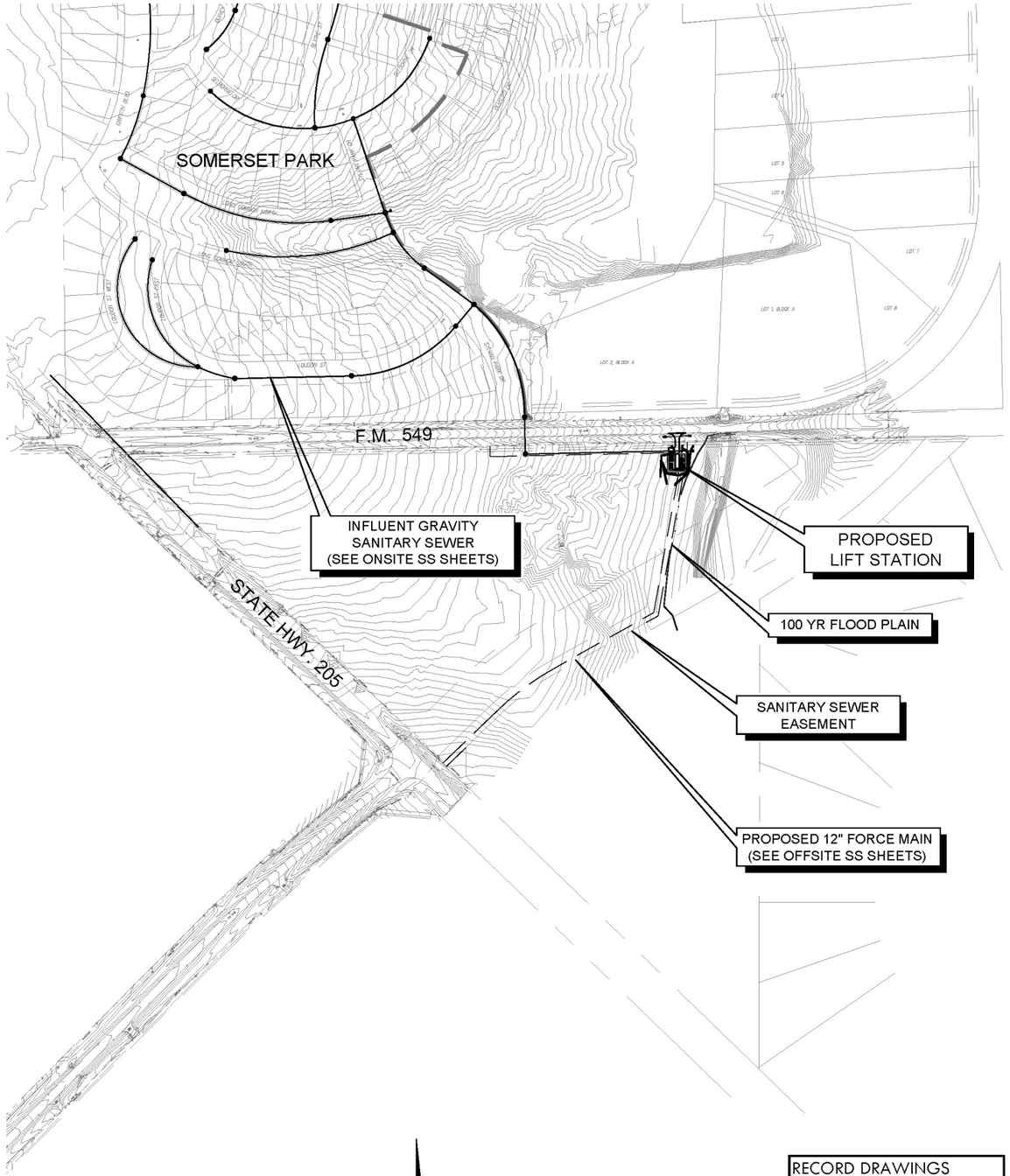


LOCATION MAP
SCALE: 1" = 200'

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

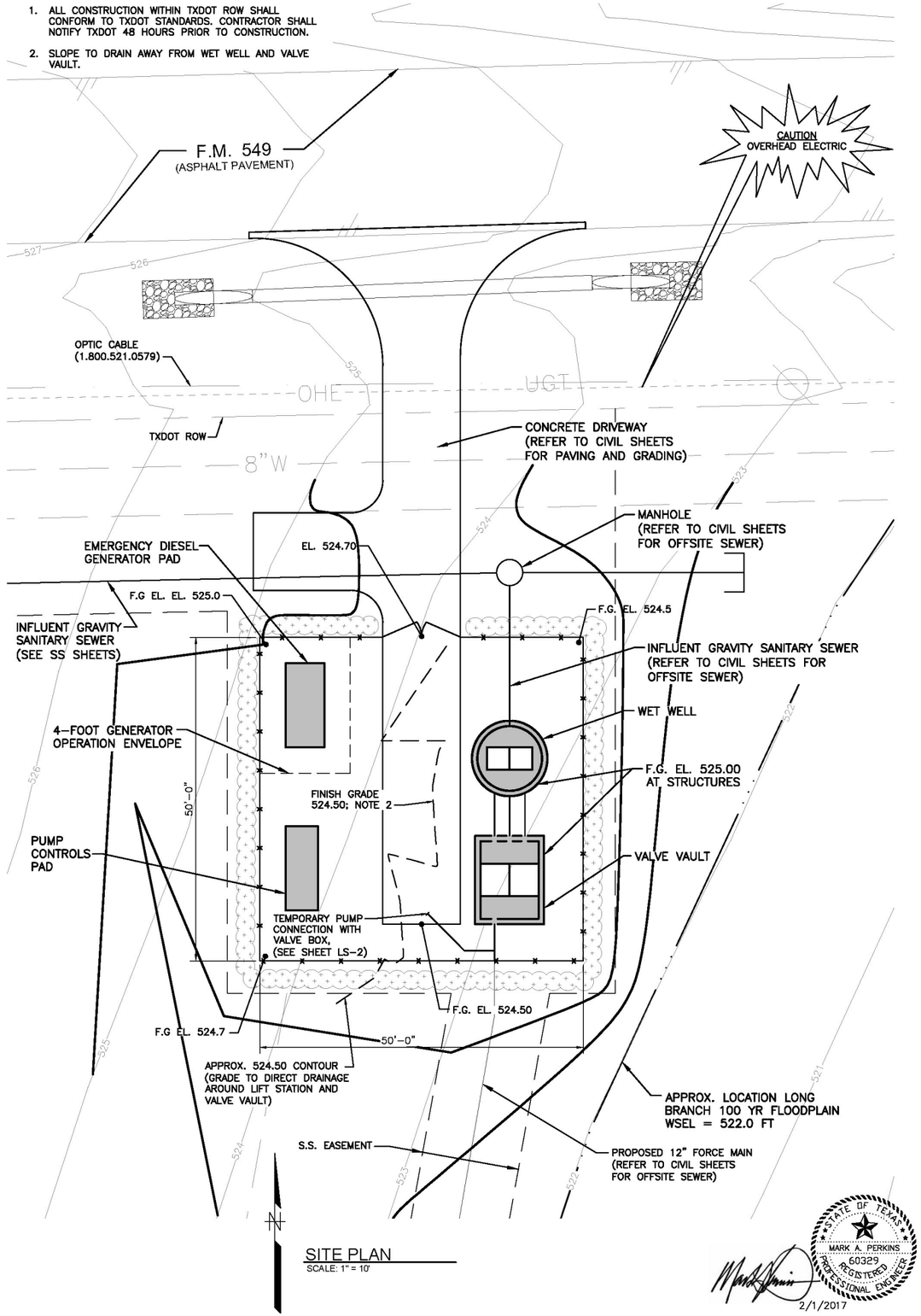
RECORD DRAWINGS

TO THE BEST OF OUR KNOWLEDGE TEAGUE NALL & PERKINS, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

DATE: 1/08/2018

NOTES:

1. ALL CONSTRUCTION WITHIN TXDOT ROW SHALL CONFORM TO TXDOT STANDARDS. CONTRACTOR SHALL NOTIFY TXDOT 48 HOURS PRIOR TO CONSTRUCTION.
2. SLOPE TO DRAIN AWAY FROM WET WELL AND VALVE VAULT.



SITE PLAN
SCALE: 1" = 10'

STATE OF TEXAS
MARK A. PERKINS
60329
REGISTERED
PROFESSIONAL ENGINEER
2/1/2017

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699

NO.	DATE	DESCRIPTION	BY

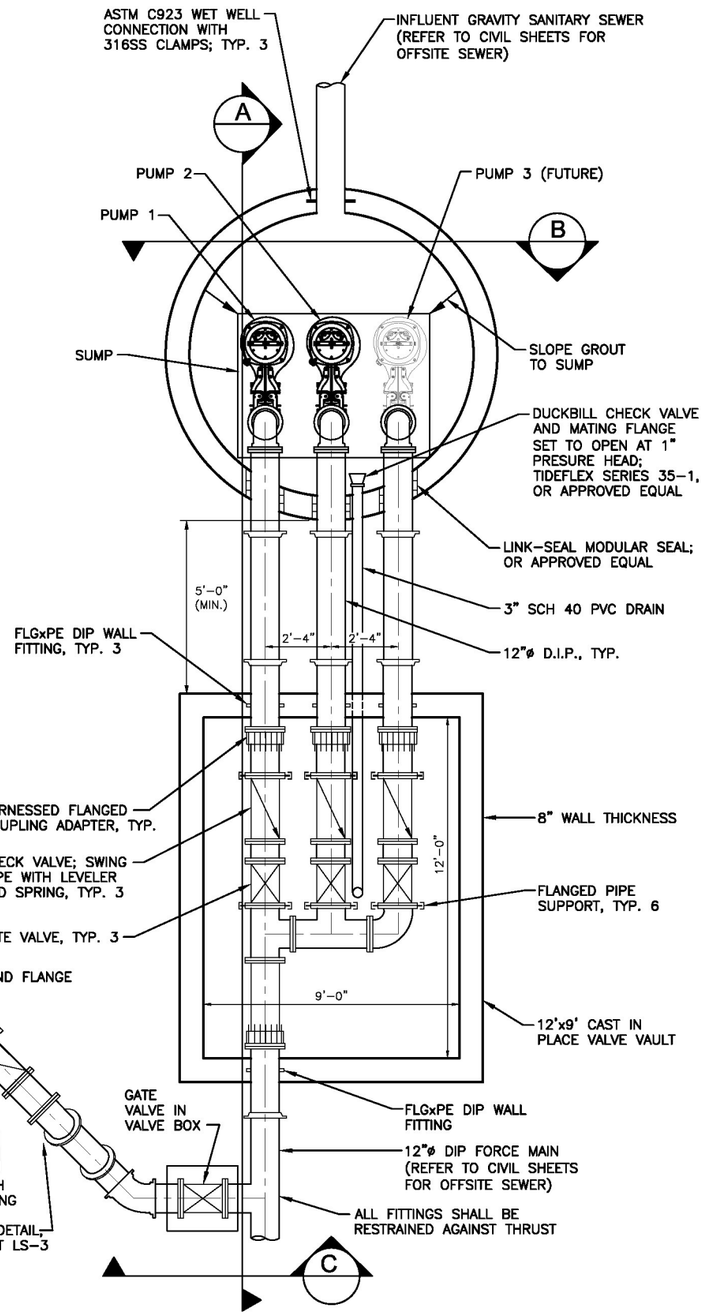
LIFT STATION
OVERALL PLAN

CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

Date:	2/1/2017
Designed:	LKG
Drawn:	SRG
Reviewed:	MAP
PEC Proj. No.	TNP 14-002
	SED. of

