIT INSIDE WET WELL.
- ALL GROUND GRID CONDUCTORS SHALL BE
CONTINUOUS EXCEPT WHERE SPLICING IS
UNAVOIDABLE.
- MOISTURIZING PORT SHALL BE LOCATED
ADJACENT TO TEST WELL LESS THAN 1'
APART.
- SEPARATION AMONG GROUNDING
ELECTRODE RODS AND WET WELL SHALL
BE 10- FEET.
- IF LOCATION OF ELECTRIC SERVICE POLE
CHANGES DURING CONSTRUCTION PHASE,
CONTRACTOR SHALL NOTIFY ENGINEER
IMMEDIATELY FOR APPROVAL.
- OVERHEAD CONDUCTORS MUST HAVE A
HORIZONTAL CLEARANCE WITHOUT WIND
OF 10 FEET FOR VOLTAGES UP TO 50KV.
- UTILITIES NOT SHOWN FOR CLARITY.
EXISTING OVERHEAD LINES ARE
APPROXIMATION. PLEASE SEE CIVIL
DRAWINGS FOR UTILITIES.
- GROUND RESISTANCE MEASURE 5 OHMS
OR LESS. CONTRACTOR TO ADD
SUPPLEMENTAL GROUND RODS WHERE
NECESSARY TO ACHIEVE THE RESISTANCE
REQUIRED.
- SEE SHEET E11 DETAIL A FOR ANTENNA
GROUNDING DETAILS.
- DISCHARGE PRESSURE TRANSMITTER TO
BE INSTALLED IN A LOCATION WHICH
MAXIMIZES ACCURACY. MODIFY PIPING AS
NEEDED TO MEET THIS REQUIREMENT.
REFER TO CIVIL PLANS FOR EXACT
LOCATION.
- CONTRACTOR SHALL COORDINATE WITH
CPS ENERGY AND COVER ALL COST FOR
LINE EXTENSION AND SERVICE DROP
INSTALLATION.
- REFER TO SHEET SHEET E2 FOR
ADDITIONAL CABLES NOT LISTED IN
DUCTBANKS ON THIS SHEET.
- EQUIPMENT MUST BE MOUNTED FACING
SOUTH WITH PROTECTIVE SHADE DETAIL
PER CIVIL/STRUCTURAL PLANS.
- TOWER GROUND RING MUST BE AT LEAST 2
FEET AWAY FROM TOWER BASE. TOWER
RING CONDUCTOR SIZE TO BE #4/0 BARE
TINNED COPPER AND BURIED THIRTY
INCHES BELOW GRADE. BOND FENCE TO
TOWER GROUND GRID.
- CPS ENERGY TRANSFORMER POLE MUST
HAVE 28 FOOT EASEMENT.
- DUCTBANKS AND CONDUIT RUNS FOR
POWER SCADA SIGNAL WIRING SHALL BE
SEPARATED AND THEY SHALL MAINTAIN A
MINIMUM OF 12-INCH SEPARATION
BETWEEN DUCTBANKS.
- GROUND GRID MUST USE ALL EXOTHERMIC
WELD TO MAKE A SOLID COMMON
GROUNDING LOOP.

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ELECTRICAL POWER SYSTEMS
DESIGN AND TESTING
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SAN ANTONIO, TX 78212
TEL. NO. 210-658-7250
FAX NO. 210-658-9805

NOTES:

- FENCE SHALL BE GROUNDED AT EACH
CORNER WITH 3/4" X 10' GROUND ROD.
RODS SHALL BE LOCATED INSIDE THE
FENCE.
- ALL GATES SHALL BE EQUIPPED WITH
GROUNDING STRAPS. SEE LEGEND.
- THERE SHALL BE A 20' SEPARATION
BETWEEN GROUND RODS. SPACING
SHOWN ON PLAN IS FOR REFERENCE ONLY
AND MIGHT NOT BE TO SCALE.
- ALL ABOVE GROUND CONDUIT SHALL BE
INSTALLED AS TO NOT CREATE A TRIPPING
HAZARD.
- PVC COATED ALUMINUM CONDUIT SHALL BE
PROVIDED IN AREAS WHERE CONCRETE
COMES INTO CONTACT WITH ALUMINUM
CONDUIT AND SHALL BE USED FOR ALL
BURIED AND CONCRETE STUB-UPS.
- GENERATOR SHALL BE BONDED TO
GROUNDING RING AT GROUNDING POINTS.
- SEE SHEET E13 DETAIL A FOR GROUNDING
DETAILS FOR ALL RACKS AND FREE
STANDING ENCLOSURES.
- CONTRACTOR SHALL OBSERVE NEC
WORKING SPACE REQUIREMENTS WHEN
LOCATING EQUIPMENT.
- PROVIDE BARRIER PER NEC IN JUNCTION
BOX TO SEPARATE POWER AND SIGNAL
CABLES.
- PANELS SHALL OPEN AWAY FROM WET
WELL.
- SEE SHEET E12 DETAILS C, D, E & F FOR
JUNCTION BOX DETAIL. SEE CIVIL
DRAWINGS FOR EXACT LOCATION OF
ACCESS COVER, STILLING WELL AND PUMP
NUMBERS. DO NOT EXTEND SPARE
CONDUIT INSIDE WET WELL.
- ALL GROUND GRID CONDUCTORS SHALL BE
CONTINUOUS EXCEPT WHERE SPLICING IS
UNAVOIDABLE.
- MOISTURIZING PORT SHALL BE LOCATED
ADJACENT TO TEST WELL LESS THAN 1'
APART.
- SEPARATION AMONG GROUNDING
ELECTRODE RODS AND WET WELL SHALL
BE 10- FEET.
- IF LOCATION OF ELECTRIC SERVICE POLE
CHANGES DURING CONSTRUCTION PHASE,
CONTRACTOR SHALL NOTIFY ENGINEER
IMMEDIATELY FOR APPROVAL.
- OVERHEAD CONDUCTORS MUST HAVE A
HORIZONTAL CLEARANCE WITHOUT WIND
OF 10 FEET FOR VOLTAGES UP TO 50KV.
- UTILITIES NOT SHOWN FOR CLARITY.
EXISTING OVERHEAD LINES ARE
APPROXIMATION. PLEASE SEE CIVIL
DRAWINGS FOR UTILITIES.
- GROUND RESISTANCE MEASURE 5 OHMS
OR LESS. CONTRACTOR TO ADD
SUPPLEMENTAL GROUND RODS WHERE
NECESSARY TO ACHIEVE THE RESISTANCE
REQUIRED.
- SEE SHEET E11 DETAIL A FOR ANTENNA
GROUNDING DETAILS.
- DISCHARGE PRESSURE TRANSMITTER TO
BE INSTALLED IN A LOCATION WHICH
MAXIMIZES ACCURACY. MODIFY PIPING AS
NEEDED TO MEET THIS REQUIREMENT.
REFER TO CIVIL PLANS FOR EXACT
LOCATION.
- CONTRACTOR SHALL COORDINATE WITH
CPS ENERGY AND COVER ALL COST FOR
LINE EXTENSION AND SERVICE DROP
INSTALLATION.
- REFER TO SHEET SHEET E2 FOR
ADDITIONAL CABLES NOT LISTED IN
DUCTBANKS ON THIS SHEET.
- EQUIPMENT MUST BE MOUNTED FACING
SOUTH WITH PROTECTIVE SHADE DETAIL
PER CIVIL/STRUCTURAL PLANS.
- TOWER GROUND RING MUST BE AT LEAST 2
FEET AWAY FROM TOWER BASE. TOWER
RING CONDUCTOR SIZE TO BE #4/0 BARE
TINNED COPPER AND BURIED THIRTY
INCHES BELOW GRADE. BOND FENCE TO
TOWER GROUND GRID.
- CPS ENERGY TRANSFORMER POLE MUST
HAVE 28 FOOT EASEMENT.
- DUCTBANKS AND CONDUIT RUNS FOR
POWER SCADA SIGNAL WIRING SHALL BE
SEPARATED AND THEY SHALL MAINTAIN A
MINIMUM OF 12-INCH SEPARATION
BETWEEN DUCTBANKS.
- GROUND GRID MUST USE ALL EXOTHERMIC
WELD TO MAKE A SOLID COMMON
GROUNDING LOOP.

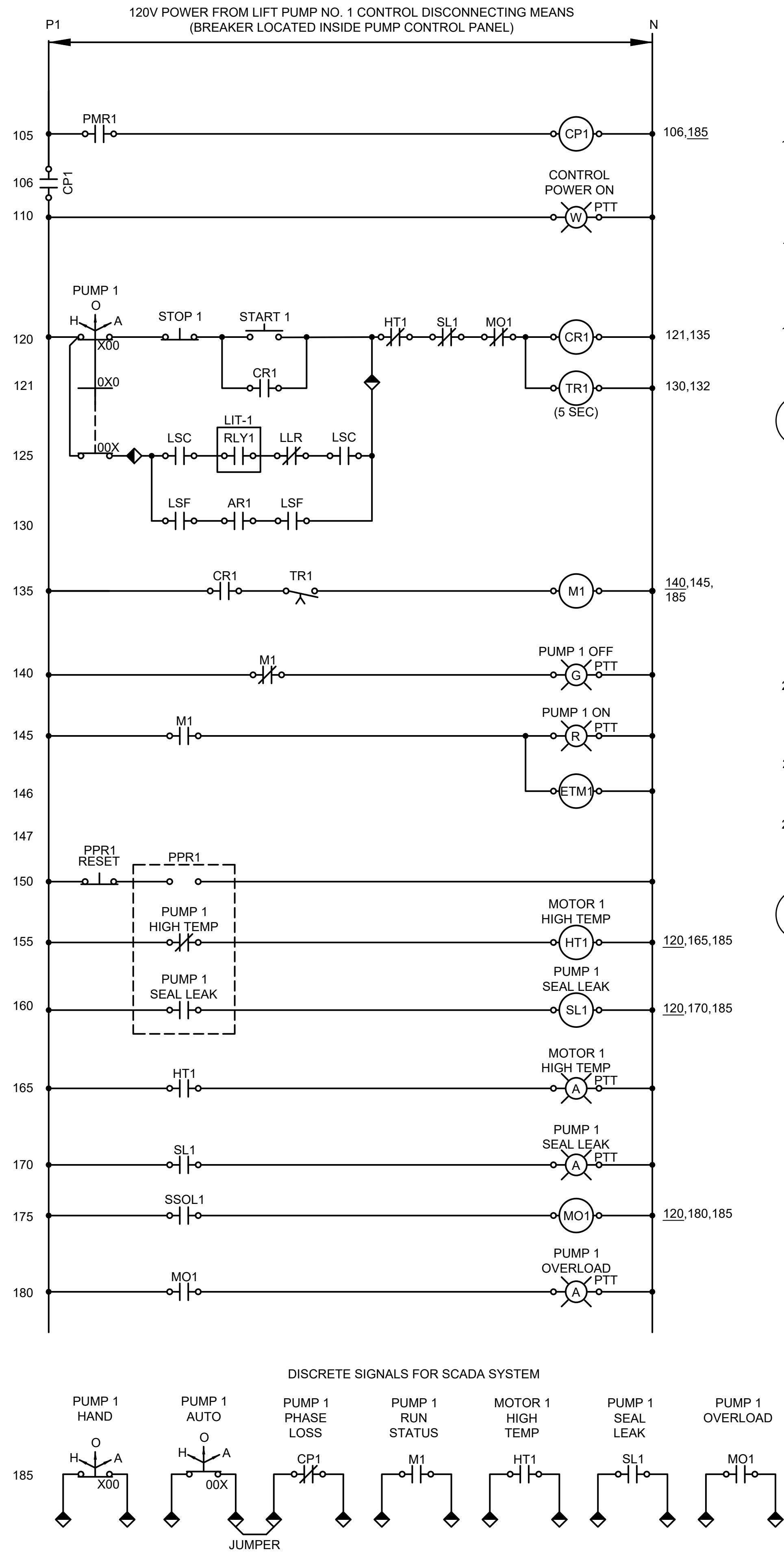
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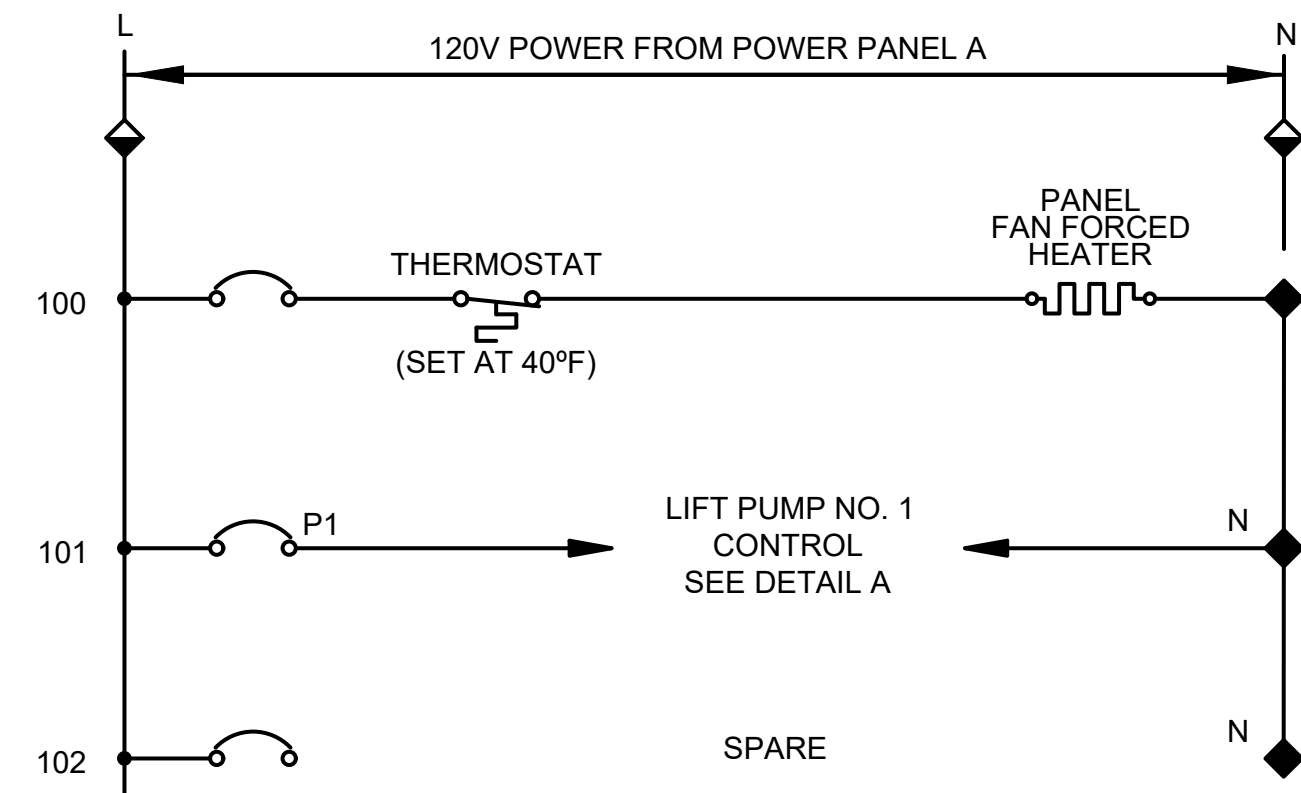
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RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS
ELECTRICAL SITE PLAN

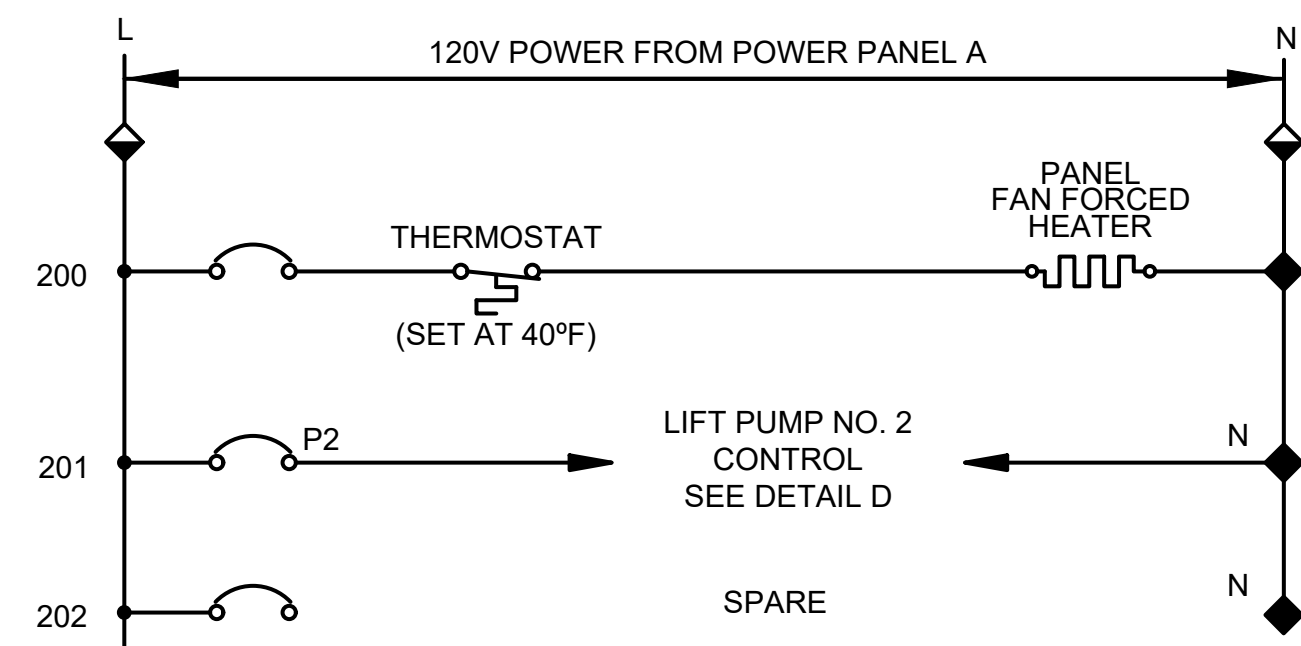
SAWS JOB NO. 22-XXXX
JOB NO. 12632-06
DATE JULY 2023
DESIGNER BD
CHECKED SM DRAWN BD
SHEET **E4**



A PUMP #1 MOTOR CONTROL SCHEMATIC
SCALE: N.T.S.



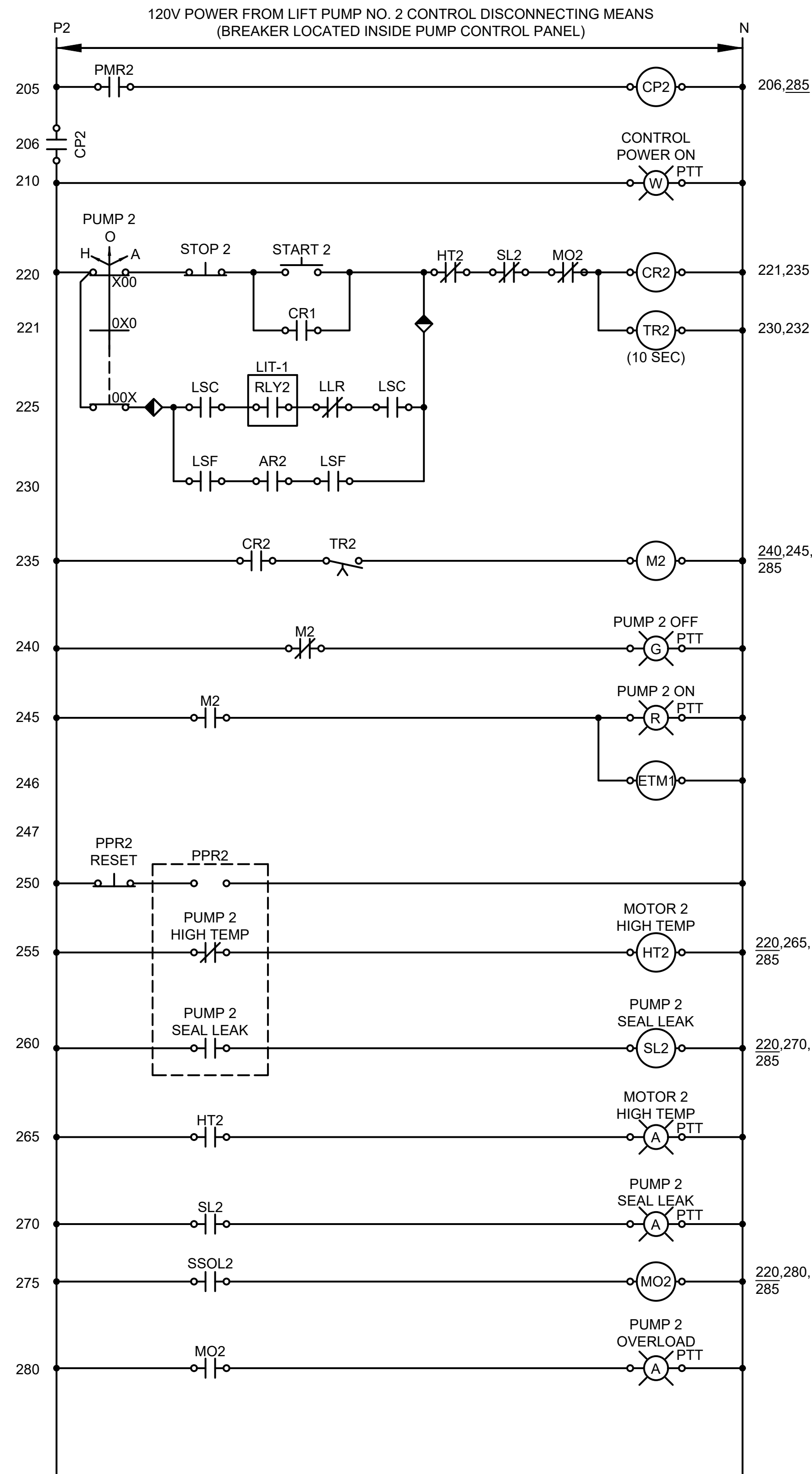
B PUMP CONTROL PANEL #1 CONTROL POWER DISTRIBUTION SCHEMATIC
SCALE: N.T.S.



C PUMP CONTROL PANEL #2 CONTROL POWER DISTRIBUTION SCHEMATIC
SCALE: N.T.S.

ELECTRICAL ABBREVIATIONS

AR	ALTERNATING RELAY FOR FLOAT MODE
CCP	COMPACT CIRCUIT PROTECTOR
CP	CONTROL POWER RELAY
CR	CONTROL RELAY
ETM	ELAPSED TIME METER
HT	MOTOR HIGH TEMPERATURE RELAY
LIT	LEVEL CONTROLLER
LLR	LOW LEVEL RELAY CUTOFF
LSC	LEVEL SYSTEM WITH CONTROLLER
LSF	LEVEL SYSTEM WITH FLOATS
M	FULL VOLTAGE STARTER
MO	MOTOR OVERLOAD RELAY
PMR	PHASE MONITORING RELAY
PPR	PUMP PROTECTION RELAY
PPT	PUSH-TO-TEST
SL	SEAL LEAK RELAY
SS	COIL SURGE SUPPRESSOR
SSOL	SOLID STATE OVERLOAD RELAY
TR	TIMING RELAY



D PUMP #2 MOTOR CONTROL SCHEMATIC
SCALE: N.T.S.

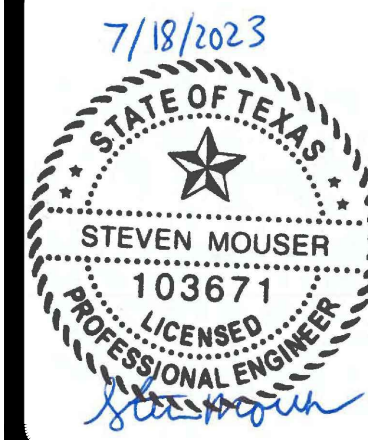
GENERAL NOTES

- ALL INDICATING LAMPS SHALL BE PUSH-TO-TEST TYPE.
- A PUMP PROTECTION RELAY SHALL BE PROVIDED FOR EACH PUMP INSTALLED AND SHALL PROVIDE PROTECTION AGAINST MOTOR HIGH TEMPERATURE AND PUMP SEAL LEAK.
- LEVEL SENSOR PROBES FOR PUMP CONTROL ARE NOT ALLOWED.
- NOT USED
- PUMP PROTECTION RELAY CONTACT LOGIC SHALL BE AS FOLLOW:
 - UNDER NORMAL CONDITIONS, N.C. HIGH TEMP CONTACT IS OPEN, AND N.O. SEAL LEAK CONTACT IS OPEN.
 - UNDER MOTOR HIGH TEMP CONDITION, THE N.C. HIGH TEMP CONTACT CLOSES.
 - UNDER PUMP SEAL LEAK CONDITION, THE N.O. SEAL LEAK CONTACT CLOSES.
- THE CONTACT OF THE OVERLOAD RELAY FOR THE FULL VOLTAGE STARTER SHALL BE OPEN UNDER NORMAL CONDITION AND SHALL CLOSE UNDER OVERLOAD CONDITION.

LEGEND

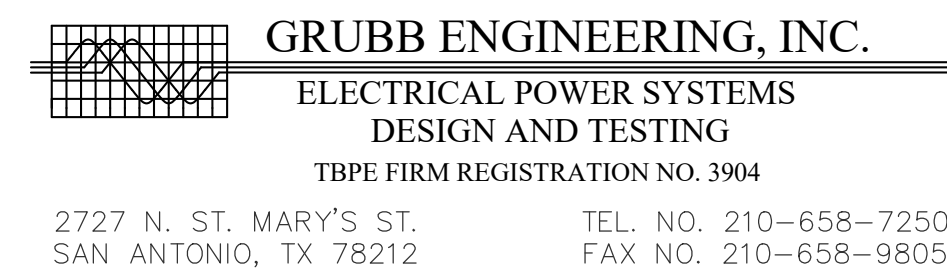
- PUMP CONTROL PANEL (DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.)
- EXTERNAL PANEL WIRING
- INTERNAL PANEL WIRING

DATE	
NO.	
REVISION	

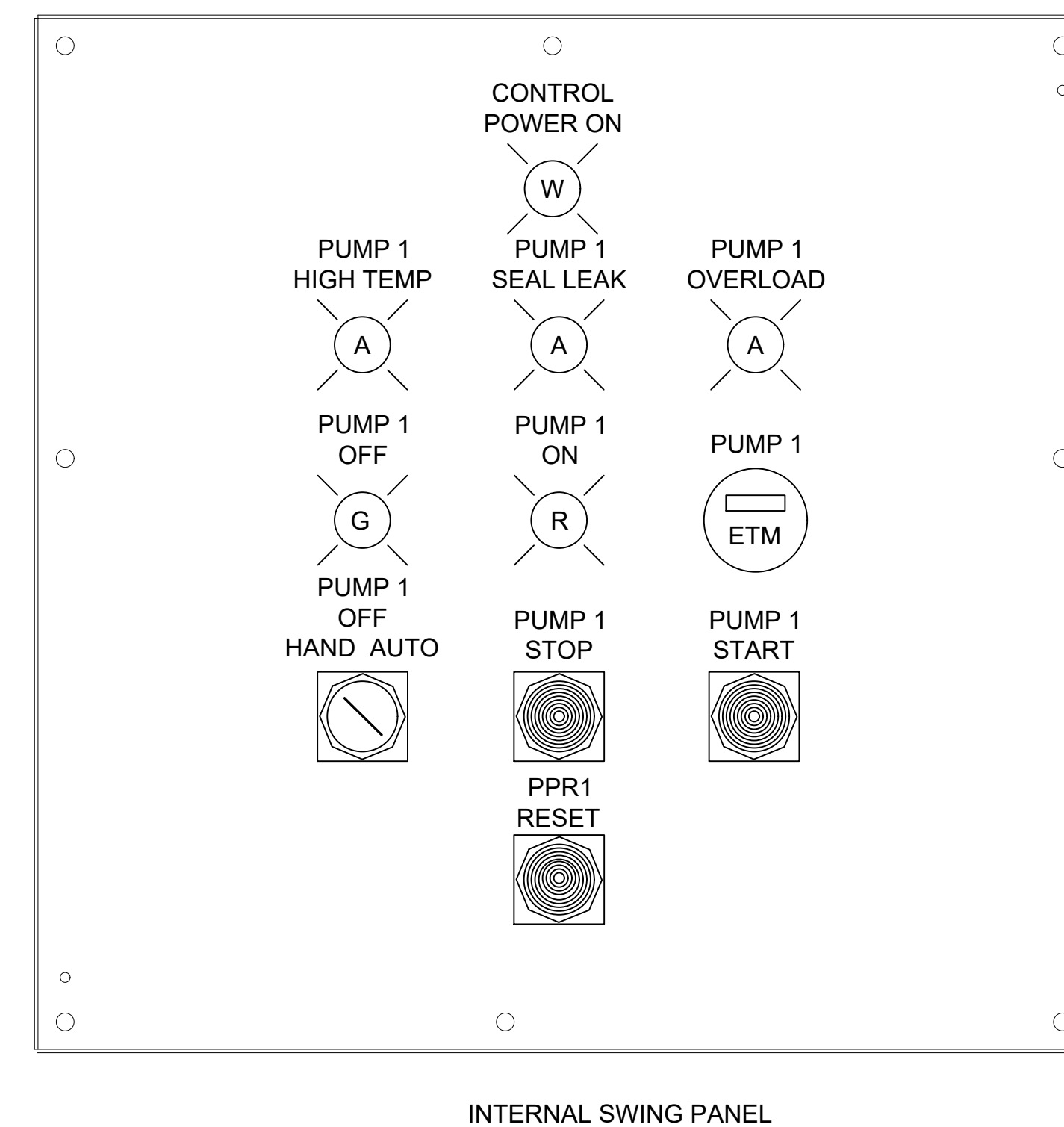


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RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS
LIFT STATION CONTROL DETAILS #1 PUMP CONTROL
PANEL SCHEMATIC



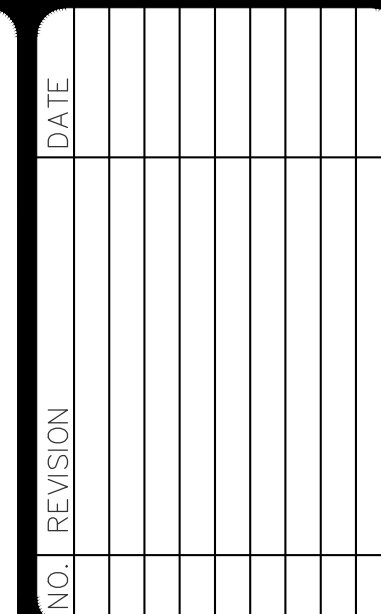
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SEE NOTES 1-11

-
- PANEL CROSS SECTION
- PANEL EXTERIOR
- 1-INCH THICK, GLASS WOOL WITH FRK FACING
- PANEL INTERIOR

SEE NOTES 10-11.



