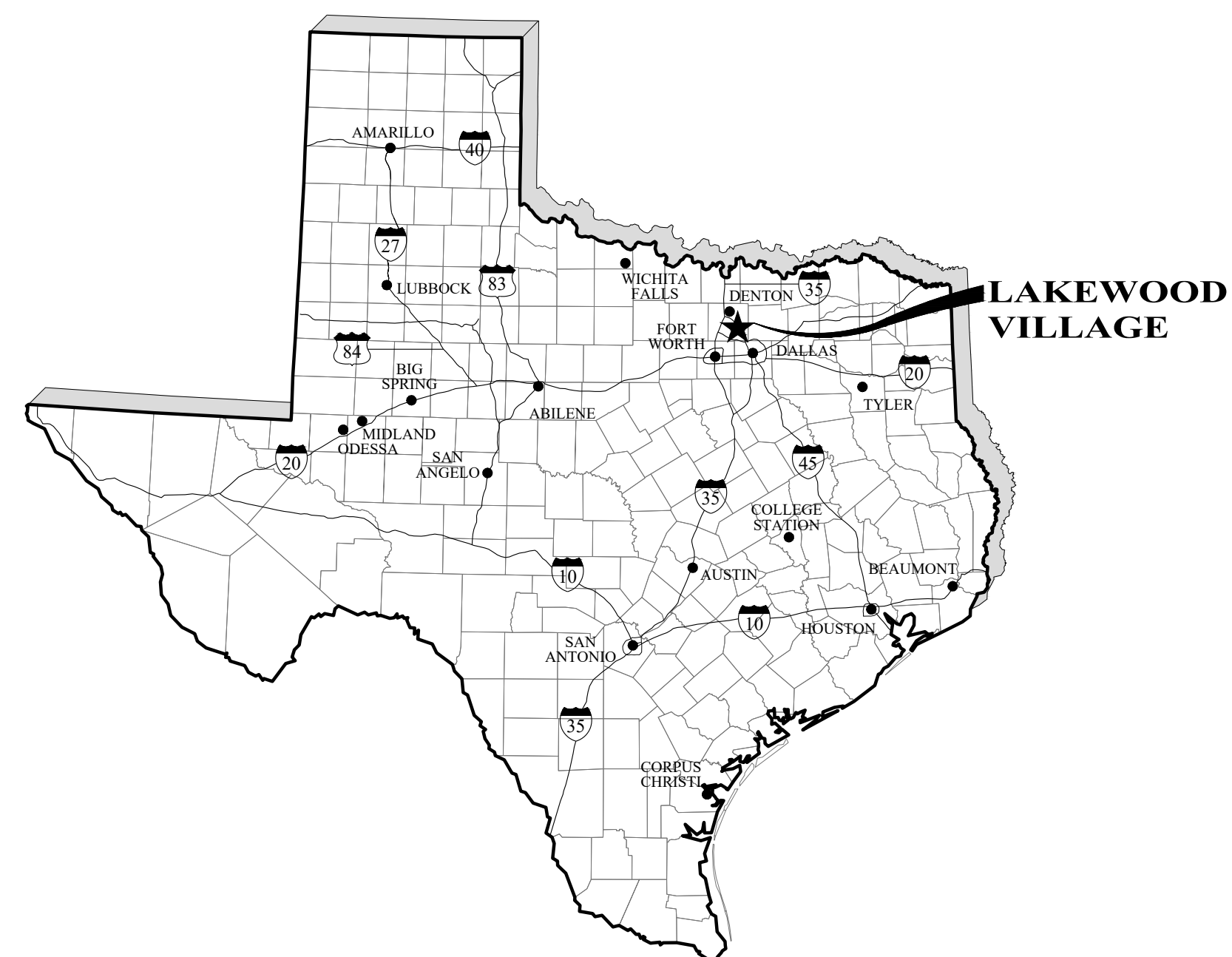


NEW DRINKING WATER WELL FOR TOWN OF LAKEWOOD VILLAGE LAKEWOOD VILLAGE, DENTON COUNTY, TEXAS

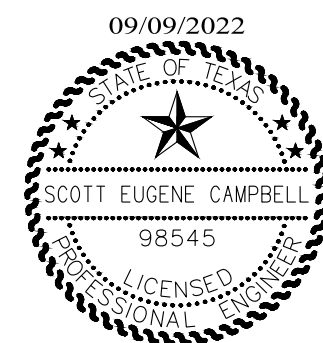


 **VICINITY MAP**
NO SCALE

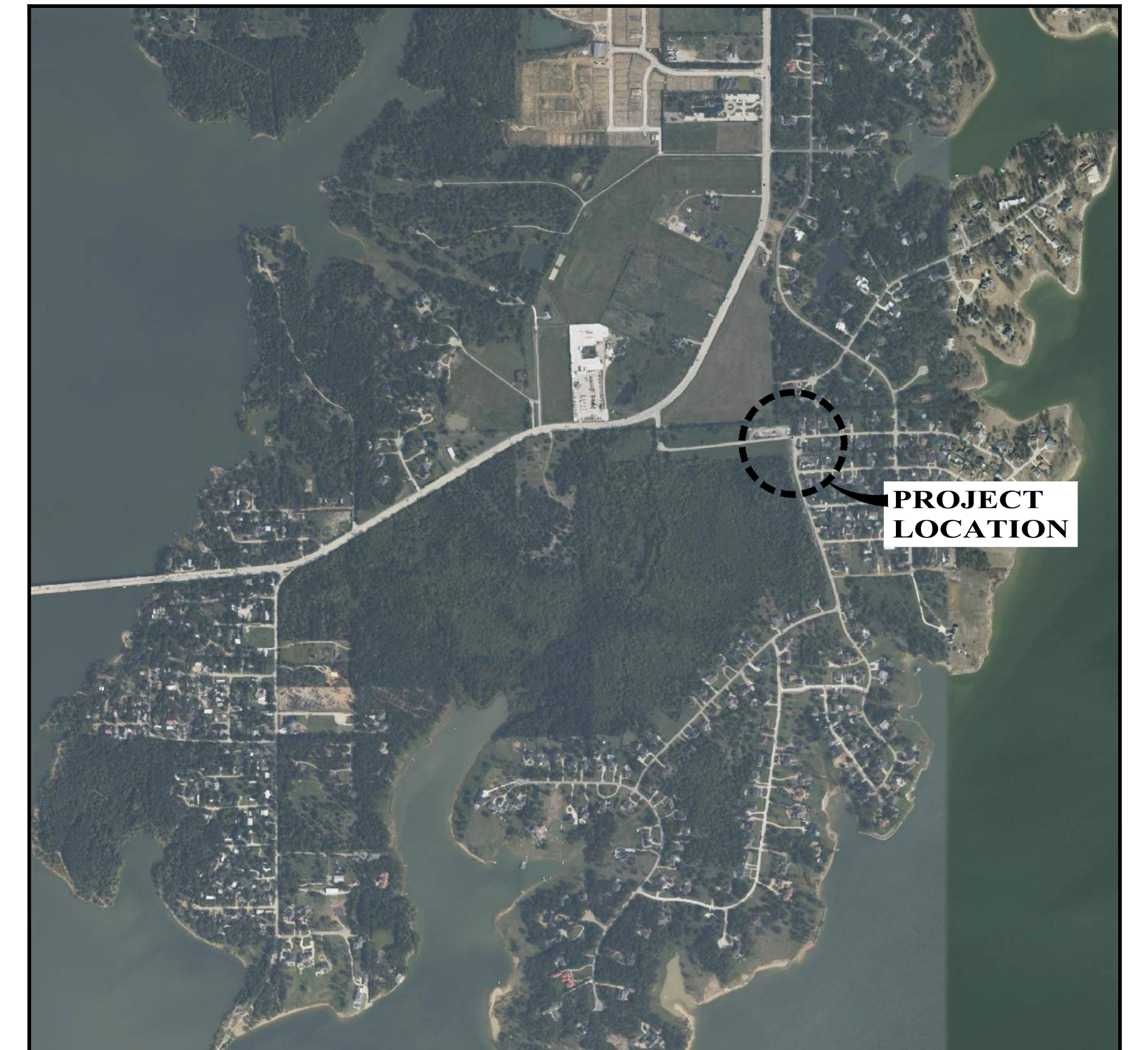
MAYOR
DR. MARK VARGUS

MAYOR PRO-TEM
DARREL WEST

CITY COUNCIL
ERIC FARAGE
MATT BISSONNETTE
SERENA LEPLY
CLINT BUSHONG



SCOTT E. CAMPBELL, P.E.



**PROJECT
LOCATION**

JOB SITE:
101 HIGHRIDGE DR.
LAKEWOOD VILLAGE, TEXAS 75068
33.143458, -96.972347

 **LOCATION MAP**
SCALE: 1" = 1000'

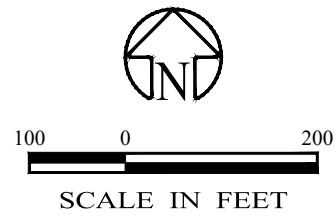


ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
325-698-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

CONTRACT NO.
8277

SHEET NO.

1 OF 8



GENERAL NOTES:

- IT IS THE INTENT OF THESE PLANS TO SHOW THE LOCATION OF EXISTING UNDERGROUND FACILITIES IN ACCORDANCE WITH EXISTING RECORDS. HOWEVER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY THE EXACT LOCATION OF ALL EXISTING UNDERGROUND FACILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES TO EXISTING FACILITIES.
- EXISTING IMPROVEMENTS INCLUDING, BUT NOT LIMITED TO, FENCES, CULVERTS, HEADWALLS, UTILITY PIPELINES AND DRAINAGE STRUCTURES WHICH ARE REMOVED OR ALTERED TO PERMIT INSTALLATION OF THE WATER WELL SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR, IN THE SAME LOCATION AND IN A CONDITION AS GOOD OR BETTER THAN FOUND. PAYMENT FOR THIS WORK IS SUBSIDIARY TO THE UNIT PRICE FOR WATER WELL CONSTRUCTION UNLESS SPECIFIC PAY ITEMS FOR THIS WORK IS INCLUDED IN THE BID PROPOSAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING PIPELINE AND UTILITY COMPANIES HAVING PROPERTY IN THE AREA OF CONSTRUCTION BY CONTACTING TEXAS ONE CALL AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND SIDEWALKS ADJACENT TO PROJECT FREE OF MUD AND DEBRIS FROM THE CONSTRUCTION.
- CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON ANY PRIVATE PROPERTY WITHOUT PRIOR WRITTEN AGREEMENT WITH THE PROPERTY OWNER.
- NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAY, WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- BEFORE FINAL COMPLETION OF THIS PROPOSED WORK, ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL OR BETTER CONDITION.
- CONTRACTOR TO CONFIRM ACTUAL HORIZONTAL AND VERTICAL LOCATION OF EXISTING STRUCTURES, PIPING, PAVING, FENCING AND ALL OTHER EXISTING FACILITIES PRIOR TO CONSTRUCTION.
- REMOVE AND DISPOSE OF TREES, STUMPS, BRUSH, ROOTS, VEGETATION, LOGS, RUBBISH AND OTHER OBJECTIONABLE MATTER WITHIN THE LIMITS OF THE AREA AFFECTED BY THE WORK, INCLUDING ALL AREAS TO BE RE-GRADED OR FINISH GRADED. PROTECT TREES, SHRUBS, AND OTHER LANDSCAPE FEATURES SPECIFICALLY DESIGNATED FROM DAMAGE DURING CONSTRUCTION OPERATIONS.
- THE OWNER WILL DETERMINE THE ONLY TREES THAT MAY BE REMOVED PRIOR TO EXCAVATION. CONTRACTOR WILL BE HELD LIABLE FOR DAMAGE TO ANY TREES THAT HAVE NOT BEEN DESIGNATED FOR REMOVAL.
- FINE GRADE AREAS TO ACHIEVE FINAL CONTOURS INDICATED. REMOVE RUBBISH, VEGETATION AND ROCKS OVER 1-1/2-INCH IN DIAMETER. ADJUST CONTOURS TO ACHIEVE POSITIVE DRAINAGE AWAYS FROM ALL STRUCTURES. PROVIDE UNIFORM ROUNDING AT TOP AND BOTTOM OF SLOPES AND OTHER BREAKS IN GRADE. CORRECT IRREGULARITIES AND AREAS WHERE WATER WILL STAND.
- UNLESS OTHERWISE NOTED, REMOVAL AND REPLACEMENT OF STREETS, CURBS, SIDEWALKS, DRIVEWAYS AND OTHER PAVEMENTS COVERING OR IN CONFLICT WITH THE PROPOSED IMPROVEMENTS IS CONSIDERED INCIDENTAL TO THE WORK; NO SEPARATE PAY WILL BE PROVIDED.
- ALL PAVEMENT UTILITY CUTS (ASPHALT OR CONCRETE) SHALL BE SAWCUT OR REMOVED TO THE NEAREST JOINT.