SHEET NO.
LS-1

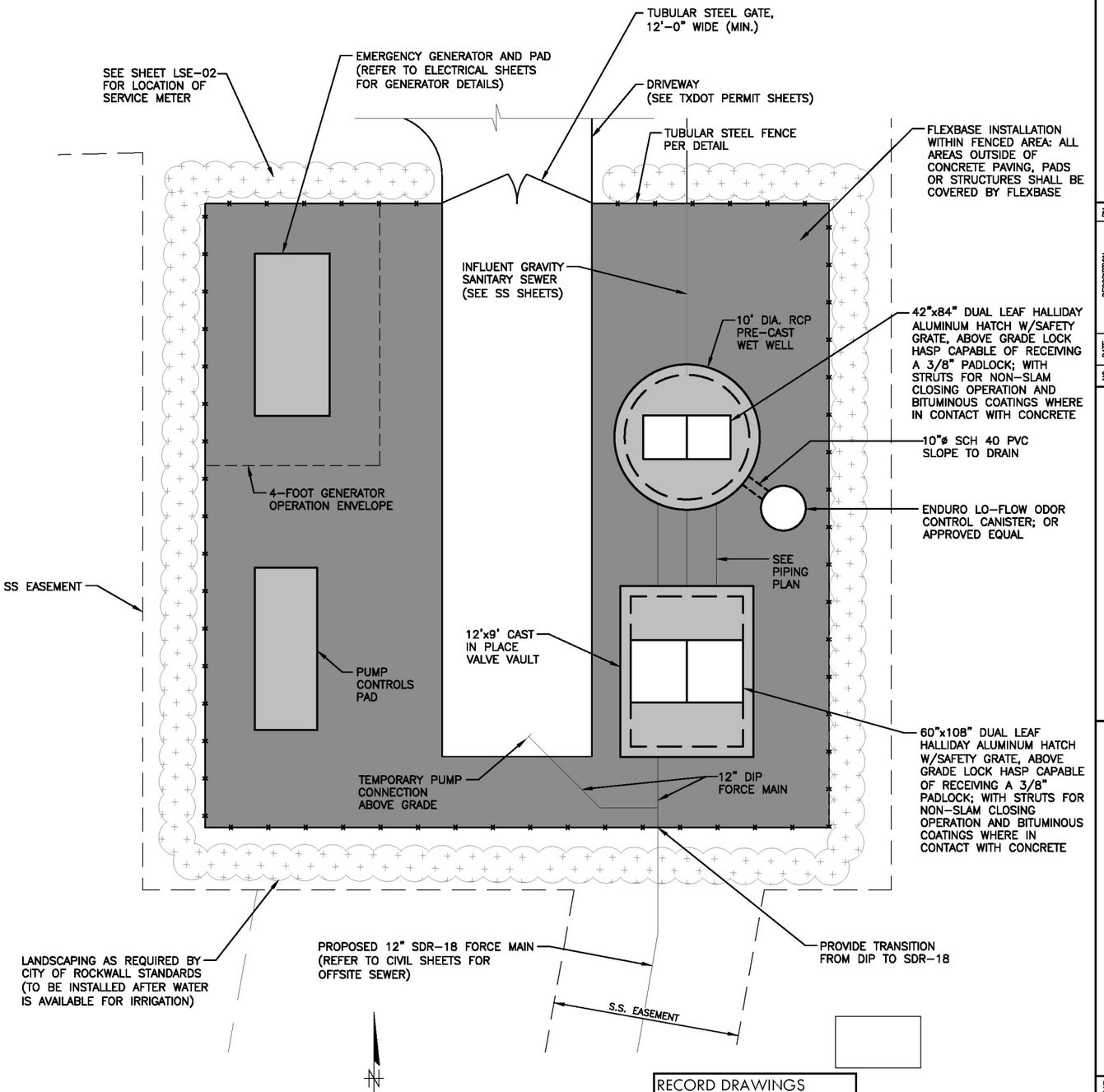


REPRESENTATIVE PIPING PLAN

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

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH



SITE PLAN

SCALE: 1" = 5'

RECORD DRAWINGS

TO THE BEST OF OUR KNOWLEDGE TEAGUE NALL & PERKINS, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

DATE: 1/08/2018

STATE OF TEXAS
MARK A. PERKINS
60329
REGISTERED
PROFESSIONAL ENGINEER

2/1/2017

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699

NO.	DATE	DESCRIPTION	BY

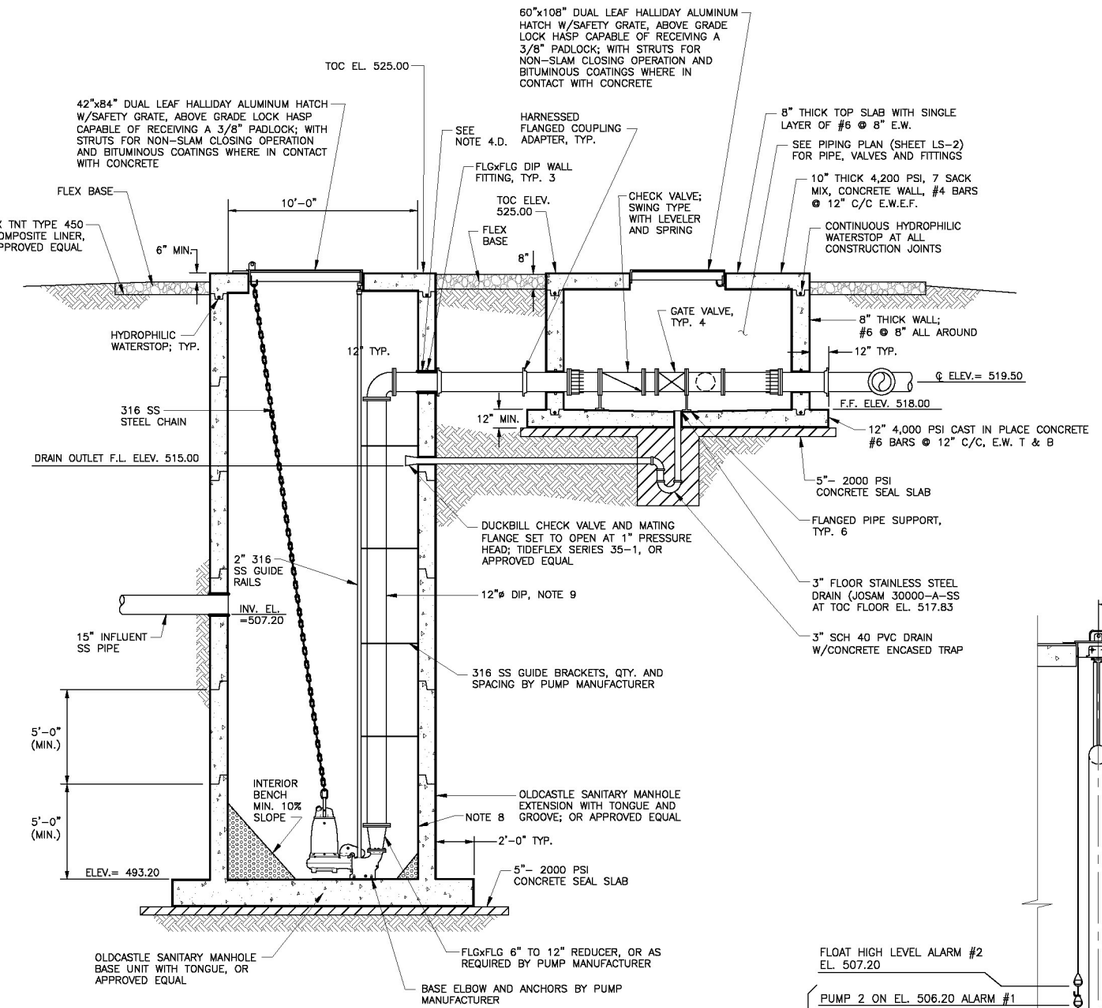
LIFT STATION SITE PLAN

CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

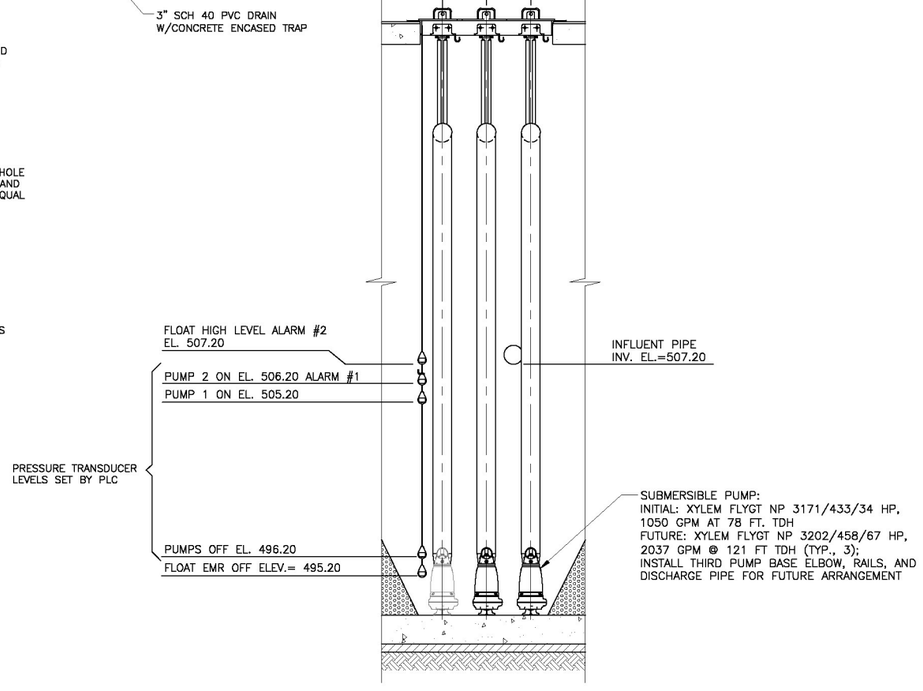
Date:	2/1/2017
Designed:	LKG
Drawn:	SRG
Reviewed:	MAP
PEC Proj. No.	TNP 14-002
SEQ.	of