7/18/2023



STEVEN MOUSER
103671
LICENSED
PROFESSIONAL ENGINEER

Steven Mouser

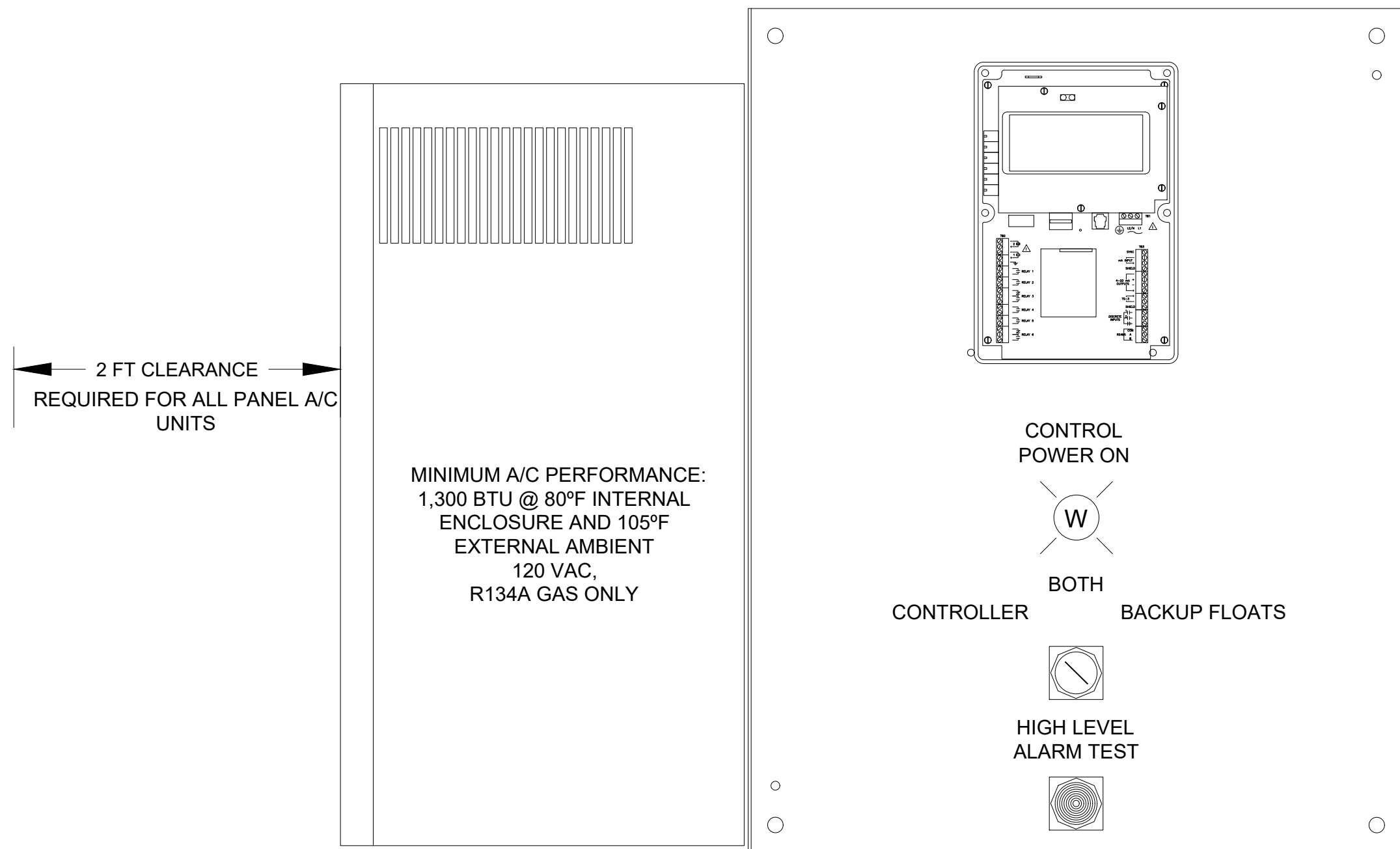
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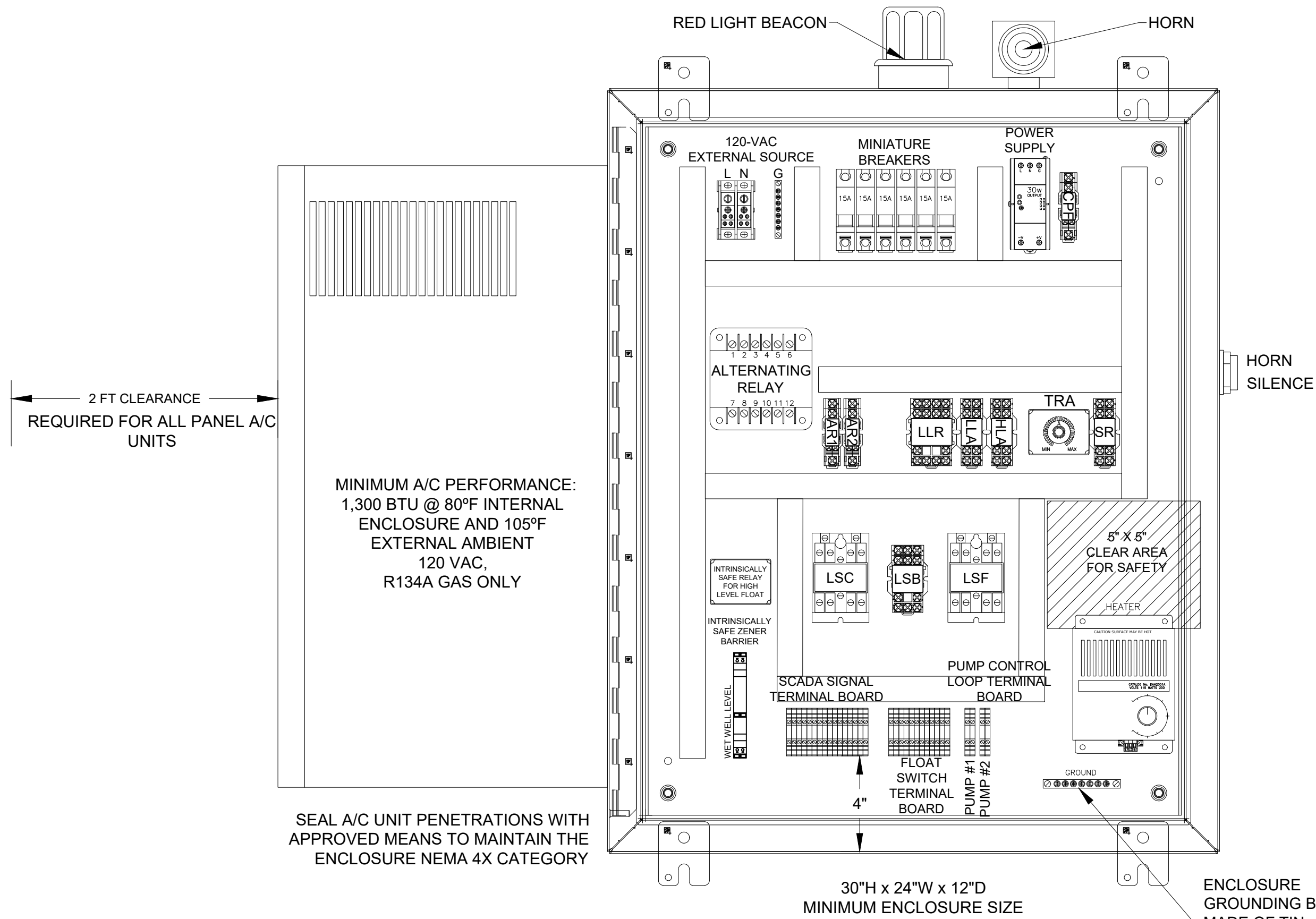
RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS

LIFT STATION CONTROL DETAILS #2
PUMP CONTROL PANEL LAYOUTS

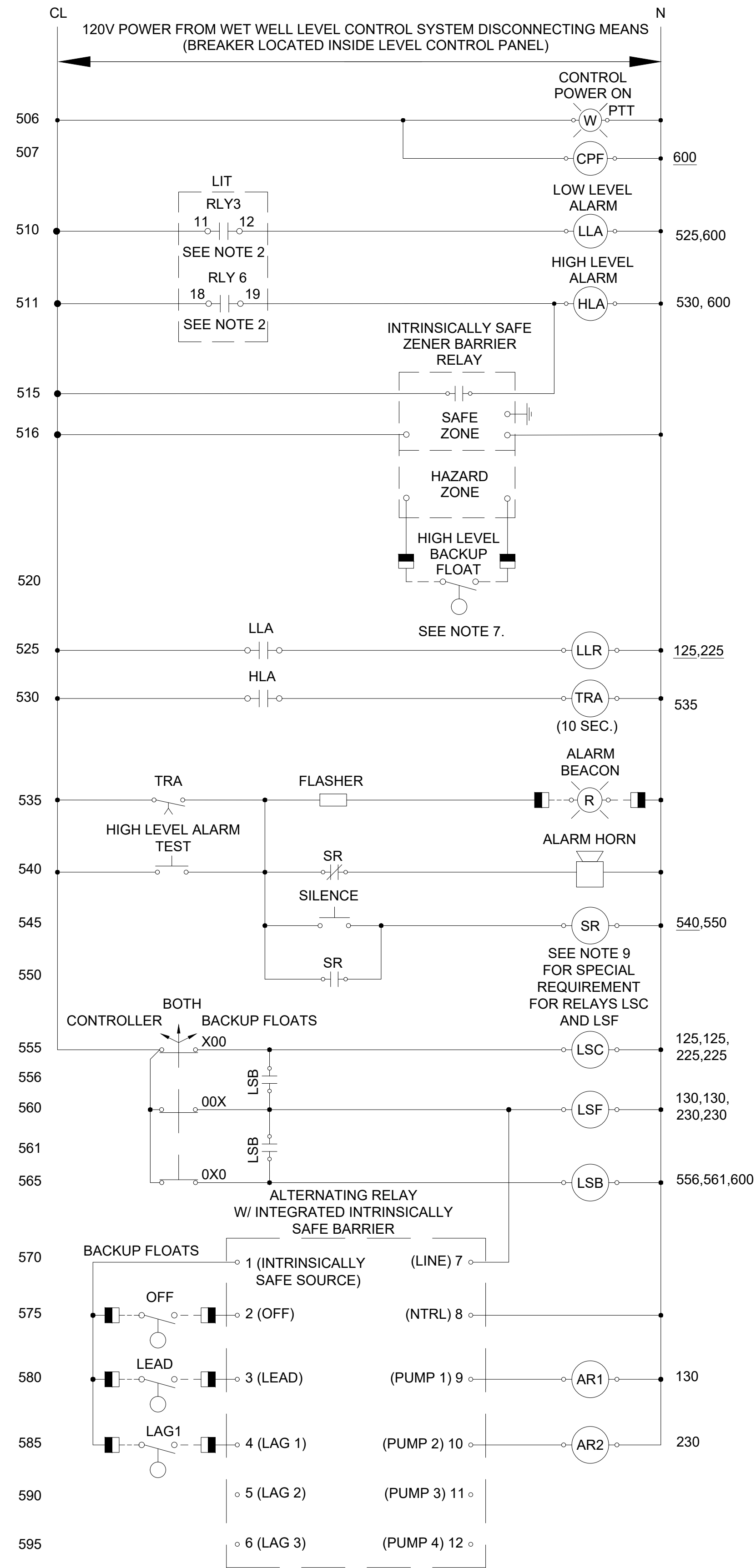
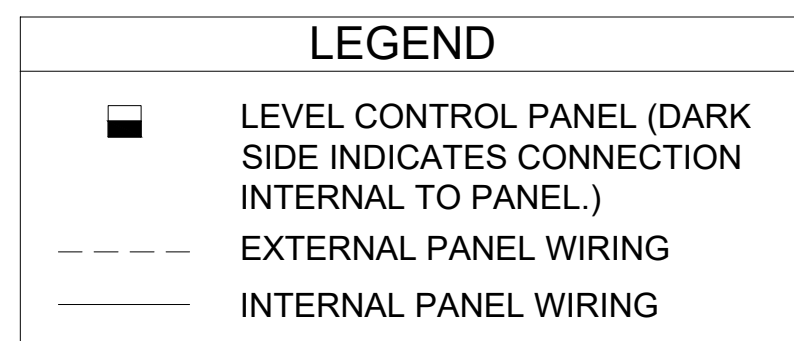
SAWS JOB NO. 22-XXXX
JOB NO. 12632-06
DATE JULY 2023
DESIGNER BD
CHECKED SM DRAWN BD
SHEET E6



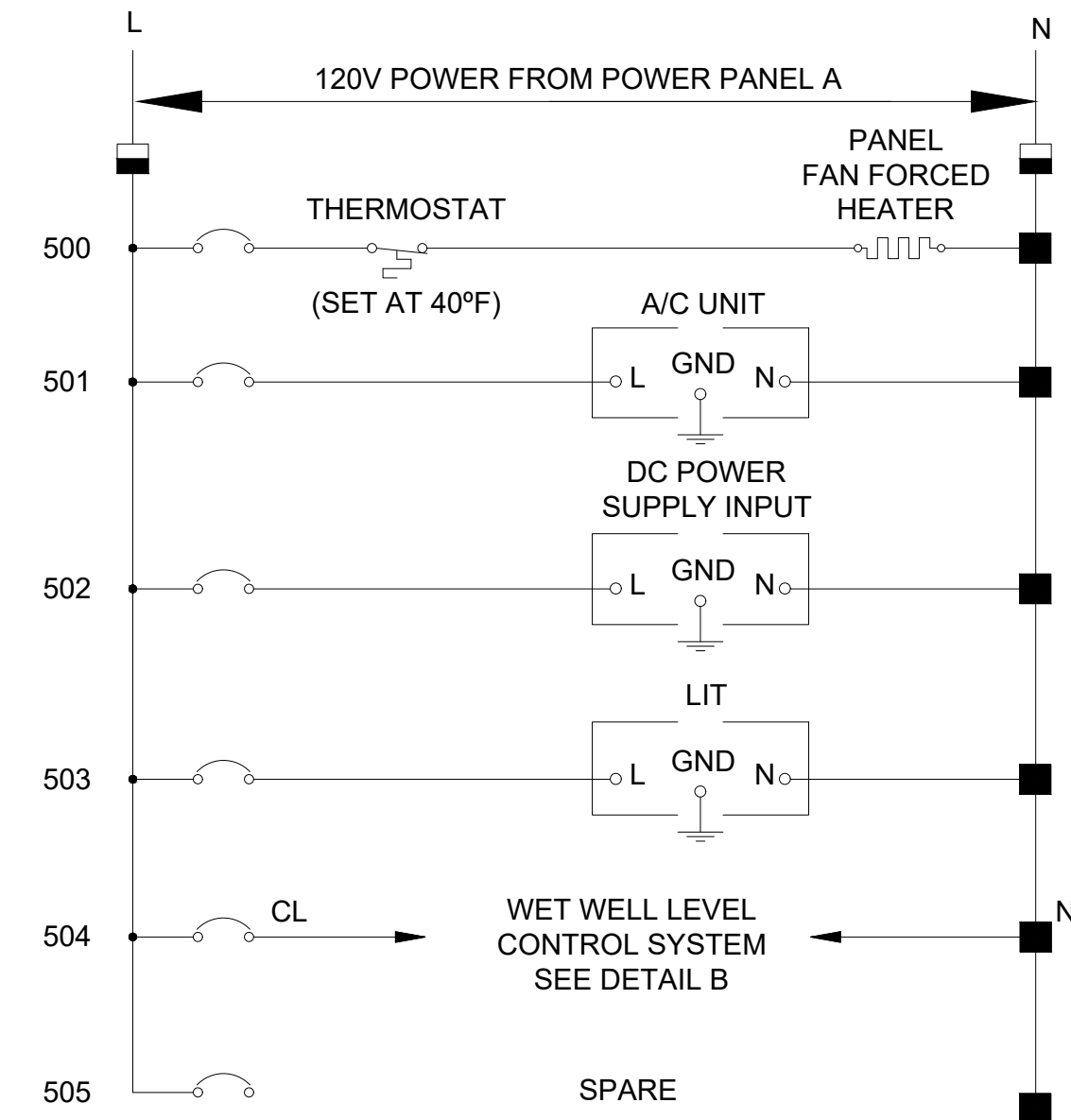
SEAL A/C UNIT PENETRATIONS WITH
APPROVED MEANS TO MAINTAIN THE
ENCLOSURE NEMA 4X CATEGORY



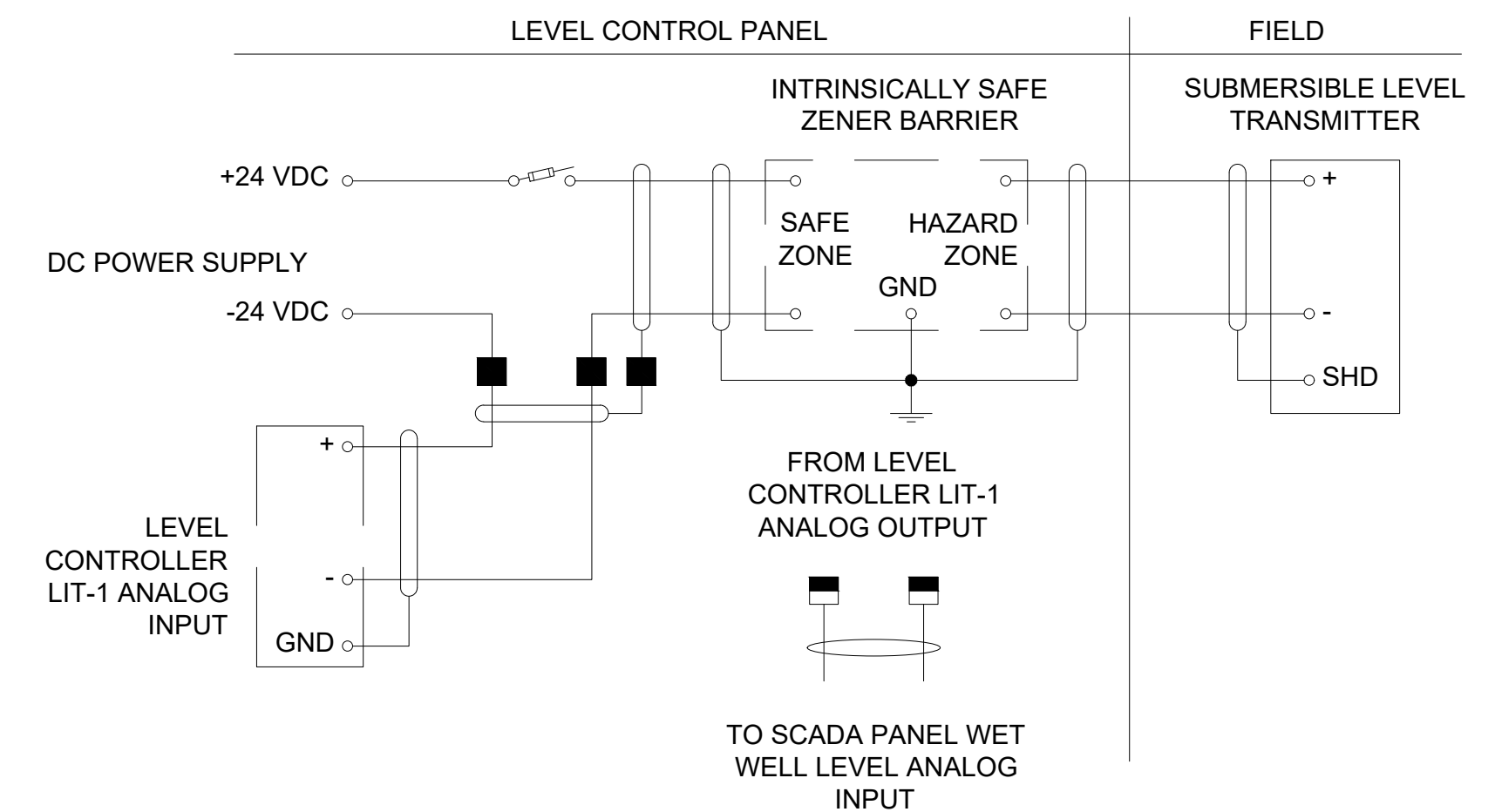
A LEVEL CONTROL PANEL LAYOUT
SCALE: N.T.S.



B LEVEL CONTROL SCHEMATIC LOCATED IN LEVEL CONTROL PANEL
SCALE: N.T.S.



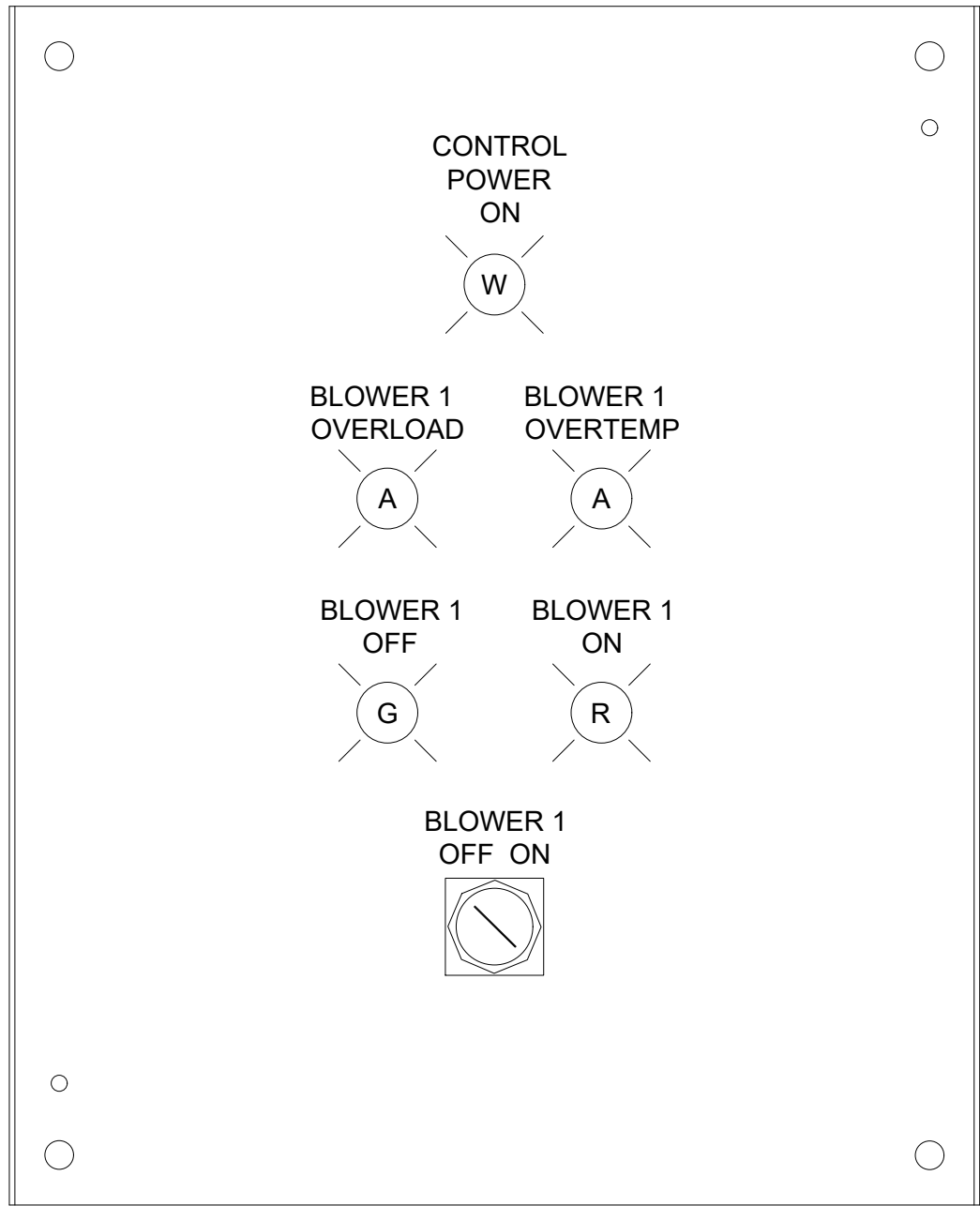
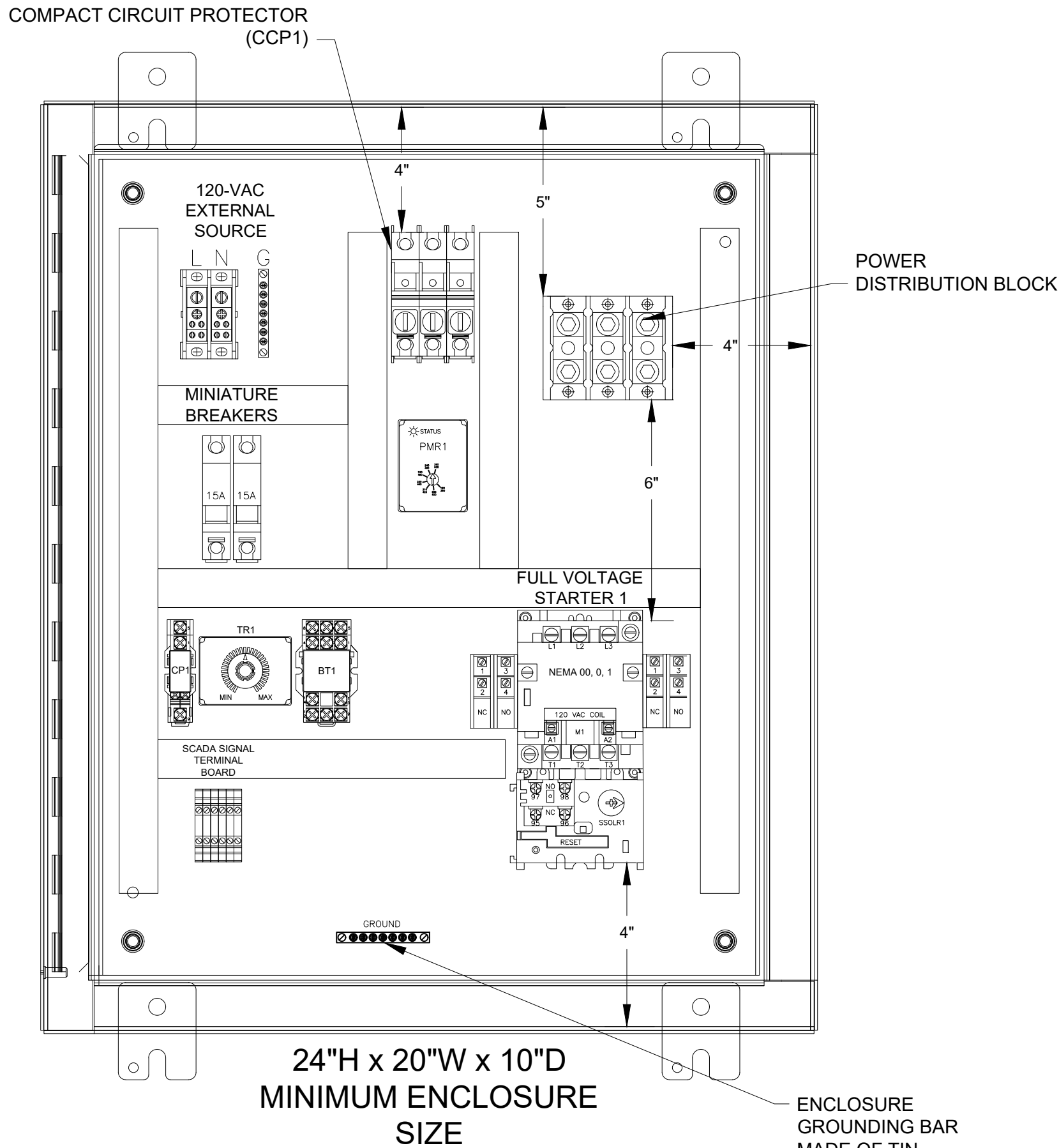
C LEVEL CONTROL PANEL CONTROL
POWER DISTRIBUTION SCHEMATIC
SCALE: N.T.S.