WELL CONSTRUCTION NOTES:

- WELL CONSTRUCTION MATERIAL MAY NOT CONTAIN MORE THAN 0.25% LEAD.
- SAFEGUARDS SHALL BE TAKEN TO PREVENT POSSIBLE CONTAMINATION OF THE WATER OR DAMAGE BY TRESPASSERS FOLLOWING THE COMPLETION OF THE WELL AND PRIOR TO INSTALLATION OF PERMANENT PUMPING EQUIPMENT.
- UPON WELL COMPLETION, THE WELL SHALL BE DISINFECTED IN ACCORDANCE WITH CURRENT AWWA STANDARD C654-21 FOR WELL DISINFECTION EXCEPT THAT THE DISINFECTANT SHALL REMAIN IN THE WELL FOR AT LEAST 6-HOURS.
- THESE WATER WELL FACILITIES MUST BE CONSTRUCTED IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D.
- THE PREMISES, MATERIALS, TOOLS, AND DRILLING EQUIPMENT SHALL BE MAINTAINED SO AS TO MINIMIZE CONTAMINATION OF THE GROUNDWATER DURING DRILLING OPERATION.
- WATER USED IN ANY DRILLING OPERATION SHALL BE OF SAFE SANITARY QUALITY. WATER USED IN THE MIXING OF DRILLING FLUIDS OR MUD SHALL CONTAIN A CHLORINE RESIDUAL OF AT LEAST 0.5 MILLIGRAMS PER LITER (MG/L).
- THE SLUSH PIT SHALL BE CONSTRUCTED AND MAINTAINED SO AS TO MINIMIZE CONTAMINATION OF THE DRILLING MUD.
- NO TEMPORARY TOILET FACILITIES SHALL BE MAINTAINED WITHIN 150 FEET OF THE WELL BEING CONSTRUCTED UNLESS THEY ARE OF A SEALED, LEAKPROOF TYPE.
- OWNER/ENGINEER SHALL STAKE EXACT LOCATION OF PROPOSED WELL.
- INFORMATION PROVIDED HEREIN IS APPROXIMATE AND IS SHOWN FOR BIDDING PURPOSES. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS AND CONSULT WITH ENGINEER PRIOR TO SETTING CASING, SCREEN, AND PERMANENT WELL PUMP.
- ALL WELL CASING MATERIAL SHALL CONFORM TO AWWA STANDARDS.

PIPING NOTES:

- LOCATIONS OF ALL EXISTING PIPING WERE DETERMINED FROM EXISTING INFORMATION. CONTRACTOR SHALL VERIFY LOCATIONS AND FLOWLINES OF EXISTING PIPING PRIOR TO BEGINNING CONSTRUCTION.
- MAINTAIN A MINIMUM OF SIX (6) INCHES CLEARANCE BETWEEN THE OUTSIDE OF ALL PROPOSED PIPING, FITTINGS OR APPURTENANCES AND ANY OTHER EXISTING OR PROPOSED BURIED UTILITY OR STRUCTURE.
- UNLESS OTHERWISE NOTED, ALL POTABLE AND NON-POTABLE WATER MAIN PIPING 4-INCHES IN DIAMETER AND LARGER TO BE PVC CONFORMING TO AWWA C900, CLASS 200 (OR 25), WITH MJ DUCTILE IRON FITTINGS. ALL RISERS TO CONNECT TO FACILITIES AT OR ABOVE GRADE AND EXPOSED PIPING TO BE DUCTILE IRON OR WELDED STEEL.
- ALL TRENCHES UNDER OR WITHIN 5 FEET OF PAVEMENT OR STRUCTURES TO BE BACKFILLED IN MAXIMUM 8-INCH LIFTS COMPACTED TO 95% STANDARD PROCTOR DENSITY. TRENCHES IN OTHER AREAS TO BE COMPACTED TO THE DENSITY OF THE ADJACENT, UNDISTURBED SOIL.
- ALL PIPING DESIGNATED OR REQUIRED TO BE ABANDONED SHALL BE CUT, DRAINED, AND OPEN ENDS CAPPED OR PLUGGED. ANY EXPOSED PIPING TO BE COMPLETELY REMOVED TO A MINIMUM DEPTH OF 24" BELOW FINISHED GRADE.
- UNLESS OTHERWISE NOTED, ALL PIPE PROJECTIONS THROUGH CONCRETE STRUCTURES SHALL HAVE A WALL FLANGE. ALL WALL FLANGES SHALL BE CAST-IN-PLACE WITH STRUCTURAL CONCRETE OR GROUTED IN BLOCK-OUTS WITH NON-SHRINK GROUT.
- ALL BURIED NUTS AND BOLTS SHALL BE STAINLESS STEEL, ZINC PLATED, GALVANIZED, OR COR-TEN. ALL ABOVE GROUND NUTS AND BOLTS SHALL BE STAINLESS STEEL UNLESS OTHERWISE SPECIFIED. ALL DISSIMILAR PIPE, BOLT, AND NUT MATERIALS SHALL BE INSTALLED WITH INSULATION KITS.
- INSULATE ALL EXPOSED PIPING SUBJECT TO FREEZING, 8 INCH DIAMETER AND SMALLER WITH 2" THICK FIBERGLASS INSULATION JACKETED WITH REINFORCED VAPOR RETARDER FACING AND FACTORY APPLIED LONGITUDINAL ACRYLIC ADHESIVE CLOSURE SYSTEM, J.M. MICRO-LOK OR EQUAL. INSTALL IN ACCORDANCE WITH MFRS' RECOMMENDATIONS. ALL OUTDOOR INSULATION AND INDOORS UP TO 8' A.F.F. SUBJECT TO IMPACT DAMAGE TO BE JACKETED WITH 20 GA. ALUMINUM SHEET METAL.
- ALL BURIED GALVANIZED STEEL PIPE SHALL BE WRAPPED WITH 3M COMPANY 0.020 INCH THICK No. 51 "SCOTCHWRAP VINYL PLASTIC TAPE, HALF LAPPED TO GIVE DOUBLE THICKNESS WRAP. REMOVE ALL OIL, GREASE AND DIRT FROM THE PIPE WITH A SUITABLE SOLVENT, AND CLEAN AND DRY BEFORE WRAPPING.
- PROVIDE I.P.T. TAPS IN D.I.P. SPOOLS, AND FITTINGS AS REQUIRED TO ACCOMMODATE PRESSURE GAUGES, SAMPLE TAPS, CHEMICAL INJECTION POINTS, AND OTHER FEATURES AND APPURTENANCES.
- CONTRACTOR SHALL FURNISH AND INSTALL NECESSARY FITTINGS, VALVES, VALVE BOXES, RESTRAINTS AND OTHER APPURTENANCES ASSOCIATED WITH THE PIPING SYSTEM AS SHOWN AND SPECIFIED.
- WATER LINES SHALL HAVE A MINIMUM COVER OF 36" AT ALL LOCATIONS.



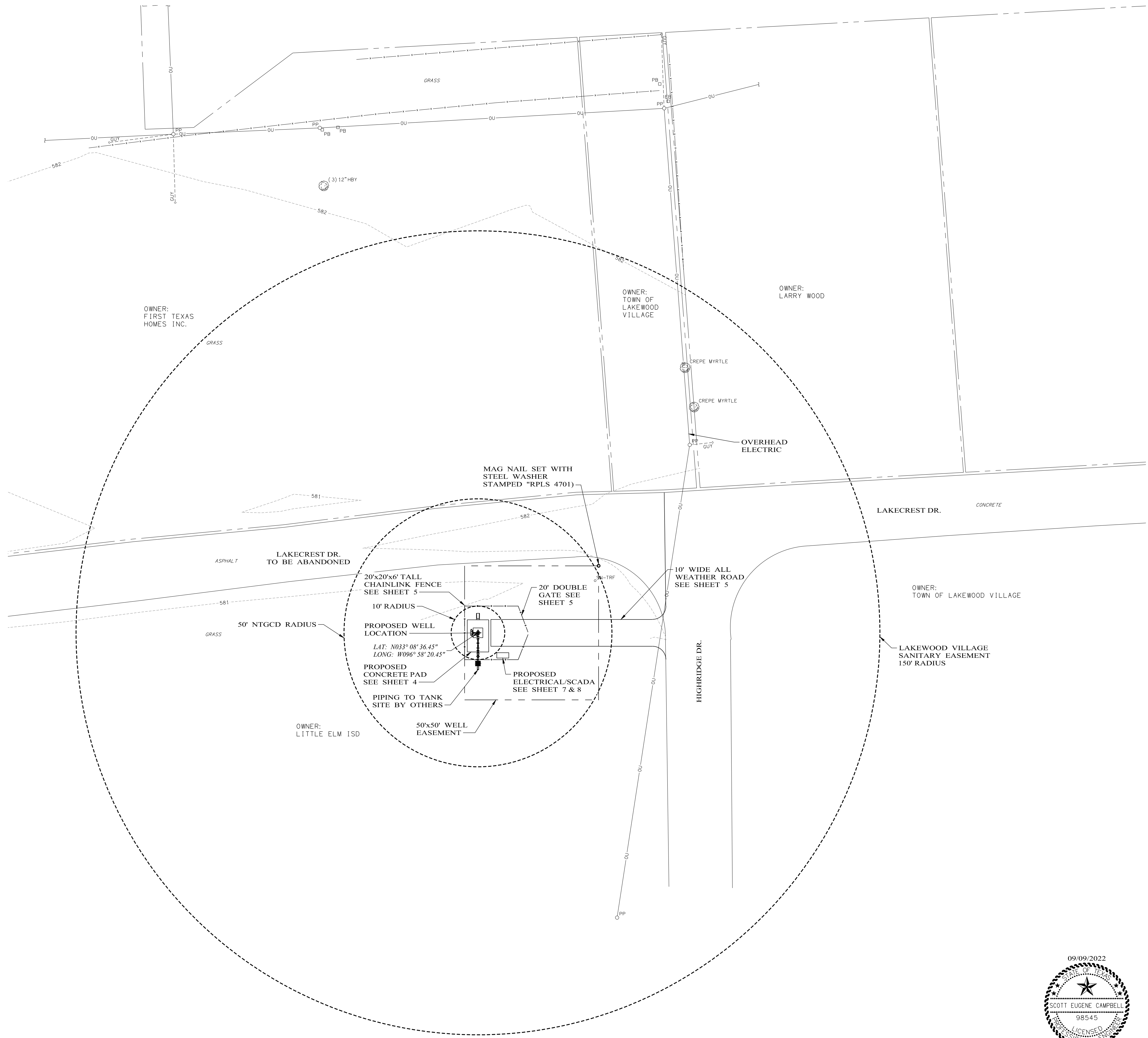
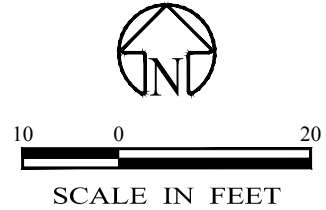
GENERAL NOTES AND ELECTRICAL LEGEND

SHEET INDEX

SHEET No.	TITLE
1	COVER SHEET
2	CONSTRUCTION NOTES / SITE MAP
3	SITE PLAN
4	WELL DETAILS / MISCELLANEOUS DETAILS
5	MISCELLANEOUS DETAILS
6	GENERAL NOTES AND ELECTRICAL LEGEND
7	ELECTRICAL LAYOUT AND SINGLE LINE
8	ELECTRICAL DETAILS



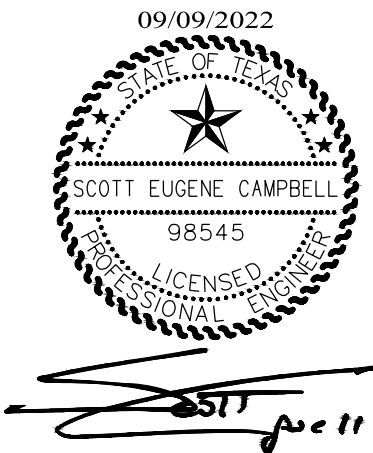
NO.	REVISION	DATE
0	ISSUED FOR BID / TCEQ SUBMITTAL	09/09/2022
 Enprotec Hibbs & Todd 402 Cedar Street • Abilene, Texas 79601 • T: (325) 698-5560 • F: (325) 690-3240 • www.e-h-t.com PE Firm Registration No. 1151 • PG Firm Registration No. 50103 • RPLS Firm Registration No. 10011900		8277 PROJECT NO. 09/09/2022 DATE
NEW DRINKING WATER WELL FOR THE TOWN LAKEWOOD VILLAGE LAKEWOOD VILLAGE, TEXAS		M.W./S.C. DESIGNED BY: eHT DRAWN BY: S.D. CHECKED BY:
CONSTRUCTION NOTES / SITE MAP		2 OF 8



- LEGEND**
- PP POWER POLE
 - EB PULL-BOX - ELECTRIC
 - PB PULL-BOX - TELEPHONE
 - SN-TRF SIGN - TRAFFIC
 - GUY GUY ANCHOR
 - FENCE
 - OU OVERHEAD UTILITY LINE