SHEET NO.
LS-2



REPRESENTATIVE SECTION A

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



NOTE:

1. FLOATS SHALL BE FIELD ADJUSTED AS NECESSARY.

PARTIAL SECTION B

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

REQUIREMENTS FOR COATING OF INTERIOR SURFACES OF WETWELL IF CON SHIELD ADDITIVE IS NOT USED:

1. SURFACE PREPARATION: AS REQUIRED BY THE MANUFACTURER FOR CAST-IN-PLACE CONCRETE SURFACES.

2. PRODUCT AND MANUFACTURER: PROVIDE ONE OF THE FOLLOWING:

a. CHESTERTON
1) PRIMER/FINISH: PF&L 2300 - TROWEL-APPLIED @ 1/16 TO 1/8"

b. RAVEN LINING SYSTEMS INC.
1) PRIMER: AQUATAPOXY A-10 - 4 TO 8 MILS DFT
2) FINISH: RAVEN 405 - 125 TO 200 MILS DFT; 2 COATS REQUIRED TO ACHIEVE TOTAL DFT OF 125 MILS

c. SPECTRASHIELD
1) PRIMER: MOISTURE-DISPLACEMENT BARRIER PRIMER, MODIFIED POLYMER MOISTURE BARRIER, POLYURETHANE/POLYMERIC BLEND FOAM "SURFACER"
2) FINISH: MODIFIED POLYMER FINAL CORROSION BARRIER

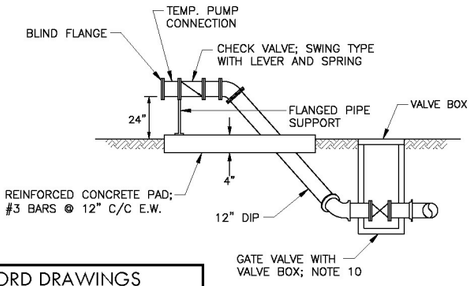
d. SAUREISEN
1)PRIMER: SAUREISEN 210S - TO 80 MILS DFT
2)FINISH: SAUREISEN 210 GLAZE - @ 20 MILS DFT

e. TNEMEC
1)PRIMER: TNEMEC 218 MORTAR CLAD @ 1/16"
2)FINISH: SERIES 436 PERMA-GLAZE FR @ 60-75 MILS DFT (TOTAL APPROX. 125 MILS DFT)

f. ENDURA-FLEX
1) PRIMER: ENDURA-FLEX EF1988; EXPANDED FILM @ 200 MILS; SOLID FILM @ 50 MILS

GENERAL NOTES:

1. ALL ITEMS IN VALVE BOX SHALL BE BLOCKED AND SUPPORTED AS NECESSARY.
2. PUMP STATION SHALL BE MANUFACTURED FROM TYPE V PORTLAND CEMENT. ALL OTHER CONCRETE SHALL BE MANUFACTURED FROM TYPE I/II PORTLAND CEMENT.
3. STEEL REINFORCEMENT SHALL BE ASTM A615 GRADE 60 DEFORMED EXCEPT AT MANHOLE SECTIONS.
4. MANHOLE SECTIONS:
   A. MANHOLE MANUFACTURER SHALL DESIGN WALL THICKNESS AND REINFORCEMENT FOR THE SITE CONDITIONS.
   B. RISER SECTION SHALL BE PER ASTM C478 (TYPE V PORTLAND CEMENT).
   C. GASKETS AT JOINTS SHALL BE ASTM C443 O-RING AND SHALL BE SEALED WITH NON-SHRINK GROUT ON THE INTERIOR AND EXTERIOR.
   D. CONNECTIONS TO GRAVITY SEWER LINE(S) SHALL CONFORM TO ASTM C923 WITH 316SS CLAMPS.
   E. INTERIOR BENCH (FILLET SLOPE) SHALL BE CONSTRUCTED WITH 2000 PSI CONCRETE USING TYPE V PORTLAND CEMENT.
5. FILL COMPACTION:
   A. CLAY SOILS WITH A PLASTICITY INDEX BELOW 25 SHOULD BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) AND WITHIN THE RANGE OF 1% BELOW TO 3% ABOVE THE MATERIAL'S OPTIMUM MOISTURE CONTENT.
   B. CLAY SOILS WITH A PLASTICITY INDEX EQUAL TO OR GREATER THAN 25 SHOULD BE COMPACTED TO A DRY DENSITY BETWEEN 95% AND 98% OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698). THE COMPACTED MOISTURE CONTENT OF THE CLAYS DURING PLACEMENT SHOULD BE WITHIN THE RANGE OF 2 TO 6% POINTS ABOVE OPTIMUM.
   C. CLAY MATERIAL USED AS FILL SHOULD BE PROCESSED SUCH THAT THE LARGEST PARTICLE OR CLOD IS LESS THAN 6 INCHES PRIOR TO COMPACTION.
   D. IN CASES WHERE EITHER MASS FILLS OR UTILITY LINES ARE MORE THAN 10 FT DEEP, THE FILL/BACKFILL BELOW 10 FT SHOULD BE COMPACTED TO AT LEAST 98% OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698) AND WITHIN 2% OF THE MATERIAL'S OPTIMUM MOISTURE CONTENT. THE PORTION OF THE FILL/BACKFILL SHALLOWER THAN 10 FT SHOULD BE COMPACTED AS OUTLINED ABOVE.
   E. COMPACTION SHOULD BE ACCOMPLISHED BY PLACING FILL IN ABOUT 8-INCH THICK LOOSE LIFTS AND COMPACTING EACH LIFT TO AT LEAST THE SPECIFIED MINIMUM DRY DENSITY. FIELD DENSITY AND MOISTURE CONTENT TESTS SHOULD BE PERFORMED ON EACH LIFT.
6. CHECK VALVES SHALL BE AMERICAN (ACIPCO) SERIES 600 WITH LEVER AND SPRING.
7. PIPE SUPPORTS SHALL BE STANDON MODEL S89 OR EQUAL FLANGED PIPE SUPPORT, OR SHALL BE PER FLANGED PIPE SUPPORT DETAIL.
8. AT THE CONTRACTOR'S OPTION, ALL INTERIOR CONCRETE COMPONENTS OF THE WET WELL SHALL EITHER BE CAST USING CON-SHIELD ADDITIVE OR CONTRACTOR MAY COAT ALL INTERIOR EXPOSED CONCRETE AND GROUT SURFACES OF WET WELL PER NOTES ON SHEET LS-5.
9. ALL DIP PIPE WITHIN THE WET WELL AND VALVE VAULT SHALL BE COATED WITH 2 EA. LAYERS OF 6 MIL. DFT DEVOE BAR-RUST 233H HIGH PERFORMANCE EPOXY, OR APPROVED EQUAL. D.I.P. SHALL BE LINED WITH 40 MILS PROTECTO 401 CERAMIC LINER.
10. INSTALL GATE VALVES WITH SHAFTS HORIZONTAL. PROVIDE HORIZONTAL TO VERTICAL GEARED OPERATOR WITH 2" OPERATOR NUT.
11. ALL BOLTS, NUTS, WASHERS, ANCHOR BOLTS, FASTENERS, AND RELIEF STRAIN GRIPS SHALL BE 316SS. ANCHOR BOLT SYSTEMS SHALL BE EPOXY OR ADHESIVE TYPE BY HILTI, OR APPROVED EQUAL.
12. WET WELL SHALL BE DESIGNED FOR LATERAL EARTH PRESSURE OF 110 PSF AND HYDROSTATIC FORCES PER ALPHA TESTING GEOTECHNICAL REPORT DATED MAY 20, 2015.
13. WET WELL AND VALVE VAULT SHALL BE MIN. 4,200 PSI CONCRETE WITH PIGMENT MIXED IN TERRA COTTA COLOR CON-SHIELD LINED; OTHERWISE WETWELL COATING SHALL BE AS DESCRIBED ON SHEET LS-5.



SECTION C

N.T.S.

RECORD DRAWINGS

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DATE: 1/08/2018

STATE OF TEXAS — MARK A. PERKINS — 60329 — REGISTERED PROFESSIONAL ENGINEER — 2/1/2017

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ONE INCH

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699

NO.	DATE	DESCRIPTION	BY

LIFT STATION
PIPING AND SECTIONS

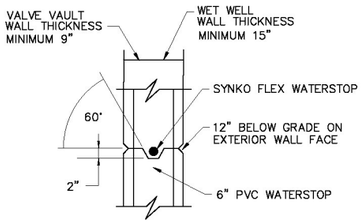
CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

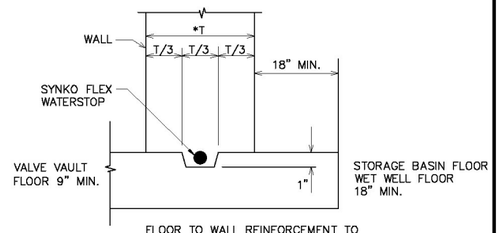
Date:	2/1/2017	Reviewed:	MAP
Designed:	LKG	PEC Proj. No.	THP 14-002
Drawn:	SRG	SEQ.	of

SHEET NO.
LS-3

WALLS SECTION



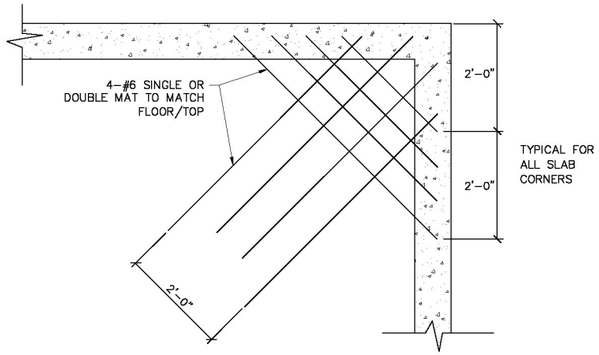
WALL – FLOOR CONNECTION



FLOOR TO WALL REINFORCEMENT TO BE CONTINUOS FOR 36" IN FLOOR AND UP WALL NO SPLICE WITHIN 36" OF INTERFACE

WATER–STOP CONSTRUCTION

NOT TO SCALE

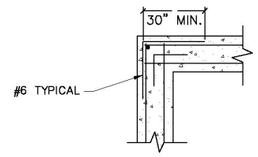


ADDITIONAL REINFORCING @ EXTERIOR CORNER

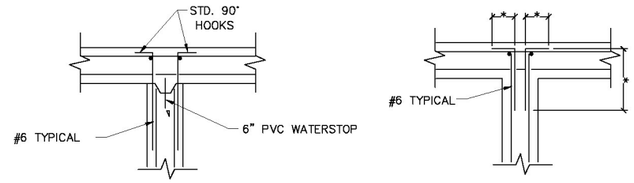
NOT TO SCALE

* MINIMUM LAP LENGTH

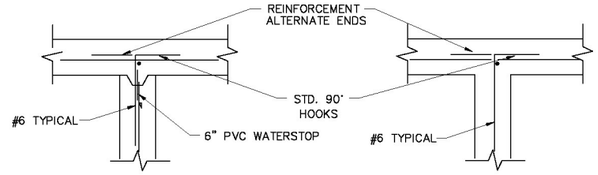
ALL 90° BENDS AS SHOWN UNLESS OTHERWISE INDICATED ON DESIGN DRAWINGS. INSTALL ADDITIONAL VERTICAL BARS AT HOOKS AS SHOWN.