D WET WELL LEVEL TRANSMITTER
INSTRUMENT WIRING SCHEMATIC
SCALE: N.T.S.

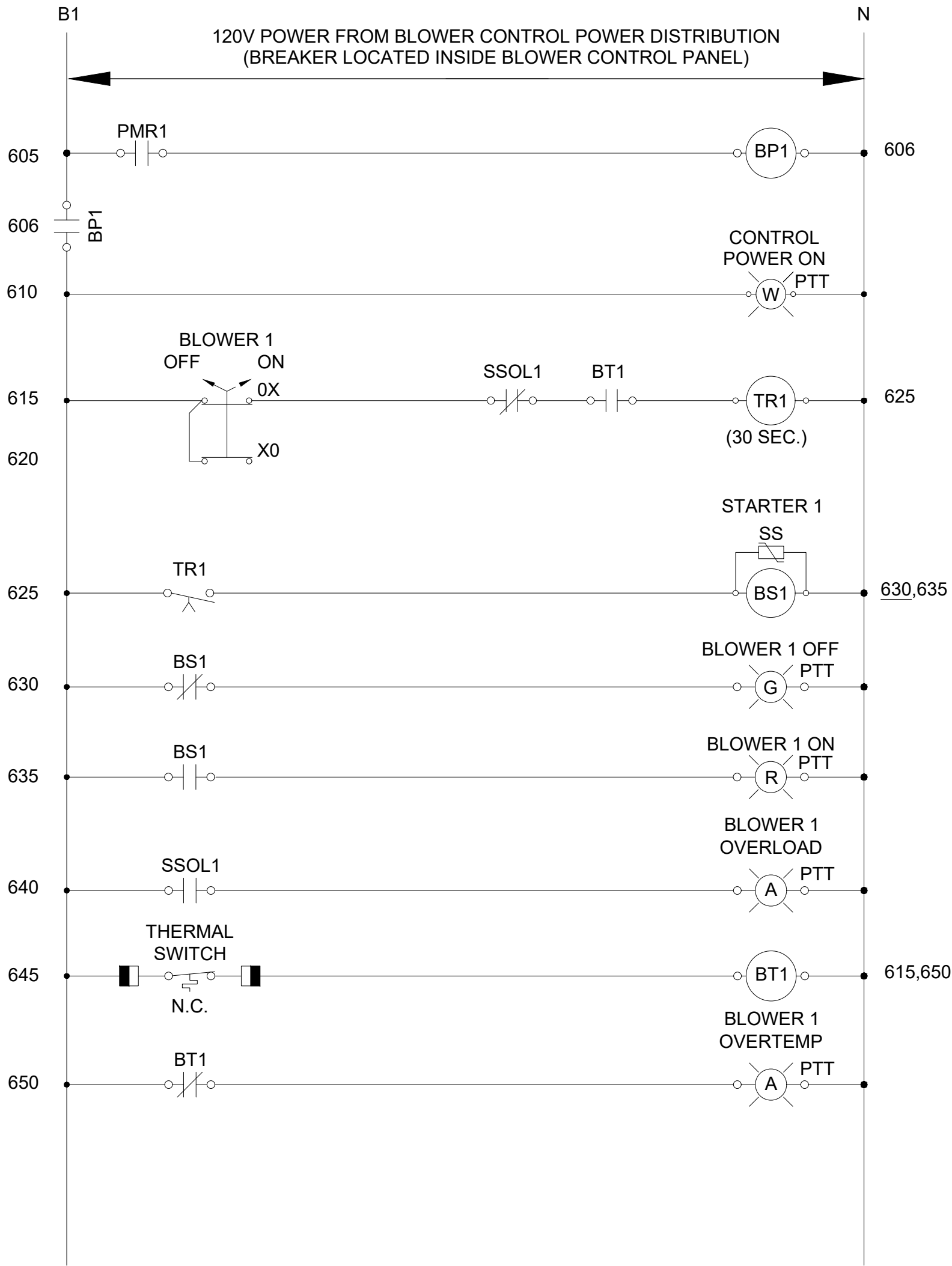
NOTES:

- LEVEL CONTROLLER OUTPUT RELAYS RLY1 AND RLY2 SHALL BE ASSIGNED TO A PUMP FUNCTION AND SHALL BE MANAGED BY A PUMPING ALGORITHM TO ALTERNATE THE LEAD PUMP AND LAG PUMP FOR EACH PUMPING CYCLE.
- LEVEL CONTROLLER OUTPUT RELAYS RLY3 AND RLY6 SHALL BE ASSIGNED FOR WET WELL LOW LEVEL ALARM AND HIGH LEVEL ALARM RESPECTIVELY. UNDER NORMAL WET WELL LEVEL CONDITION, BOTH RELAYS SHALL BE DE-ENERGIZED AND CONTACTS OPEN. UNDER WET WELL LEVEL ALARM CONDITION, THE RESPECTIVE RELAY SHALL BE ENERGIZED AND CONTACT CLOSED.
- RELAY RLY3 (LOW LEVEL) IS A COMMON RELAY FOR ALL PUMPS INSTALLED.
- HIGH LEVEL ALARM SHALL BE GENERATED WITH BOTH RELAY RLY6 (HIGH LEVEL) AND THE HIGH LEVEL FLOAT.
- ALL INDICATING LAMPS SHALL BE PUSH-TO-TEST TYPE.
- THE LOAD OF EACH INTERNAL DIGITAL RELAY OF THE LEVEL CONTROLLER MUST BE LIMITED TO NO MORE THAN ONE GENERAL PURPOSE RELAY COIL AND ONE TIME DELAY RELAY COIL, OR TWO GENERAL PURPOSE RELAY COILS.
- BACKUP FLOAT SWITCHES SHALL BE PROVIDED AS SHOWN.
- ENCLOSURE SHALL INCLUDE A PANEL MOUNT A/C UNIT. THE CAPACITY OF THE A/C UNIT, FOR THE ENCLOSURE SIZE INDICATED, SHALL BE 1,300-BTU/HR FOR AN ENCLOSURE INTERNAL TEMPERATURE OF 80°F AND AN EXTERNAL AMBIENT TEMPERATURE OF 105°F.
- RELAYS LSC AND LSF SHALL BE OF THE NEMA INDUSTRIAL CONTROL RELAY TYPE WITH STACKABLE MULTIPLE CONTACTS, AND EACH RELAY SHALL BE PROVIDED WITH TWO (2) INDEPENDENT N.O. CONTACTS FOR EACH PUMP INSTALLED AND CONTROLLED RESPECTIVELY.
- INSTALL #6-AWG BARE STRANDED COPPER AND BOND TO COMMON GROUND FOR SUPPLEMENTAL GROUNDING



INTERNAL SWING PANEL

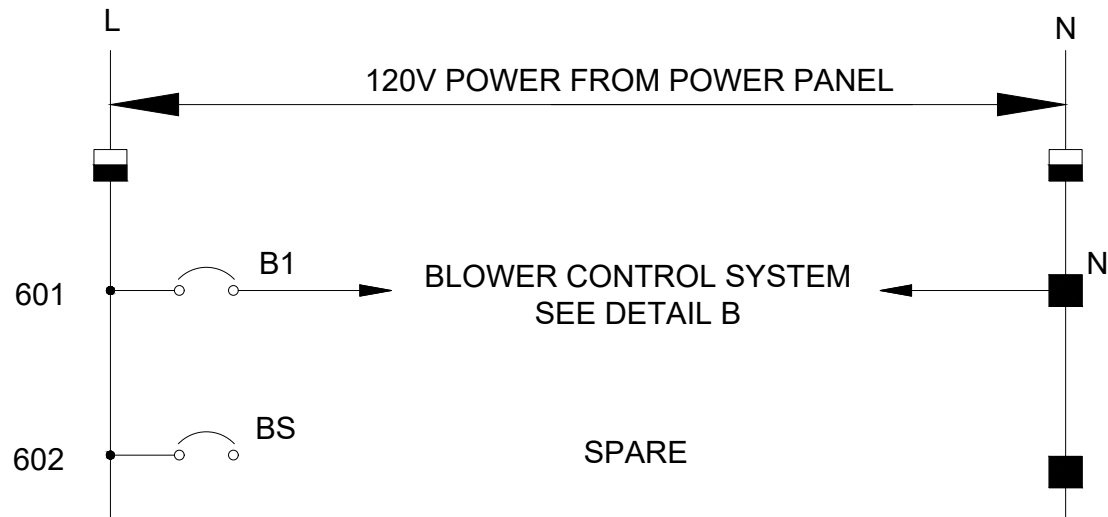
A ODOR CONTROL BLOWER PANEL LAYOUT
SCALE: N.T.S.



B ODOR CONTROL BLOWER CONTROL SCHEMATIC
SCALE: N.T.S.

NOTES:

- ALL INDICATING LAMPS SHALL BE PUSH-TO-TEST TYPE.
- THE BLOWER INTERNAL THERMAL SWITCH IS CLOSED UNDER NORMAL CONDITION AND SHALL OPEN UNDER BLOWER OVERTEMPERATURE CONDITION.
- INSTALL #6-AWG BARE STRANDED COPPER AND BOND TO COMMON GROUND FOR SUPPLEMENTAL GROUNDING.



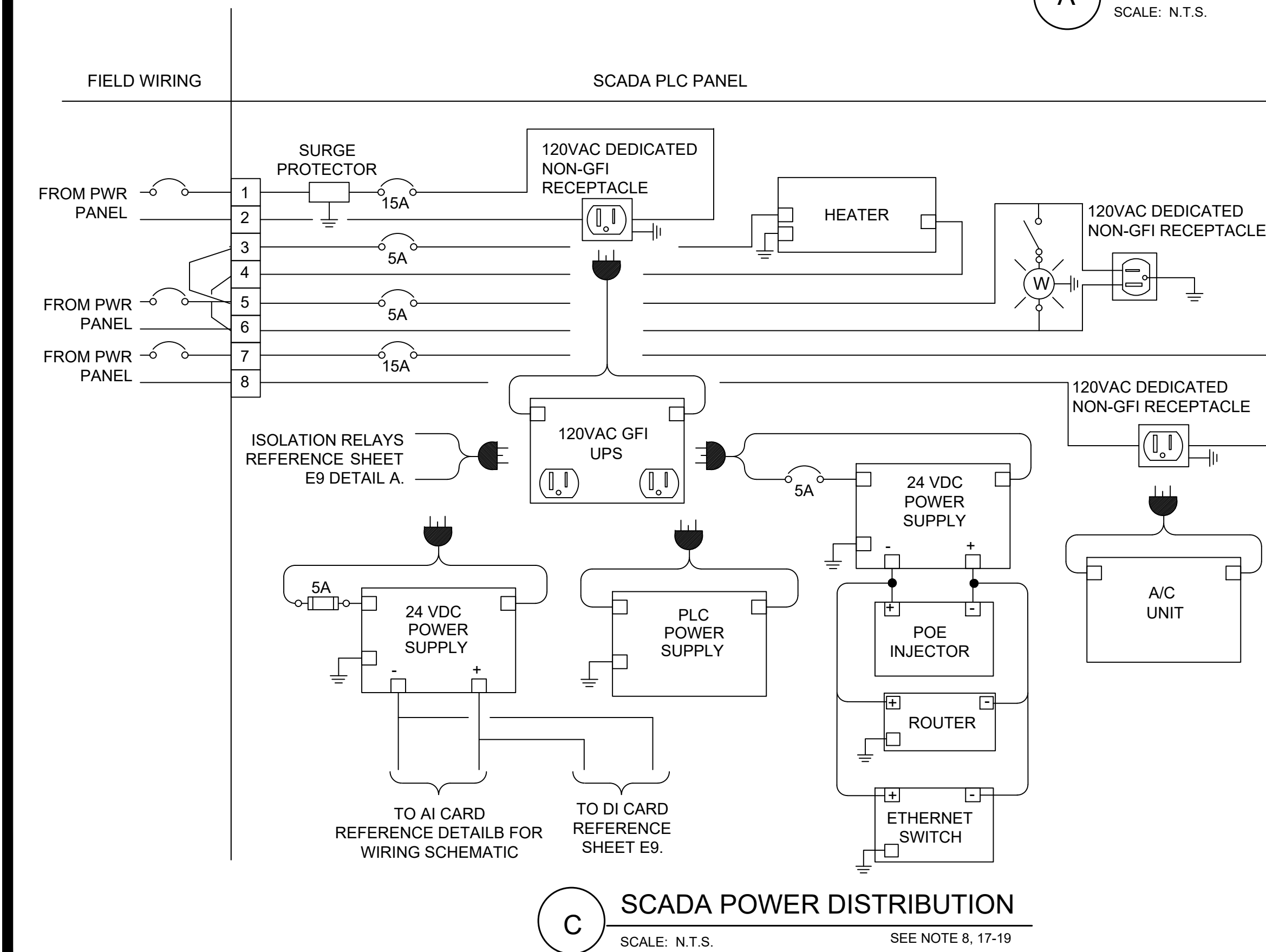
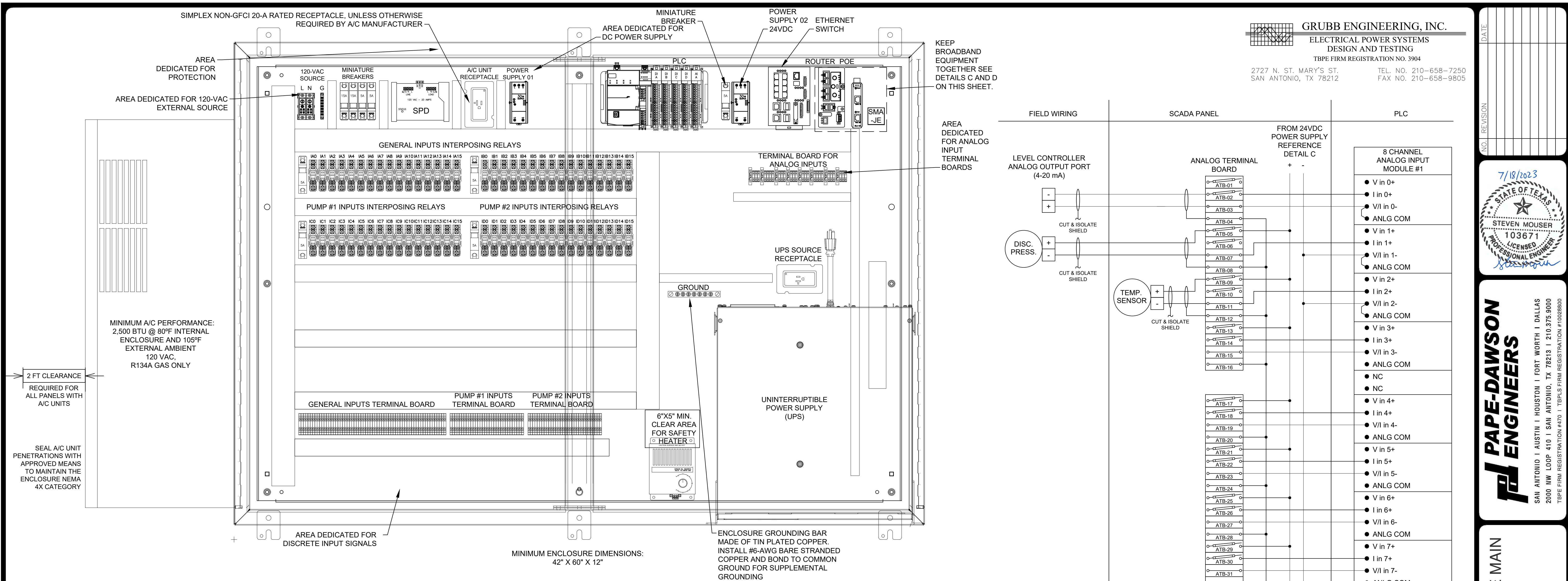
C ODOR CONTROL BLOWER CONTROL
POWER DISTRIBUTION SCHEMATIC
SCALE: N.T.S.

ELECTRICAL ABBREVIATIONS

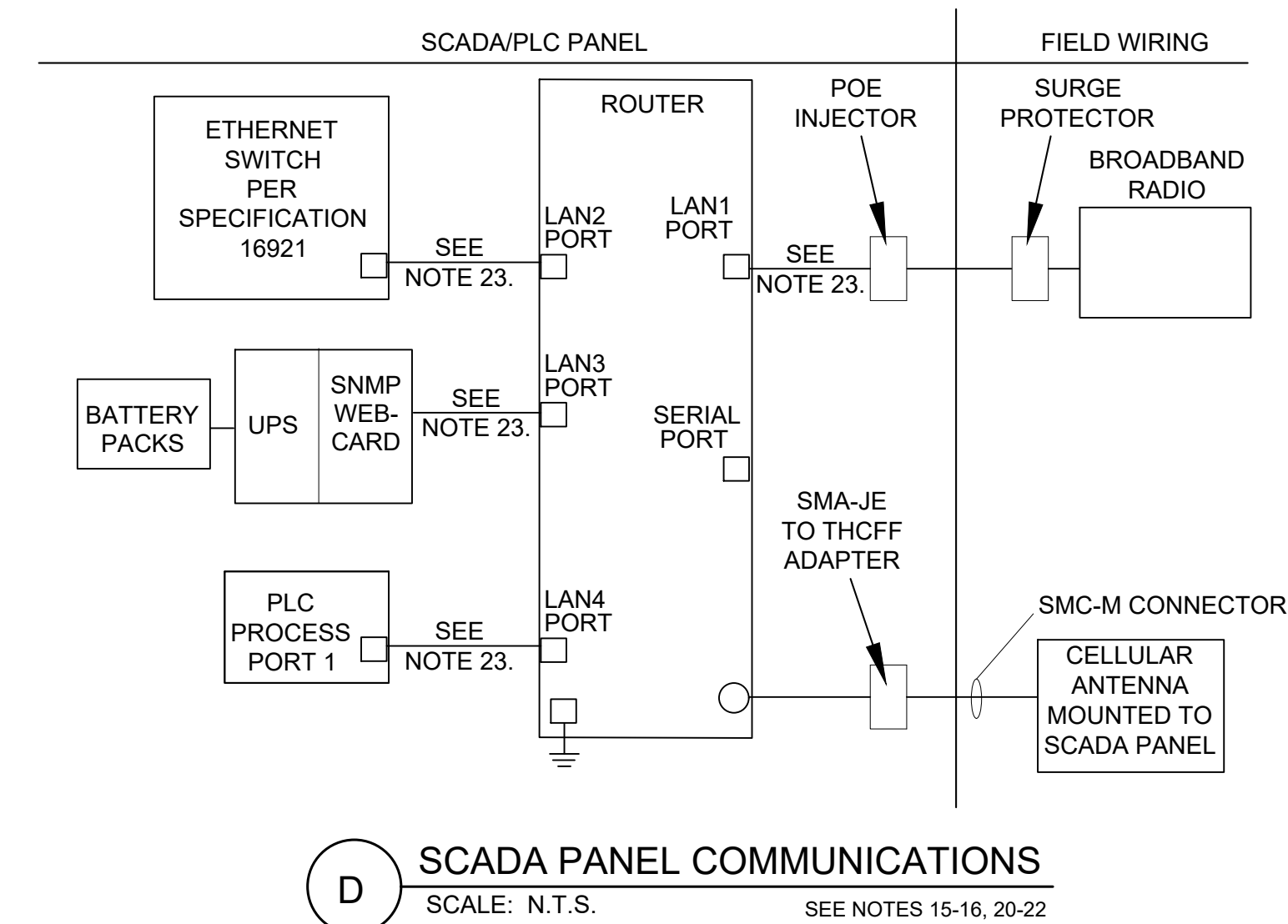
BS	BLOWER FULL VOLTAGE STARTER
BT	BLOWER OVER TEMPERATURE RELAY
CCP	COMPACT CIRCUIT PROTECTOR
CP	CONTROL POWER
PMR	PHASE MONITORING RELAY
PTT	PUSH-TO-TEST
SS	COIL SURGE SUPPRESSOR
SSOL	SOLID STATE OVERLOAD RELAY
TR	TIMING RELAY

LEGEND

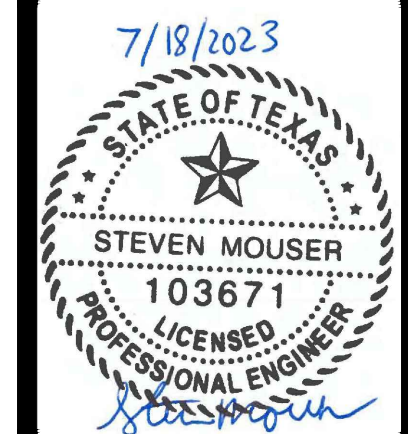
	BLOWER CONTROL PANEL (DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.)
	EXTERNAL PANEL WIRING
	INTERNAL PANEL WIRING



- NOTES:
- THIS DETAIL IS SHOWN PER SAWS LIFT STATION SCADA DESIGN GUIDELINES.
 - INSTALL ONE ISOLATION RELAY FOR EACH DISCRETE INPUT PROVIDED PER EACH MODULE INSTALLED. EACH DISCRETE INPUT LOOP SHALL BE PRE WIRED FROM THE TERMINAL BOARD, TO ISOLATION RELAY TO MODULE INPUT CHANNEL. SIMILARLY, INSTALL ONE FUSED TERMINAL BOARD WITH A 32-MA FUSE AND ASSOCIATED NEGATIVE AND GROUND TERMINAL BOARDS FOR EACH ANALOG INPUT CHANNEL PROVIDED BY THE MODULE AND ALSO PRE WIRE THE ANALOG LOOPS. ALL ISOLATION RELAYS TO BE SINGLE POLE SINGLE THROW. WIRE ALL RELAYS TO INPUT CARDS, INCLUDING SPARES.
 - CONTRACTOR SHALL PROVIDE ADEQUATE SPACE FOR COMPONENT REMOVAL. SCADA PANEL SUBMITTAL SHALL SHOW OFFSET DISTANCES OF COMPONENTS FROM ENCLOSURE EDGES AND BETWEEN COMPONENTS.
 - AIR CONDITIONER SIZE IS AN APPROXIMATION. CONTRACTOR TO SIZE AIR CONDITIONER PER EQUIPMENT AND ENCLOSURE SIZE. CATEGORY ENCLOSURE INTERNAL TEMPERATURE SHALL BE 80°F AND EXTERNAL AMBIENT TEMPERATURE OF 105°F
 - RADIO LABEL SHALL HAVE SERIAL NUMBER.
 - REFER TO SPECIFICATION 16050 AND SHEET E9.
 - ALL INSTRUMENT SIGNAL CABLES (SHIELDED CABLES) SHALL BE CONTINUOUS WITHOUT SPLICES.
 - THE UNINTERRUPTIBLE POWER SUPPLY SHALL BE INSTALLED WITHIN THE SCADA ENCLOSURE WITHOUT INTERFERING WITH ACCESS TO TERMINAL STRIPS, RELAYS, SPACE HEATER OR ANY OTHER TYPE OF DEVICE. THE SIZING OF THE UPS AND EXTERNAL BATTERY TO PROVIDE 2 HOURS OF EXTENDED RUNTIME AT 125% OF CONSTANT LOAD.
 - THE ENCLOSURE TEMPERATURE TRANSDUCER SHALL BE PROVIDED WITH RTD TO COVER A TEMPERATURE RANGE OF 0 TO 150.°F.
 - ENCLOSURE SHALL BE RATED NEMA 4X, BE MADE OF STAINLESS STEEL 316 AND SHALL BE WHITE ENAMELED COATED.
 - SPACE HEATER SHALL BE PROVIDED WITH MINIMUM SAFETY CLEARANCES INDICATED BY MANUFACTURER TO PREVENT DAMAGE DUE TO CLOSENESS TO HEATER.
 - THE ENCLOSURE DOOR SHALL BE PROVIDED WITH AN INTERNAL FOLDING TABLE, AND A POCKET TO STORE WIRING DIAGRAMS AND O&M INFORMATION.
 - INSULATION IS REQUIRED FOR ALL ENCLOSURES EQUIPPED WITH A/C UNIT, INCLUDING SCADA ENCLOSURES, AND LEVEL CONTROL ENCLOSURES. SEE SHEET E6 DETAIL B.
 - INSTALL INSULATING SHEETS IN THE INTERIOR SURFACES OF THE PANEL, INCLUDING DOOR(S). NOT REQUIRED FOR INTERNAL SWING PANELS.
 - ALL CABLES, CONNECTORS, & PINOUT CONNECTIONS SHALL BE SUBMITTED TO OWNER FOR APPROVAL.
 - CONTRACTOR TO INTEGRATE, CONFIGURE AND PROGRAM RELAYS.
 - CONTRACTOR SHALL FURNISH AND INSTALL ADDITIONAL 8-POINT ANALOG INPUT CARD, IFM MODULES AND CONNECTION CABLES FOR FUTURE ANALOG INPUTS.
 - PROVIDE SPARE TERMINALS FOR ALL SPARE INPUTS.
 - ALL CONNECTIONS TO BE HARDWIRED. PLUGS ARE SHOWN FOR DIAGRAMMATIC PURPOSE ONLY.
 - REFER TO SPECIFICATION 16921 FOR EQUIPMENT DETAILS.
 - TIA/EIA 568B OSP CAT 6, #23 AWG ETHERNET OUTDOOR, UL LISTED, 23 AWG WITH WATERPROOF WATERTIGHT RATED IP67 RATED RJ45 CONNECTORS AT EACH END. (DO NOT EXCEED 300 FEET.) CABLE WILL BE SUPERIOR ESSEX TYPE BBDGE CABLE, COPPER CLAD CABLING, PART NUMBER#: ENDURAGAIN OSP SHIELDED SUPERIOR ESSEX 04-001-64, NO SUBSTITUTIONS.
 - MOUNT CELLULAR ANTENNA ON TOP OF SCADA PANEL IF CELLULAR SERVICE IS DEEMED ACCEPTABLE TO SAWS INSPECTIONS. USE OUTDOOR RATED COAXIAL CABLE FOR CONNECTION.
 - UTP CAT6 JUMPER USE PURPLE COLOR FOR SCADA DEVICES.