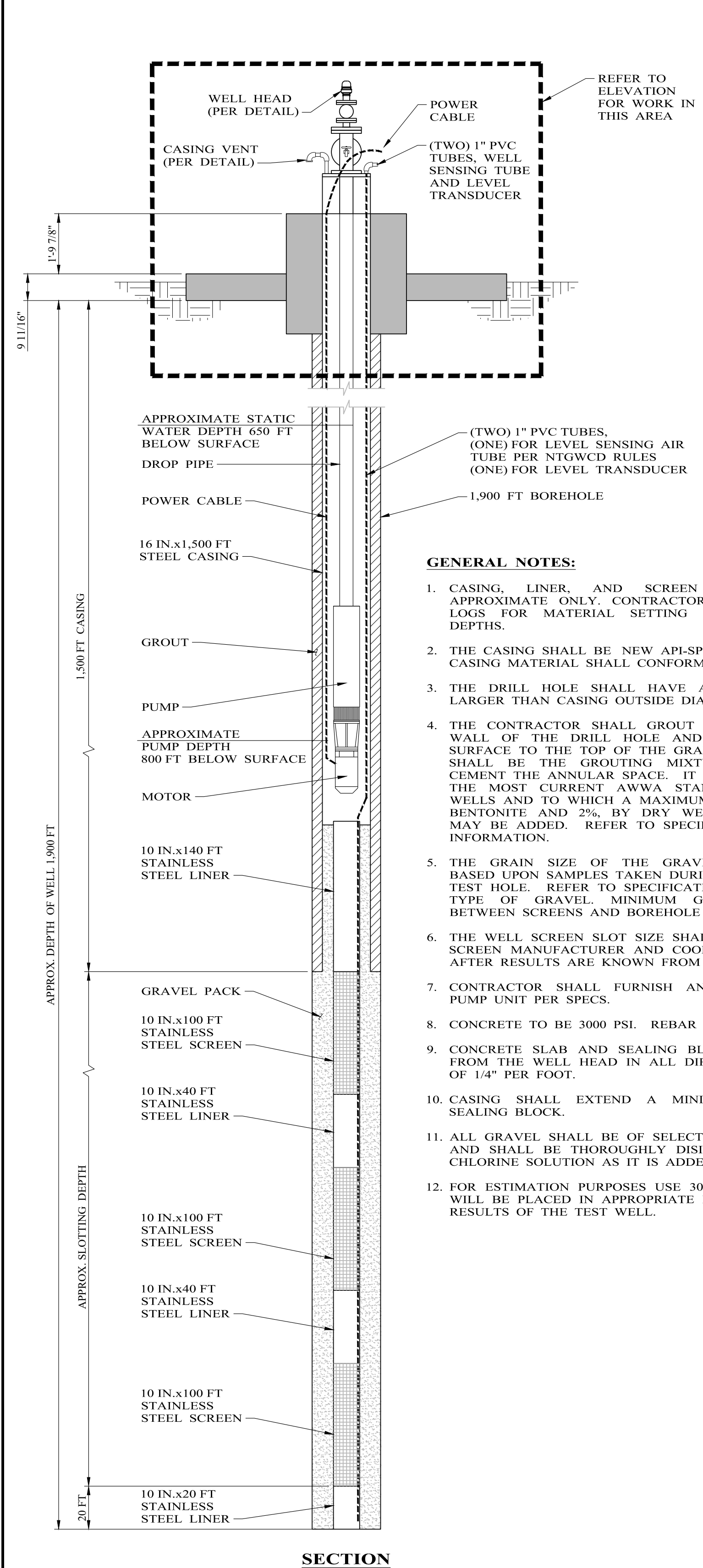
UTILITY WARNING

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

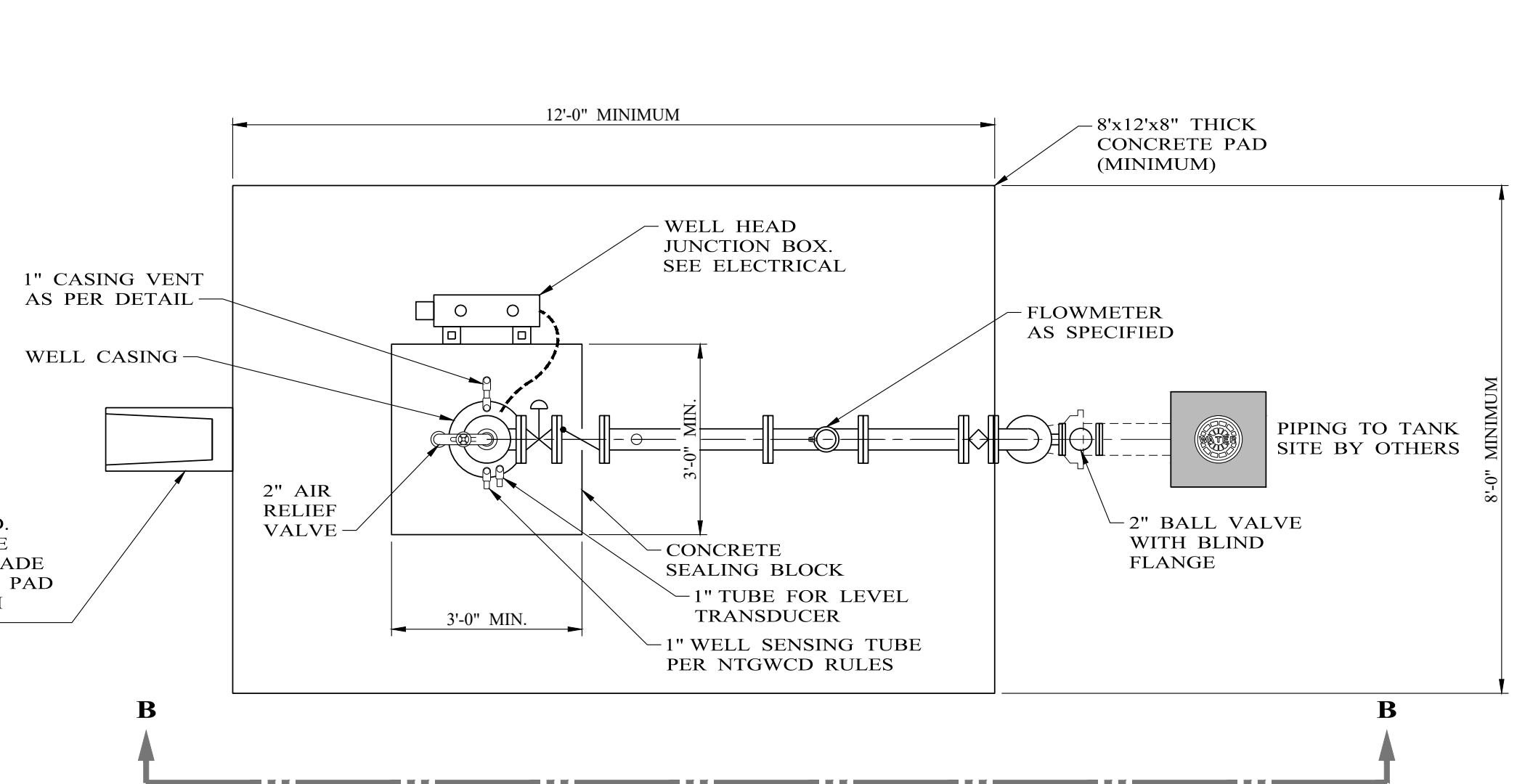


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NEW DRINKING WATER WELL FOR THE TOWN LAKEWOOD VILLAGE LAKEWOOD VILLAGE, TEXAS		M.W./S.C. DESIGNED BY: eHT DRAWN BY: S.D. CHECKED BY:
SITE PLAN		3 OF 8

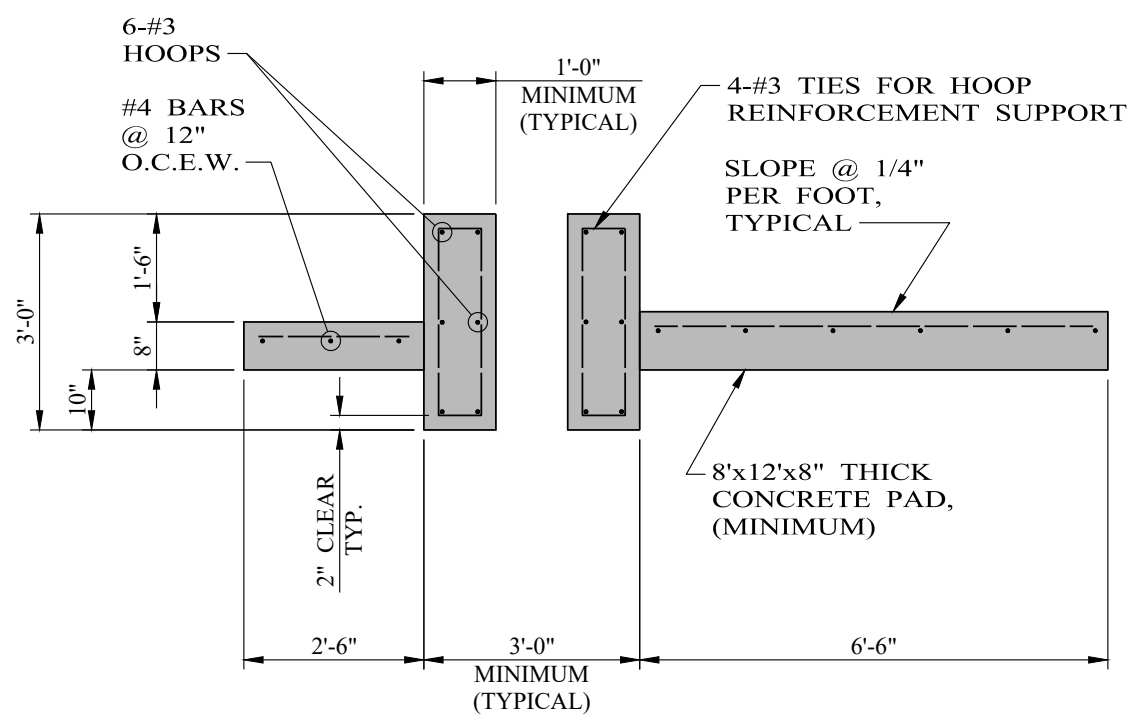
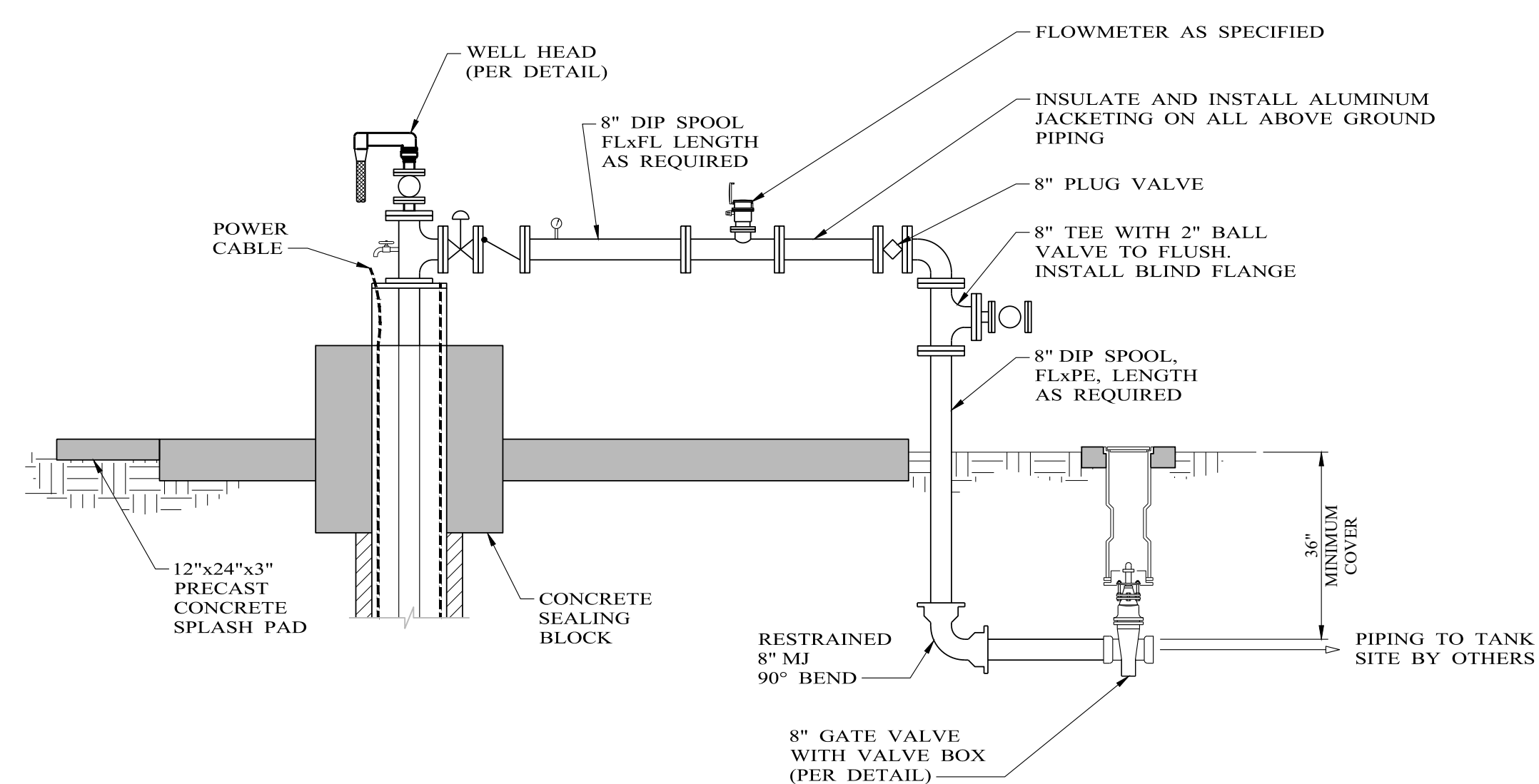
SITE PLAN