TYPICAL CORNER REINFORCEMENT

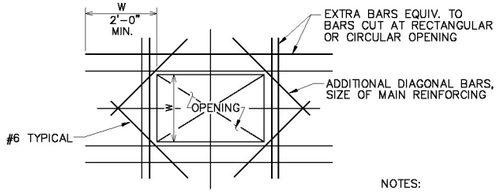


TYPICAL INTERSECTION FOR DOUBLE CURTAIN



CORNER REINFORCEMENT DETAILS

NOT TO SCALE



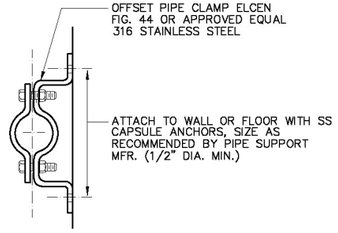
REINFORCEMENT @ SLAB AND WALL OPENING

NOTES:

1. REINFORCING AS INDICATED ON SECTION DETAIL
2. W=DIMENSION OF OPENING PERPENDICULAR TO BARS CUT.

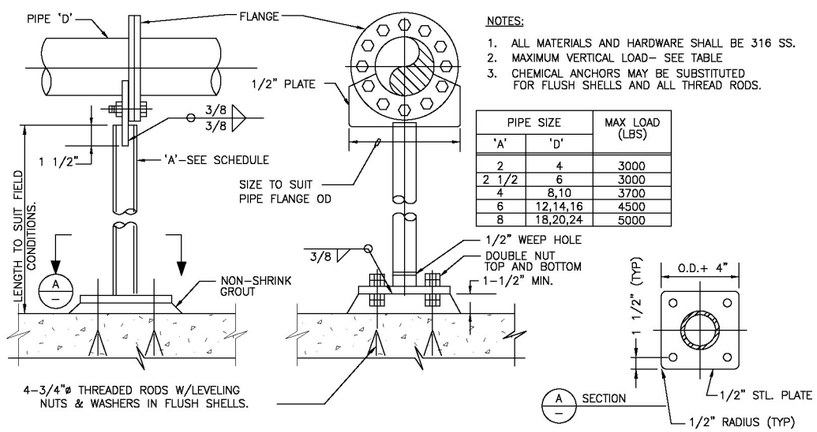
ADDITIONAL REINFORCING AROUND OPENINGS AND VALVE VAULT

NOT TO SCALE



TYPICAL OFFSET PIPE SUPPORT

NOT TO SCALE



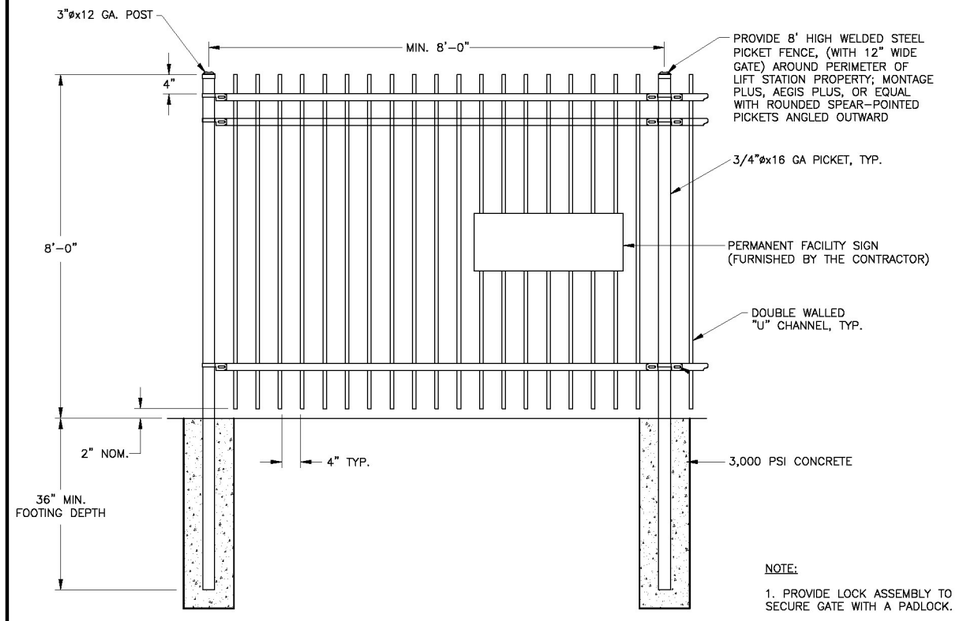
NOTES:

1. ALL MATERIALS AND HARDWARE SHALL BE 316 SS.
2. MAXIMUM VERTICAL LOAD– SEE TABLE
3. CHEMICAL ANCHORS MAY BE SUBSTITUTED FOR FLUSH SHELLS AND ALL THREAD RODS.

PIPE SIZE 'A'	PIPE SIZE 'D'	MAX LOAD (LBS)
2	4	3000
2 1/2	6	3000
4	8,10	3700
6	12,14,16	4500
8	18,20,24	5000

FLANGED PIPE SUPPORT

NOT TO SCALE



NOTE:

1. PROVIDE LOCK ASSEMBLY TO SECURE GATE WITH A PADLOCK.

TUBULAR STEEL FENCE DETAIL

NOT TO SCALE

RECORD DRAWINGS
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DATE: 1/08/2018

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ONE INCH

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F–8699

NO.	DATE	DESCRIPTION	BY

LIFT STATION DETAILS

CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

Date:	2/1/2017	PEC Proj. No.	TNP 14–002
Designed:	LKG		
Drawn:	SRG		
Reviewed:	MAP	SEQ.	of

STATE OF TEXAS
MARK A. PERKINS
60329
REGISTERED PROFESSIONAL ENGINEER
2/1/2017

SHEET NO.
LS-4

ELECTRICAL NOTES

1. ALL WORK SHALL COMPLY WITH NFPA 820 REGARDING HAZARDOUS CLASSIFICATION, GROUP AND DIVISION.
2. ALL ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM OR PVC COATED ALUMINUM AS APPLICABLE.
3. ALL INSULATED CONDUCTORS SHALL BE COPPER, XHHW, UNLESS APPROVED BY ENGINEER & OWNER
4. ALL GROUNDING CONDUCTORS SHALL TINNED COPPER.
5. ALL EXPOSED ENCLOSURES SHALL BE NEMA 4X 316 SS .
6. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE WITH ELECTRIC COMPANY.
7. THE CONTRACTOR SHALL FURNISH AND PROVIDE EXPLOSION PROOF, 3 PHASE, 60 HZ. MOTORS.
8. THE CONTRACTOR SHALL FURNISH AND PROVIDE 110 V RECEPTACLE INSIDE CONTROL PANEL.
9. THE CONTRACTOR SHALL PROVIDE COPPER WIRING WITH GROUND IN RIGID CONDUIT FROM METER TO SERVICE DISCONNECT TO CONTROL PANEL.
10. THE CONTRACTOR SHALL COORDINATE ROUTING IN THE FIELD. ALL ELECTRICAL WORK SHALL CONFORM WITH NEC, NATIONAL, STATE, AND LOCAL CODES.
11. THE CONTRACTOR SHALL VERIFY VOLTAGE PRIOR TO PLACING ORDER FOR PUMP MOTORS.
12. THE CONTRACTOR SHALL FURNISH AND PROVIDE LIGHTNING ARRESTOR.
13. THE CONTRACTOR SHALL FURNISH AND PROVIDE RUN TIME METER AND RUN LIGHT FOR EACH PUMP.
14. THE CONTRACTOR SHALL FURNISH AND PROVIDE SEAL FAIL RELAYS WITH PILOT LIGHT, MAIN CIRCUIT BREAKER, AND EMERGENCY RECEPTACLE WITH PUSH BUTTON TO ST LIGHT.
15. THE CONTRACTOR SHALL FURNISH AND PROVIDE CONTROL PANEL AND MAIN DISCONNECT SHALL BE SIZED ACCORDING TO NEC.
16. THE CONTRACTOR SHALL FURNISH AND PROVIDE TWO EXTRA FUSES OF EVERY SIZE AND TYPE USED, AND , SHALL BE STORED AT THE LOCATION WHERE NEEDED.
17. CONTRACTOR IS RESPONSIBLE FOR NEC REQUIREMENT CLEARANCE AROUND AND ABOVE OF ALL ELECTRICAL EQUIP. (NEC 110.26)
18. ALL CIRCUIT HOME-RUNS SHALL BE MINIMUM 2-#12, #12G., 3/4"C. VOLTAGE DROP SHALL COMPLY WITH NEC.
19. FLEXIBLE CONDUIT MAY BE USED ONLY FOR FINAL CONNECTION TO EQUIPMENT. (MAXIMUM LENGTH 6').
20. ALL PANEL DIRECTORY SHOULD BE TYPED.
21. CONTRACTOR SHALL PROVIDE LAMPS FOR ALL LUMINARIES.
22. MINIMUM POWER CONDUCTORS, 2-#12, 1-#12 GROUND.
23. MINIMUM CONDUIT ABOVE GRADE, 3/4" (RIGID ALUM) ,BELOW GRADE, 1" (SCH-40 PVC), TRANSITION FROM ABOVE TO BELOW GRADE SHALL BE PVC COATED ALUMINUM,
24. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSURE A COMPLETE WORKING SYSTEM.
25. COORDINATE LOCATION OF ALL PANELS WITH OWNER.
26. THESE PLANS ARE SCHEMATIC, VERIFY EQUIPMENT LOCATION AND CONDUIT ROUTING, ETC. PRIOR TO BID.
27. CONTRACTOR SHALL PROVIDE PROPER CONDUIT SEAL AS APPLICABLE FOR TERMINATION.
28. INSTALLATION OF WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
29. ELECTRICAL SEAL FITTINGS SHALL BE FILLED BY CITY, NOT BY CONTRACTOR.
30. CONTRACTOR SHALL PROVIDE AND INSTALL 'CORD CAPS' FOR ALL CONDUCTORS EXITING THE WET WELL AT THE FIRST JUNCTION BOX.

ABRIDGED T.C.E.Q. NOTES

§217.60. LIFT STATION, WET WELL, AND DRY WELL DESIGNS.
(A) PUMP CONTROLS.