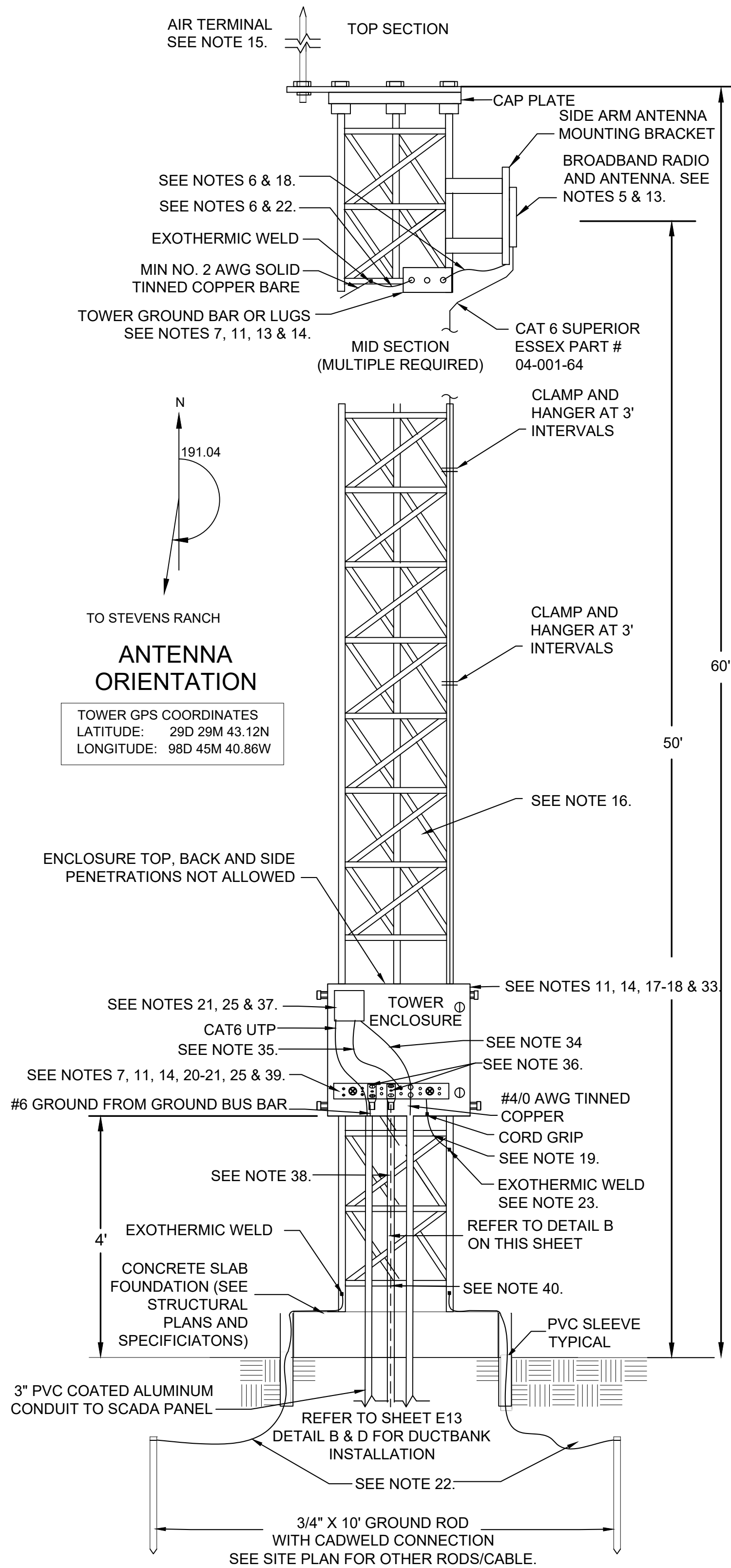
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ELECTRICAL POWER SYSTEMS
DESIGN AND TESTING
TBPE FIRM REGISTRATION NO. 3904
2727 N. ST. MARY'S ST.
SAN ANTONIO, TX 78212
TEL. NO. 210-658-7250
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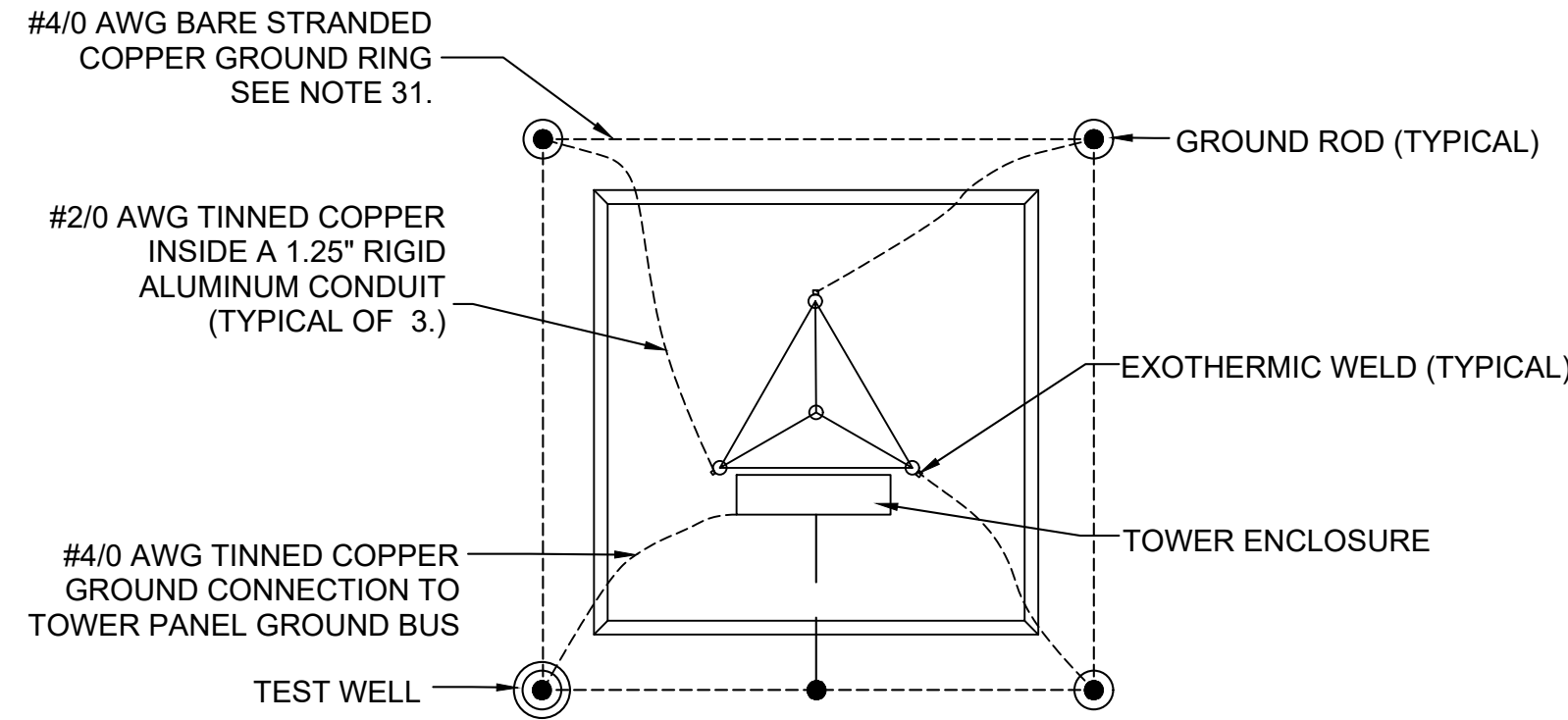
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RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS
LIFT STATION
SCADA DETAILS #2

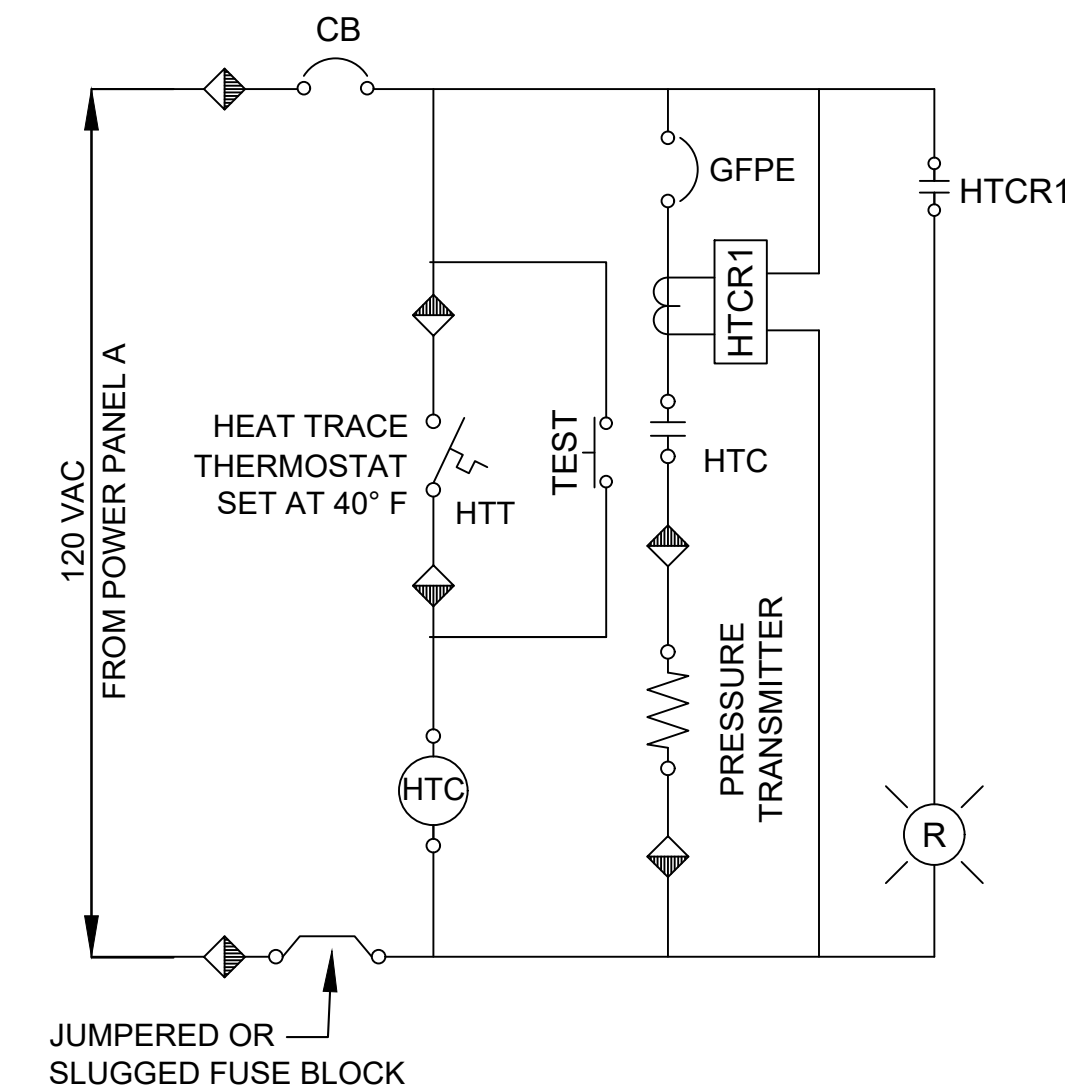
SAWS JOB NO. 22-XXXX
JOB NO. 12632-06
DATE JULY 2023
DESIGNER BD
CHECKED SM DRAWN BD
SHEET E10



A SIDE VIEW SCADA ANTENNA TOWER & RADIO PANEL
SCALE: N.T.S. SEE NOTES 1-25 & 31-40.



B ANTENNA CABLE ROUTING AND GROUNDING DETAILS PLAN VIEW
SCALE: N.T.S. SEE NOTES 31-32.



D PRESSURE TRANSMITTER HEAT TRACE CONTROL
SCALE: N.T.S. SEE NOTES 41-42

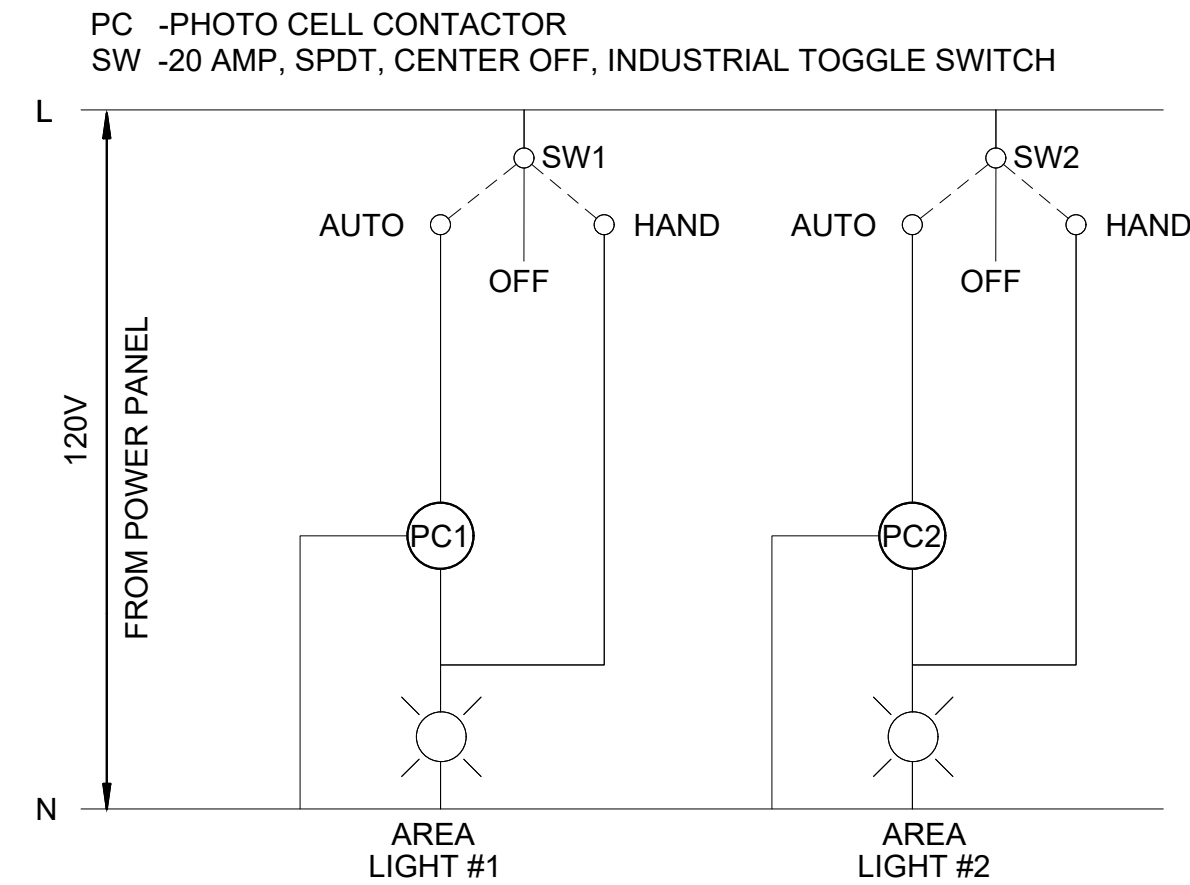
NOTES:

1. CONTRACTOR SHALL PROVIDE TOWER PER SPECIFICATION 17600.
2. CONTRACTOR TO USE CABLE CLAMPS AND HANGERS BY ANDREW OR EQUAL SUITABLE FOR HANGING COAX CABLE. HOSE CLAMPS AND WIRE TIES ARE NOT ALLOWED.
3. ANTENNA TOWER SHOWN IS FOR DIAGRAMMATIC PURPOSES ONLY. FOR REQUIRED MATERIAL SPECIFICATIONS, EQUIPMENT INSTALLATION, NOTES AND TOLERANCES SEE MANUFACTURER DRAWINGS.
4. AZIMUTH IS BASED ON THE CLOCKWISE ANGLE FROM TRUE NORTH AS SHOWN.
5. CONTRACTOR SHALL SUPPLY ALL ASSOCIATED EQUIPMENT FOR TOWERS PER SPECIFICATION 17600.
6. REFER TO SAWS LATEST DESIGN GUIDELINES AS REQUIRED BY SAWS, FOR TOWER GROUNDING DETAIL, COMPLY WITH TOWER GROUNDING REQUIREMENTS PER TOWER MANUFACTURER.
7. TOWER GROUND BAR OR LUG SHALL BE MADE OF TIN PLATED COPPER. DO NOT DRILL TOWER STRUCTURE. USE HARGER P/N TGB114212TGBKT FOR MOUNTING. USE TWO HOLE LUGS AT BUSBARS.
8. CAT 6 CABLE SHALL BE ROUTED THROUGH PULLBOX AND UP TOWER USING CABLE CLAMPS. CABLE SHALL NOT BE ROUTED THROUGH TOP OF PULLBOX. TOP AND SIDE PENETRATIONS WILL NOT BE ACCEPTED.

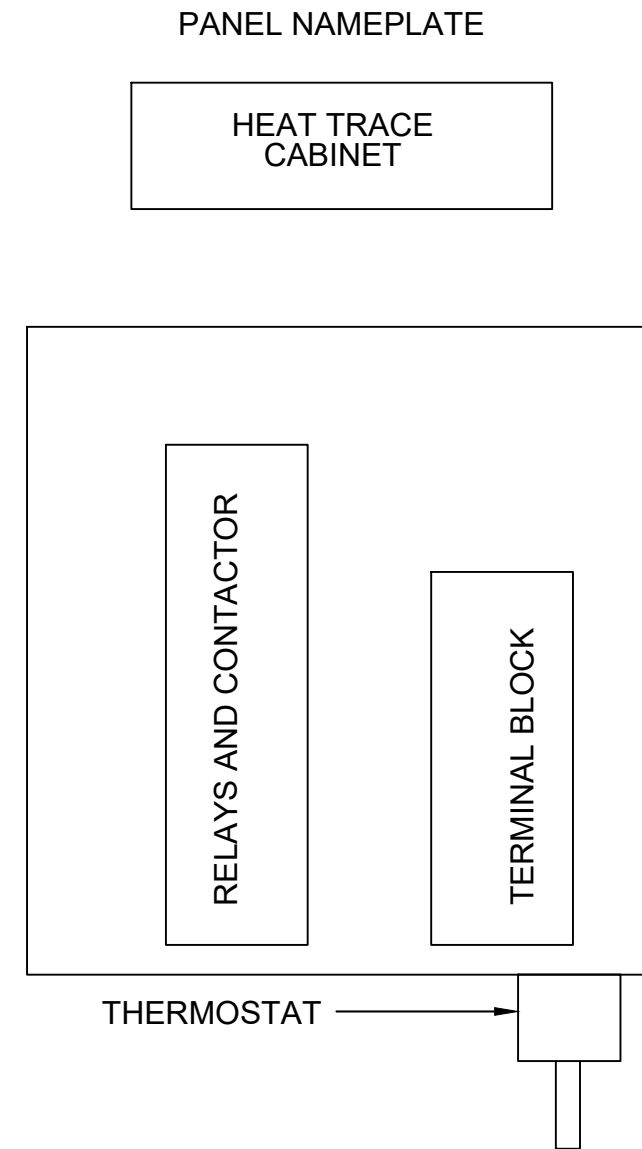
9. ALL UNDERGROUND ELECTRIC CONDUIT SHALL BE CONCRETE ENCASED 24 INCHES BELOW GRADE.
10. ALL ENCLOSURES AND DISCONNECTS SHALL BE PAD-LOCKABLE.
11. ALL MOUNTING HARDWARE AND STRUT CHANNEL SHALL BE 316 STAINLESS STEEL. ALL ENCLOSURES SHALL BE NEMA 4X, UNLESS OTHERWISE NOTED.
12. GROUND RESISTANCE SHALL BE AS MINIMUM AS POSSIBLE, BUT IN NO CASE SHALL EXCEED 5 OHMS.
13. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED EQUIPMENT FOR MOUNTING ANTENNA TO THE TOWER AT AN ELEVATION OF 50 FOOT ON A 60 FOOT TOWER.
14. REFER TO SPECIFICATION 17600 FOR ADDITIONAL DETAILS.
15. THE COMPLETED INSTALLATION OF THE LIGHTNING PROTECTION SYSTEM SHALL MEET THE "INSTALLATION REQUIREMENTS FOR LIGHTNING PROTECTION SYSTEMS UL96A OF UNDERWRITERS LABORATORIES CURRENT EDITION AND NFPA 780 CURRENT EDITION. A CERTIFICATE OF COMPLETION FROM AN AUTHORITY HAVING JURISDICTION SHALL BE FURNISHED TO THE OWNER UPON COMPLETION. CONTRACTOR TO REFER TO TOWER MANUFACTURER GUIDELINES FOR INSTALLATION OF LIGHTNING PROTECTION SYSTEM. CONTRACTOR TO REFER TO RADIO MANUFACTURER FOR AIR TERMINAL MOUNTING REQUIREMENTS.

16. 10-FOOT CLIMB GUARDS SHALL BE PROVIDED TO EACH SIDE OF THE TOWER. MUST BE CUSTOM MADE IF MANUFACTURER IS UNABLE TO PROVIDE THEM.
17. THE LIGHTNING PROTECTION UNIT WILL BE CONTAINED IN AN NEMA 4 ENCLOSURE AT THE BASE OF THE TOWER TO INCLUDE A BUS BAR FOR BONDING AND GROUNDING. ONE BUS BAR AND A TOWER LIGHTNING 4 FT COPPER TINNED AIR TERMINAL SHALL BE REQUIRED TO BE BONDED AT TOP OF TOWER. LIGHTNING PROTECTION UNITS, SURGE PROTECTION MODULES, BUS BARS AND AIR TERMINALS WILL BE BONDED AND GROUNDED IN ACCORDANCE WITH MANUFACTURERS' STANDARDS AND MEET OR EXCEED TIA-607D STANDARDS. AS TECHNOLOGY ADVANCES OVER TIME, COORDINATE WITH SAWS STANDARDS ON LIGHTNING PROTECTION DEVICES.
18. CONTRACTOR TO USE #6 AWG 19 STRAND CABLE WITH GREEN INSULATION.
19. CONTRACTOR TO USE #2 AWG SOLID BARE TINNED COPPER. MUST BE ON THE TOWER AND AT THE CENTER OF BUS BAR
20. TELECOMMUNICATIONS BONDING AND GROUNDING OF TOWER MUST COMPLY WITH ANSI/TIA/EIA-607-D AND TIA/EIA-222 LATEST EDITIONS.
21. ALL MECHANICAL CONNECTIONS FOR BONDING AND GROUNDING MUST USE ANTIOXIDANT COMPOUND HARGER P/N HCAJC1/2 OR HCAJC8 OR OWNER APPROVED EQUAL.

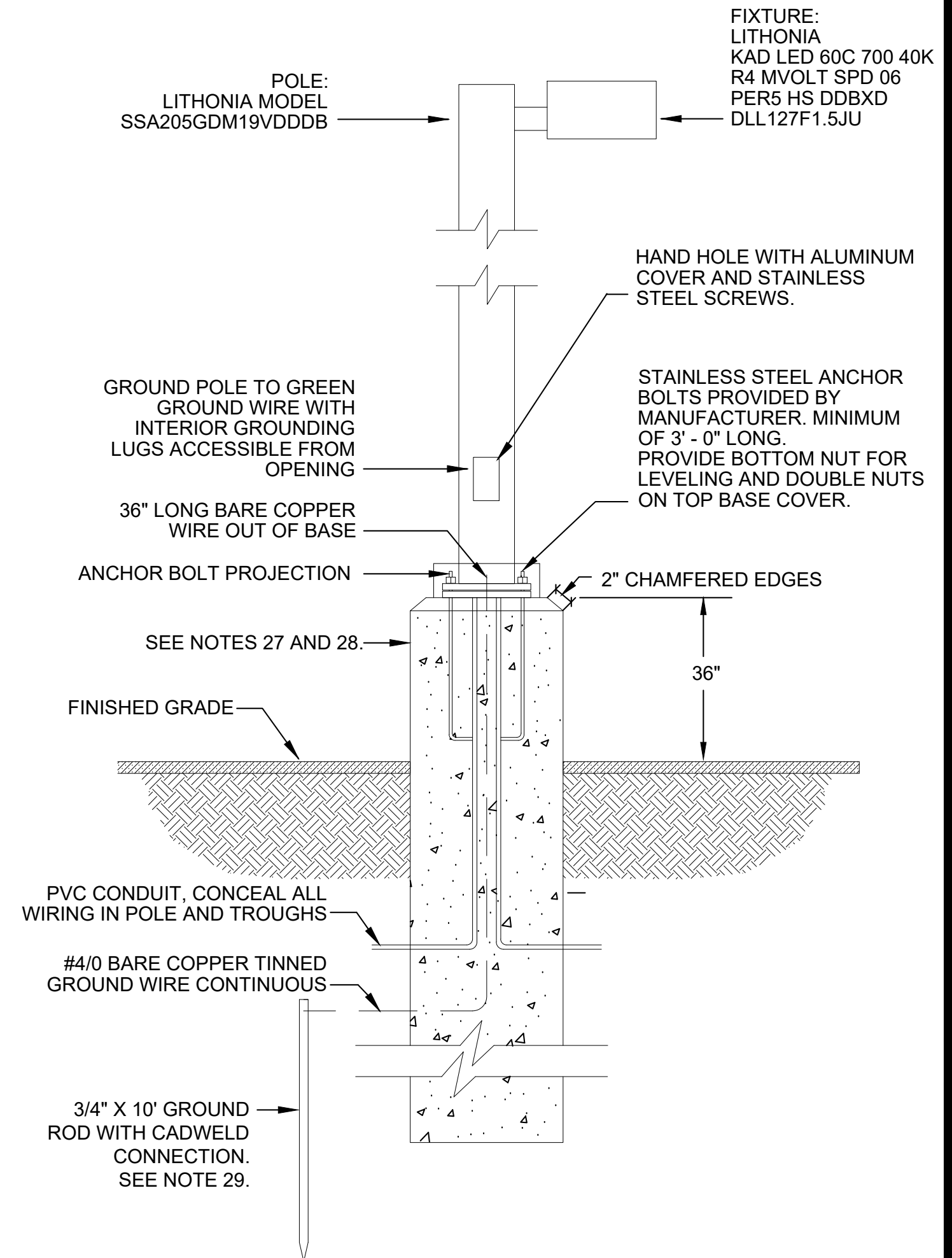
22. CONTRACTOR TO USE #4/0 BARE COPPER TINNED FOR TOWER GROUNDING RING SYSTEM.
23. MUST BE EXOTHERMIC WELD AT THE CENTER OF THE BUS BAR AND AT THE TOWER GROUND RING.
24. PROVIDE CABLE SERVICE LOOPS AT BOTTOM AND TOP OF TOWER
25. FOR GROUNDING AND BONDING USE COMPRESSION LUGS LONG BARREL HARGER P/N GECLB62A OR OWNER APPROVED
26. REFER TO SPECIFICATION 16050 FOR SWITCH AND NAMEPLATE REQUIREMENTS.
27. SEE STRUCTURAL PLAN DRAWINGS FOR FOUNDATION.
28. CONTRACTOR TO REMOVE IRREGULARITIES AND TO PROVIDE SMOOTH FINISH, PAINT EXPOSED AREA SAFETY YELLOW.
29. GROUND ROD SHALL BE BONDED TO SITE GROUNDING SYSTEM.
30. LIGHT FIXTURE TO BE MOUNTED TWENTY-THREE FEET ABOVE GRADE, WHICH INCLUDES THE 3' BASE.
31. WHERE THERE ARE OBSTRUCTIONS TO INSTALLING ONE OF THE SIDES OF THE GROUND RING AS SHOWN, EXTEND THE GROUND RING FROM THE MIDPOINT OF THE UNOBSTRUCTION PORTION DIRECTLY AWAY FROM THE EQUIPMENT. THIS SUBSTITUTE LENGTH OF CONDUCTOR SHALL BE EQUIVALENT IN LENGTH TO THE PORTION THAT WAS OBSTRUCTED AT THE END OF THIS SUBSTITUTE LENGTH, BOND TO A NEW GROUND ROD.



C AREA LIGHT WIRING DIAGRAM
SCALE: N.T.S. SEE NOTE 43.



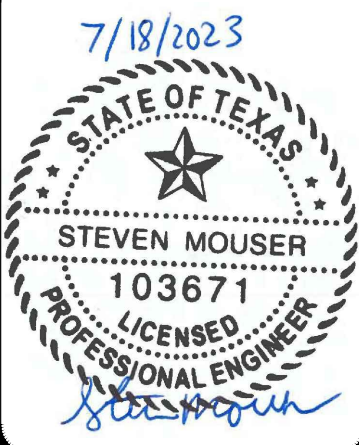
E HEAT TRACE PANEL
SCALE: N.T.S.



F LIGHT POLE FOUNDATION (TYP. OF 2)
SCALE: N.T.S. SEE NOTES 26-30.