TYPICAL WELL DETAIL
NO SCALE

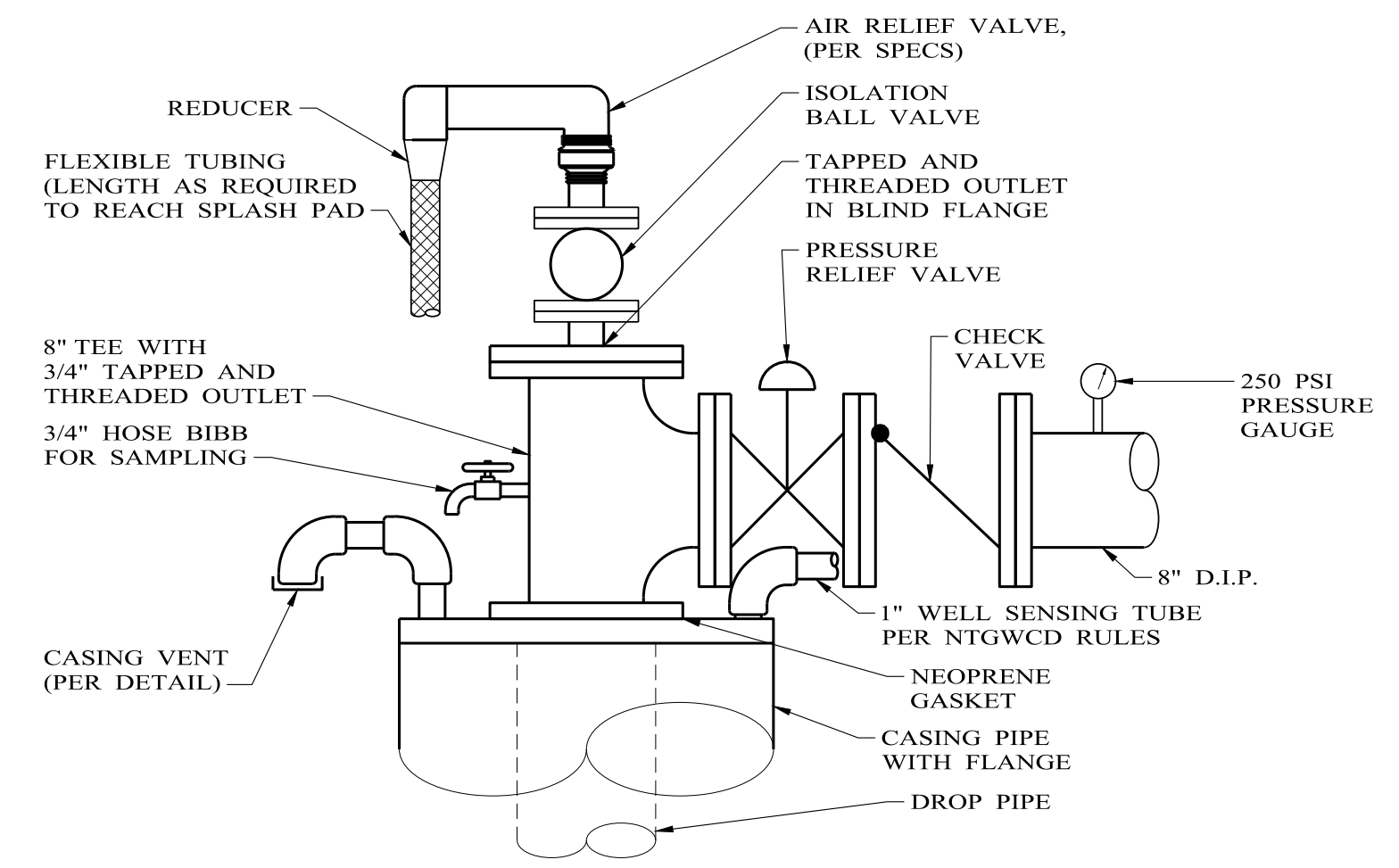


PLAN VIEW

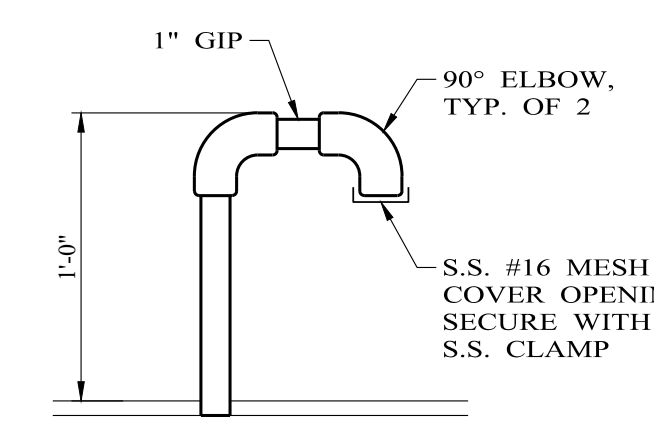


SCALE: 3/8" = 1'-0"

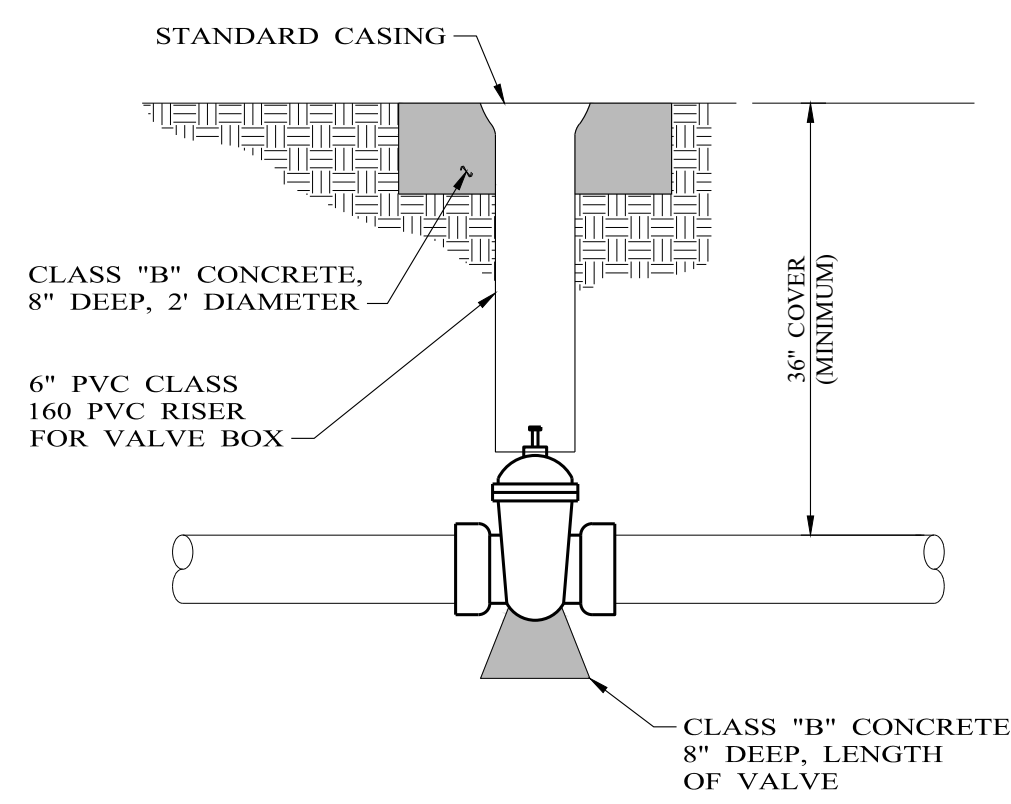
- GENERAL NOTES:
- 3000 PSI CONCRETE.
 - REINFORCEMENT BARS SHALL HAVE A MINIMUM OF 2" COVER.
 - CONCRETE SLAB AND CONCRETE SEALING BLOCK SHALL BE SLOPED AWAY FROM THE WELL HEAD IN ALL DIRECTIONS AT 1/4" PER FOOT.
 - WELL SITE TO BE GRADED TO DRAIN AWAY FROM WELL IN ALL DIRECTIONS.



WELL HEAD DETAIL
SCALE: 1" = 1'-0"



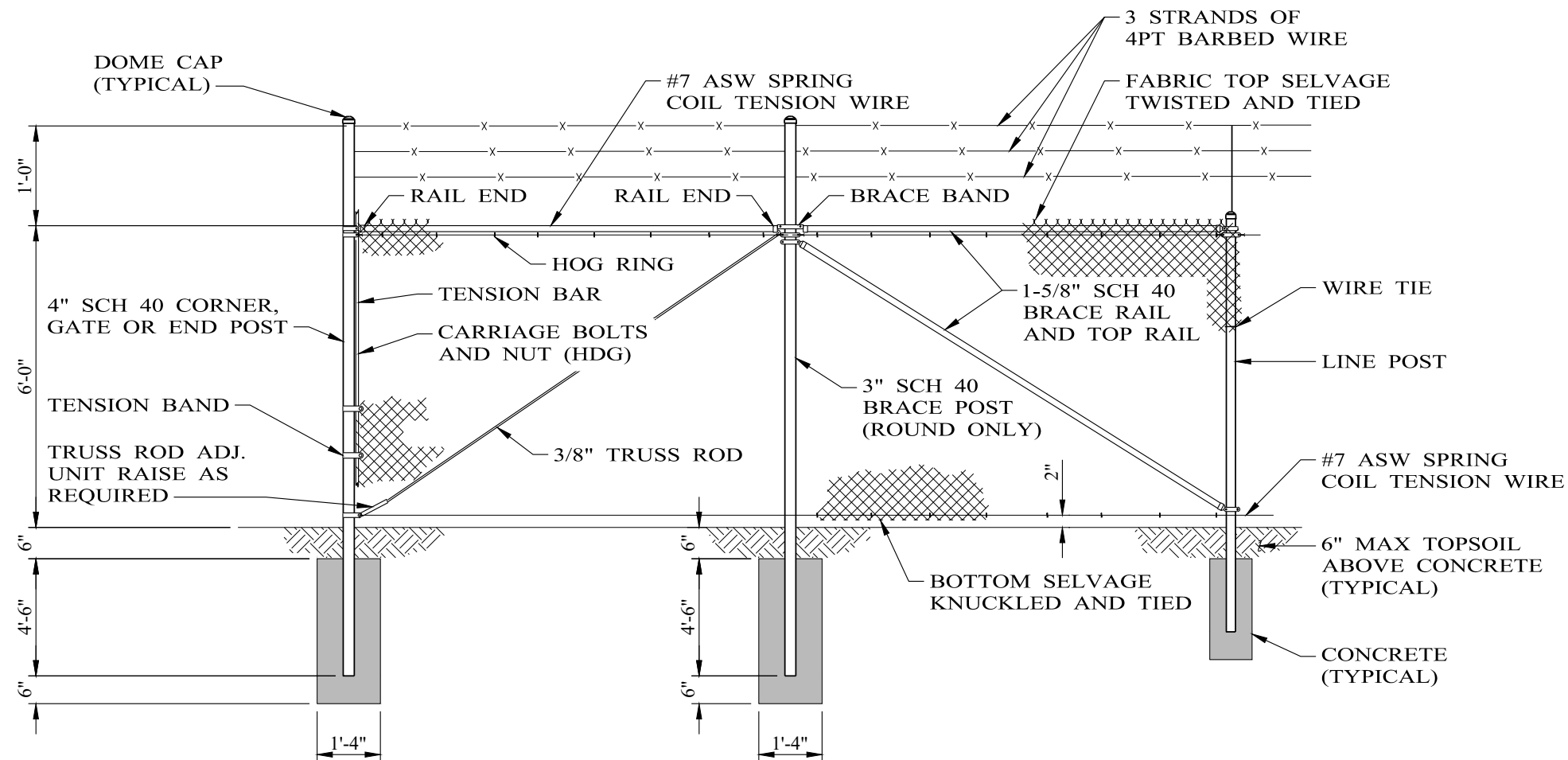
SCALE: 1 1/2" = 1'-0"



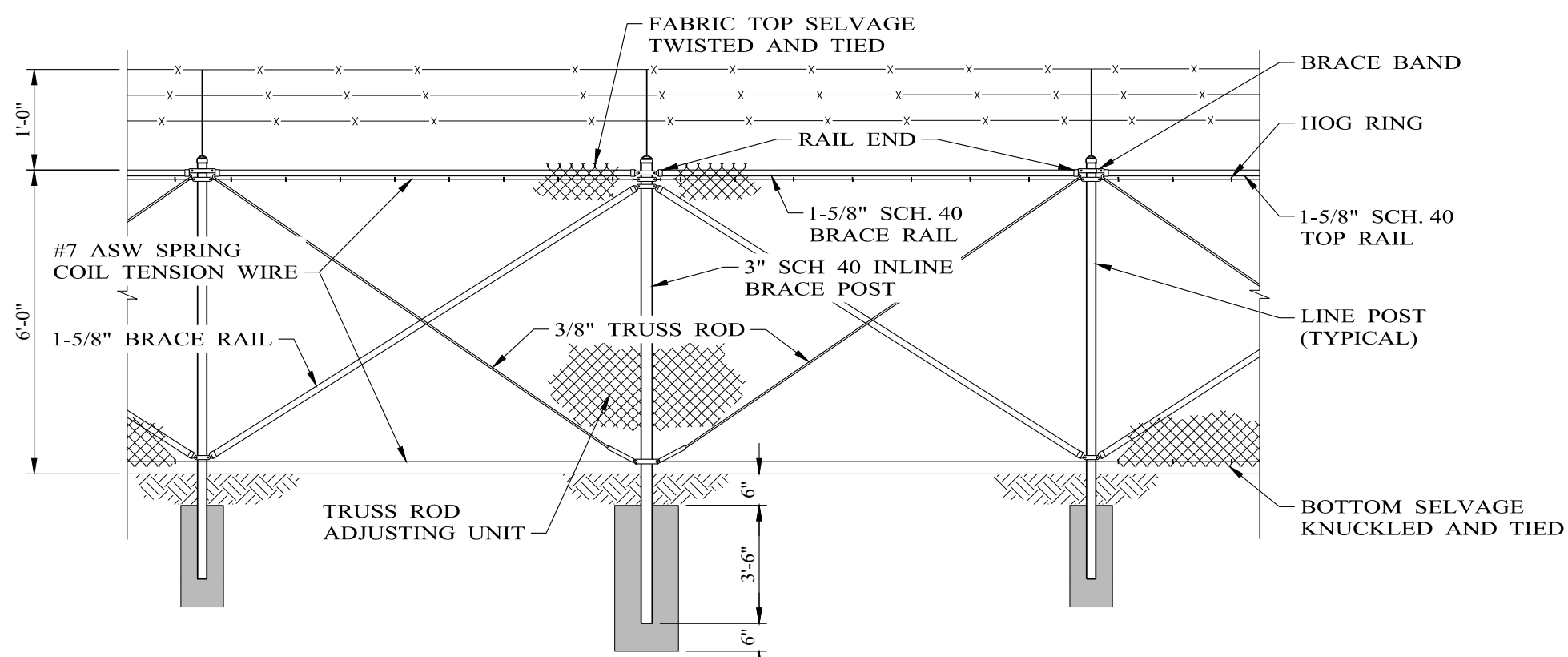
SCALE: 3/4" = 1'-0"