L13.5;(1) A LIFT STATION PUMP MUST OPERATE AUTOMATICALLY, BASED ON THE WATER LEVEL IN A WET WELL.
(2) THE LOCATION OF A WET WELL LEVEL MECHANISM MUST ENSURE THAT THE MECHANISM IS UNAFFECTED BY CURRENTS, RAGS, GREASE, OR OTHER FLOATING MATERIALS.
(3) A LEVEL MECHANISM MUST BE ACCESSIBLE WITHOUT ENTERING THE WET WELL.
(4) WET WELL CONTROLS WITH A BUBBLER SYSTEM REQUIRE DUAL AIR SUPPLY AND DUAL CONTROLS.
(5) MOTOR CONTROL CENTERS MUST BE MOUNTED AT LEAST 4.0 INCHES ABOVE GRADE TO PREVENT WATER INTRUSION AND CORROSION FROM STANDING WATER IN THE ENCLOSURE.

(6) ELECTRICAL EQUIPMENT AND ELECTRICAL CONNECTIONS IN A WET WELL OR A DRY WELL MUST MEET NATIONAL FIRE PREVENTION ASSOCIATION 70 NATIONAL ELECTRIC CODE EXPLOSION PREVENTION REQUIREMENTS, UNLESS CONTINUOUS VENTILATION IS PROVIDED.

NOTE: REFER TO TECHNICAL PREVISIONS IN CONTRACTS DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

CITY OF ROCKWALL, TEXAS
SPECIFICATIONS FOR LIFT STATION CONTROL PANEL

GENERAL:
THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE THE REQUIRED NUMBER OF PUMPS SPECIFIED ON THE DRAWING AT THE POWER CHARACTERISTICS SHOWN ON THE PLANS.
THE CONTROL FUNCTION SHALL PROVIDE FOR THE OPERATION OF THE PUMPS IN HAND (MANUAL) AND AUTO (CONTROLLED BY PLC). SEE "24VAC REGULATOR SYSTEM" FOR FURTHER INFORMATION.
THE CONTROL SHALL FUNCTION AS DESCRIBED BELOW. THE EQUIPMENT LISTED BELOW IS A GUIDE AND DOES NOT RELIEVE THE SUPPLIER FROM PROVIDING A SYSTEM THAT WILL FUNCTION AS REQUIRED.

ENCLOSURE:
THE ENCLOSURE SHALL BE A NEMA 4X RATED STAINLESS STEEL. THE ENCLOSURE SHALL BE A WALL MOUNT TYPE WITH A MINIMUM DEPTH OF 8" SIZED TO ADEQUATELY HOUSE ALL THE COMPONENTS. THE DOOR GASKET SHALL BE RUBBER COMPOSITION WITH A RETAINER TO ASSURE A POSITIVE WEATHERPROOF SEAL. THE DOOR SHALL OPERATE WITH A SINGLE ACTION HANDLE THAT ACCEPTS A 3/8" SHAFT PADLOCK AND OPENS A MINIMUM OF 180 DEGREES.

INNER DEAD FRONT DOOR:
A POLISHED ALUMINUM DEAD FRONT SHALL BE MOUNTED ON A CONTINUOUS AIRCRAFT TYPE HINGE, CONTAIN CUTOUTS FOR MOUNTED EQUIPMENT, AND PROVIDE PROTECTION OF PERSONNEL FROM LIVE INTERNAL WIRING. CUTOUTS FOR BREAKER HANDLES SHALL BE PROVIDED TO ALLOW OPERATION OF BREAKERS WITHOUT ENTERING THE COMPARTMENT. NO DOOR MOUNTED OPERATING MECHANISMS ALLOWED FOR BREAKER OPERATION. ALL CONTROL SWITCHES, INDICATOR PILOT LIGHTS, ONE GENERAL PURPOSE GFI DUPLEX RECEPTACLE AND OTHER OPERATIONAL DEVICES SHALL BE MOUNTED ON THE EXTERNAL SURFACE OF THE DEAD FRONT. THE DEAD FRONT SHALL OPEN A MINIMUM OF 150 DEGREES TO ALLOW ACCESS TO EQUIPMENT FOR MAINTENANCE. A ¾" BREAK SHALL BE FORMED AROUND THE PERIMETER OF THE DEAD FRONT TO PROVIDE RIGIDITY.

BACK PLATE:
THE BACK PLATE SHALL BE MANUFACTURED OF 12-GAUGE SHEET STEEL AND BE FINISHED WITH A PRIMER COAT AND TWO (2) COATS OF BAKED ON WHITE ENAMEL. ALL DEVICES SHALL BE PERMANENTLY IDENTIFIED.

POWER DISTRIBUTION:
THE PANEL POWER DISTRIBUTION SHALL INCLUDE ALL NECESSARY COMPONENTS AND BE WIRED WITH STRANDED COPPER CONDUCTORS RATED AT A MINIMUM OF 90 DEGREES C.

SYSTEM SHALL BE EQUIPPED WITH AN EMERGENCY GENERATOR WITH AN AUTOMATIC TRANSFER SWITCHCAPABLE OF PROGRAMMABLE TEST DATES AND TIMES. INPUTS SHALL BE PROVIDED TO PLC TO INDICATE GENERATOR RUNNING, GENERATOR ALARM, AND GENERATOR LOW FUEL LEVEL OR IF NO GENERATOR IS AT THE LIFT STATION, A STAND ALONE MANUAL DOUBLE THROW SAFETY SWITCH TO ALLOW HARD WIRING TO A PORTABLE GENERATOR.

NO DOOR MOUNTED OPERATING MECHANISMS ALLOWED FOR BREAKER OPERATION IN CONTROL PANEL. ALL CONDUCTOR TERMINATIONS SHALL BE AS RECOMMENDED BY THE DEVICE MANUFACTURER.

CIRCUIT BREAKERS:
ALL CIRCUIT BREAKERS SHALL BE HEAVY-DUTY THERMAL MAGNETIC OR MOTOR CIRCUIT PROTECTORS SIMILAR AND EQUAL TO SQUARE D TYPE FAL. EACH MOTOR BREAKER SHALL BE ADEQUATELY SIZED TO MEET THE PUMP MOTOR OPERATING CHARACTERISTICS AND SHALL HAVE A MINIMUM OF 10,000 AMPS INTERRUPTING CAPACITY FOR 230 VAC AND 14,000 AMPS AT 480 VAC. THE CONTROL CIRCUIT AND THE DUPLEX RECEPTACLES SHALL BE INDIVIDUALLY CONTROLLED BY HEAVY-DUTY BREAKERS. CIRCUIT BREAKERS SHALL BE INDICATING TYPE, PROVIDING "ON-OFF-TRIP" POSITIONS OF THE OPERATING HANDLE. WHEN THE BREAKER IS TRIPPED AUTOMATICALLY, THE HANDLE SHALL ASSUME A MIDDLE POSITION INDICATING "TRIP". THERMAL MAGNETIC BREAKERS SHALL BE QUICK-MADE AND QUICK-BREAK ON BOTH MANUAL AND AUTOMATIC OPERATION AND HAVE INVERSE TIME CHARACTERISTICS SECURED THROUGH THE USE OF BIMETALLIC TRIPPING ELEMENTS SUPPLEMENTED BY A MAGNETIC TRIP.

BREAKERS SHALL BE DESIGNED SO THAT AN OVERLOAD ON ONE POLE AUTOMATICALLY TRIPS AND OPENS ALL LEGS. FIELD INSTALLED HANDLED TIES SHALL NOT BE ACCEPTABLE.

MOTOR STARTERS:
MOTOR STARTERS SHALL BE OPEN FRAME, ACROSS THE LINE; NEMA RATED WITH INDIVIDUAL OVERLOAD PROTECTION IN EACH LEG. MOTOR STARTER CONTACT AND COIL SHALL BE REPLACEABLE FROM THE FRONT OF THE STARTER WITHOUT BEING REMOVED FROM ITS MOUNTED POSITION. OVERLOAD HEATERS SHALL BE SOLID STATE MOTOR LOGIC TYPE WITH THE FOLLOWING FEATURES: 3 TO 1 ADJUSTMENT FOR TRIP CURRENT, PHASE LOSS AND UNBALANCE PROTECTION, LED POWER INDICATION, AMBIENT INSENSITIVE AND SELF-POWERED, AND SHALL HAVE AVAILABILITY OF ELECTRICAL REMOTE RESET. OVERLOADS SHALL BE SIZED FOR THE FULL LOAD AMPERAGE DRAW OF THE PUMPS. DEFINITE PURPOSE CONTACTORS, FRACTIONAL SIZE STARTERS AND HORSEPOWER RATED CONTACTORS OR RELAYS SHALL NOT BE ACCEPTABLE.

TRANSFORMERS:
CONTROL TRANSFORMERS SHALL PROVIDE THE 120 VAC AND/OR 24 VAC FOR CONTROL CIRCUITS. TRANSFORMERS SHALL BE FUSED ON THE PRIMARY AND SECONDARY CIRCUITS. THE SECONDARY SHALL BE GROUNDED.

LIGHTNING-TRANSIENT PROTECTION:
A LIGHTNING-TRANSIENT PROTECTOR WITH TELL-TALE WARNING LIGHTS ON EACH PHASE TO INDICATE LOSS OF PROTECTION ON THE INDIVIDUAL PHASES SHALL BE PROVIDED. THE DEVICE SHALL BE SOLID STATE WITH A RESPONSE TIME OF LESS THAN 5 NANOSECONDS WITHSTANDING SURGE CAPACITY OF 6500 AMPERES. UNIT SHALL BE INSTANT RECOVERY, LONG LIFE AND HAVE NO HOLDOVER CURRENTS.

PHASE MONITOR:
A LINE VOLTAGE RATED, ADJUSTABLE PHASE MONITOR SHALL BE INSTALLED TO SENSE LOW VOLTAGE, LOSS OF POWER, REVERSED PHASING AND LOSS OF A PHASE. CONTROL CIRCUIT SHALL DE-ENERGIZE UPON SENSING ANY OF THE FAULTS AND SHALL AUTOMATICALLY RESTORE SERVICE UPON RETURN TO NORMAL POWER.

ALARM SYSTEM:
THE ALARM LIGHT SHALL BE A WEATHERPROOF, SHATTERPROOF, RED LIGHT FIXTURE WITH 500 LUMENS MINIMUM TO INDICATE ALARM CONDITIONS. THE ALARM LIGHT SHALL BE TURNED ON BY THE ALARM LEVEL.

THE ALARM LIGHT SHALL BE MOUNTED ON THE EXTERIOR OF THE CABINET. THE ALARM HORN SHALL PROVIDE AN AUDIO SIGNAL OF NOT LESS THAN 90 DB AT 10 FEET. AN ALARM SILENCE SWITCH SHALL BE MOUNTED ON THE EXTERIOR OF THE CABINET AND DEACTIVATE THE ALARM HORN; HOWEVER, THE ALARM LIGHT SHALL FLASH UNTIL THE ALARM CONDITION CEASES TO EXIST.AN INPUT SHALL BE PROVIDED TO PLC TO INDICATE HIGH WET WELL CONDITION.