32. ALL TELCOM GROUNDING CONDUCTORS ARE TINNED.
33. AMERICAN PRODUCTS UTILITY WITH WOOD BACKER AND WALL MOUNT KIT ENCLOSURE: AMW-242410-A, BACKER: AMW-2420-WB WALL MOUNT: AMW-WM SEE NOTES 14, 17 AND 18.
34. CAT6 STP FROM ANTENNA.
35. #6 GROUND FROM LPU TO GROUND BUS BAR
36. MECHANICAL DOUBLE LUG CONNECTION
37. SURGE ARRESTOR TRANSECTOR CPX SYSTEM MODULE: 1000-1117, CHASSIS: 1101-1137
38. EXOTHERMIC WELD TO TOWER GROUND RING CONDUCTOR FROM BUSBAR TO TOWER GROUND RING.
39. GROUND BUS INSIDE ENCLOSURE. GROUND BUS SHALL BE HARGER - TGB114212TGB. LOCATED INSIDE THE ENCLOSURE (SHOWN HERE FOR CLARITY.)
40. COPPER GROUND WIRE IN 1\"/>

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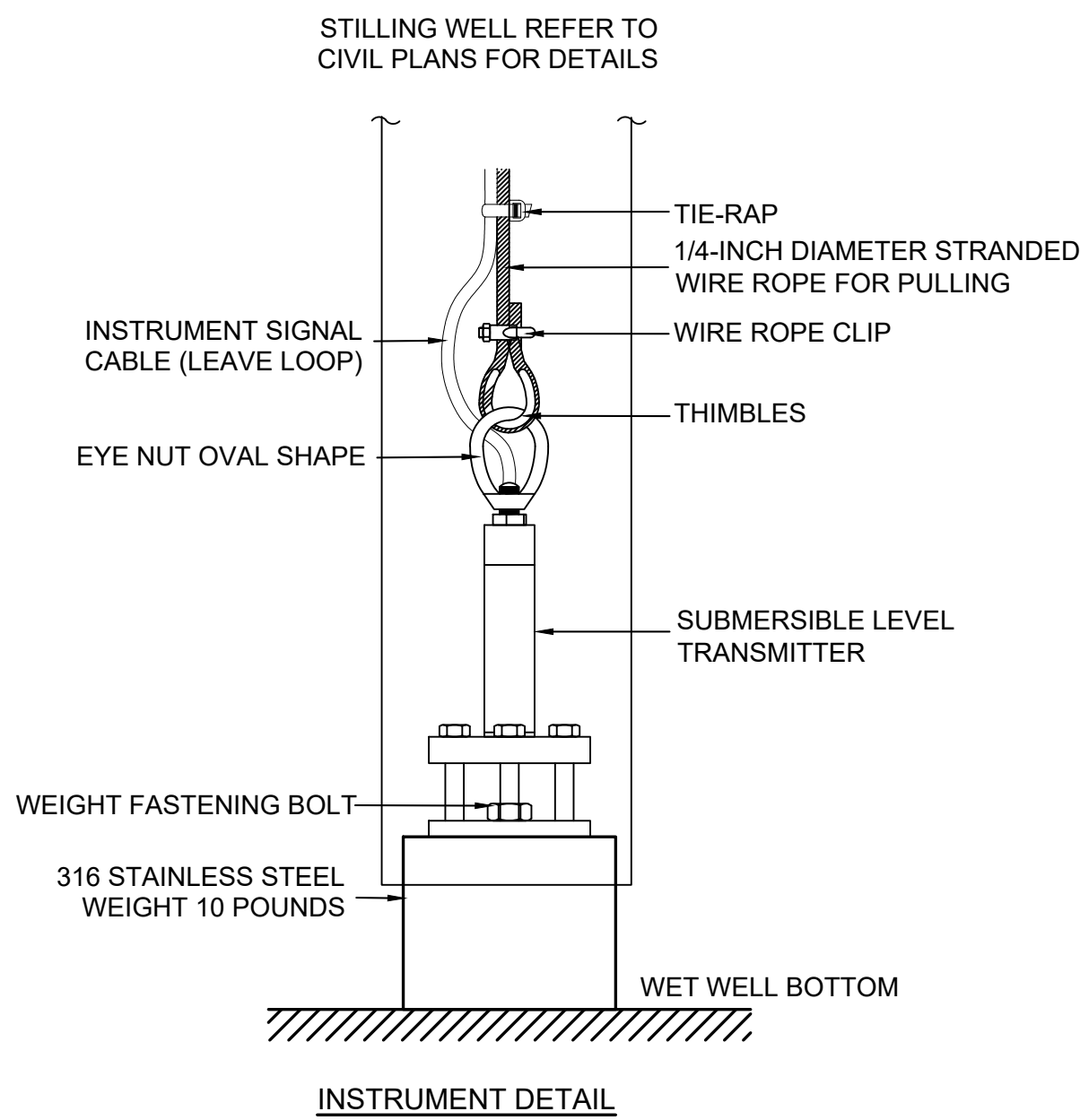


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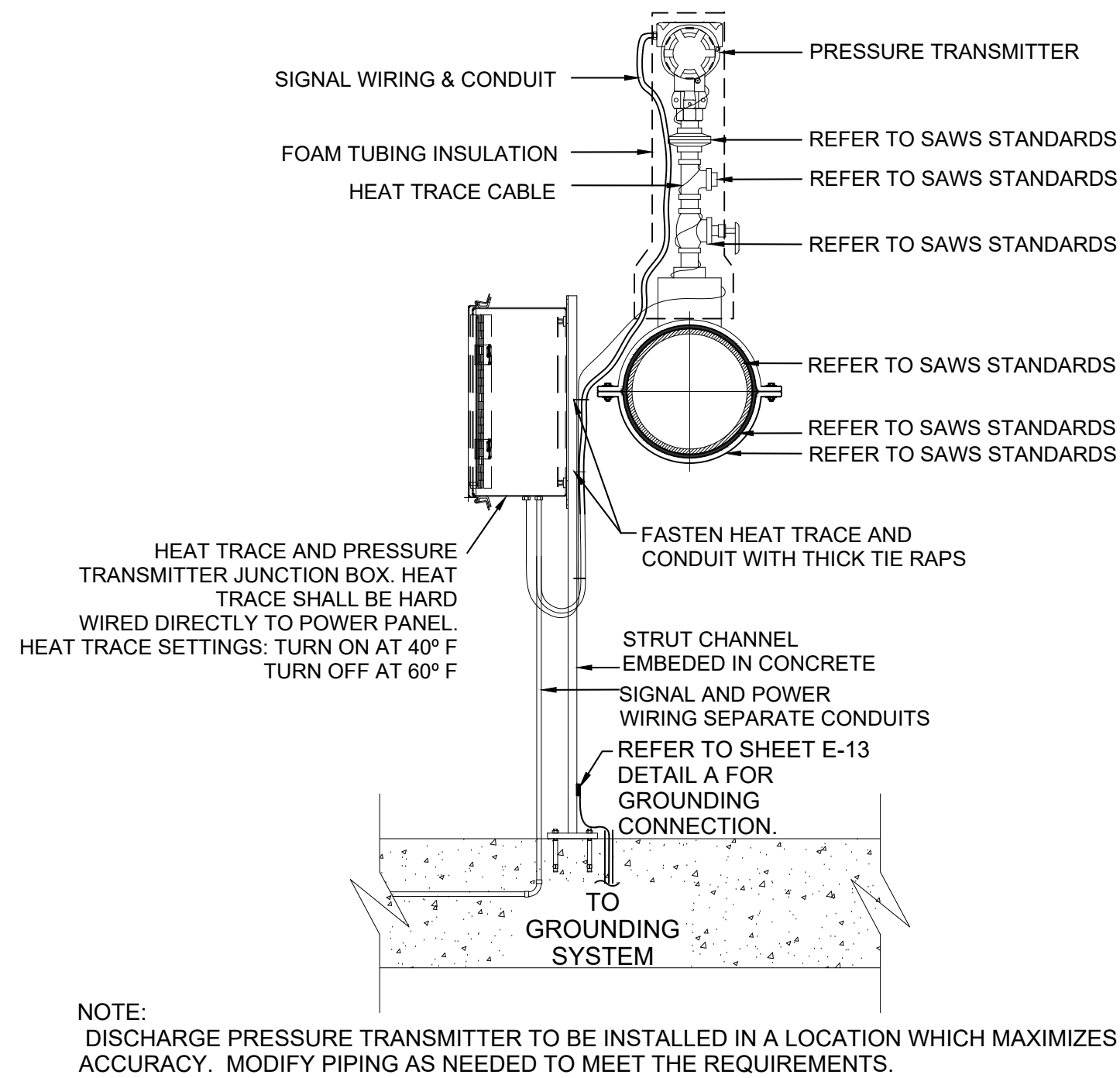
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RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS

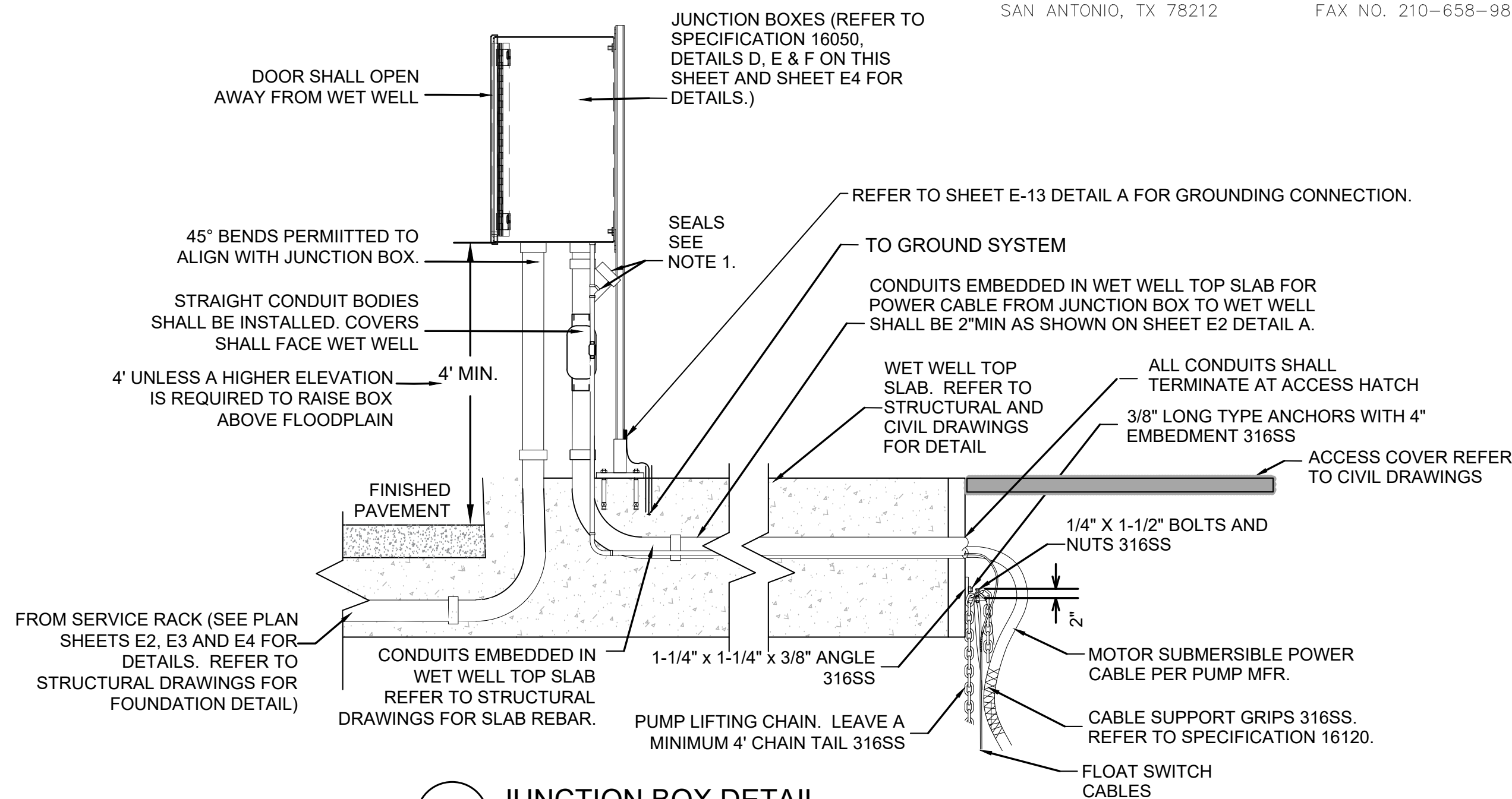
LIFT STATION
JUNCTION BOXES & INSTRUMENTATION SCHEMATICS



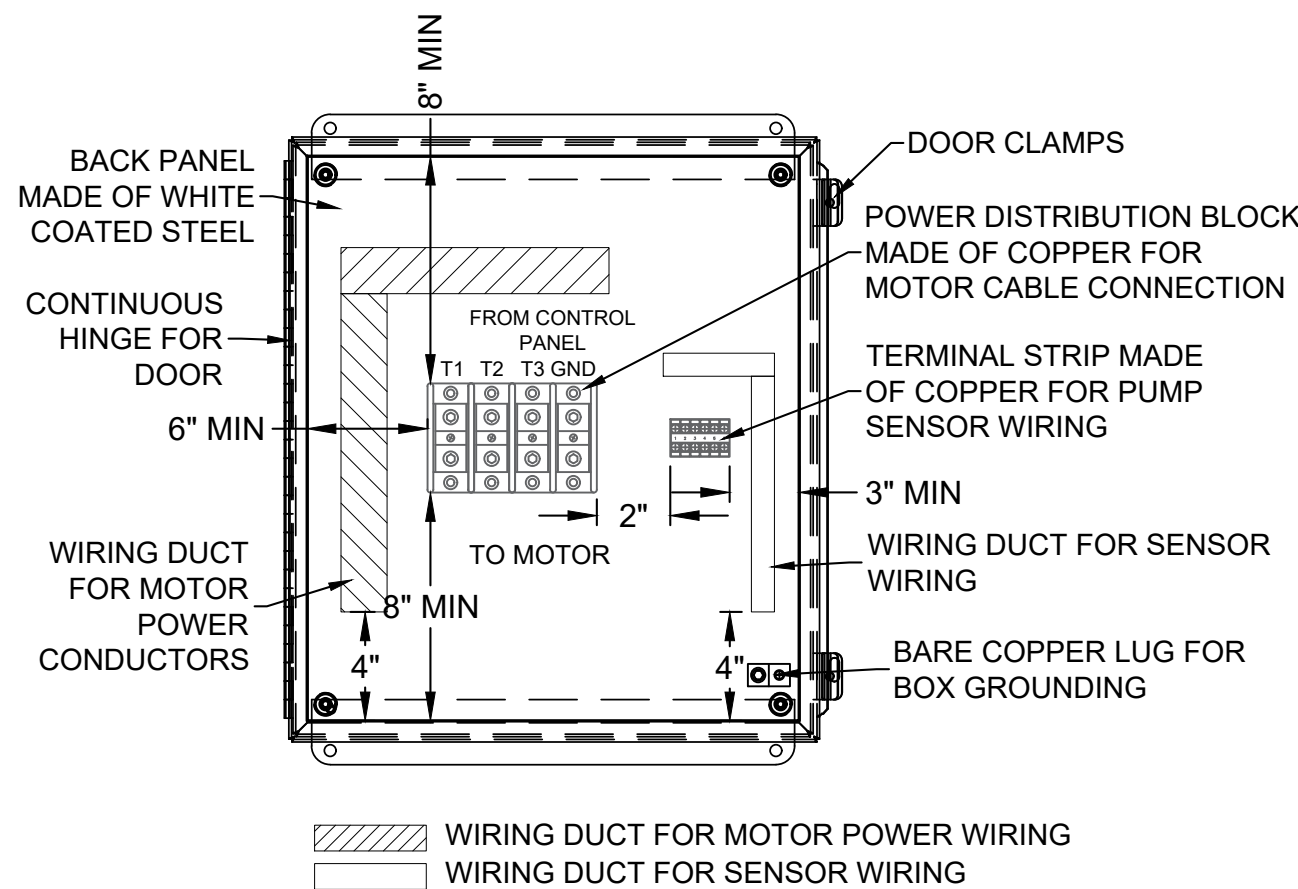
A SUBMERSIBLE LEVEL TRANSDUCER MOUNTING DETAIL
SCALE: N.T.S. SEE NOTES 16-22.



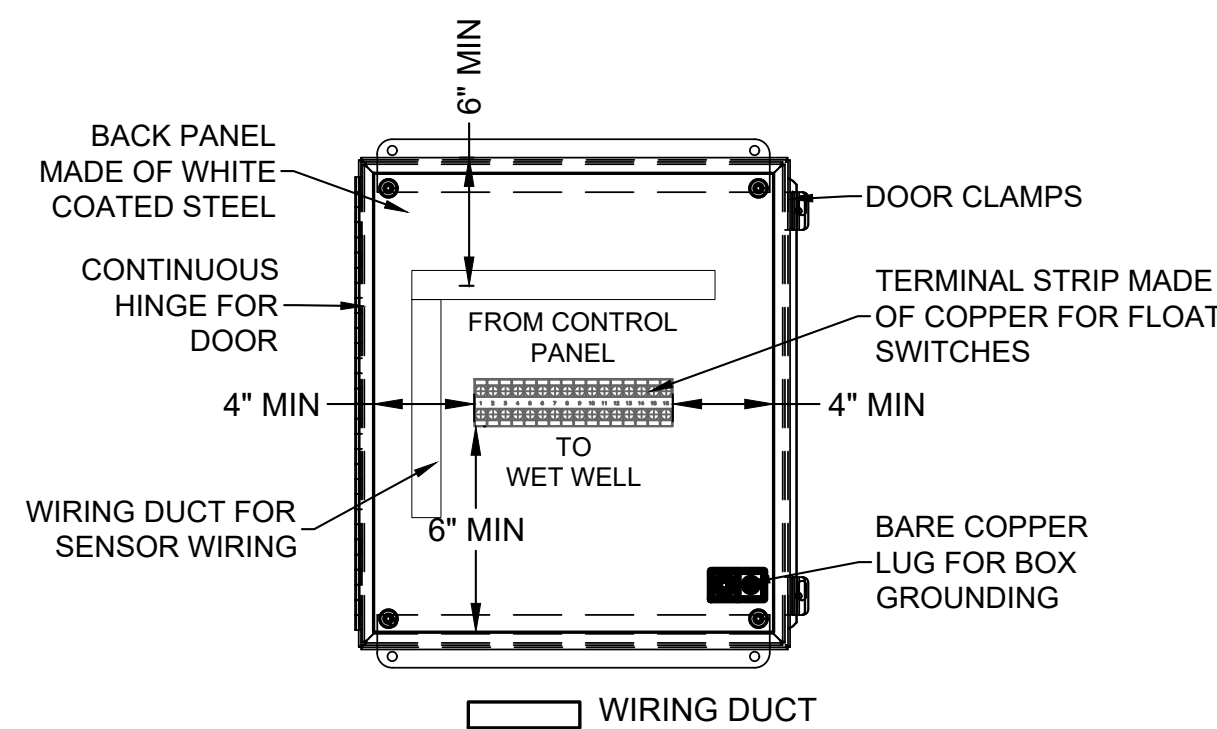
B DISCHARGE PRESSURE TRANSMITTER MOUNTING DETAIL
SCALE: N.T.S. SEE NOTES 12-15, 22-29.



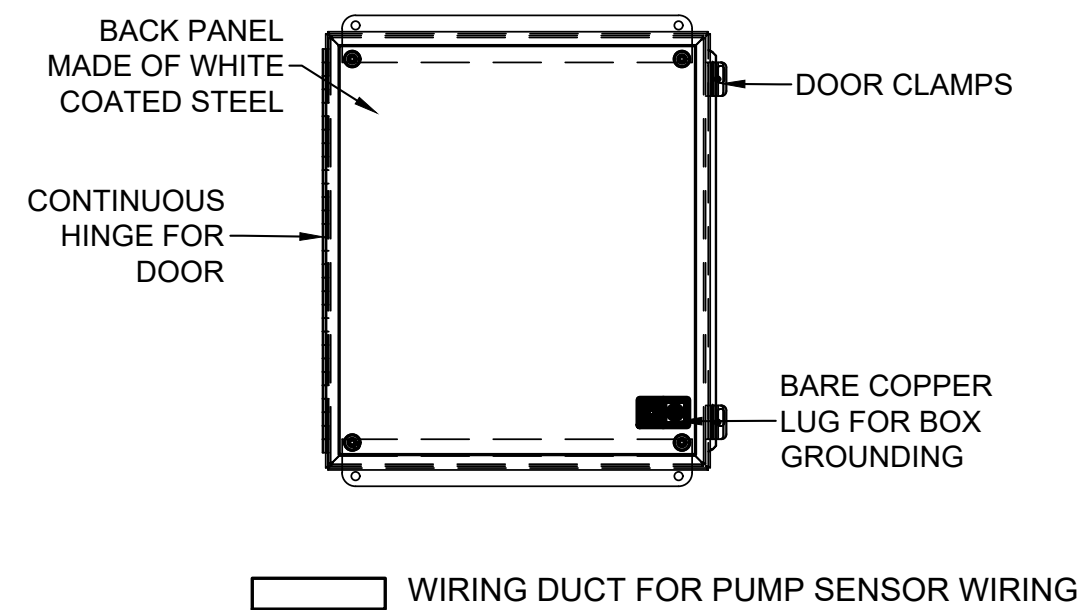
C JUNCTION BOX DETAIL
SCALE: N.T.S. SEE NOTES 1-2, 26-27.



D MOTOR JUNCTION BOX INTERNAL DETAIL
SCALE: N.T.S. SEE NOTES 3-7.



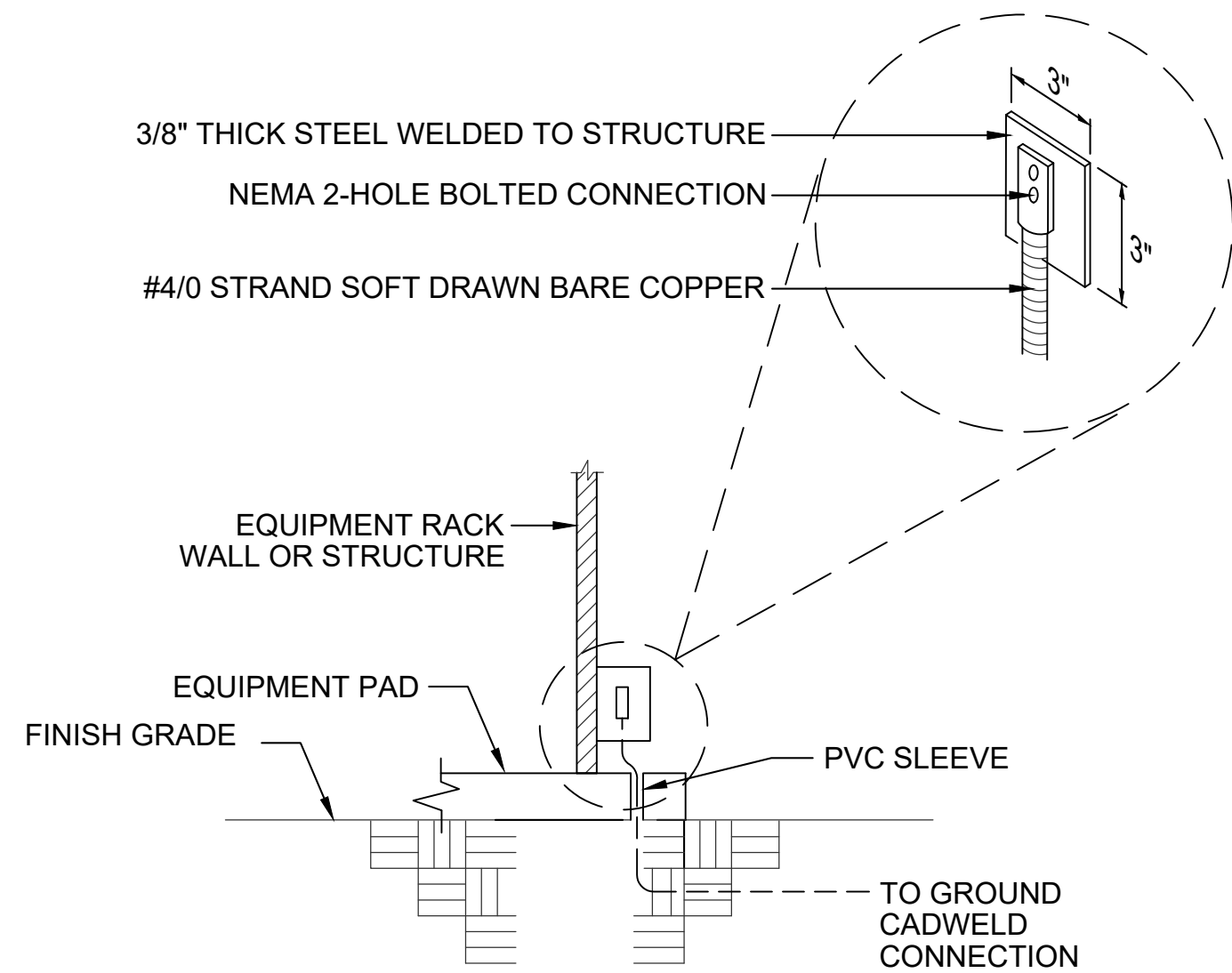
E INSTRUMENTATION AND CONTROL JUNCTION BOX INTERNAL DETAIL
SCALE: N.T.S. SEE NOTES 7-10.



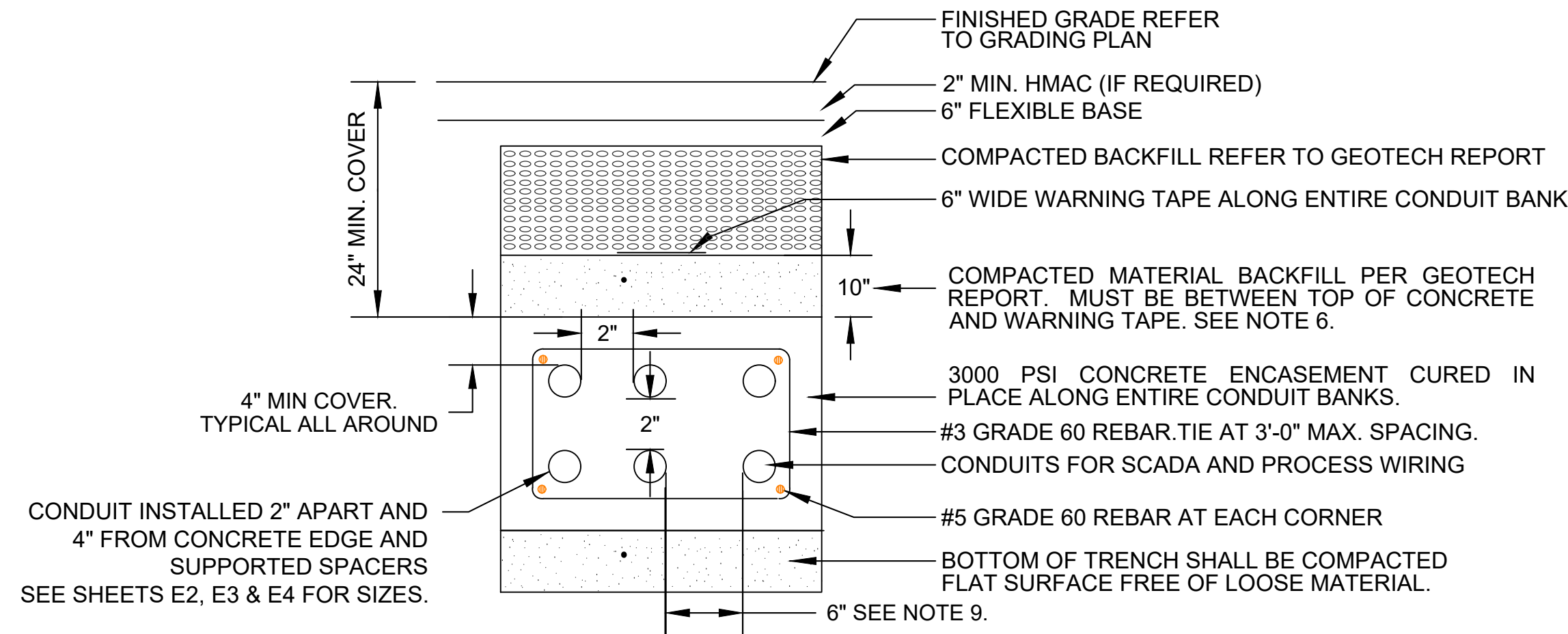
F ANALOG SIGNAL WIRING JUNCTION BOX DETAIL
SCALE: N.T.S. SEE NOTES 7, 11-15.