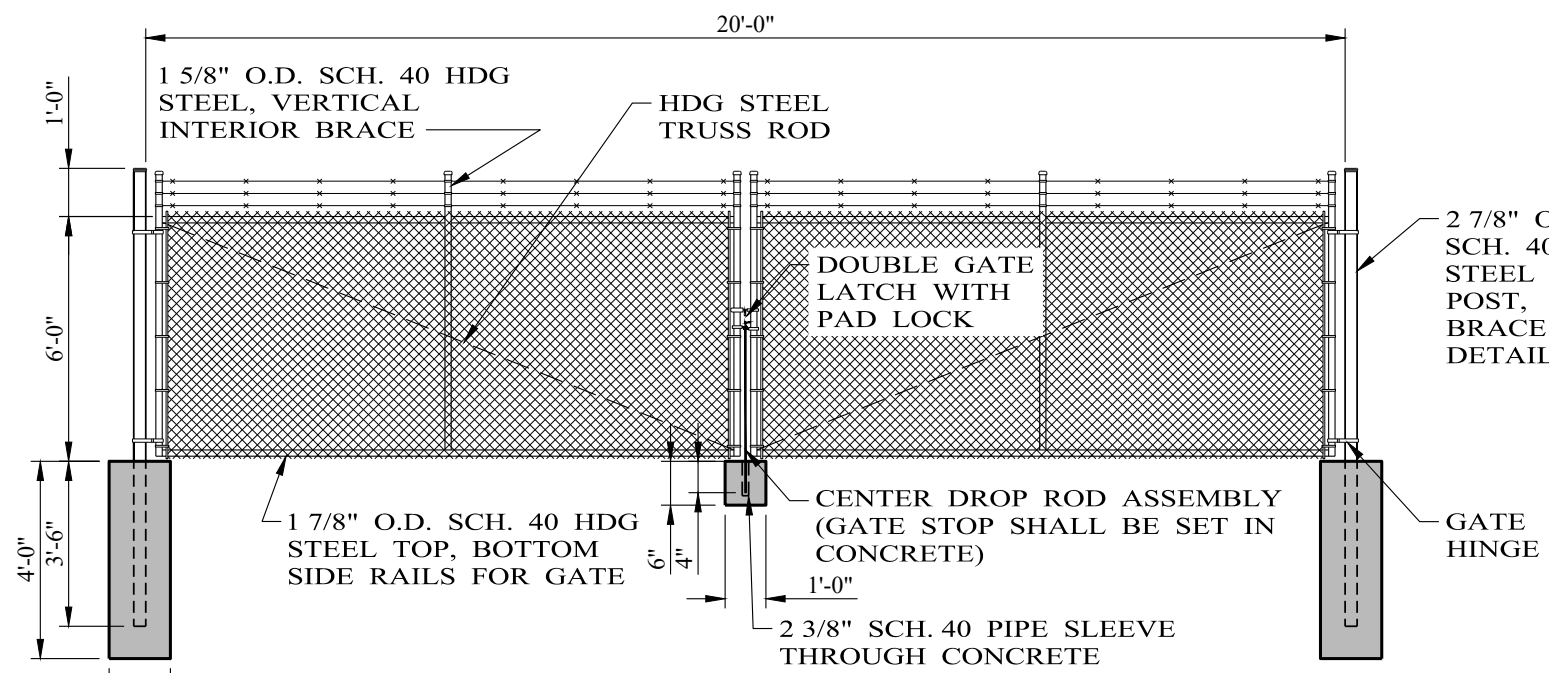
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WELL DETAILS / MISCELLANEOUS DETAILS		4 OF 8



TYPICAL 6' CHAINLINK FENCE WITH CORNER, OR GATE, OR END POST



INLINE BRACE OR PULL POST DETAIL



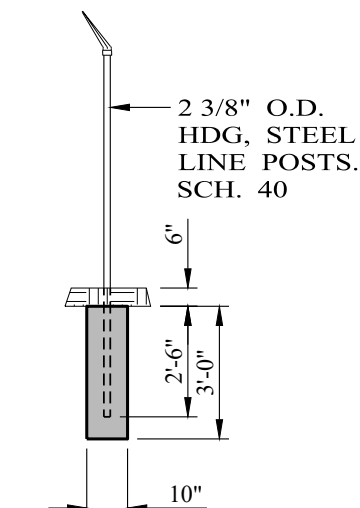
STANDARD 20' (INDUSTRIAL) DOUBLE GATE

NOTES:

1. EXCAVATE HOLE DEPTHS APPROXIMATELY 6" DEEPER THAN BOTTOM OF POLE.
2. MAXIMUM POST SPACING SHALL BE 10'-0".
3. ALL TIES ARE TO BE 9 GA. MINIMUM.
4. ALL FITTINGS, HARDWARE & APPURTENANCES TO BE OF GALVANIZED MATERIAL.
5. GATE FENCE TO MATCH GENERAL FENCE FABRIC.
6. ALL FENCE COMPONENTS/INSTALLATIONS SHALL BE IN ACCORDANCE WITH CURRENT ASTM STANDARDS REGARDLESS OF ANY INFORMATION SHOWN HERE.
7. EACH GATE LEAF SHALL INCLUDE A DUCKBILL KEEPER.
8. SEE SECTION 02831 FOR ADDITIONAL REQUIREMENTS.

CHAIN LINK FENCE DETAIL

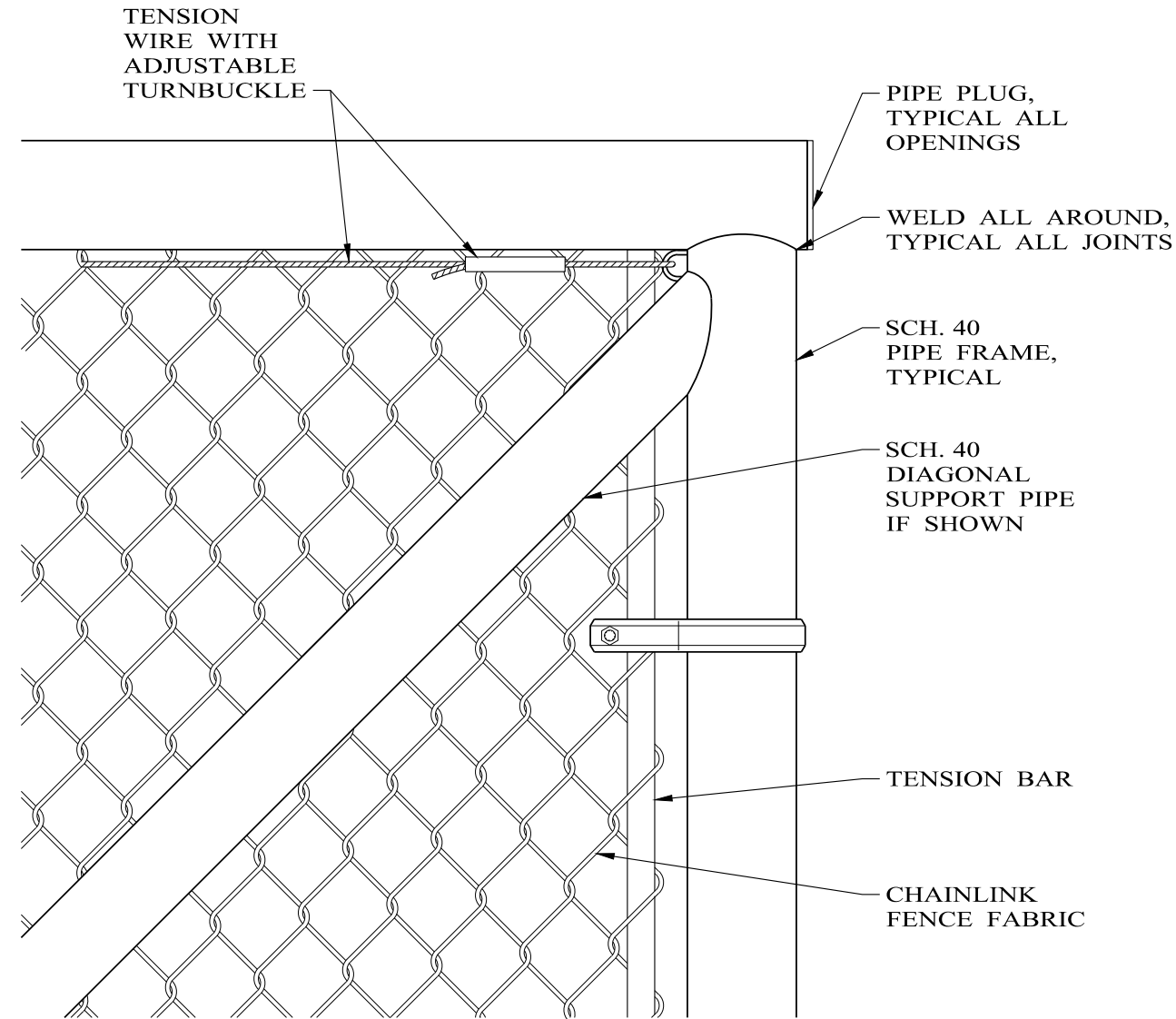
NO SCALE



LINE POST DETAIL

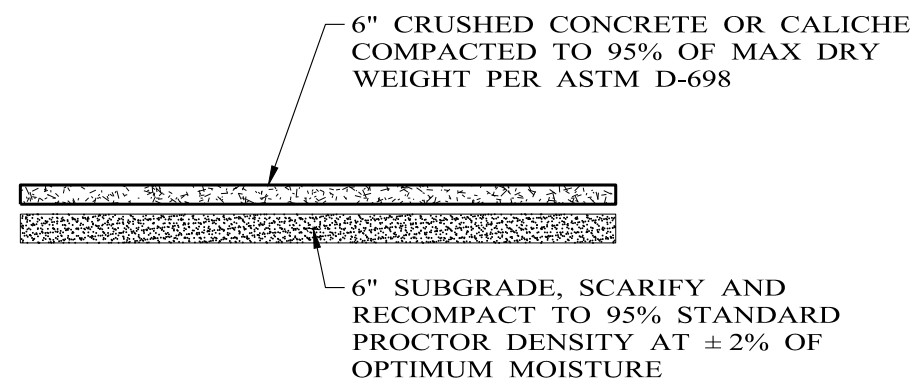
NOTE:
SHOWN ROTATED FOR CLARITY.

BARBED WIRE ARM DETAIL



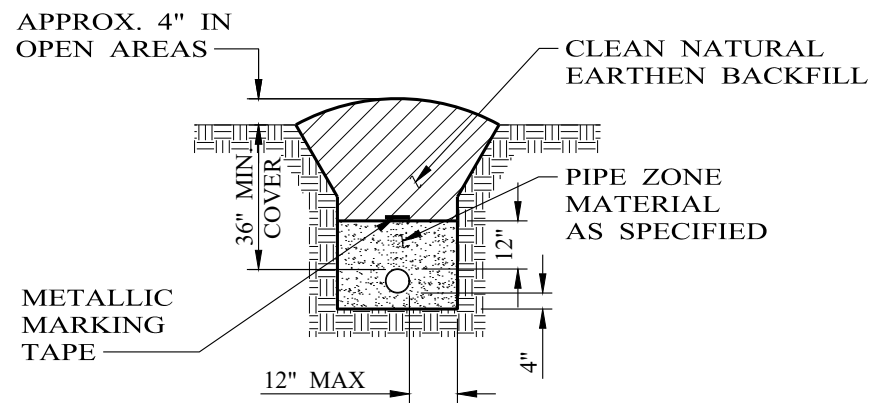
TYPICAL FENCE WELD DETAIL FOR GATES

(BOTH SWING AND CANTILEVER)
NO SCALE



ALL WEATHER ACCESS ROAD

NO SCALE

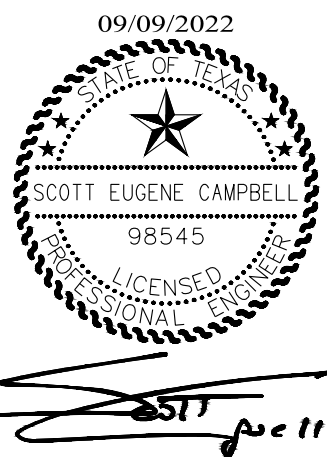


NOTE:

PIPE BEDDING AND BACKFILL SHALL BE CONSIDERED SUBSIDIARY TO PIPELINE INSTALLATION.

PIPE BEDDING AND TRENCH DETAIL

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



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MISCELLANEOUS DETAILS		5 OF 8

GENERAL ELECTRICAL NOTES:

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA. EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
2. FIELD VERIFY AND LOCATE ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION. CALL TEXAS 811 PRIOR.
3. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A PULL STRING. SEE SPECIFICATIONS.
4. PROVIDE SLACK IN ALL CABLES OR CONDUCTORS ROUTED THROUGH PULL BOXES.
5. CONTRACTOR SHALL REVIEW ALL SPECIFICATIONS BEFORE SUBMITTING A BID OR STARTING CONSTRUCTION.
6. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHAT IS SHOWN ON ONE IS BINDING WHETHER SHOWN OR SPECIFIED IN THE OTHER OR NOT. FAILURE TO CHECK BOTH THE DRAWINGS AND THE SPECIFICATIONS WILL NOT BE GROUNDS FOR A CHANGE ORDER IF ADDITIONAL EQUIPMENT OR MATERIAL IS REQUIRED TO BE PROVIDED BY THE CONTRACTOR AFTER THE ENGINEER REVIEWS, OR DEFICIENCIES ARE IDENTIFIED DURING TESTING, EITHER IN THE FACTORY OR THE FIELD.
7. PVC CONDUIT SHALL NOT BE INSTALLED ABOVE GRADE UNLESS OTHERWISE INDICATED ON DRAWINGS. MAKE TRANSITION TO RIGID CONDUIT IN ACCORDANCE WITH THE SPECIFICATIONS.
8. ALL ABOVE GRADE CONDUIT SHALL BE RGS / ALUMINUM. SEE SPECIFICATIONS UNLESS OTHERWISE NOTED.
9. ALL CONDUCTORS SHALL BE TIN-PLATED COPPER. UNCOATED COPPER WILL NOT BE ACCEPTABLE. SEE SPECIFICATIONS.
10. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL SUPPORT MATERIAL AND ANCHOR BOLTS SHALL BE STAINLESS STEEL. SEE SPECIFICATIONS.
11. ALL EQUIPMENT OUTDOORS SHALL UTILIZE STAINLESS STEEL STRUT. ALL INDOOR EQUIPMENT SHALL UTILIZE ALUMINUM STRUT UNLESS OTHERWISE NOTED.
12. ALL CONSTRUCTION SHALL COMPLY WITH LOCAL AND NATIONAL CODES AND REQUIREMENTS.
13. CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS, PATH OF ACCESS, TRAVEL, OR EGRESS. RUNS SHALL BE MADE IN CONCRETE STRUCTURES, OR AROUND EQUIPMENT. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT, OR STRUCTURES.
14. CONDUITS SHOWN ARE FOR SIGNIFICANT PIECES OF ELECTRICAL EQUIPMENT AND IN A DIAGRAMMATICAL ORIENTATION FOR CLARITY. INSTALL ALL CONDUITS AND CONDUCTOR SPECIFIED IN OTHER ELECTRICAL SCHEMATICS, SCHEDULES, SPECIFICATIONS, AND AS REQUIRED FOR VENDOR SUPPLIED EQUIPMENT. ROUTE CONDUITS THE BEST WAY TO MINIMIZE BENDS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS ASSOCIATED WITH THE WORK. THE COSTS OR THE PERMITS, IF ANY, SHALL BE BORNE BY THE CONTRACTOR.
16. VERIFY BY FIELD INVESTIGATION THE LOCATIONS OF ALL UTILITY FACILITIES WITHIN AND ADJACENT TO THE LIMITS OF THE WORK THAT MAY BE AFFECTED BY THE WORK. CONFLICTS WHICH ARISE DUE TO THE NEGLIGENCE OF THE CONTRACTOR TO LOCATED, HORIZONTALLY AND VERTICALLY, EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL ASPECTS OF THIS INSTALLATION MUST COMPLY WITH THE LATEST UTILITY CO. STANDARDS. REVIEW THIS PROJECT'S SERVICE REQUIREMENTS OF LOCATION, RATINGS, AND METHODS WITH POWER COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION WITH UTILITY COMPANY.
18. ALL POWER AND ANALOG INSTRUMENTATION CONDUCTORS SHALL BE INSTALLED IN SEPARATE CONDUITS.
19. ALL RECEPTACLES INSTALLED OUTDOORS AND INDOOR RECEPTACLES MARKED AS "WP" ON THE PLANS SHALL BE GF1 TYPE WITH CAST IRON WEATHERPROOF WHILE-IN-USE COVERS.
20. THIS CONTRACT INCLUDES FIELD INSTALLATION AND COMPLETION OF VENDOR SUPPLIED COMPONENTS. CONDUIT, WIRE, MOTORS, INSTRUMENTATION, AND CONTROLS SHOWN ARE TYPICAL. ALL DRIVE MOTORS, ALARM CONTACTS, RUN LIGHTS, ETC. ARE TO BE WIRED TO THE VENDOR'S PANEL OR SITE MOTOR CONTROLS AS REQUIRED. CONTRACTOR SHALL VERIFY VENDOR SUPPLIED COMPONENTS AND PROVIDE A COMPLETE AND OPERATING SYSTEM.
21. SEAL ALL CONDUITS THROUGH EXISTING WALLS WITH NON-SHRINK CEMENTITIOUS GROUT. PAINT GROUT TO MATCH EXISTING INTERIOR AND EXTERIOR WALL COLORS.
22. REPAIR ALL DAMAGE TO ROADS AND SIDEWALKS NECESSARY FOR CONSTRUCTION TO PRE-EXISTING CONDITION OR BETTER.
23. PROVIDE TRADITIONAL "NEMA" DEVICES AS DEFINED IN NEMA STANDARDS PUBLICATION NO. ICS 2.4.2003. IEC COMPONENTS ARE NOT ALLOWED.

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AL, ALUM	ALUMINUM
ARC	ALUMINUM RIGID CONDUIT
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONV	CONVENIENCE
CU	COPPER
E	EMERGENCY
EC	EMPTY CONDUIT
EXC	EXISTING CONDUIT
EXPAN	EXPANSION
GFI	GROUND FAULT INTERRUPTER
GND,G	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
HP	HORSE POWER
HTR	HEATER
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LC	LIGHTING CONTACTOR
LTG	LIGHTING
MCB	MOLDED CASE CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MPR	MOTOR PROTECTIVE RELAY
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
P	POLE
PH	PHASE
PM	POWER QUALITY METER
PR	PAIR
PS	PRESSURE SWITCH
PVC	POLYVINYLCHLORIDE
SH, SHLD	SHIELDED
SN	SOLID NEUTRAL
ST	SHUNT TRIP
TD	TIME DELAY
TYP	TYPICAL
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER
Ø	PHASE
HMI	HUMAN MACHINE INTERFACE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	PHASE MONITOR

ELECTRICAL SYMBOLS

	NON-FUSED DISCONNECT, AMPERE RATING AS INDICATED, IF OTHER THAN 20 AMP.
	FUSED DISCONNECT SWITCH, SIZE INDICATED (60/40, 60 = SWITCH RATING; 40 = FUSE RATING)
	MAGNETIC MOTOR STARTER, NEMA SIZE INDICATED
	WALL SWITCH: 2 - DOUBLE POLE P - PILOT LIGHT 3 - THREE WAY K - KEY OPERATED 4 - FOUR WAY D - DIMMER WP- WEATHERPROOF CRE- CORROSION RESISTANT
	MANUAL MOTOR STARTER
	DUPLEX CONVENIENCE OUTLET, GROUNDED TYPE
	QUADUPLEX CONVENIENCE OUTLET, GROUNDED TYPE
	WEATHERPROOF CONVENIENCE OUTLET, GROUNDED TYPE
	WEATHERPROOF 240V CONVENIENCE OUTLET, GROUNDED TYPE
	HOME RUN TO PANEL INDICATED. NUMBER OF WIRES INDICATED, IF MORE THAN 2. WIRE SIZE INDICATED IF OTHER THAN #12 AWG. LONG DASH INDICATES NEUTRAL WIRE CURVED DASH INDICATES EQUIPMENT GROUNDING CONDUCTOR.
	WIRING IN CONDUIT UNDERGROUND
	WIRING IN CONDUIT EXPOSED
	WIRING IN CONDUIT CONCEALED
	INDICATES CONDUCTORS IN CONDUIT. FIRST SECTION INDICATES CONDUCTOR QUANTITY AND SIZE. SECOND SECTION INDICATES GROUND CONDUCTOR SIZE. LAST SECTION INDICATES CONDUIT SIZE.
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED AS SHOWN
	SURFACE METAL PLUGMOLD
	CONCRETE ENCASED CONDUIT DUCT BANK
	DIRECT BURIAL CONDUIT FOR TELEPHONE
	DIRECT BURIAL GROUND CONDUCTOR
	ELECTRICAL PULLBOX
	WALL MOUNTED LIGHTING FIXTURE, TYPE "C" INDICATED
	POLE MOUNTED LUMINAIRE, SEE DETAILS
	LIGHTING FIXTURE "A" INDICATED, SUBSCRIPT INDICATES CONSOLED BY SWITCH "a"
	LED LIGHTING FIXTURE, RECESSED TYPE "A" INDICATED
	LED LIGHTING FIXTURE SURFACE MOUNT, TYPE "A" INDICATED
	EMERGENCY LIGHT, SEE LIGHT FIXTURE SCHEDULE FOR REQUIREMENTS
	EXIT LIGHT, SEE LIGHT FIXTURE SCHEDULE FOR REQUIREMENTS ARROW INDICATES DIRECTION
	JUNCTION BOX
	SPECIAL ELECTRICAL NOTE, NOTE 1 INDICATED
	WALL TELEPHONE OUTLET
	COMMUNICATIONS OUTLET
	PHOTO CELL
	LIGHTING CONTACTOR NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE.
	EQUIPMENT ITEM NUMBER. SEE EQUIPMENT SCHEDULE. SEE SPECIFICATIONS IF DEVICE HAS NO EQUIPMENT ITEM.
	COPPER CLAD GROUND ROD

ONE LINE DIAGRAM

	A.C. MOTOR, 5 HORSEPOWER INDICATED
	CIRCUIT BREAKER
	MAIN CONTACTOR
	PRESSURE CONTROL
	TEMPERATURE CONTROL
	VARIABLE SPEED CONTROL
	HAND-OFF-AUTO SELECTOR SWITCH
	REACTOR
	REMOTE CONTROL
	LEVEL CONTROL
	TIME CONTROL
	PHOTO CONTROL
	POWER TRANSFORMER OR POTENTIAL TRANSFORMER
	CURRENT TRANSFORMER, NUMBER AND RATIO INDICATED
	STAB
	CURRENT TRANSFORMER
	SOLID STATE OVERLOAD RELAY
	SOLID STATE OVERLOAD
	MAGNETIC STARTER WITH NEMA SIZE INDICATED
	CIRCUIT BREAKER, MAGNETIC, TRIP SHOWN, 3 POLE UNLESS OTHERWISE INDICATED
	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS OTHERWISE INDICATED
	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE UNLESS OTHERWISE INDICATED
	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS OTHERWISE INDICATED
	SWITCH - CURRENT RATING INDICATED, 3 POLE UNLESS OTHERWISE INDICATED
	DISCONNECT
	FUSE
	SURGE CAPACITOR
	SURGE ARRESTER
	GROUND CONNECTION

CONTROL SCHEMATIC

	MAIN CONTACTOR
	TRANSFORMER, VOLTAGES, PHASES AND RATING INDICATED AS APPLICABLE
	TIMING RELAY AS SPECIFIED
	ELAPSED TIME METER
	MOTOR SPACE HEATER
	WINDING TEMPERATURE RELAY
	CONTROL RELAY
	CONTROL RELAY, 24V DC COIL
	PHOTOCELL
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	REMOTE DEVICE
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH-BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	HAND-OFF-AUTO (HOA) SWITCH
	OVERLOAD CONTACT
	THERMOSTAT
	THERMOSTAT
	FUSE
	CONNECTION
	EXTERNAL CONNECTION
	REMOTE CONTROL
	TIME TO CLOSE
	TIME TO OPEN
	RESISTANCE TEMPERATURE DETECTOR
	SOLENOID
	RESISTOR
	CAPACITOR
	DIODE
	RESISTOR 10 OHM
	MECHANICAL INTERLOCK
	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE

LIQUID LEVEL

OPENS ON RISING LEVEL, CLOSSES ON FALLING LEVEL

CLOSSES ON RISING LEVEL, OPENS ON FALLING LEVEL

PRESSURE OR VACUUM

OPENS ON RISING PRESSURE, CLOSSES ON FALLING PRESSURE

CLOSSES ON RISING PRESSURE, OPENS ON FALLING PRESSURE

FLOW

OPENS ON RISING FLOW, CLOSSES ON FALLING FLOW

CLOSSES ON RISING FLOW, OPENS ON FALLING FLOW

TEMPERATURE

OPENS ON RISING TEMPERATURE, CLOSSES ON FALLING TEMPERATURE

CLOSSES ON RISING TEMPERATURE, OPENS ON FALLING TEMPERATURE

LIMIT SWITCH

HELD OPEN, NORMALLY CLOSED

NORMALLY CLOSED

NORMALLY OPEN

HELD CLOSED, NORMALLY OPEN

TIME DELAY CONTACTS

NORMALLY OPEN, TIME CLOSE

NORMALLY CLOSED, TIME OPEN

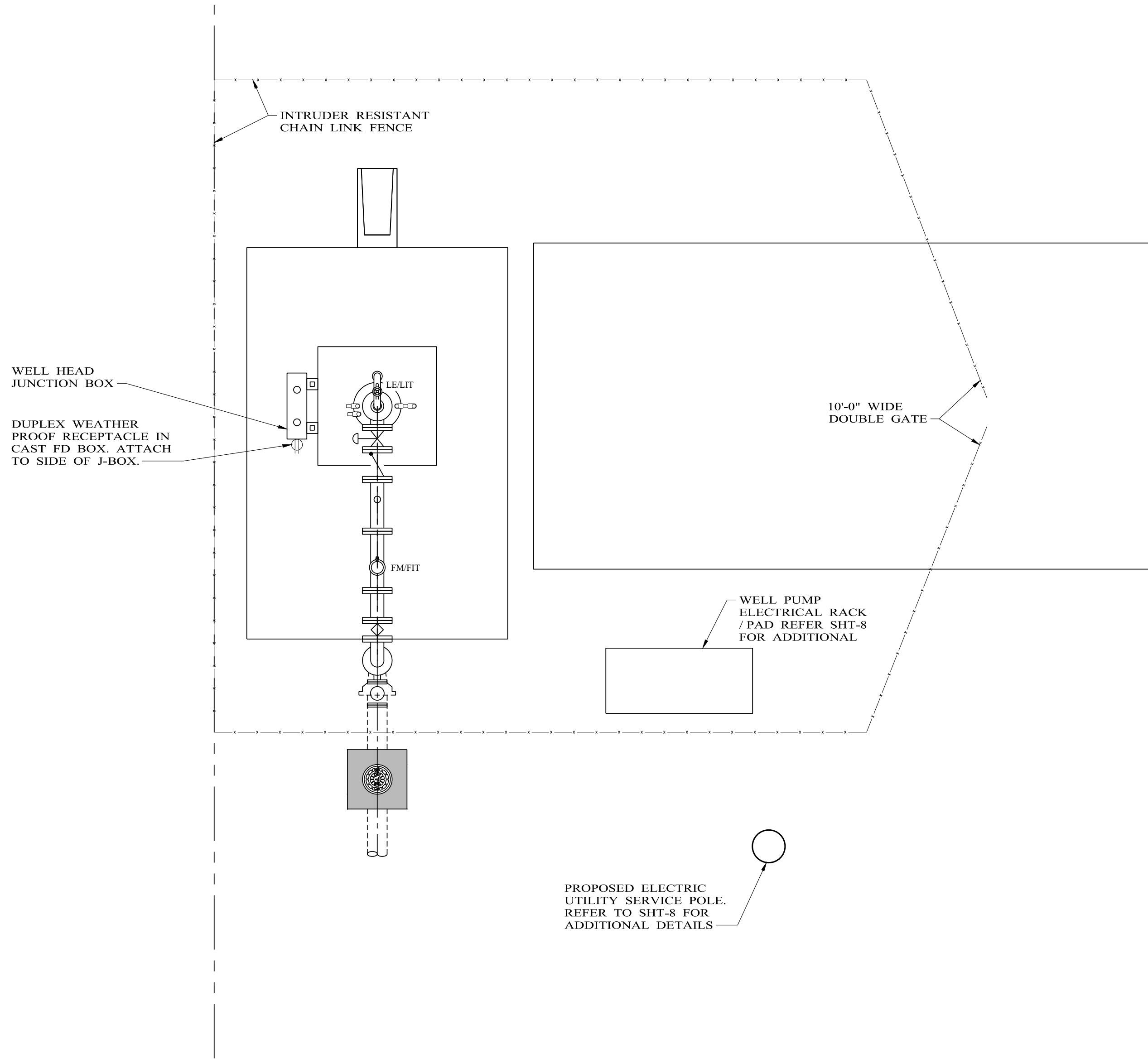
NORMALLY OPEN, TIME OPEN

NORMALLY CLOSED, TIME CLOSE



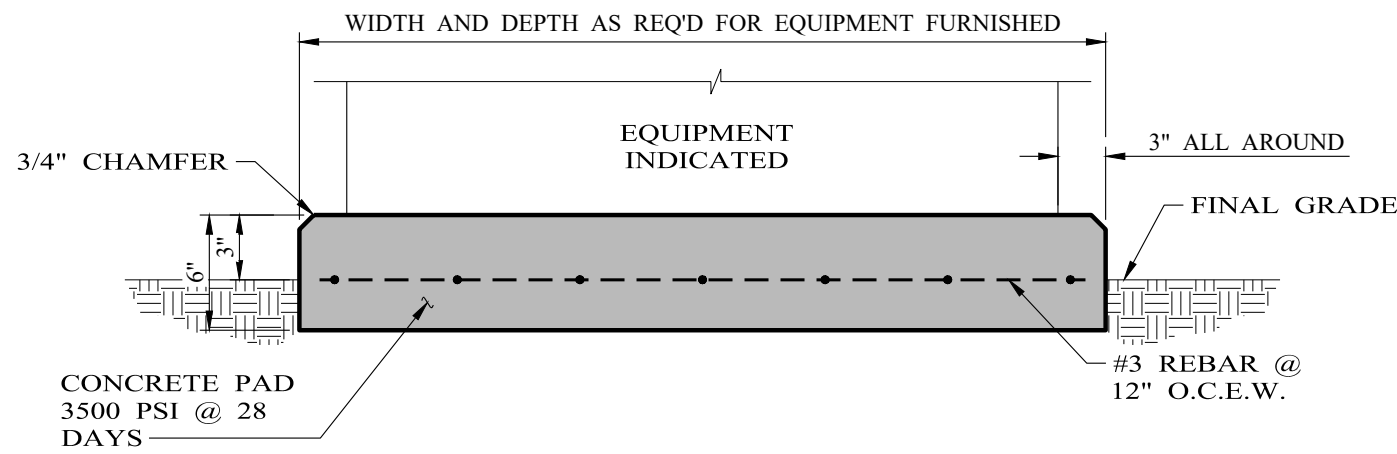
Donald S. Mattern

NO.	REVISION	DATE
0	ISSUED FOR BID / TCEQ SUBMITTAL	09/09/2022
	Enprotec Hibbs & Todd 402 Cedar Street • Abilene, Texas 79601 • T: (325) 698-5560 • F: (325) 690-3240 • www.e-h-t.com PE Firm Registration No. 1151 • PG Firm Registration No. 50103 • RPLS Firm Registration No. 10011900	8277 PROJECT NO. 09/09/2022 DATE
NEW DRINKING WATER WELL FOR THE TOWN LAKEWOOD VILLAGE LAKEWOOD VILLAGE, TEXAS		D.S.M. DESIGNED BY: eHT DRAWN BY: D.S.M. CHECKED BY:
GENERAL NOTES AND ELECTRICAL LEGEND		6 OF 8



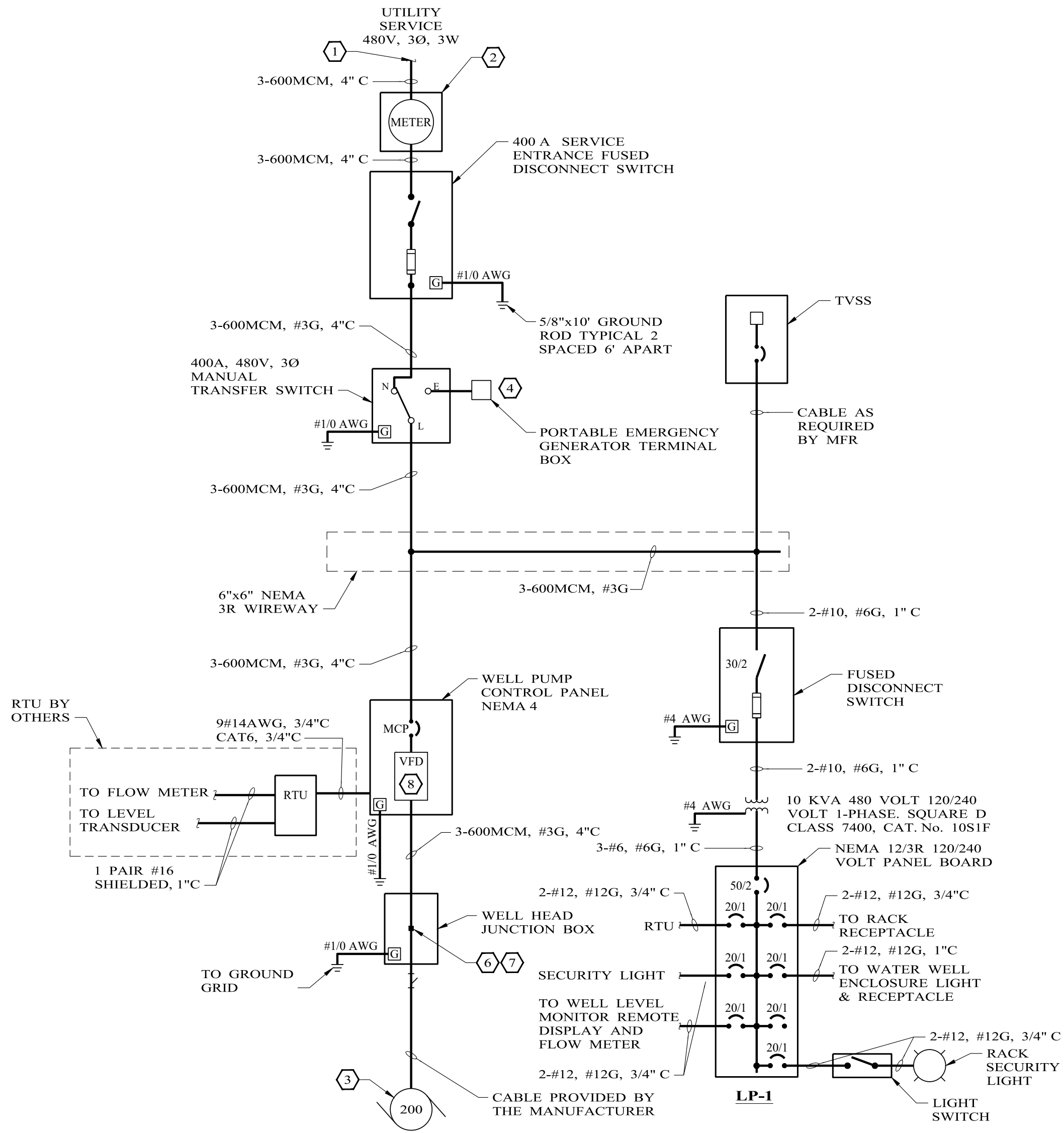
WELL ELECTRICAL PLAN

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



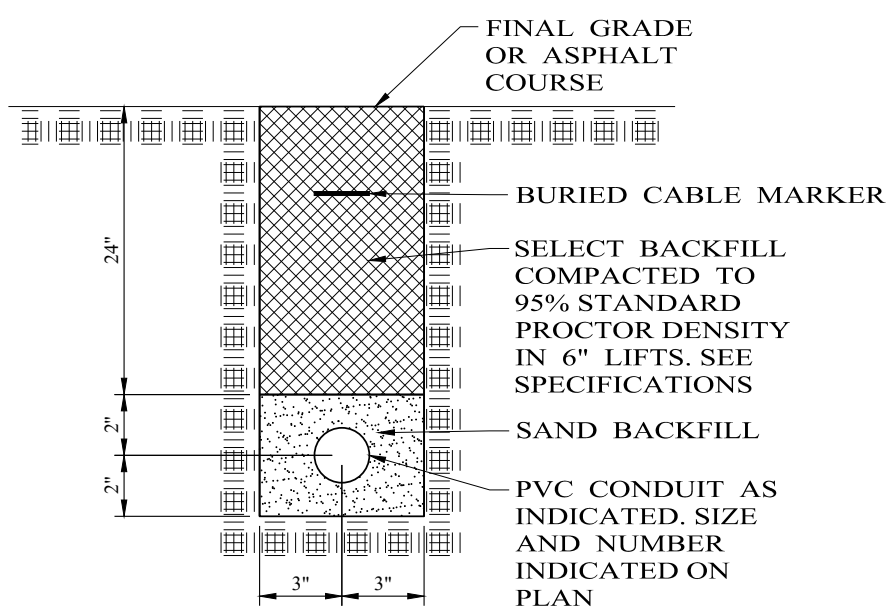
ELECTRICAL RACK EQUIPMENT PAD

NO SCALE



WELL PUMP ONE LINE DIAGRAM

(TYPICAL FOR PROPOSED WELLS)
NO SCALE

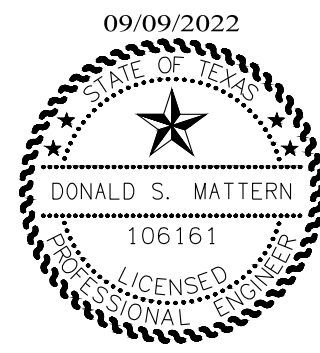


DIRECT BURIED CONDUIT

NO SCALE

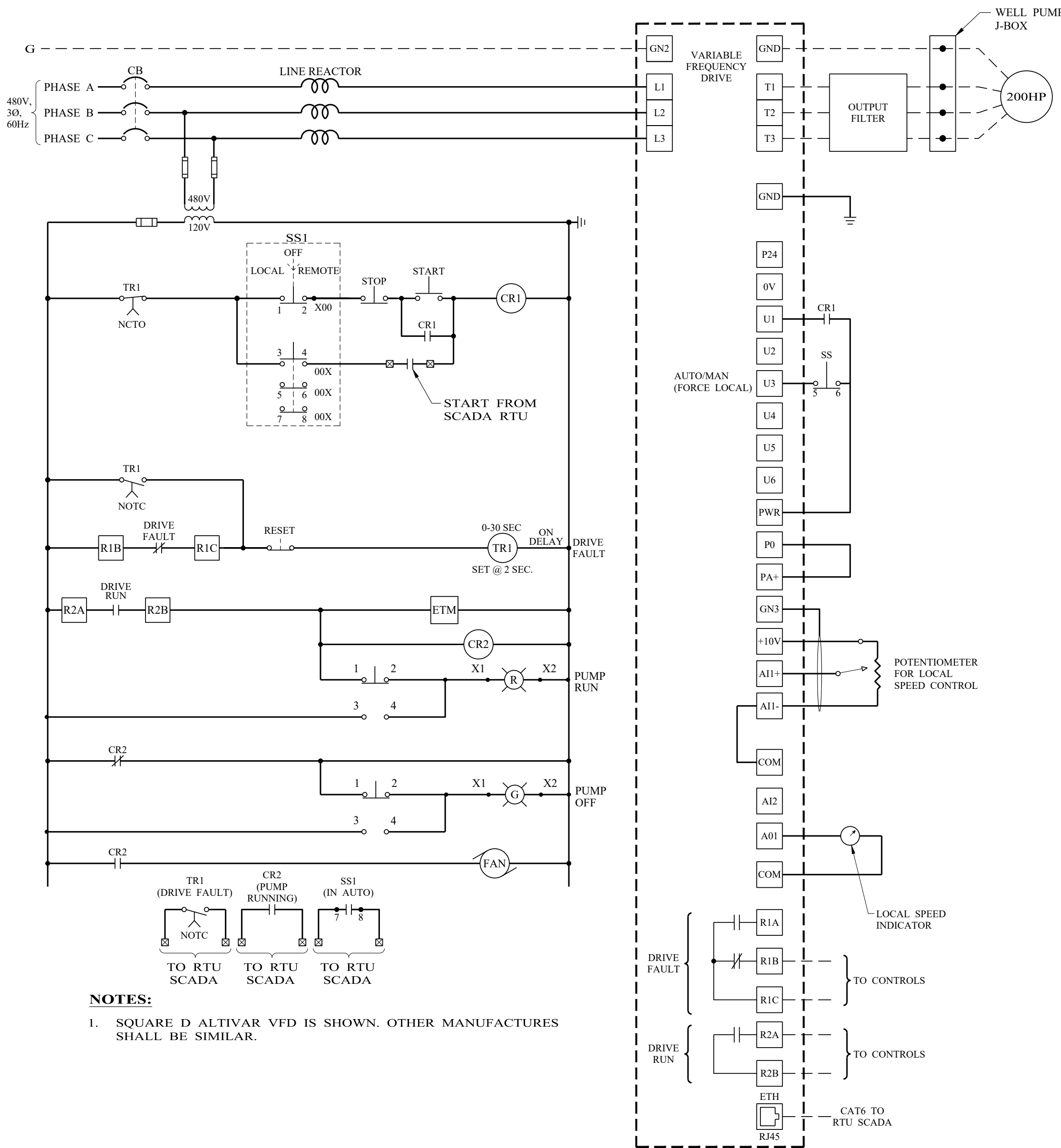
NOTES INDICATED ON DRAWING BY #:

1. INSTALL SERVICE EQUIPMENT IN ACCORDANCE WITH POWER COMPANY REQUIREMENTS.
2. METER BASE PROVIDED BY CONTRACTOR, AS REQUIRED BY UTILITY.
3. CONTRACTOR TO VERIFY INSTALLED MOTOR SIZE.
4. PROVIDE PORTABLE GENERATOR TERMINATION BOX. COORDINATE WITH OWNER/ENGINEER ON GENERATOR CONNECTION REQUIREMENTS.
5. COORDINATE WITH THE ELECTRICAL UTILITY FOR THE ACTUAL LOCATION OF THE UTILITY SERVICE. INSTALL CONDUIT TO THE SERVICE POINT AS REQUIRED BY UTILITY.
6. PROVIDE SLACK IN CABLE INSIDE THE TERMINAL BOX.
7. PROVIDE FINGER SAFE ENCLOSED TERMINAL BLOCKS FOR CONNECTION OF MOTOR LEADS, COOPER BUSSMAN SERIES PDBFS, OR EQUAL. AMPACITY AS REQUIRED FOR THE EQUIPMENT PROVIDED. TAPE SUPPLY CONDUCTORS AS SPECIFIED.
8. PROVIDE VFD WITH LINE REACTOR AND OUTPUT FILTER.