24 VAC REGULATOR SYSTEM:

SCADA:
EQUIPMENT FOR SCADA SHALL BE KIMARK PART # TR-Y160-C50-P-IC CONSISTING OF A PLC, RADIO, ANTENNA, ECT. TOOPERATE THE SYSTEM.
CONTROL CABINET COMPONENTS SHALL BE INSTALLED WHEN THE PANEL IS BUILT.

CONTACT PHONE NUMBER FOR KIMARK IS 972-890-7910 SAUL SANCHEZ.
EMAIL: SAUL@KIMARK.COM
CONTACT THEM FOR PRICING AND EQUIPMENT SPECIFICATIONS FOR INSTALLATION IN THE CONTROL PANEL AND ON THE RACK.

PROGRAMMING SHALL BE INCLUDED IN PURCHASE PRICE OF THE ABOVE PART BY KIMARK, USING SCHNEIDER ELECTRIC PROWORX32 PLC PROGRAMMING SOFTWARE.CHECK WITH KIMARK TO VERIFY ALL NEEDED INPUTS AND OUTPUTS FOR PLC PROGRAMING.

THE CONTROL SYSTEM SHALL PROVIDE FOR BOTH AUTOMATIC AND MANUAL CONTROL AND ALTERNATION OF THE PUMPS TO MAINTAIN A PUMPED DOWN CONDITION OF THE WET WELL.

WET WELL LEVELS SHALL BE SENSED BY A PRESSURE TRANSDUCER. FLOAT REGULATORS SHALL BE INSTALLED AS BACK UP FOR HIGH AND LOW LEVELS ONLY. THE TRANSDUCER SHALL SENSE THE "OFF", "LEAD", "LAG", AND "HIGH" LEVELS AS GIVEN ON THE PLANS. AS THE LEVEL IN THE WET WELL RAISES THE LEAD PUMP, AS DETERMINED BY THE ALTERNATOR, SHALL START AND PUMP THE STATION TO THE "OFF" POSITION. IN THE EVENT THE INCOMING FLOW EXCEEDS THE CAPACITY OF THE LEAD PUMP, THE LAG PUMP SHALL START AND BOTH PUMPS SHALL RUN TO THE OFF LEVEL. IF THE WET WELL LEVEL CONTINUES TO RISE, HIGH WELL ALARM FUNCTIONS SHALL BE ACTIVATED. THE ALTERNATOR SHALL SWITCH WHEN THE OFF LEVEL IS REACHED.

ALL INPUTS AND OUTPUTS SHALL BE WIRED TO A TERMINAL STRIP AT BOTTOM OF CABINET.

ANCILLARY EQUIPMENT:

HOA SWITCHES: A THREE POSITION HOA SWITCH SHALL BE PROVIDED ON THE INNER DEAD FRONT FOR EACH PUMP.INPUTS SHALL BE PROVIDED TO PLC TO INDICATE POSITION OF HOA.

RUN INDICATORS: A RUN PILOT INDICATOR SHALL BE PROVIDED ON THE INNER DEAD FRONT. ALL INDICATOR LIGHTS SHALL BE PUSH TO TEST.INPUTS SHALL BE PROVIDED TO PLC TO INDICATE PUMP RUNNING.

ELAPSED TIME: ELAPSE TIME METER SHALL BE MOUNTED ON THE DEAD FRONT DOOR.

CABINET TEMPERATURE CONTROL: THE CABINET SHALL BE EQUIPPED WITH A PANEL HEATER CONTROLLED BY A THERMOSTAT AND A VENT FAN CONTROLLED BY A THERMOSTAT.

RECEPTACLES: ONE DUPLEX RECEPTACLE LOCATED ON INNER DEAD FRONT DOOR FOR GENERAL PURPOSE USE. THIS RECEPTACLE SHALL BE OF THE GROUND FAULT TYPE, 120 VOLT, AND PROTECTED BY A 20 AMP BREAKER. A SECOND SINGLE RECEPTACLE SHALL BE LOCATED ON THE BACK PANEL TO PROVIDE POWER FOR UPS BACK UP SYSTEM. THIS RECEPTACLE SHALL BE 120 VOLT AND PROTECTED BY A SEPARATE 20 AMP BREAKER.

UPS BACK UP SYSTEM: WILL PROVIDED 120 VOLT POWER TO SCADA COMMUNICATION EQUIPMENT AND ALL LOW VOLTAGE POWER TRANSFORMERS. THIS MUST BE INSTALLED IN THE CONTROL PANEL. UPS SHALL BE APC 650VA 120 VOLTOR EQUIVALENT.

THE SYSTEM MUST BE ABLE TO TRANSMIT ALL ALARMS AND WET WELL LEVELS WHEN ON BACKUP POWER.

MOTOR PROTECTION: A CONTROL AND STATUS MODULE SHALL SENSE EITHER MOTOR OVER TEMPERATURE OR SEAL LEAKAGE, AND SHALL TURN OFF THE PUMP, LOCK OUT THE PUMP, AND SEND AN ALARM.INPUTS SHALL BE PROVIDED TO PLC TO INDICATE PUMP FAIL, SEAL FAIL AND TEMP FAIL INDIVIDUALLY FOR EACH PUMP.

MISCELLANEOUS:

PANEL RACKS:
POSTS SUPPORTING RACKS SHALL BE 3" MINIMUM RIGID CONDUIT CAPPED ANDBOLTED DIRECTLY TOCHANNEL FRAMEWORK SUPPORTING THE PANELS.

PANELS SHALL HAVE A RAIN SHIELD STRUCTURE USING 1/8" MINIMUM ALUMINUM PLATING PROVIDING A SOLID BACKPLATE BEHIND PANELS CONTINUOUS TO OVERHEAD PLATE TOPROTECT PANEL FROM RAIN. PROVIDE LIGHTING MOUNTED ON STRUCTURE WITH SWITCH MOUNTED ON EXTERIOR OF PANEL TO LIGHT UP PANEL AREA.
CONTACT CITY OF ROCKWALL AT 972-771-7730 FOR LOCATION OF EXISTING TYPE STRUCTURE.

EACH PUMP MUST HAVE ITS OWN CONDUIT FOR POWER CORD AND A SEPARATE CONDUIT FOR ALL FLOAT WIRES.

LEVEL CONTROL SYSTEM SHALL USE A PRESSURE TRANSDUCER WITH BUILT IN SURGE PROTECTION FOR PUMP OPERATIONWITH OFF AND HIGH LEVEL FLOATS AS BACK-UP IN CASE TRANSDUCER FAILS. SEPARATE CONDUITS SHALL BE USED FOR FLOATS, LEVEL TRANSMITTERS, AND PUMP POWER

DRAWINGS: CONTROL PANEL SCHEMATIC DRAWINGS SHALL BE SUBMITTED FOR APPROVALWITH THE SUBMITTAL PLANS.
FINAL CONTROL PANEL WIRE SCHEMATIC DRAWINGSINCLUDING A LIST OF ALL LEGENDS (2 SETS TOTAL) SHALL BE PROVIDED. ONE SET SHALL BE ENCAPSULATED IN MYLAR AND ATTACHED TO THE INSIDE OF THE FRONT DOOR OF THE CONTROL CABINET. A SECOND SET SHALL BE DELIVERED TO THE CITY OF ROCKWALL WASTEWATER DEPARTMENT.

PANEL MARKINGS: ALL COMPONENT PARTS IN THE CONTROL PANEL SHALL BE PERMANENTLY MARKED AND IDENTIFIED AS THEY ARE INDICATED ON THE DRAWING. MARKING SHALL BE ON THE BACK PLATE ADJACENT TO THE COMPONENT. ALL CONTROL CONDUCTORS SHALL BE IDENTIFIED WITH WIRE MARKERS AS CLOSE AS PRACTICAL TO EACH END OF CONDUCTORS.

PANEL WIRING: ALL WIRING IN PANEL SHALL MAINTAIN A MINIMUM OF 11/2" SPACING BETWEEN COMPONENTS AND WIRE WAYS.

TESTING: ALL PANELS SHALL BE TESTED TO THE POWER REQUIREMENTS AS SHOWN ON THE PLANS TO ASSURE PROPER OPERATION OF ALL THE COMPONENTS. EACH CONTROL FUNCTION SHALL BE ACTIVATED TO CHECK FOR PROPER OPERATION AND INDICATION.

GUARANTEE: ALL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF THREE (3) YEARS FROM DATE OF ACCEPTANCE. THE GUARANTEE IS EFFECTIVE AGAINST ALL DEFECTS IN WORKMANSHIP AND/OR DEFECTIVE COMPONENTS. THE WARRANTY IS LIMITED TO REPLACEMENT OR REPAIR OF THE DEFECTIVE EQUIPMENT.

APPLICABLE CODES AND STANDARDS
NFPA 820 2008 NATIONAL ELECTRICAL CODE TCEQ CHAPTER 217

CITY REQUIRE INSTRUCTIONS TO CONTRACTOR
SCADA CONNECTION TO OWNER'S SYSTEM. ALL PROGRAMMING SHALL COMPLY WITH OWNER'S REQUIREMENTS. SEE CITY SPECIFICATIONS FOR SCADA REQUIREMENTS. PLC & RADIO EQUIPMENT PURCHASED THROUGH KIMARK AND INSTALLED IN CONTROL CABINET.

CITY REQUIRED INSTRUCTIONS TO CONTRACTOR
SCADA CONNECTION TO OWNER'S SYSTEM. ALL PROGRAMMING SHALL COMPLY WITH OWNER'S REQUIREMENTS. SEE CITY SPECIFICATIONS FOR SCADA REQUIREMENTS.