NOTES:

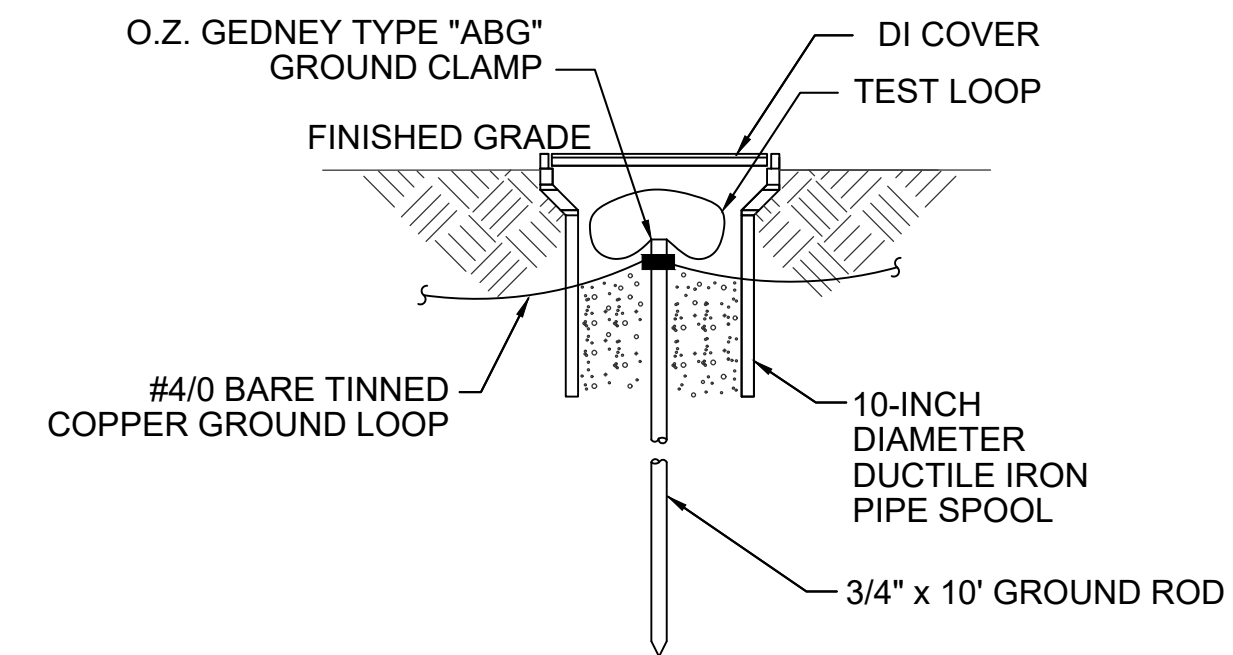
- SEAL ALL CONDUITS ENTERING WET WELL. SEALS SHALL BE INSTALLED ABOVE STRAIGHT CONDUIT BODIES. SEALS MUST BE LOCATED WITHIN 18" OF THE ENCLOSURE PER NEC. SEAL CONDUITS PROPERLY TO PREVENT GASES FROM ENTERING ELECTRICAL BOXES.
- SUBMERSIBLE TRANSDUCER CABLE SHALL BE ROUTED THROUGH CONDUIT EMBEDDED IN WET WELL TOP SLAB DIRECTLY TO LEVEL CONTROL PANEL.
- THIS JUNCTION BOX DETAIL APPLIES TO ALL JUNCTION BOXES INSTALLED TO CONNECT MOTORS SUCH AS PUMPS, BLOWERS, OR ANY SPECIAL MOTOR APPLICATION REQUIRED BUT NOT SHOWN ON THESE STANDARD DRAWINGS.
- JUNCTION BOXES SHALL BE SIZED TO MEET THE INTERNAL DIMENSIONS, BASED ON THE REQUIRED SIZE OF POWER DISTRIBUTION BLOCK, WIRING DUCTS AND NUMBER OF TERMINAL STRIPS FOR PUMP SENSOR SIGNALS, BUT IN NO CASE SHALL THE PUMP JUNCTION BOXES BE SMALLER THAN 20(H)X16(W)X8(D)-INCHES.
- POWER DISTRIBUTION BLOCKS SHALL HAVE A SHORT CIRCUIT RATING THAT EXCEEDS THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SERVICE ENTRANCE.
- SHOWN INTERNAL DIMENSIONS SHALL BE MEASURED FROM EDGE OF BACK PANEL AND NOT FROM THE ENCLOSURE BODY.
- ALL ALUMINUM CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS AND SHALL BE GROUNDING.
- THIS JUNCTION BOX DETAIL APPLIES TO ALL JUNCTION BOXES INSTALLED TO CONNECT FLOAT SWITCHES, OR ANY INSTRUMENTATION AND CONTROL DEVICE THAT IS INSTALLED BUT NOT SHOWN ON THESE DRAWINGS, IN WHICH THE WIRING CONSIST OF DISCRETE SIGNALS THAT OPERATE AT 120-VAC, OR ANY OTHER VOLTAGE SYSTEM, PROVIDED EACH VOLTAGE SYSTEM HAS ITS OWN DEDICATED JUNCTION BOX.
- INSTRUMENT WIRING SUCH AS FLOAT SWITCH CABLES SHALL TERMINATE AT THE TERMINAL STRIP.
- JUNCTION BOXES SHALL BE SIZED TO MEET THE INTERNAL DIMENSIONS, BASED ON THE REQUIRED SIZE AND NUMBER OF TERMINAL STRIPS, AND THE SIZE AND NUMBER OF WIRING DUCTS, BUT IN NO CASE SHALL THE INSTRUMENTATION AND CONTROL JUNCTION BOXES BE SMALLER THAN 16(H)X12(W)X8(D)-INCHES.
- THIS JUNCTION BOX DETAIL APPLIES TO ALL JUNCTION BOXES INSTALLED FOR ANALOG SIGNAL WIRING FOR INSTRUMENTATION AND CONTROL DEVICES SUCH AS SUBMERSIBLE LEVEL TRANSMITTERS, DISCHARGE PRESSURE TRANSMITTERS, OR ANY INSTRUMENTATION AND CONTROL DEVICE THAT IS INSTALLED BUT NOT SHOWN ON THESE DRAWINGS.
- ANALOG SIGNAL CABLES SHALL BE CONTINUOUS AND WITHOUT SPLICES, FROM INSTRUMENT, THROUGH JUNCTION BOX, TO RESPECTIVE ANALOG I/O MODULE OR DEVICE. ANALOG SIGNAL CABLE SHALL BE LOOPED AND TIED IN A NEAT MANNER AND WITHOUT OVER BENDING.
- ANALOG SIGNAL WIRING SHALL NOT BE MIXED WITH ANY OTHER POWER, CONTROL OR SIGNAL WIRING.
- JUNCTION BOXES SHALL BE SIZED BASED ON THE SIZE, BENDING RADIUS, NUMBER OF LOOPS, AND TOTAL NUMBER OF ANALOG SIGNAL CABLES CONTAINED, BUT IN NO CASE SHALL THE INSTRUMENTATION AND CONTROL JUNCTION BOXES BE SMALLER THAN 16(H)X12(W)X8(D)-INCHES.
- A DEDICATED GROUNDING CABLE SHALL BE INSTALLED TO GROUND THE JUNCTION BOX AND EACH CONDUIT BUSHINGS.
- INSTRUMENT, WIRE ROPE AND ALL FASTENERS SHALL BE OF STAINLESS STEEL 316 TYPE.
- WEIGHT SHALL BE DRILLED AND TAPPED AT THE CENTER TO ALLOW A BOLT TO SOLIDLY FASTEN INSTRUMENT TO WEIGHT.
- INSTRUMENT SIGNAL CABLE SHALL BE FASTENED TO WIRE ROPE WITH THICK HEAVY DUTY PLASTIC TIE-RAPS.
- EYE NUT THREADED TO INSTRUMENT AND OVAL SIZE SHALL BE LARGE ENOUGH TO ALLOW SIGNAL CABLE TO FREELY BEND AND PASS THROUGH.
- THIS DETAIL IS SHOWN PER SAWS LIFT STATION SCADA DESIGN GUIDELINES.
- REFER TO CIVIL DRAWINGS FOR SUBMERSIBLE LEVEL TRANSDUCER INSTALLATION WITHIN STILLING WELL DETAIL.
- INSTRUMENT SIGNAL CABLE SHALL NOT BE SPLICED AND SHALL BE CONTINUOUS FROM THE TRANSDUCER TO THE PUMP CONTROL PANEL.
- REFER TO DETAIL D OF SHEET E11.
- ALL PIPING NIPPLES AND FITTINGS SHALL BE MADE OF STAINLESS STEEL 316.
- INSTALL TAG LABELED "HEAT TRACE AND PRESSURE TRANSMITTER" ON FRONT EXTERIOR OF PANEL.
- CONTRACTOR SHALL PROVIDE ADEQUATE SPACE FOR COMPONENTS FROM ENCLOSURE EDGES.
- ENCLOSURE SHALL BE NEMA 4X 316SS WITH WHITE ENAMELED EXTERIOR.
- DISCHARGE PRESSURE TRANSMITTER TO BE INSTALLED IN A LOCATION WHICH MAXIMIZES ACCURACY. MODIFY PIPING AS NEEDED TO MEET THE REQUIREMENTS.
- CONTRACTOR TO REQUEST THE DETAILS FROM SAWS INSPECTOR.



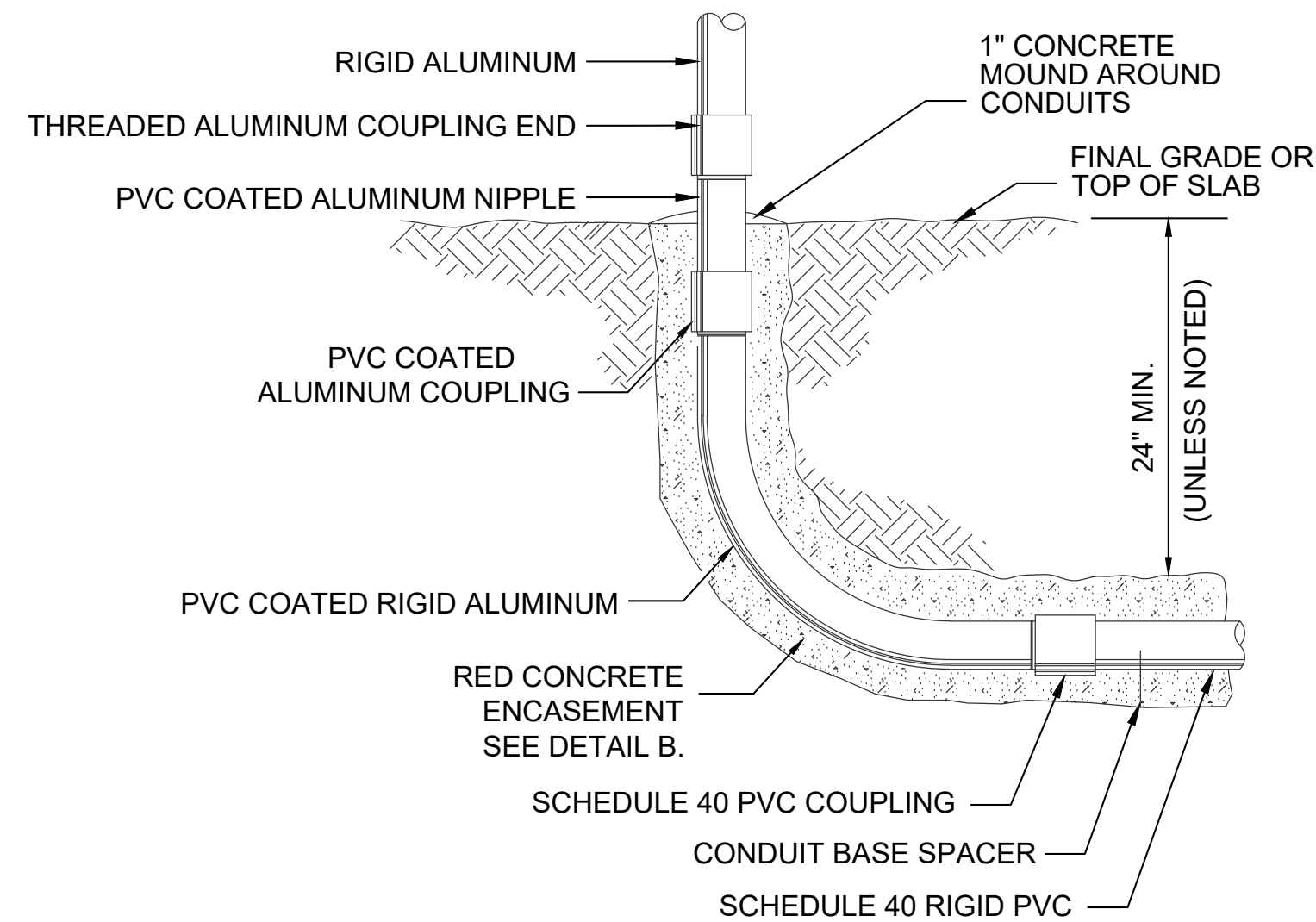
A TYPICAL STRUCTURE GROUND DETAIL
SCALE: N.T.S. SEE NOTES 1-2.



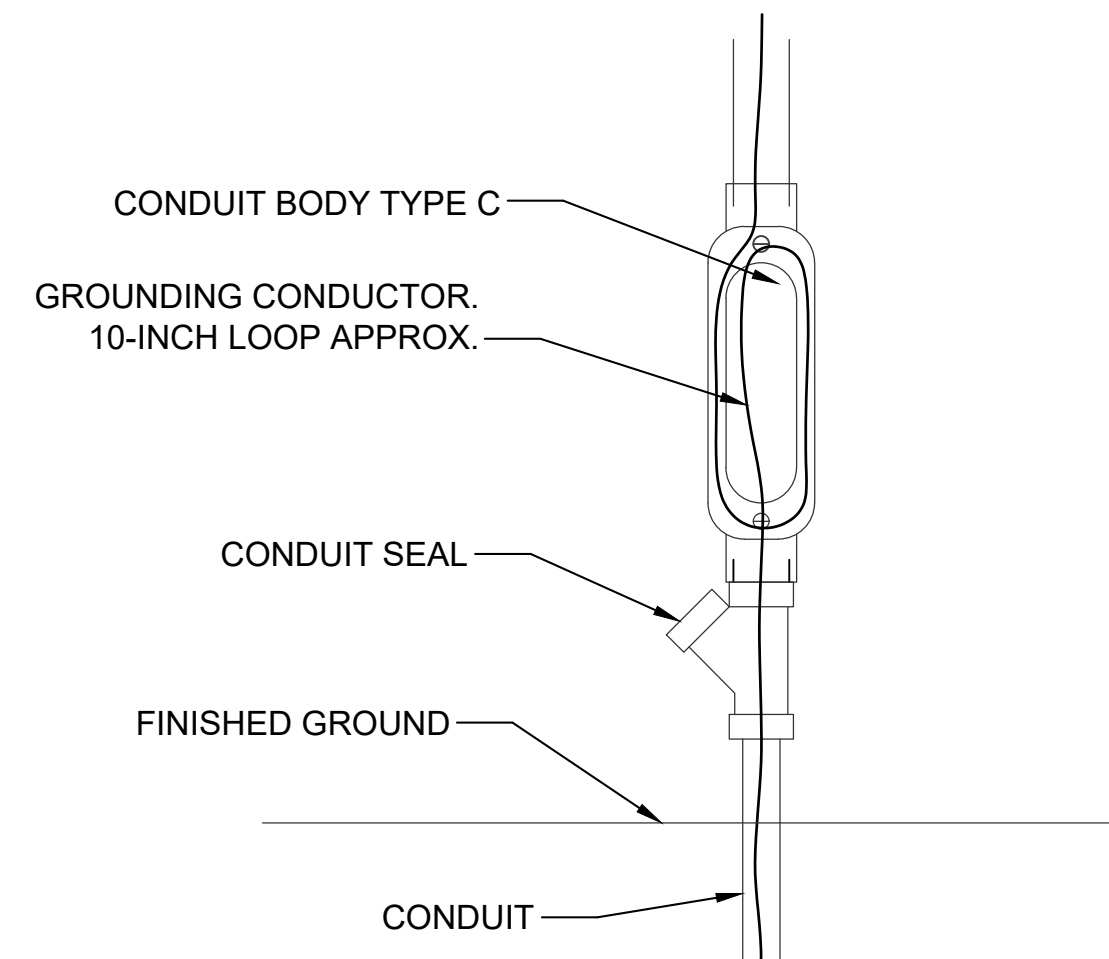
B TYPICAL LOW VOLTAGE DUCT BANK SECTION
SCALE: N.T.S. SEE NOTES 3-10.



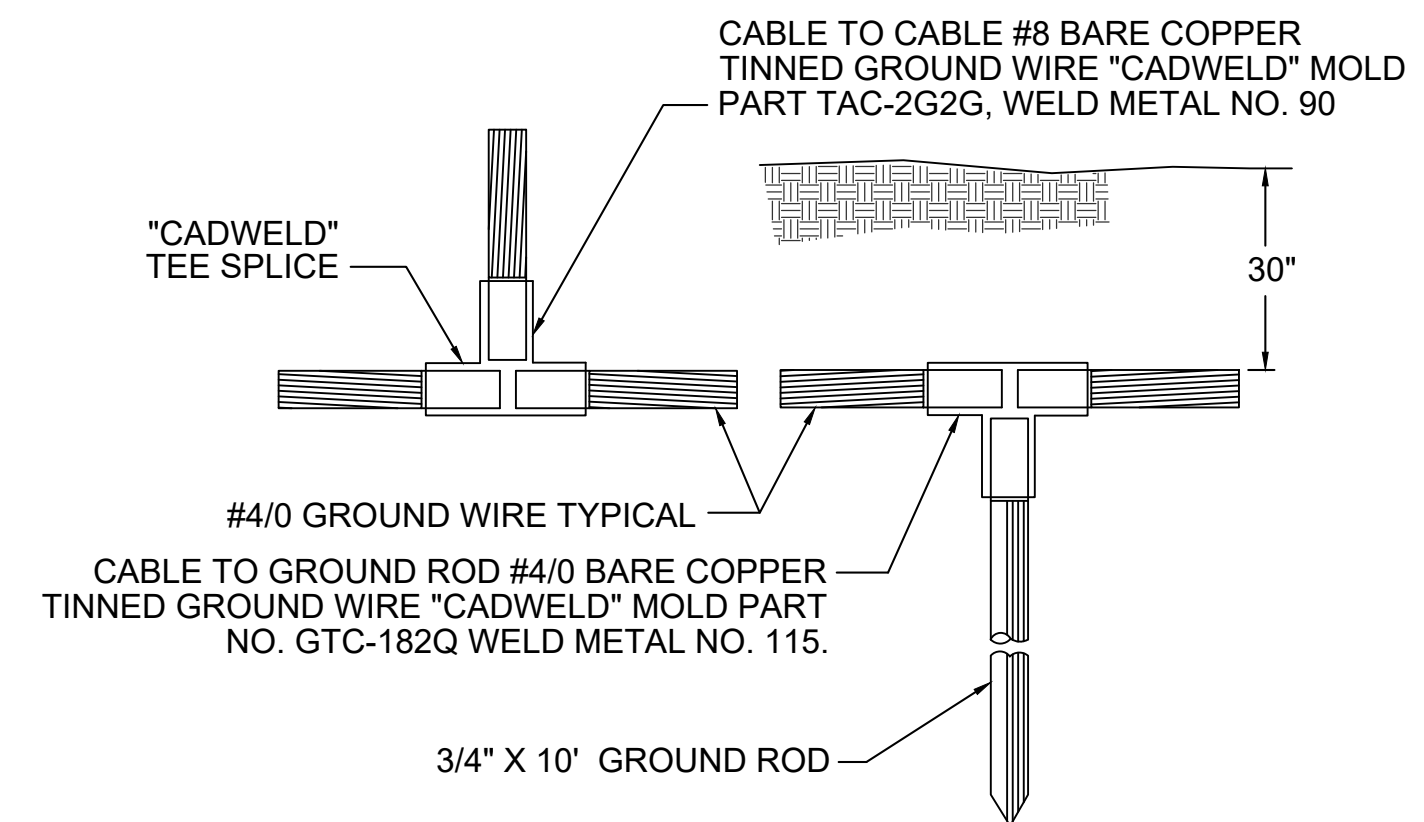
C GROUND TEST WELL ARRANGEMENT
SCALE: N.T.S.



D TYPICAL DUCT-BANK TRANSITION DETAIL
SCALE: N.T.S.



E CONDUIT BODY FOR GROUND RESISTANCE TEST DETAIL
SCALE: N.T.S.

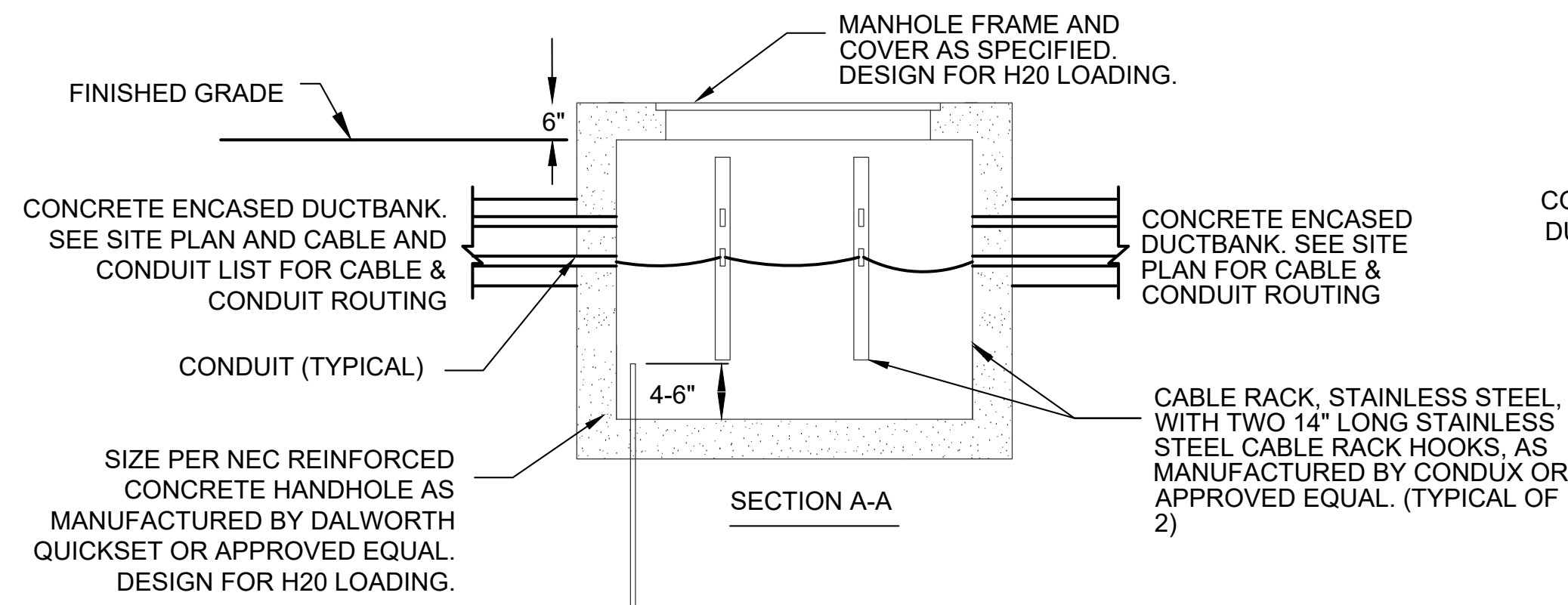


NOTE: THIS DETAIL DOES NOT EXCLUDE CONTRACTOR FROM USING OTHER APPROVED PRODUCTS.

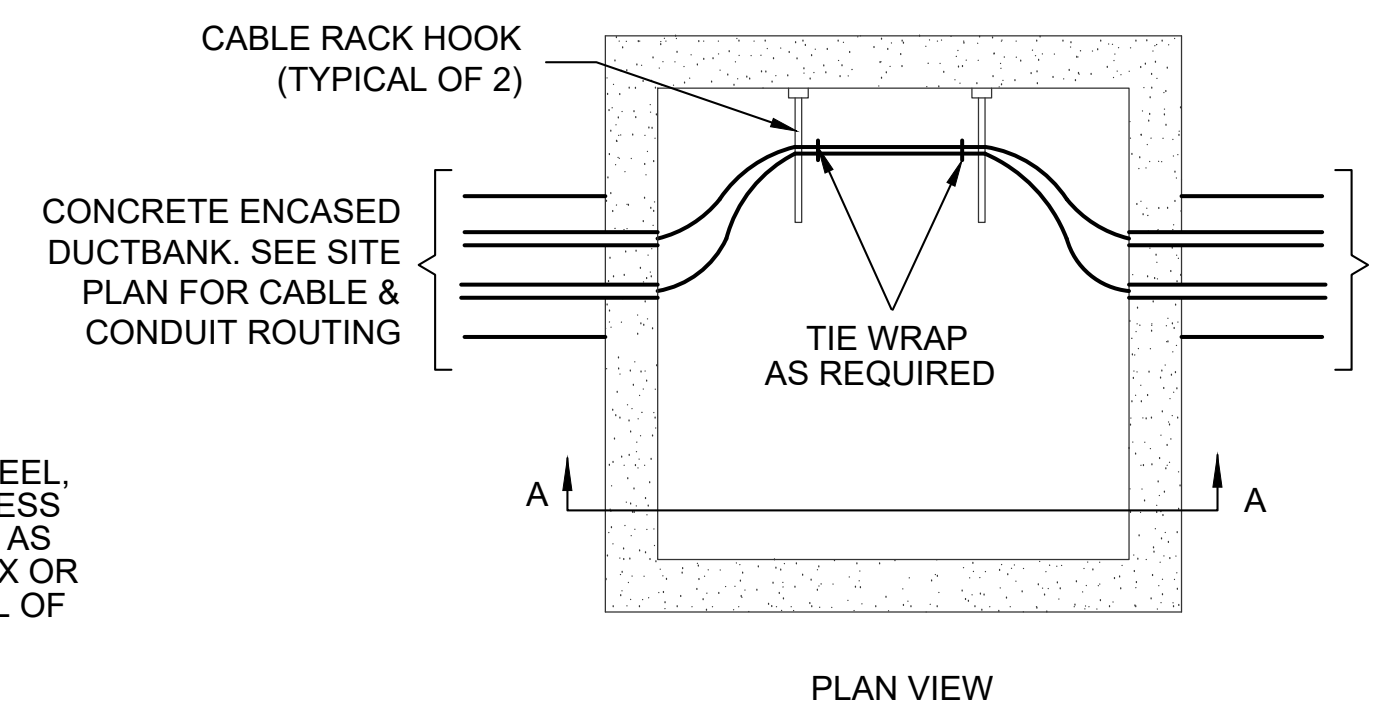
F TYPICAL GROUND DETAIL
SCALE: N.T.S.

NOTES:

1. IF METAL STRUCTURES ARE NOT FURNISHED WITH PROVISION FOR BOLTED CONNECTION TO GROUNDING SYSTEM, CONTRACTOR SHALL PROVIDE WELDED PAD FOR GROUND CONNECTION. ALL RACKS MUST BE GROUNDED AT EACH END.
2. CABLES SHALL NOT BE DIRECTLY BOLTED TO STRUCTURES.
3. PROVIDE 100% CONCRETE ENCASEMENT BOTH HORIZONTALLY AND VERTICALLY.
4. CONTRACTOR SHALL COORDINATE LOCATION WITH EXISTING AND NEW UNDERGROUND WATER PIPE, AND ELECTRIC CABLE/CONDUIT.
5. REBAR SHALL BE WIRE TIED TO REBAR STIRRUPS TO PROVIDE STABILITY DURING CONCRETE POUR.
6. ALL BACKFILL SHALL BE COMPACTED TO 98% OF THE MAXIMUM DRY DENSITY OR DETERMINED BY TXDOT TEST METHOD TEX-113E
7. REFER TO GEOTECH REPORT AND STRUCTURAL DRAWINGS FOR BACKFILL MATERIAL TYPE AND BACKFILL MOISTURE CONTENT.
8. REFER TO GEOTECH REPORT AND STRUCTURAL DRAWINGS FOR EXCAVATION.
9. 6" SEPARATION BETWEEN CONDUITS FOR POWER AND CONDUITS FOR SCADA AND PROCESS WIRING.
10. UNDERGROUND DUCT BANK BENDS 25 DEGREES AND LARGER SHALL BE PVC-COATED RIGID ALUMINUM. ALL PIPING NIPPLES AND FITTINGS SHALL BE MADE OF STAINLESS STEEL 316.
11. CONTRACTOR SHALL PROVIDE HANDHOLE EQUIPPED WITH 1" PENETRATION FOR GROUND ROD. PENETRATION SHALL BE SEALED TO AVOID SEEPAGE AFTER GROUND ROD IS DRIVEN TO HEIGHT AS SHOWN.
12. CONNECT ALL NON CURRENT-CARRYING METAL PART AN ANY METALLIC RACEWAY GROUNDING BUSHINGS TO GROUND ROD CONNECTOR WITH #4/0 AWG COPPER CONDUCTOR.



G PRE-CAST VAULT DETAIL
SCALE: N.T.S. SEE NOTES 11 AND 12.