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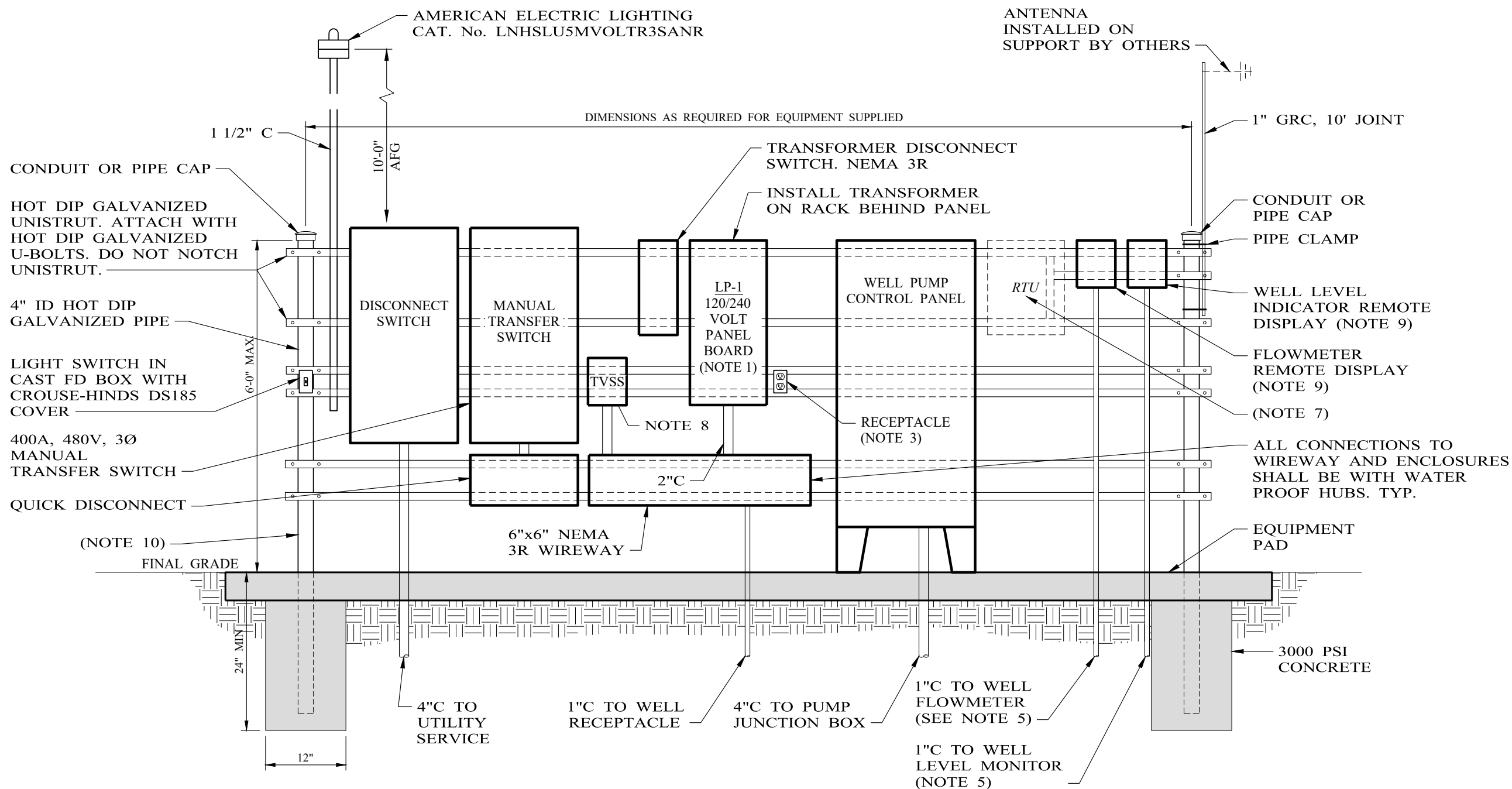
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NEW DRINKING WATER WELL FOR THE TOWN LAKEWOOD VILLAGE LAKEWOOD VILLAGE, TEXAS		D.S.M. DESIGNED BY: eHT DRAWN BY: D.S.M. CHECKED BY:
ELECTRICAL LAYOUT AND SINGLE LINE		7 OF 8



NOTES:

1. SQUARE D ALTIVAR VFD IS SHOWN. OTHER MANUFACTURES SHALL BE SIMILAR.

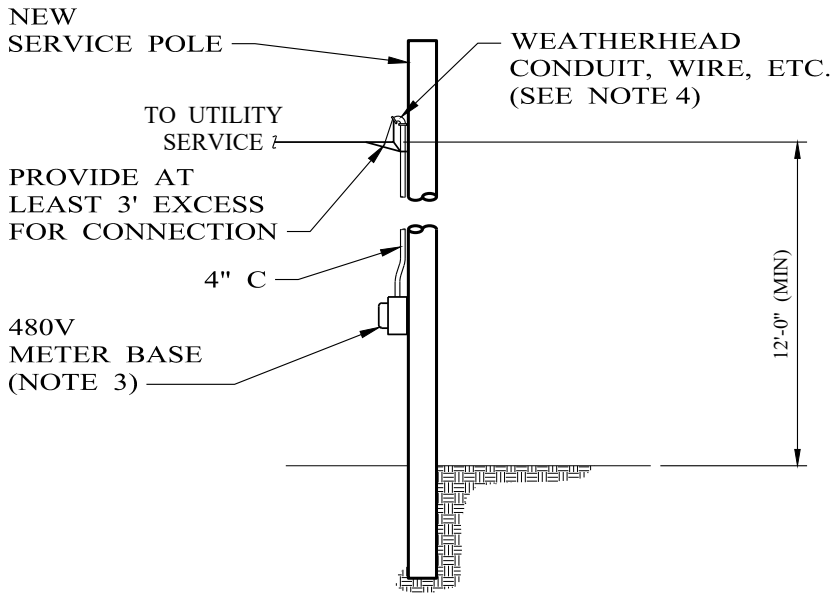
WELL PUMP CONTROL SCHEMATIC



NOTES

1. PROVIDE 60 AMP, 120/240 VOLT PANEL BOARD WITH CIRCUIT BREAKERS AS INDICATED, OR REQUIRED FOR THE EQUIPMENT PROVIDED, WITH A MINIMUM 18 CIRCUITS. PANEL ENCLOSURE SHALL BE NEMA 12/3R.
2. ALL CONDUIT ENTERING SIDE OR BOTTOM OF PUMP CONTROL PANEL, RTU, AND LIGHT PANEL SHALL USE WEATHER-TIGHT HUBS. CONDUITS OR OTHER CABLES SHALL NOT ENTER ENCLOSURE FROM THE TOP.
3. CAST FD BOX WITH 20A RECEPTACLE, NEMA 5-20R. WEATHERPROOF COVER.
4. PROVIDE ADDITIONAL SUPPORT AS REQUIRED FOR EQUIPMENT PROVIDED.
5. DO NOT ROUTE CIRCUIT FOR FLOW METER OR WELL LEVEL INDICATOR THROUGH WIREWAY.
6. INSTALL RACK MINIMUM 10 FEET AWAY FROM WELL.
7. PROVIDE SPACE FOR AN RTU TO BE INSTALLED BY OTHERS. SPACE SHALL BE PROVIDED FOR A MINIMUM 30" WIDE PANEL. VERIFY ACTUAL WIDTH WITH ENGINEER.
8. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSOR. A MODEL SUITABLE FOR 3 Ø, 3W, DELTA IS SPECIFIED. CONTRACTOR SHALL VERIFY UTILITY VOLTAGE AND MODIFY UNIT AS REQUIRED.
9. PROVIDE POWER CONNECTION AS REQUIRED FOR EQUIPMENT PROVIDED. PROVIDE ENCLOSURE FOR WELL LEVEL INDICATOR REMOTE DISPLAY AND FLOW METER REMOTE DISPLAY.
10. PROVIDE 2 - 5/8" GROUND ROD TYPICAL SPACED 6' APART FOR ELCTRICAL RACK, GROUND RACK WITH BURNDY K25B1 CONNECTOR.

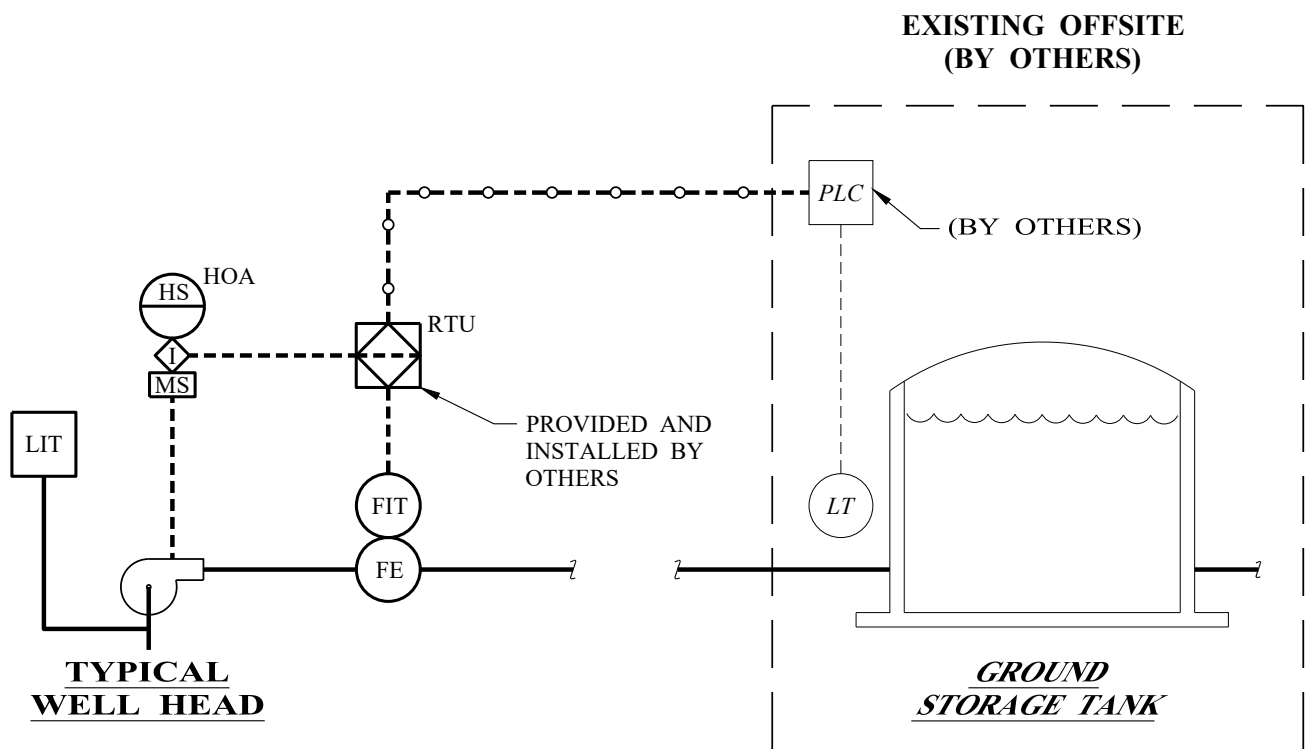
ELECTRICAL MOUNTING DETAIL AT EACH WELL
NO SCALE



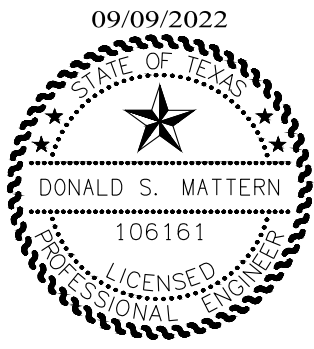
ELECTRICAL SERVICE NOTES

1. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH N.E.C. TWO GROUNDING ELECTRODES ARE SHOWN. HOWEVER, A GROUNDING ELECTRODE SYSTEM WITH LESS THAN 5 OHMS RESISTANCE TO GROUND SHALL BE PROVIDED.
2. NOT ALL CONDUIT AND CONDUCTORS SHOWN. PROVIDE ALL NECESSARY FOR A COMPLETE AND WORKABLE SYSTEM.
3. METER BASE PROVIDED BY CONTRACTOR, AS REQUIRED BY UTILITY.
4. INSTALL SERVICE EQUIPMENT IN ACCORDANCE WITH POWER COMPANY REQUIREMENTS.

TYPICAL ELECTRICAL SERVICE POLE
NO SCALE



WELL PUMP CONTROL SCHEMATIC
(TYPICAL FOR PROPOSED WELLS)
NO SCALE



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ELECTRICAL DETAILS		8 OF 8