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE TEAGUE NALL & PERKINS, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFROMATION PROVIDED BY THE CONTRACTOR
DATE: 1/08/2018

STATE OF TEXAS
TOMMY D. TABOR
57248
REGISTERED
PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION	BY
1	2017/02/14	CITY COMMENTS	

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699
BRAZOS ENVIRONMENTAL AND ENGINEERING SERVICES, INC.
TBPE REGISTRATION NO. F-8699
(Firm # 639)

ELECTRICAL GENERAL NOTES

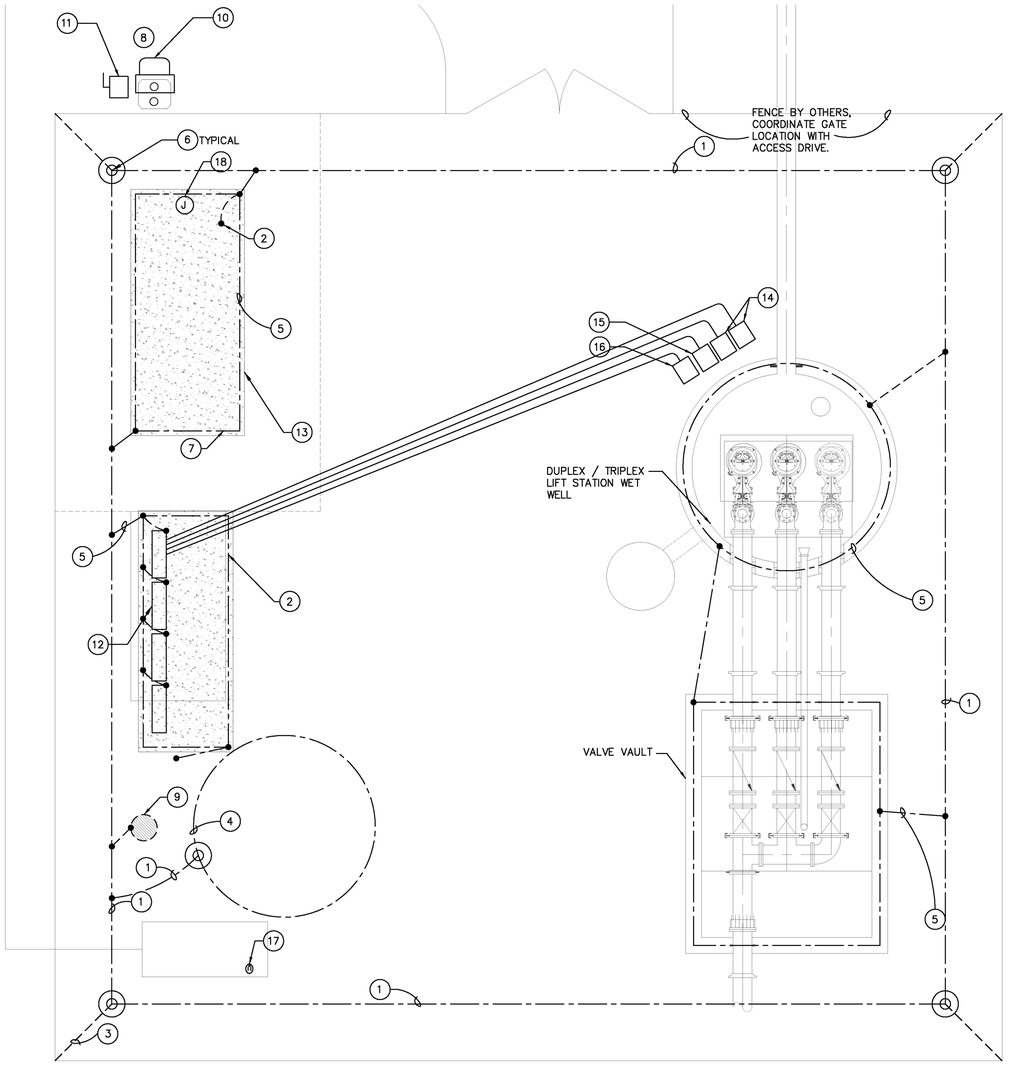
CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

16-047-D

Date:	02/01/2017
Designed:	TDT
Drawn:	MLH, ED, CC
Reviewed:	TDT
PEC Proj. No.	TNP 14-002
SEQ.	of

SHEET NO.
LSE - 1



KEY

◯ = GROUND ROD & WELL LOCATION PER DETAILS

● = CONNECTION PER DETAILS

1 ELECTRICAL SITE PLAN

SCALE: 1"=4'

FOR DIAGRAMMATICAL REPRESENTATION ONLY
COORDINATE EXACT LOCATION OF EQUIPMENT WITH CIVIL PLAN.

NORTH

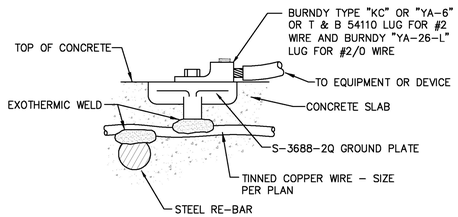
HAZARD CLASSIFICATION
AS REQUIRED BY
NFPA 820 AND 2008 NATIONAL ELECTRICAL CODE

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

GROUNDING NOTES BY SYMBOL "◯"

1. 1/0 BARE TINNED COPPER, 36" DEEP LOOP, AT 36" FROM EDGE OF CONSTRUCTION OR FENCE.
2. #4 BARE TINNED COPPER BONDING FOR ALL ELECTRICAL EQUIPMENT DEVICES AND GROUND SYSTEM.
3. #4 BARE TINNED COPPER BONDING/GROUNDING SYSTEM TO FENCE.
4. 10FT DIAMETER COIL OF 1/0 BARE TINNED COPPER. PROVIDE XYZ COORDINATES ON RECORD DRAWINGS. COORDINATE EXACT LOCATION WITH OWNER.
5. 1/0 BARE TINNED COPPER FROM GROUND ROD TO GROUNDING CONDUCTOR AND REBAR IN CONCRETE STRUCTURES.
6. 3/4" x 10'-0" COPPER CLAD GROUND ROD AND WELL.
7. CONCRETE PAD FOR GENERATOR, COORDINATE EXACT LOCATION WITH ALL TRADES. MAINTAIN REQUIRED CLEARANCE
8. ELECTRICAL SERVICE TO LIFT STATION. COORDINATE EXACT LOCATION WITH UTILITY PROVIDER, OWNER AND ALL TRADES.
9. NEW POLE AND SCADA ANTENNA AS REQUIRED BY "KIMARK" 972-890-7910 SAUL SANCHEZ
10. UTILITY METER
11. SERVICE RATED FUSED DISCONNECT.
12. PUMP CONTROL PANEL, ATS, SCADA, MINI-POWER ZONE ON CONCRETE PAD. COORDINATE EXACT LOCATION AND SIZE WITH ACTUAL EQUIPMENT INSTALLED. ESTIMATED PAD SIZE (13' X 5').
13. EMERGENCY GENERATOR CONCRETE PAD. COORDINATE EXACT LOCATION AND SIZE WITH ACTUAL EQUIPMENT INSTALLED. ESTIMATED PAD SIZE (13' X 6').
14. PUMP CONTROL AND POWER J-BOX
15. FLOAT CABLE J-BOX
16. LIQUID LEVEL EQUIPMENT CABLE J-BOX (IF REQUIRED)
17. GFI WEATHER PROOF RECEPTACLE IN "HOT BOX"
18. J-BOX FOR GEN-SET CHARGER

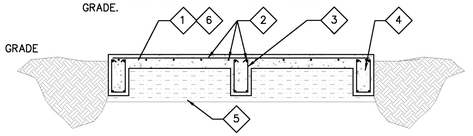


2 BONDING AT SLAB DETAIL

NO SCALE

FOUNDATION NOTES BY SYMBOL "◇"

1. 9" CONCRETE FOUNDATION, CONCRETE 4,000 PSI @ 28 DAYS MINIMUM 6.5 SACK MIX(10'-6" X 5'-6").
2. #4 RE-BAR, FOR BEAMS AND GRID. GRID SPACING 12" C-C-E-W.
3. #3 RE-BAR STURRUP.
4. BEAM DIMENSION 9" WIDE, 18" DEEP.
5. 18" SELECT FILL MECHANICALLY COMPACTED TO 95% .
6. TOP OF CONCRETE TO BE 6" ABOVE ADJACENT GRADE.



3 GENERATOR FOUNDATION

NO SCALE

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE TEAGUE NALL & PERKINS, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR. DATE: 1/08/2018

STATE OF TEXAS — TOMMY D. TABOR — 57248 — REGISTERED PROFESSIONAL ENGINEER

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699

BRAZOS ENVIRONMENTAL
2101 E. 29TH
ENGINEERING SERVICES, INC.
(Firm # 639)

NO.	DATE	DESCRIPTION	BY

ELECTRICAL SITE PLAN & DETAILS

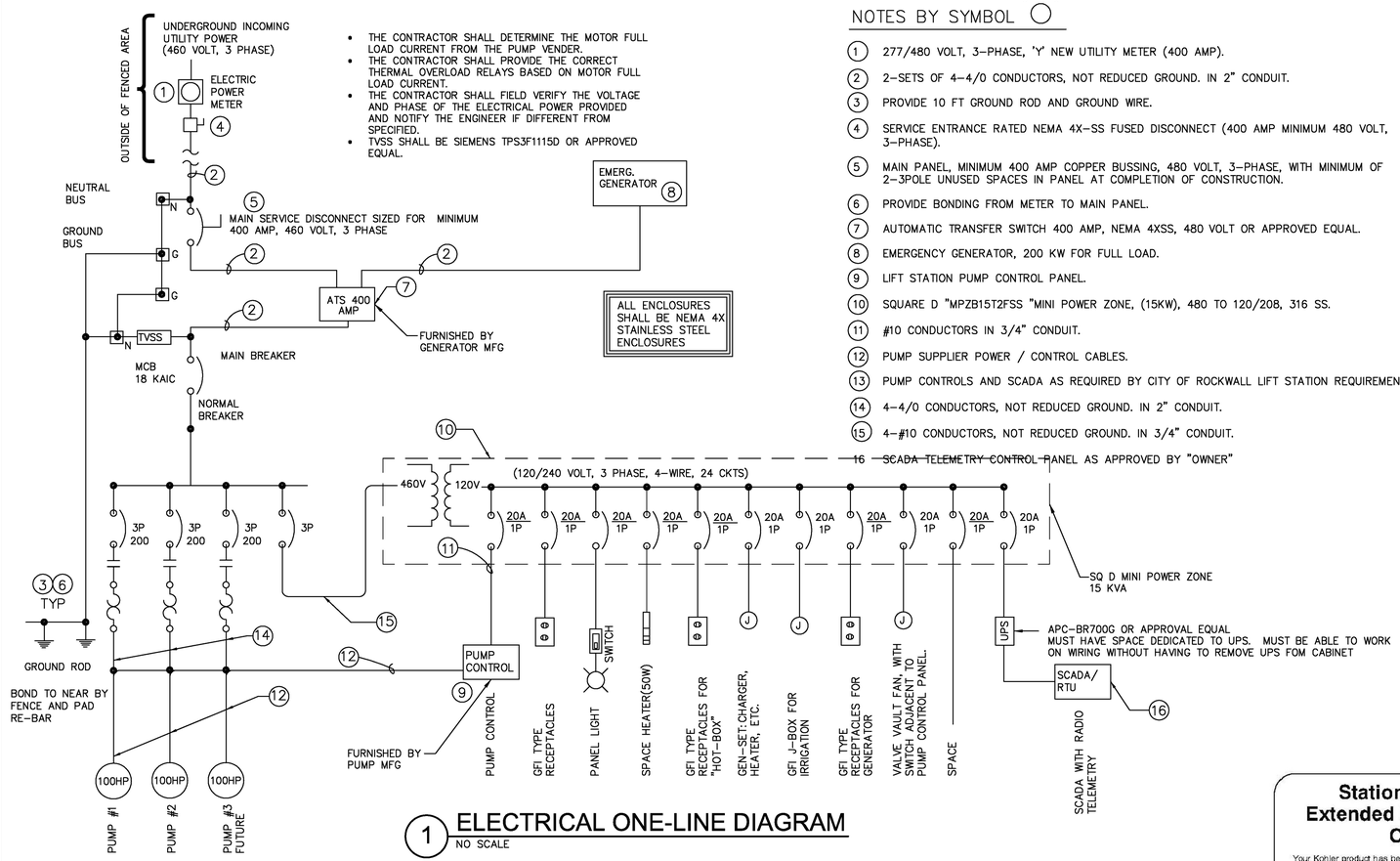
CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

16-047-D

Date:	02/01/2017
Designed:	TDT
Drawn:	MLH, ED, CC
Reviewed:	TDT
PEC Proj. No.	TNP 14-002
SEQ.	of

SHEET NO.
LSE - 2



1 ELECTRICAL ONE-LINE DIAGRAM
NO SCALE

STARTERS SHALL BE NEMA SIZE 4.
PROVIDE SPACE IN CONTROL PANEL FOR FUTURE PUMP.