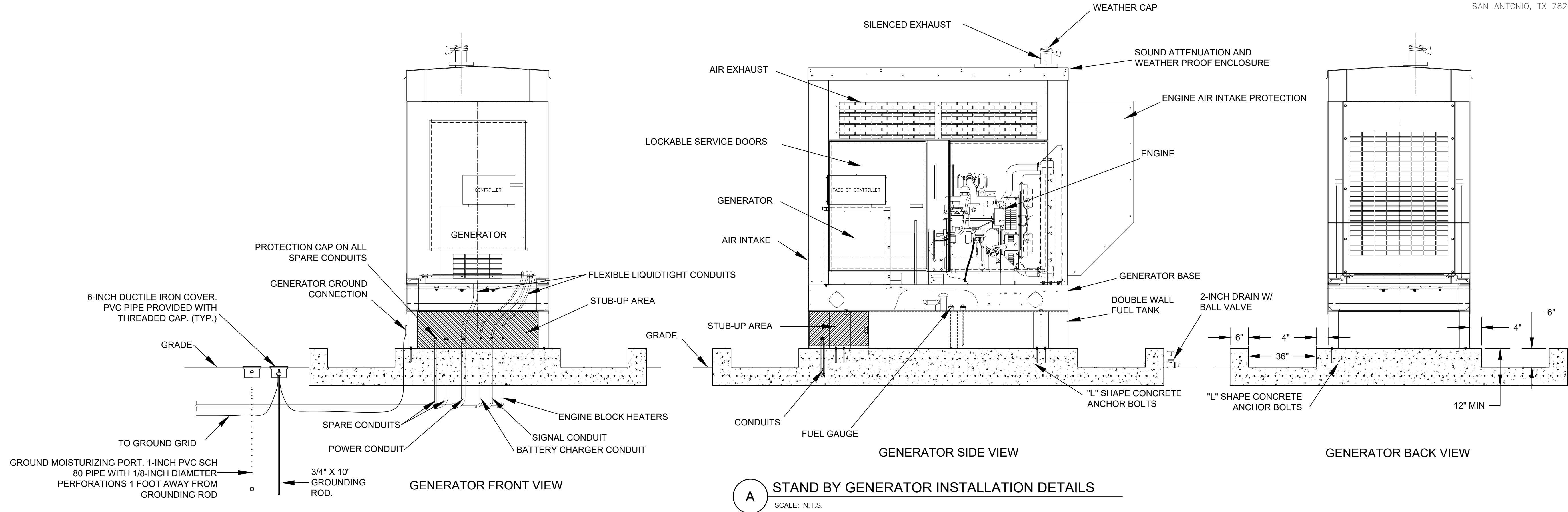


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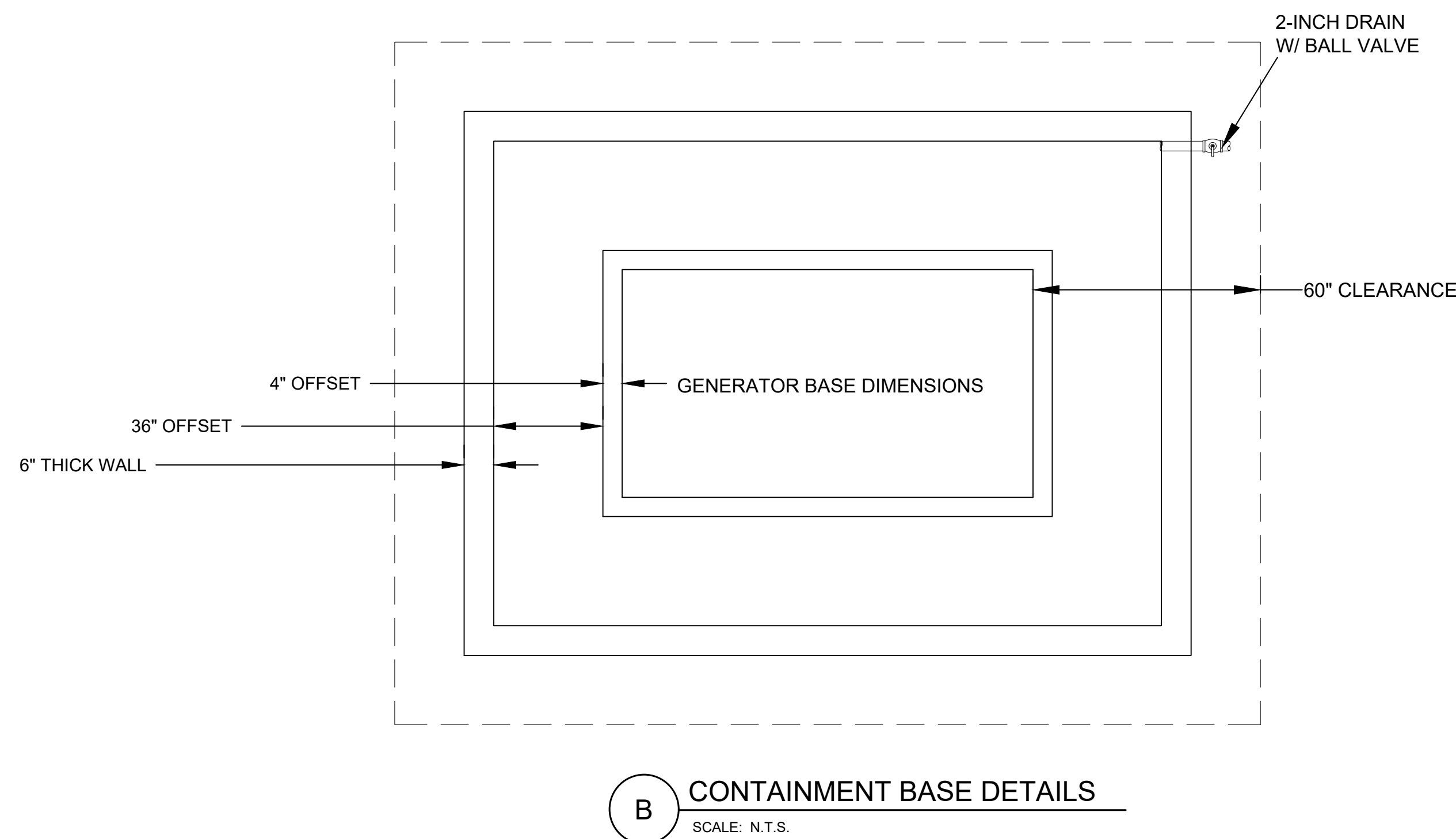
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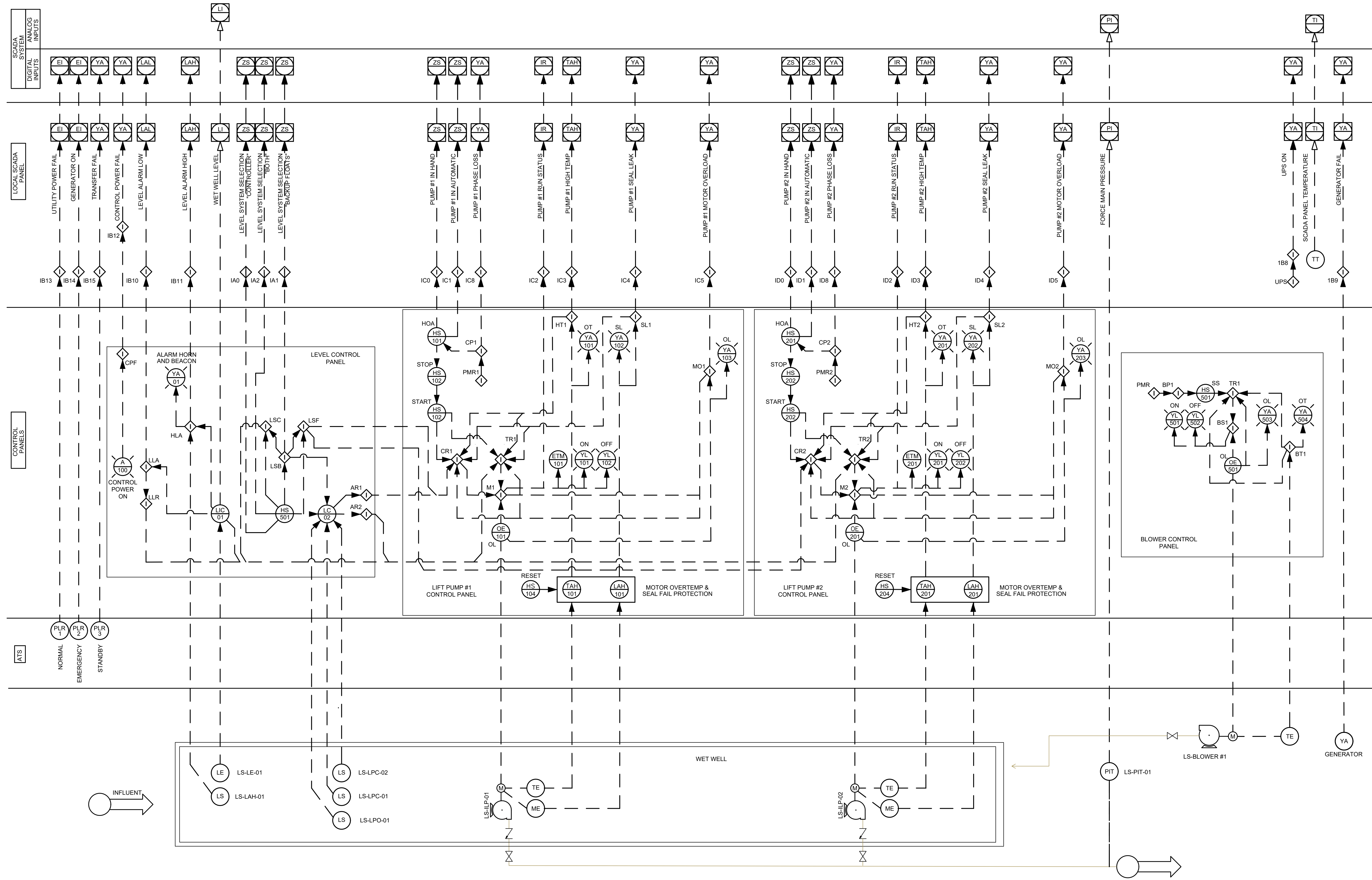
RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR, COUNTY, TEXAS
LIFT STATION
DUCTBANK AND GROUNDING DETAILS



NOTES

1. GENERATOR GROUND AND FRAME SHALL BE SOLIDLY BONDED TO THE REST OF THE GROUNDING SYSTEM AT EACH CORNER. GROUND RESISTANCE MEASURED AT THE GENERATOR SHALL HAVE THE SAME MAGNITUDE AS THE REST OF THE GROUNDING SYSTEM, AND IT SHALL NOT EXCEED 5 OHMS.
2. GENERATOR SHALL BE PROVIDED WITH SOUND ATTENUATION ENCLOSURE AND EXHAUST, AND MUST BE WEATHER PROOF. SEE SPECIFICATIONS FOR OTHER GENERATOR REQUIREMENTS.
3. GENERATOR FRAME SHALL BE SOLIDLY ANCHORED TO CONCRETE SLAB. ALL COMPONENTS USED TO FASTEN THE GENERATOR SHALL BE MADE OF STAINLESS STEEL 316.
4. CONDUITS SHALL INCLUDE AC POWER, BATTERY CHARGER, ENGINE BLOCK HEATER, SIGNAL AND SPARE.
5. FUEL TANK SHALL BE DOUBLE WALL TYPE.
6. CONCRETE SLAB SHALL BE MADE OF CONCRETE MIX WITH A COMPRESSIVE STRENGTH OF 3,000 PSI. CONCRETE SLAB MUST INCLUDE A CONTAINMENT STRUCTURE AS SHOWN IN DETAIL B OF THIS SHEET. A 2-INCH DRAIN PIPE AND BALL VALVE SHALL BE PROVIDED. REFER TO STRUCTURAL SHEETS FOR PAD DETAILS.
7. A 5-FOOT DEDICATED CLEARANCE AROUND GENERATOR CONTAINMENT SLAB SHALL BE PROVIDED IN STRICT COMPLIANCE WITH SAWS LIFT STATION STANDARDS.
8. CONDUIT STUB-UP AREA SHOWN IN THIS DRAWING IS FOR ILLUSTRATION PURPOSES ONLY. CONTRACTOR MUST VERIFY THE LOCATION OF THE STUB-UP AREA WITH THE GENERATOR MANUFACTURER.
9. CONTRACTOR SHALL VERIFY GENERATOR INSTALLATION REQUIREMENTS WITH GENERATOR MANUFACTURER.
10. VOLTAGE DIP SHALL NOT DROP BELOW 15% AND FREQUENCY SHALL NOT DROP BELOW 5% WHEN STARTING ACROSS-THE-LINE THE LARGEST MOTOR WHILE ALL OTHER LIFT STATION MOTORS AND AUXILIARY TRANSFORMER ARE RUNNING AT FULL LOAD.
11. GENERATOR SHALL BE WIRED AS A NON-SEPARATELY DERIVED SYSTEM, IN STRICT COMPLIANCE WITH NEC CURRENT REQUIREMENT.





CONCRETE NOTES:

CM-1 CONCRETE SHALL BE LABORATORY DESIGNED TO DEVELOP MINIMUM 28-DAY COMPRESSIVE STRENGTHS AS GIVEN BELOW. REFER TO SPECIFICATIONS FOR AGGREGATES, CEMENT, ADMIXTURES, ETC.

*GRADE BEAMS, SLABS-ON-GRADE 3,000 PSI

NOTE: FLY ASH WILL BE PERMITTED UP TO 20% PORTLAND CEMENT REPLACEMENT, REFER TO SPECIFICATIONS.

CM-2 REINFORCING STEEL SHALL BE FROM NEW BILLET AND SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:

A615-GR 60 FOOTING SPIRALS
A108 WELDED WIRE FABRIC
A615-GR 60 BEAM STIRRUPS, COLUMN TIES
A615-GR 60 ALL OTHER REINFORCING
ASTM A108-60T HEADED CONCRETE ANCHORS
ASTM A496 DEFORMED BAR ANCHORS

CM-3 DETAILING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL BE IN ACCORDANCE WITH LATEST ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315). BAR SUPPORTS SHALL HAVE PLASTIC COATED LEGS OR BE HOT DIPPED GALVANIZED AFTER FABRICATION.

CM-4 PROVIDE BAR LAPS AND SPLICES PER REINFORCING BAR LAP SPLICE TABLE BELOW. SEE "CORNER DETAILS" FOR CONTINUOUS BARS AT CORNERS. SPIRALS SHALL BE LAPPED 1-1/2 TURNS. WELDED WIRE MESH SHALL BE LAPPED 8" MINIMUM AT SPLICE POINTS, OR 1-1/2 MESHERS, WHICHEVER IS GREATEST.

CM-5 CONTRACTOR SHALL PROVIDE NECESSARY CONSTRUCTION JOINTS IN MONOLITHIC CONCRETE FORMING SO THAT NOT MORE THAN 400 CUBIC YARDS IS POURED IN ONE DAY. LOCATION OF CONSTRUCTION JOINTS MUST HAVE PRIOR APPROVAL OF STRUCTURAL ENGINEER OF RECORD AND SHALL GENERALLY BE LOCATED AT OR NEAR MID-POINTS OF SPANS OF SLAB, BEAMS AND WALLS. ALL CONTINUOUS REINFORCING SHALL BE CARRIED THROUGH THE JOINT. SEE DETAILS FOR CONTINUOUS KEY BETWEEN ADJACENT POURS.

CM-6 SEE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR LOCATION AND SIZES OF ALL SLAB OPENINGS AND SLEEVES, INSERTS, ANCHORS AND BOLTS REQUIRED BY ABOVE.

CM-7 REFER TO ARCHITECTURAL DRAWINGS FOR ALL FLOOR FINISHES, DIMENSIONS AND LOCATIONS OF SLAB DROPS AND DEPRESSIONS.

CM-8 MECHANICAL AND ELECTRICAL CONDUITS IN SLABS SHALL RUN UNDER THE TOP LAYER OF SLAB REINFORCING OR WELDED WIRE FABRIC. PROVIDE A MINIMUM OF 1-1/2" CLEAR BETWEEN INDIVIDUAL CONDUITS, AND BETWEEN CONDUIT AND PARALLEL REINFORCING. DO NOT "BUNDLE" CONDUITS.

CM-9 "HEADED CONCRETE ANCHORS" (HCA) SHALL BE OF 50,000 PSI STEEL ROD WITH UPSET ENDS, AUTOMATICALLY ARC WELDED THROUGH CERAMIC FERRULES, "NELSON CONCRETE ANCHORS" OR EQUAL.

MECHANICAL TESTING OF HCA IN SHOP

MECHANICAL TESTS SHALL BE MADE BEFORE INITIATION OF PRODUCTION WELDING AND AFTER ANY EQUIPMENT MAINTENANCE TO ENSURE THAT THE WELDING SCHEDULE IS SATISFACTORY. THEY MAY ALSO BE MADE DURING THE PRODUCTION RUN OR AT THE BEGINNING OF A SHIFT TO ENSURE THAT WELDING CONDITIONS HAVE NOT CHANGED. ARC WELDED STUDS ARE TESTED BY BENDING THE STUD. BENDING MAY BE DONE BY STRIKING THE STUD WITH A HAMMER OR BY BENDING IT USING A TUBE OR PIPE, THE ANGLE THROUGH WHICH THE STUD WILL BEND WITHOUT WELD FAILURE WILL DEPEND ON THE STUD AND BASE METAL COMPOSITIONS, CONDITIONS (COLD WORKED, HEAT TREATED), AND STUD DESIGN. ACCEPTABLE BENDING SHOULD BE DETERMINED WHEN THE WELDING PROCEDURE SPECIFICATION IS ESTABLISHED OR FROM THE APPLICABLE WELDING CODE. BEND TESTING MAY DAMAGE THE STUD; THEREFORE, IT SHOULD BE DONE ON QUALIFICATION SAMPLES ONLY. THE METHOD USED TO APPLY TENSILE LOAD ON AN ARC WELDED STUD WILL DEPEND ON THE STUD DESIGN. SPECIAL TOOLING MAY BE REQUIRED TO GRIP THE STUD PROPERLY WITHOUT DAMAGE, AND A SPECIAL LOADING DEVICE MAY BE NEEDED.

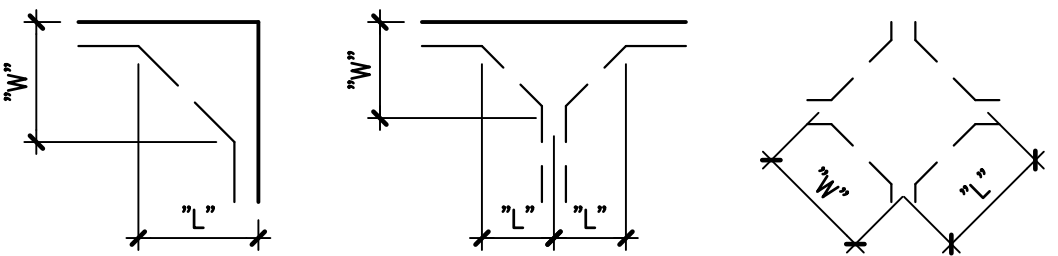
MECHANICAL TESTING OF HCA IN FIELD

MECHANICAL TESTS SHALL BE MADE IN THE FIELD BEFORE PLATES ARE INSTALLED IN CONCRETE. THE CONTRACTOR SHALL SUPPLY AT A MINIMUM ONE ADDITIONAL PER 50 PLATES OF EACH TYPE OR ADDITIONAL STUDS SHALL BE PLACED ON SPECIAL CONFIGURATION PLATES AND MEMBERS, THESE STUDS SHALL BE TESTED IN THE FIELD. ARC WELDED STUDS ARE TESTED BY BENDING THE STUD. BENDING MAY BE DONE BY STRIKING THE STUD WITH A HAMMER OR BY BENDING IT USING A TUBE OR PIPE, THE ANGLE THROUGH WHICH THE STUD WILL BEND WITHOUT WELD FAILURE WILL DEPEND ON THE STUD AND BASE METAL COMPOSITIONS, CONDITIONS (COLD WORKED, HEAT TREATED), AND STUD DESIGN. BEND TESTING MAY DAMAGE, THUS THEY MAY NOT BE USED. THE STUD; THEREFORE, IT SHOULD BE DONE ON QUALIFICATION SAMPLES ONLY. THE METHOD USED TO APPLY TENSILE LOAD ON AN ARC WELDED STUD WILL DEPEND ON THE STUD DESIGN. PROPERLY WITHOUT DAMAGE, AND A SPECIAL LOADING DEVICE MAY BE NEEDED.

CM-10 REFER TO SPECIFICATIONS FOR TESTING REQUIREMENTS. ALL TESTING SHALL BE AT POINT OF DISCHARGE. IF PUMP IS USED, TESTING SHALL BE AT THE END OF THE HOSE.

FOOTING SCHEDULE

MARK	DIMENSION			REINFORCING
	LENGTH	WIDTH	DEPTH	
F1	4'-0"	4'-0"	5'-0"	#5 @ 10"o.c. EACH WAY TOP & BOTTOM LAYER



REINFORCING BAR LAP SPLICE TABLE (MASONRY)

BAR SIZE	POSITION	CONCRETE f'c (PSI) AND LAP CLASS			
		2500 B	3000 B		
#3 thru #6	ALL	40db	40db		
#7 thru #11	ALL	72db	72db		

REINFORCING BAR LAP SPLICE TABLE (BEAMS AND COLUMNS)

BAR SIZE	POSITION	CONCRETE f'c (PSI) AND LAP CLASS			
		3000 B	4000 B	5000 B	6000 B
#3 thru #6	ALL	74db	64db	58db	50db
#7 thru #11	ALL	93db	80db	72db	60db

REINFORCING BAR LAP SPLICE TABLE (SLABS AND WALLS)

BAR SIZE	POSITION	CONCRETE f'c (PSI) AND LAP CLASS			
		3000 B	4000 B	5000 B	
#3 thru #6	0.75" COVER 2.0" COVER	75db 46db	64db 40db	58db 40db	
#7 thru #11	0.75" COVER 2.0" COVER	138db 74db	120db 65db	106db 56db	

REBAR LAP SPLICE TABLE NOTES:

RL-1 "db" DENOTES BAR DIAMETER.

RL-2 ALL SPLICES SHALL BE CLASS B UNLESS OTHERWISE NOTED.

RL-3 VALUES APPLY TO ALL BARS WITH MINIMUM CONCRETE COVER 1.0db AND MINIMUM CENTER TO CENTER SPACING OF 2.0db.

RL-4 FOR LIGHTWEIGHT CONCRETE, MULTIPLY BY 1.3.

RL-5 THE CHART ABOVE IS A SIMPLIFIED AND CONSERVATIVE METHOD FOR MEETING THE REQUIREMENTS OF ACI 12.2.2. THE CONTRACTOR MAY SUBMIT A DETAILED REBAR SPlicing PLAN IN ACCORDANCE WITH ACI 12.2.2 FOR APPROVAL.

UNDERFLOOR FILL NOTES:

UF-1 BEFORE ANY CONSTRUCTION IS BEGUN, PERFORM ROUGH GRADING AND CUT SWALES SO THAT GROUNDS WILL DRAIN AWAY FROM THE BUILDING. MAINTAIN DRAINAGE DURING ALL PHASES OF CONSTRUCTION SO THAT STORM WATER WILL BE CONDUCTED AWAY FROM THE BUILDING. KEEP EXCAVATIONS PUMPED FREE OF STORM WATER AT ALL TIMES.

UF-2 PRECAUTIONS SHALL BE TAKEN TO PROTECT OPEN EXCAVATIONS FROM EXCESSIVE LOSS OR GAIN IN NATURAL MOISTURE LEVEL PRIOR TO PLACEMENT OF BASE MATERIAL. KEEP MOIST DURING DRY WEATHER AND KEEP STORM WATER PUMPED OUT, INCLUDING NIGHTS AND WEEKENDS, DURING RAINS.

UF-3 IN THE AREA OCCUPIED BY THE FOUNDATION AND ALL ADJACENT SIDEWALKS, PLUS 3'-0", REMOVE A MINIMUM OF 3'-0" OF TOPSOIL INCLUDING ALL ORGANIC MATERIALS, ROOTS, ETC. FROM THE SITE. DO NOT USE FOR UNDERFLOOR FILL. REMOVE ADDITIONAL MATERIAL AS NECESSARY TO PROVIDE A MINIMUM OF 7'-0" OF SELECT FILL AS PER UF-6.

UF-4 THE RESULTING SURFACE SHALL BE PROOF ROLLED WITH A SUFFICIENTLY HEAVY ROLLER (15 TONS) TO LOCATE AND DENSITY WEAK AND COMPRESSIBLE ZONES. A MINIMUM OF 6 PASSES OF THE ROLLER IS REQUIRED. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH COMPACTED SELECT FILL.

UF-5 THE ROLLED SUBGRADE SHALL BE SCARIFIED JUST PRIOR TO FILL PLACEMENT TO A MINIMUM DEPTH OF 6" AND RECOMPACTED TO MINIMUM OF 95% OF THE MAXIMUM DENSITY DETERMINED BY ASTM D698 COMPACTION TEST, MAINTAINING MOISTURE CONTENT BETWEEN -1 AND +3 PERCENTAGE POINTS UNTIL COVERED.

UF-6 FOR A DISTANCE OF 3'-0" OUTSIDE OF THE BUILDING LINE AND ALL ADJACENT SIDEWALKS, AND BEGINNING AT THE LOW END, BUILD UP TO THE ELEVATION OF THE BOTTOM OF THE SLAB WITH SELECT CRUSHED STONE FILL CONFORMING TO TxDOT SPECIFICATIONS, ITEM 247, TYPE "A" GRADE 2. A MINIMUM THICKNESS OF 3'-0" IS REQUIRED. NO DIRT FILL SHALL BE USED UNDER THE BUILDING FOUNDATION. SUBMIT WRITTEN CERTIFICATION OF COMPLIANCE WITH TxDOT, ITEM 247 SPECIFICATIONS BY TEST PERFORMED ON FIELD EXAMPLES.

UF-7 ALL FILL SHALL BE PLACED IN 8" LOOSE HORIZONTAL LIFTS AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698 COMPACTION TEST, MAINTAINING MOISTURE CONTENT BETWEEN -1 AND +3 PERCENTAGE POINTS UNTIL COVERED. EXCESS FILL AT BUILDING PERIMETER SHALL BE CUT AND GRADED TO COMPLY WITH FINISHED GRADE REQUIREMENTS.

UF-8 PERFORM ALL EARTH WORK DESCRIBED ABOVE BEFORE TRENCHING FOR GRADE BEAMS OR MECHANICAL LINES.

STEEL FRAMING NOTES:

SF-1 WIDE FLANGE STRUCTURAL STEEL SHALL CONFORM TO ASTM A992, FY=50 KSI. STRUCTURAL PIPE SHALL CONFORM TO ASTM A53, GRADE B, FY=35. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B, FY=46 KSI, ALL OTHERS SHALL CONFORM TO ASTM A36, FY=36 KSI. CONNECTIONS SHALL CONFORM TO REQUIREMENTS OF AISC.

SF-2 WHERE METAL DECK IS SUPPORTED CONTINUOUSLY WELD DECK TO STEEL SUPPORT AT 12"o.c.

SF-3 STRUCTURAL FRAMING CONNECTIONS SHALL BE SEATED COLUMN CAPS, CLIP ANGLES OR WEB PLATES AS INDICATED ON DETAILS. USE A325 HIGH STRENGTH BOLTS OR WELDS SUFFICIENT TO DEVELOP REACTION CAPACITY ALLOWABLE UNIFORM LOAD/SPAN DIVIDED BY TWO AS SHOWN IN AISC MANUAL SECTION 2 (9th EDITION).

SF-4 DECK STOP ANGLES, FASCIA ANGLES, HANGERS, CLIPS AND OTHER STRUCTURAL AND MISCELLANEOUS MEMBERS SHALL BE CONNECTED OR JOINED USING 3/16" OR LARGER FILLET OR GROOVE WELDS AS REQUIRED FOR ADEQUATE CONNECTION.

SF-5 WHERE OPENINGS THROUGH ROOF ARE REQUIRED, FRAME AS DETAILED.

GENERAL NOTES:

GN-1 THIS STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (2018) AS AMENDED AND ADOPTED BY THE GOVERNING AUTHORITY, AND APPLICABLE INDUSTRY STANDARDS (AISC, ACI, ETC.).

GN-2 THE DESIGN LOADS ARE:

SUPERIMPOSED DEAD LOADS
MECHANICAL DUCTS/CONDUITS, CEILING, ETC. 5 PSF
MECHANICAL EQUIPMENT AS INDICATED ON PLANS

FLOOR LIVE LOAD
CORRIDOR 100 PSF
OFFICES 50 PSF
MOVEABLE PARTITIONS 20 PSF
MECHANICAL ROOMS 150 PSF
(NON REDUCIBLE)

ASSEMBLY AREAS:
FIXED SEATS 60 PSF
LOBBIES 100 PSF
MOVEABLE SEATS 100 PSF
STAGES & PLATFORMS 125 PSF
CATWALKS 40 PSF

ROOF LIVE LOAD
FLAT ROOF 20 PSF
PITCHED ROOF 20 PSF

ROOF SNOW LOAD
GROUND SNOW Pg 5 PSF
SNOW EXPOSURE FACTOR Ce 1.0
SNOW LOAD IMPORTANCE FACTOR Is 1.1
THERMAL FACTOR Ct 1.0

WIND LOAD
BASIC WIND SPEED (ULTIMATE DESIGN) 108
BUILDING CATEGORY II
WIND EXPOSURE C
INTERNAL PRESSURE COEF. ±0.18
COMPONENTS AND CLADDING WIND PRESSURE 25 PSF

EARTHQUAKE LOADS
SEISMIC IMPORTANCE FACTOR Ie 1.00
SPECTRAL RESPONSE ACCELERATION Ss 4.9%
SPECTRAL RESPONSE ACCELERATION S 2.0%
SPECTRAL RESPONSE COEF. SDs 5.2%
SPECTRAL RESPONSE COEF. SD 3.2%
SEISMIC DESIGN CATEGORY A
SEISMIC RESPONSE COEF Cs 1.0

RETAINING WALLS
GLOBAL STABILITY ANALYSIS FACTOR OF SAFETY 1.5
TYPE CANTILEVER
EQUIVALENT FLUID PRESSURE 50 PCF
BACKFILL DRAINED/ONSITE
FOOTING BEARING 1500 PSF
SURCHARGE 200 PSF

FLOOD LOAD
ELEVATION OF LOWEST FLOORREF. ARCH. DWGS.

GN-3 ALLOWABLE STRESS DESIGN LOAD COMBINATIONS (FOR ALL DESIGNS EXCEPT CONCRETE)

D
D+L
D+(Lr, or S or R)
D+0.75L+0.75(Lr, or S or R)
D+(0.5W)
D+0.75L+0.75(0.6W)+0.75(Lr or S or R)
0.6D+0.6W
D+0.7E

STRENGTH DESIGN LOAD COMBINATIONS (FOR CONCRETE DESIGN)

1.4D
1.2D+1.6L+0.5(Lr, or S or R)
1.2D+1.6(Lr, or S or R)+(L or 0.5W)
1.2D+1.0W+L+0.5(Lr, or S or R)
0.9+1.0W
1.2D+E+L+0.2S

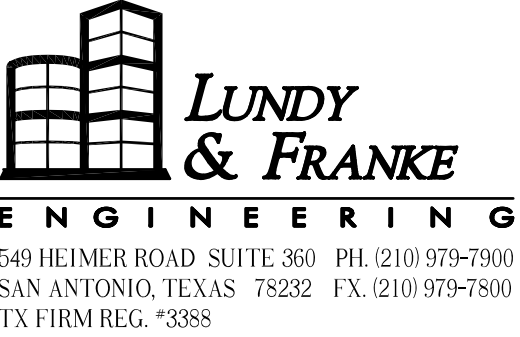
GN-4 PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR AND FABRICATOR SHALL VERIFY ALL QUANTITIES, DIMENSIONS AND CONDITIONS AND NOTIFY ARCHITECT/STRUCTURAL ENGINEER OF RECORD OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

GN-5 UTILITIES PENETRATING BUILDING SHALL BE FLEXIBLE, USING SLEEVE JOINTS, BENDS, LOOPS, ETC. TO PERMIT MOVEMENTS DUE TO EXPANSIVE UNDERLYING SOILS.

GN-6 PROVIDE ADEQUATE AND APPROPRIATE STRUCTURAL STEEL FRAMING FOR THE SUPPORT AND MOUNTING OF MECHANICAL EQUIPMENT RESTING ON, OR SUSPENDED FROM, STEEL SUPERSTRUCTURE.

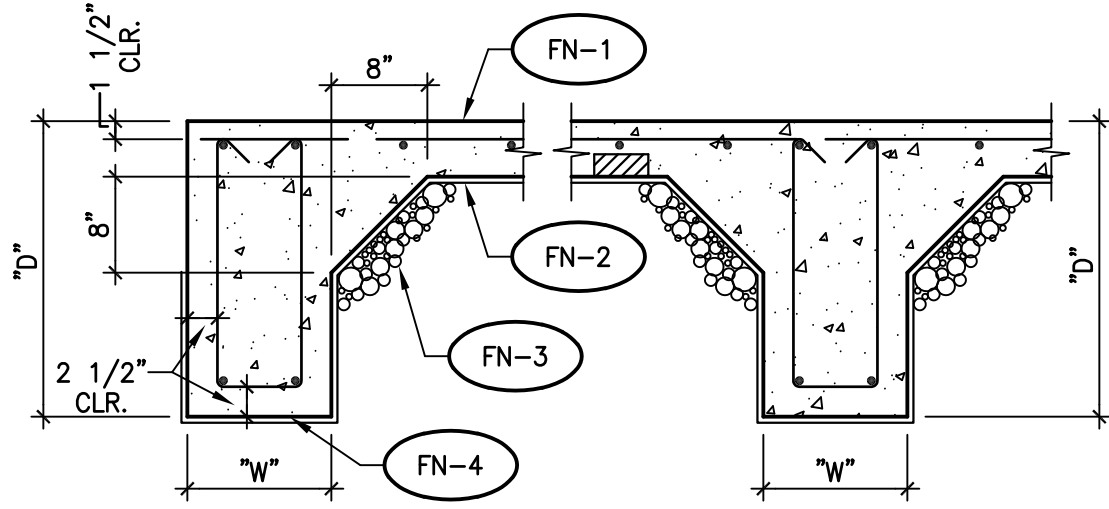
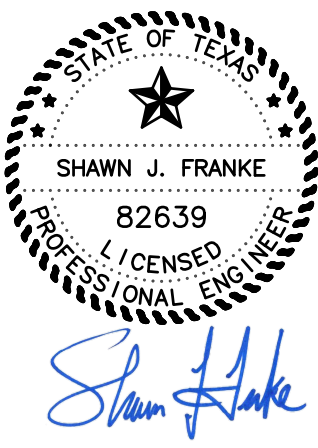
GN-7 THE STRUCTURAL DRAWINGS FOR THIS PROJECT ARE COPYRIGHTED AND SHALL NOT BE REPRODUCED FOR USE AS FABRICATOR'S ERECTION DRAWINGS. THE CONTRACTOR SHALL ALLOW ADEQUATE TIME AND EXPENSE FOR SUBCONTRACTORS TO PRODUCE THEIR OWN ORIGINAL ERECTION AND PLACEMENT DRAWINGS.

GN-8 THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. ANY PROPOSED APPLICATION OF CONSTRUCTION LOADS OR OF ANY LOADS TO THE PARTIALLY COMPLETED STRUCTURE WHICH EXCEED THE DESIGN LOADS WILL REQUIRE REANALYSIS AND PROBABLE REDESIGN.



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DATE:07/12/2023



SECTION 1

SECTION 2

GRADE BEAM SCHEDULE

MARK	W x D*	MAIN REINFORCING	TIES
GB1	12 x 30	2-#8 x CONT. TOP & BOTTOM	#3 @ 24"o.c.
GB2	12 x 24	2-#8 x CONT. TOP & BOTTOM	#3 @ 24"o.c.

* REF. NOTE FN-4

FOUNDATION NOTES:

FN-1 12" CONCRETE SLAB REINFORCED W/ #4 @ 12"o.c. EACH WAY IN TOP & BOTTOM. SUPPORT AT 4'-0"o.c. EACH WAY WITH CONCRETE BLOCKS OR BRICKS. SUPPORT BOTTOM BEAM REINFORCEMENT AT 4'-0" INTERVALS.

FN-2 15 MIL. POLYOLEFIN VAPOR RETARDER UNLESS NOTES OTHERWISE IN SPECIFICATIONS. AT ALL JOINTS PROVIDE 6" LAPS W/ 4" TAPE.

FN-3 COMPACTED SELECT FILL (SEE UF-6 "UNDERFLOOR FILL NOTES").

FN-4 ALL BEAM SOFFITS SHALL BEAR 12" MINIMUM INTO NATURAL GRADE OR COMPACTED FILL. ON PERIMETER, INCREASE SCHEDULED BEAM DEPTH AS REQUIRED FOR SOFFIT TO BEAR 12" MINIMUM BELOW FINISH GRADE.

FN-5 GRADE BEAMS AND SLAB TURNDOUN SHALL BE FORMED BY WALLS AND SOFFIT OF CAREFULLY SHAPED TRENCH. USE A SMOOTH-MOUTHED BUCKET. IF A TOOTHED BUCKET IS USED, EXCAVATION SHALL BE STOPPED 6" ABOVE FINAL GRADE AND THE REMAINING EXCAVATION ACCOMPLISHED WITH A SMOOTH MOUTHED BUCKET OR BY HAND LABOR TO REMOVE ALL LOOSE SOILS DISTURBED BY THE BUCKET TEETH. WOODFORM EXPOSED FACES TO A DEPTH OF 8" BELOW FINISHED GRADE.

FN-6 AT ALL BEAM CORNERS & T-INTERSECTIONS, PROVIDE 4-#7 X 6'-0" CORNER BARS (2-TOP AND 2-BOTTOM).

FN-7 TRENCHES SHALL BE VERIFIED FOR SIZE TO MAINTAIN CLEARANCES AROUND REINFORCEMENT PRIOR TO PLACING REINFORCEMENT.

FN-8 WHERE BEAM DEPTH EXCEEDS 36", ADD #4 @ 12"o.c. IN EACH FACE OF BEAM.

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CONTRACTOR NOTE

THE STRUCTURAL SYSTEM FOR THIS PROJECT SHALL NOT BE CONSTRUCTED BY USING THE STRUCTURAL DRAWINGS ALONE. THESE DRAWINGS WERE DEVELOPED FROM DATA DERIVED PRIMARILY FROM THE ARCHITECTURAL DRAWINGS AND SECONDARILY FROM MEP, CIVIL AND OTHER DISCIPLINES' DOCUMENTS. IT IS INTENDED THAT CONSTRUCTION PROCEED BY UTILIZING ALL OF THE INFORMATION CONTAINED IN THE ENTIRE SET OF CONSTRUCTION DOCUMENTS TAKEN AS A WHOLE; FAILURE TO DO SO WILL RESULT IN ERRORS WHICH SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

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RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS

NOTES, SECTIONS AND DETAILS

SAWS JOB NO. 21-0000

JOB NO. 12175-01

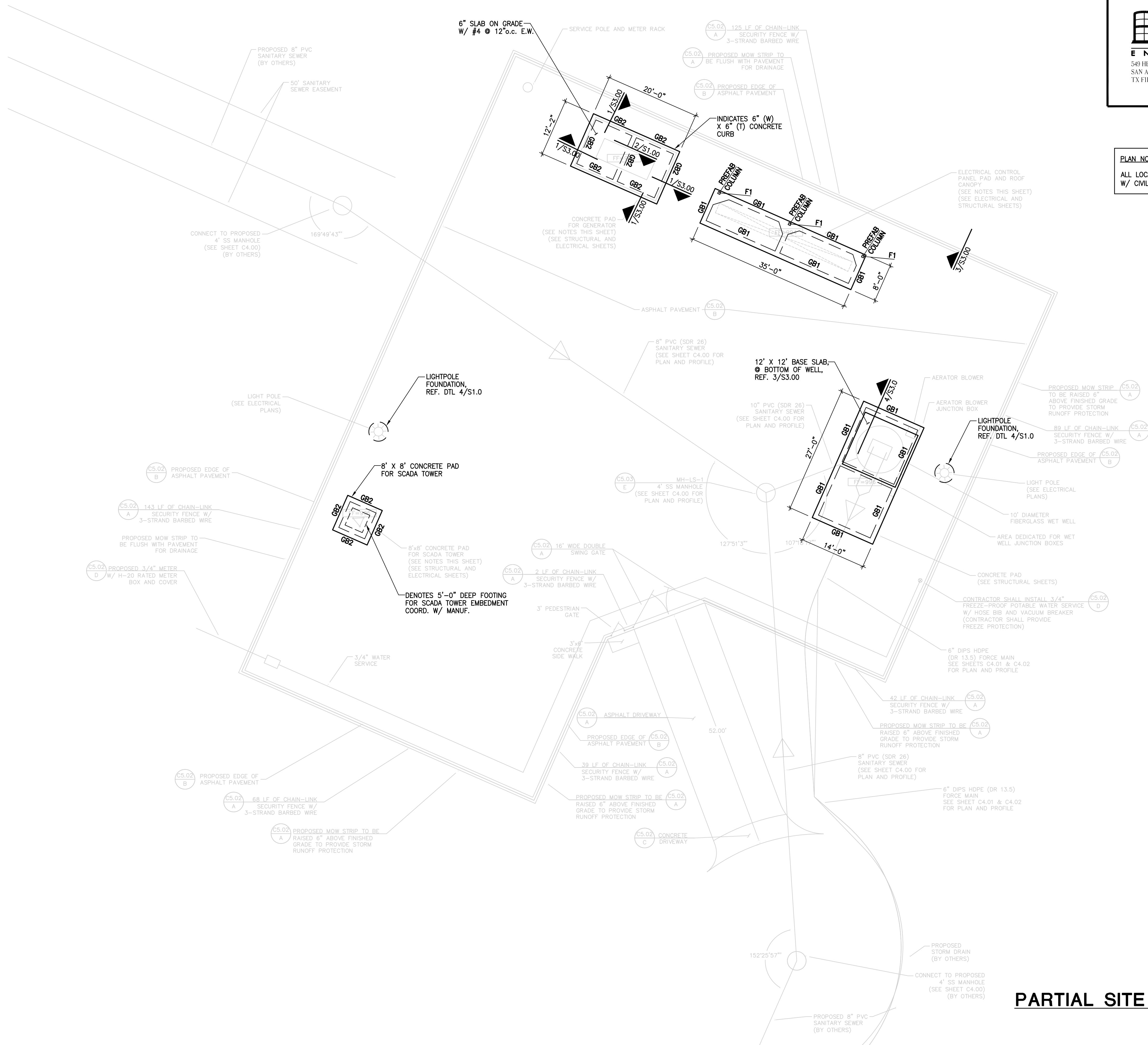
DATE JULY 2023

DESIGNER J.H.

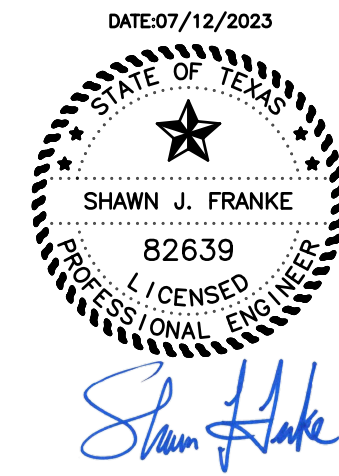
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SHEET S1.00

LA PROJECT NO.: 13-170-00
LA FILE NO.: RSLSTS2.00



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PLAN NOTE:
ALL LOCATIONS OF PADS & WELLS TO BE COORDINATED
W/ CIVIL DRAWINGS.

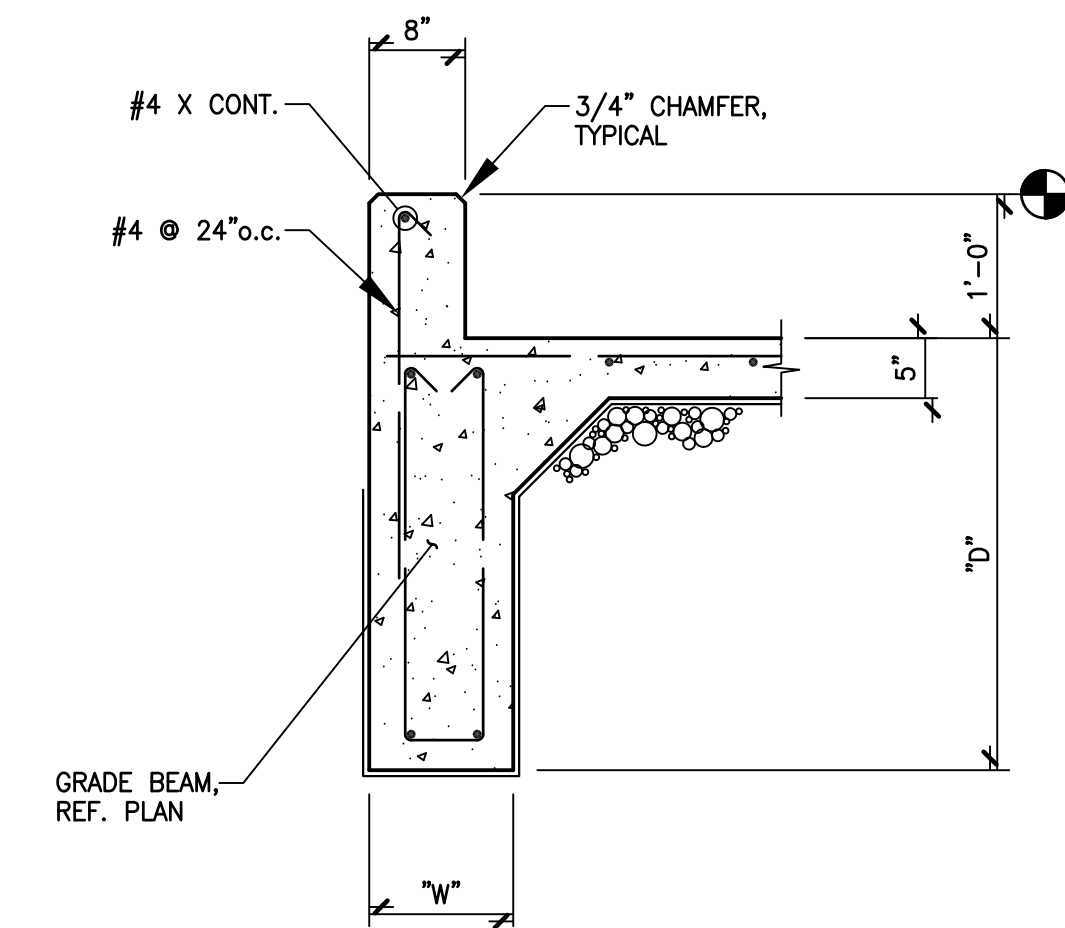
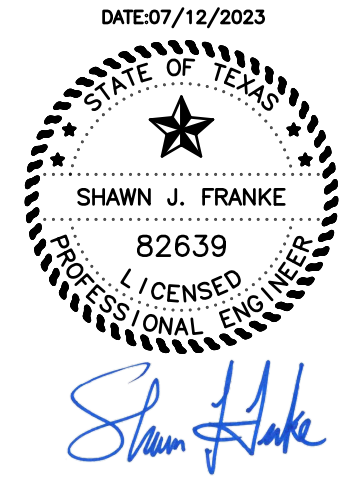
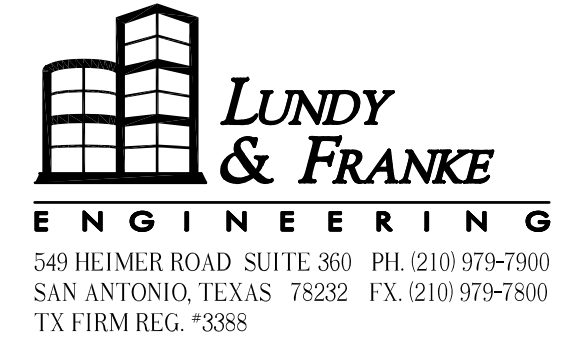
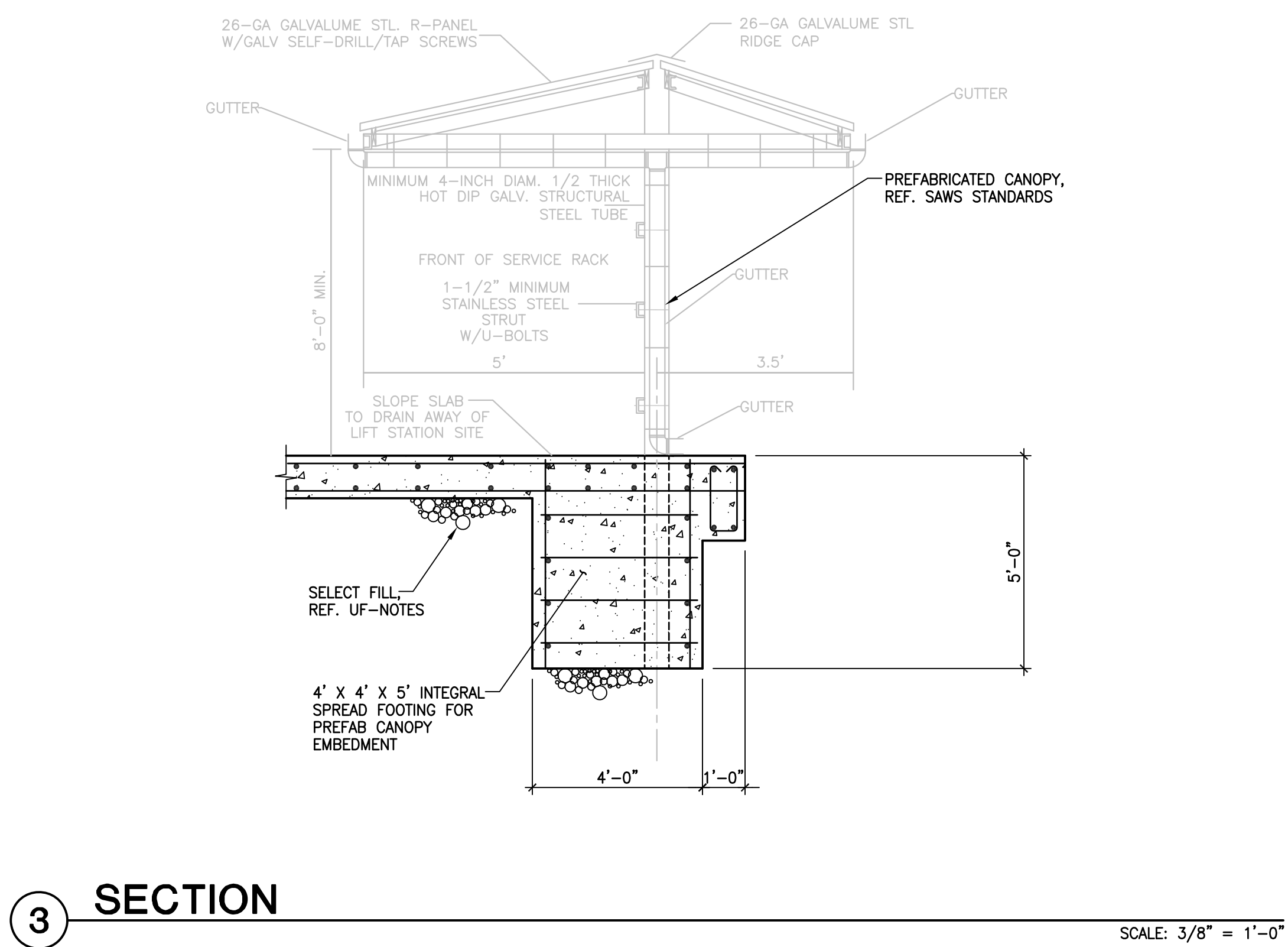
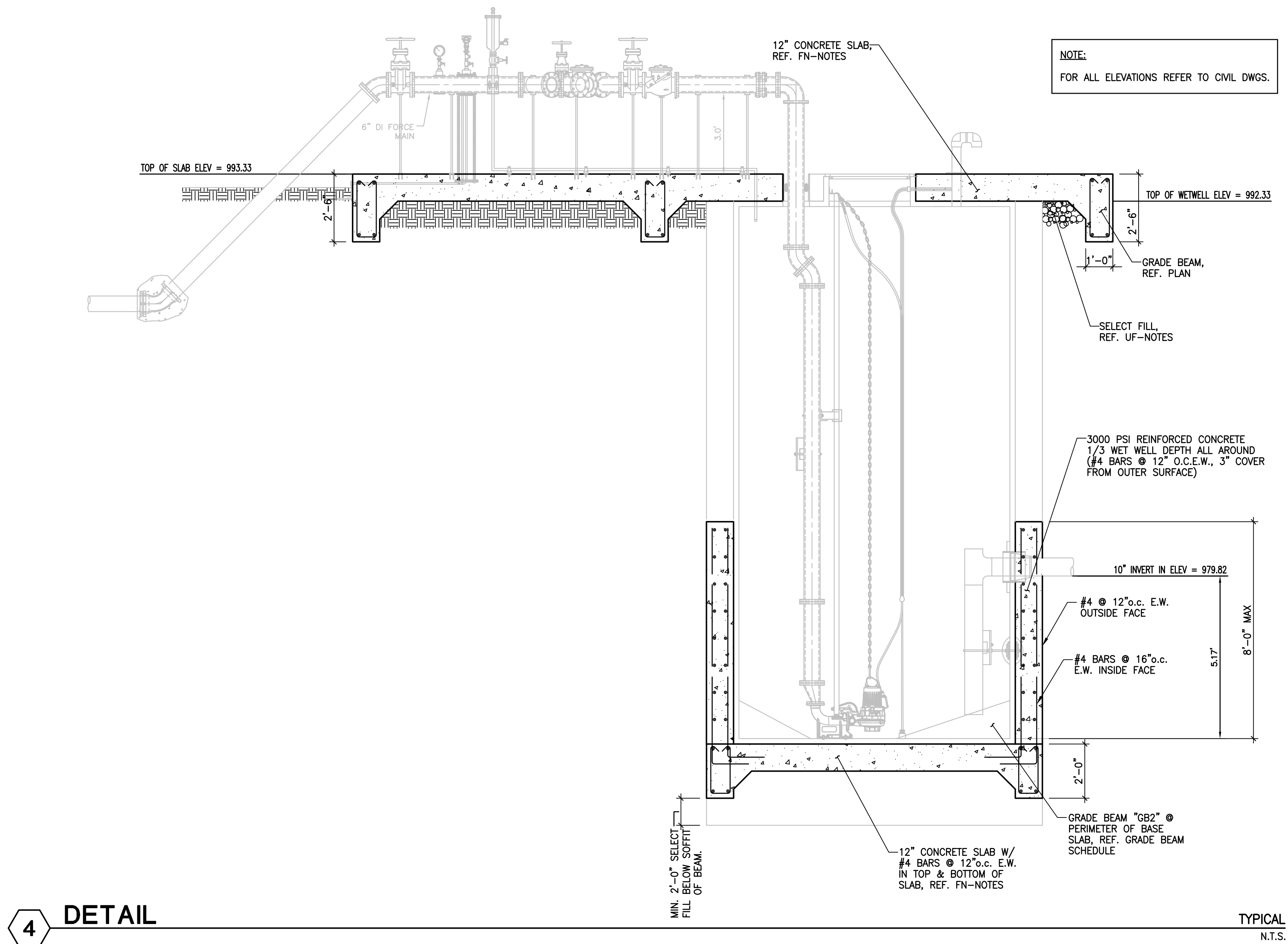
PARTIAL SITE & FOUNDATION PLAN

SCALE: 3/32" = 1'-0"

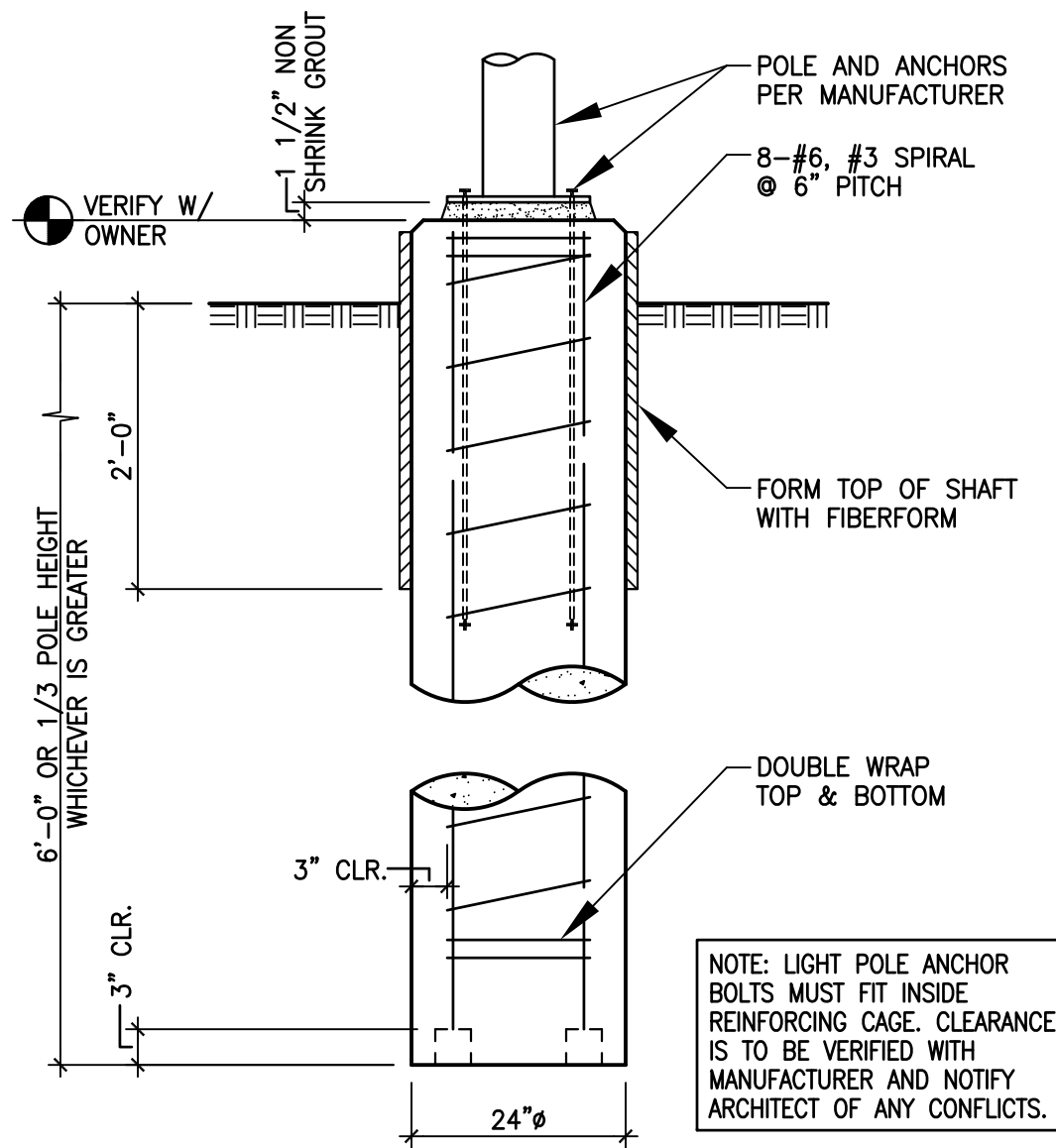
RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS
PARTIAL SITE & FOUNDATION PLAN

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1 DETAIL TYPICAL
N.T.S.



2 DETAIL TYPICAL
N.T.S.

RIVERSTONE LIFT STATION POD F AND FORCE MAIN
BEXAR COUNTY, TEXAS
DETAILS AND CANOPY ROOF PLAN

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