- THE CONTRACTOR SHALL DETERMINE THE MOTOR FULL LOAD CURRENT FROM THE PUMP VENDER.
- THE CONTRACTOR SHALL PROVIDE THE CORRECT THERMAL OVERLOAD RELAYS BASED ON MOTOR FULL LOAD CURRENT.
- THE CONTRACTOR SHALL FIELD VERIFY THE VOLTAGE AND PHASE OF THE ELECTRICAL POWER PROVIDED AND NOTIFY THE ENGINEER IF DIFFERENT FROM SPECIFIED.
- TVSS SHALL BE SIEMENS TPS3F1115D OR APPROVED EQUAL.

NOTES BY SYMBOL "○"

1. 277/480 VOLT, 3-PHASE, 'Y' NEW UTILITY METER (400 AMP).
2. 2-SETS OF 4-4/0 CONDUCTORS, NOT REDUCED GROUND. IN 2" CONDUIT.
3. PROVIDE 10 FT GROUND ROD AND GROUND WIRE.
4. SERVICE ENTRANCE RATED NEMA 4X-SS FUSED DISCONNECT (400 AMP MINIMUM 480 VOLT, 3-PHASE).
5. MAIN PANEL, MINIMUM 400 AMP COPPER BUSSING, 480 VOLT, 3-PHASE, WITH MINIMUM OF 2-3POLE UNUSED SPACES IN PANEL AT COMPLETION OF CONSTRUCTION.
6. PROVIDE BONDING FROM METER TO MAIN PANEL.
7. AUTOMATIC TRANSFER SWITCH 400 AMP, NEMA 4XSS, 480 VOLT OR APPROVED EQUAL.
8. EMERGENCY GENERATOR, 200 KW FOR FULL LOAD.
9. LIFT STATION PUMP CONTROL PANEL.
10. SQUARE D "MPZB15T2FSS "MINI POWER ZONE, (15KW), 480 TO 120/208, 316 SS.
11. #10 CONDUCTORS IN 3/4" CONDUIT.
12. PUMP SUPPLIER POWER / CONTROL CABLES.
13. PUMP CONTROLS AND SCADA AS REQUIRED BY CITY OF ROCKWALL LIFT STATION REQUIREMENTS.
14. 4-4/0 CONDUCTORS, NOT REDUCED GROUND. IN 2" CONDUIT.
15. 4-#10 CONDUCTORS, NOT REDUCED GROUND. IN 3/4" CONDUIT.
16. ~~SCADA TELEMETRY CONTROL PANEL AS APPROVED BY "OWNER"~~

Fault Current Calculations								
SOMERSET PARK LIFT STATION								
Initial Fault Current	**0**							
First element	**Transformer**	150						
	Source Line-Line Voltage	25,000		0.0000				
	Load Line-Line Voltage	480		0.0307				
	Phase (1 or 3)	3						
	Impedance (2%)	2.00		9,021	9,021			
		VOLTAGE						
	AIC	**Source**	**Load**	**Phase**	**Impedance**	**KVA**		
AT TRANSFORMER	**9,021**	**25,000**	**480**	**3**	**2**	**150**		
	LINE							
	Conductor	4/0	Largest anticipated service conductors					
	Length	40	Ft		Code	3		
	Voltage	480	L-L		Wire-Factor	13,400		
	Phase	3			0.0486			
	Cond/Phase	2						
	Conduit	NON-Magnetic conduit						
	Cable	Single						
	AIC	**Conductor**	**Length**	**Voltage**	**Phase**	**Cond/Phase**	**Conduit**	**Cable**
AT SERVICE ENTRANCE	**8,603**	**4/0**	**40**	**480**	**3**	**2**	**NON-Magnetic conduit**	**Single**

2 FAULT CURRENT
NO SCALE

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

QuickSize Generator Load Profile

Project Rockwall Somerset Lift Station
Customer

Generator Set

Model No. 200REOZJC **Gensets** 1
Engine 6068HF475 (Diesel)
Alternator 4UA13W

Load Profile

	Qty	Run kW	Run kVA	Run pF	Start kW	Start kVA	Volt Dip	Freq Dip	Volt (L-N) THD
Step #1	**Load Step #1**								
mISC (15.00 kW misc. load)									
	1	15.00	15.00	1.00	15.00	15.00			
Step Totals		15.00	15.00	1.00	15.00	15.00	0.72	0.45	0.0%/0.0%/0.0%
Cum. Totals		15.00	15.00	1.00					
Step #2	**Load Step #2**								
Pump #1 (75.00 HP, 3 phase, code G, loaded motor, w/ A.T.L. starting)									
Rated motor torque from full voltage starting = 64.8%									
	1	62.00	73.00	0.85	147.26	446.25			
Step Totals		62.00	73.00	0.85	147.26	446.25	19.48	8.73	0.0%/0.0%/0.0%
Cum. Totals		77.00	88.00	0.88					
Step #3	**Load Step #3**								
<Motor> (75.00 HP, 3 phase, code G, loaded motor, w/ A.T.L. starting)									
Rated motor torque from full voltage starting = 64.5%									
	1	62.00	73.00	0.85	147.26	446.25			
Step Totals		62.00	73.00	0.85	147.26	446.25	19.72	8.73	0.0%/0.0%/0.0%
Cum. Totals		139.00	161.00	0.86					
Grand Totals		139.00	161.00	0.86					0.0%/0.0%/0.0%

*Frequency dip calculation based on estimated data.

Informational

QuickSize Generator Set Sizing

Project Rockwall Somerset Lift Station
Customer

Generator Set

Model No. 200REOZJC **Gensets** 1
Engine 6068HF475 (Diesel)
Alternator 4UA13W

Performance Summary

LN / LL Voltage	277/480	volts	**Altitude**	500	feet
Frequency	60	hertz	**Ambient Temp.**	105	F
Phase(s)	3	phase			

Genset Rating @ 130C Rise	200.00 kW
Genset Derated Rating	196.89 kW
Total Running Power	139.00 kW
Percent of Available kW Used	70.60 %
Alternator Starting kVA	560.00 kVA @ 20% dip
Peak Starting kVA	511.56 kVA
Maximum Voltage Dip	19.72 %
Maximum Frequency Dip	8.73 % (20% allowed)
Voltage THD	0.00 % (15% allowed)

Informational

Program Version	8.6.0
Database Version	1.32
Project Created	January 16, 2013; 03:53:39 PM
Project Last Saved	August 15, 2016; 11:42:41 AM
Report Created	September 16, 2016; 03:58:59 PM
Project Created By	

Stationary Standby Industrial Generator Set Extended Five-Year or Three Thousand (3000)-Hour Comprehensive Limited Warranty

Your Kohler product has been manufactured and inspected with care by experienced craftsmen. If you are the original end user, Kohler Co. warrants, for the period indicated below, each product to be free from defects in materials and workmanship. In the event of a defect in materials or workmanship, Kohler Co. will repair, replace, or make appropriate adjustment at Kohler Co.'s option if the product, upon Kohler Co.'s inspection, is found to be properly installed, maintained, and operated in accordance with Kohler Co.'s instruction manuals. A Kohler distributor, dealer, or authorized service representative must perform startup.

Kohler Product	Warranty Coverage
Stationary Standby Generator Set & Accessories	Five (5) years from registered startup or three thousand (3000) hours (whichever occurs first).

This warranty is not effective unless a proper extended warranty registration form and warranty fee have been sent to Kohler Co. within one year of registered startup. The extended warranty start date is determined by the standard warranty requirements and runs concurrent with the standard warranty during the first year. To receive extended warranty coverage, the provisions of the standard warranty registration must be met.

The following will **not** be covered by the warranty:

1. Normal engine wear, routine tuneups, tuneup parts, adjustments, and periodic service.
2. Damage caused by accidents, improper installation or handling, faulty repairs not performed by an authorized Kohler service representative, or improper storage.
3. Damage caused by operation with improper fuel or at speeds, loads, conditions, modifications, or installation contrary to published specifications or recommendations.
4. Damage caused by negligent maintenance such as:
   a. Failure to provide the specified type and sufficient quantity of lubricating oil.
   b. Failure to keep the air intake and cooling fin areas clean.
   c. Failure to service the air cleaner.
   d. Failure to provide sufficient coolant and/or cooling air.
   e. Failure to perform scheduled maintenance as prescribed in supplied manuals.
   f. Failure to regularly exercise the generator set under load (stationary applications only).
5. Original installation charges and startup costs.
6. Starting batteries and the following related expenses:
   a. Labor charges related to battery service.
   b. Travel expense related to battery service.
7. Engine coolant heaters, heater controls, and circulating pumps after the first year.
8. Additional expenses for repair after normal business hours, i.e. overtime or holiday labor rates.
9. Rental of equipment during performance of warranty repairs.
10. Removal and replacement of non-Kohler-supplied options and equipment.
11. Replacement of a failed Kohler part with a non-Kohler part voids the warranty on that part.
13. Fuel injection pumps not repaired by an authorized Kohler service representative.
14. Non-Kohler-authorized repair shop labor without prior approval from Kohler Co. Warranty Department.
15. Engine fluids such as fuel, oil, or coolant/antifreeze.
16. Shop supplies such as adhesives, cleaning solvents, and rags.
17. Expenses incurred investigating performance complaints unless the problem is caused by defective Kohler materials or workmanship.
18. Maintenance items such as fuses, lamps, filters, spark plugs, loose or leaking clamps, and adjustments.
19. Travel time and mileage exceeding 300 miles round trip.

To obtain warranty service, call 1-800-544-2444 for your nearest authorized Kohler service representative or write Kohler Co., Kohler Power Systems Service Department, M5072, Kohler, WI 53044 USA.

KOHLER CO. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, AND/OR CONSEQUENTIAL DAMAGES OF ANY KIND including, but not limited to, incidental and/or consequential labor costs, installation charges, telephone charges, or transportation charges in connection with the replacement or repair of defective parts.

This is our exclusive written warranty. We make no other express warranty nor is anyone authorized to make any on our behalf.

ANY IMPLIED OR STATUTORY WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental and/or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

KOHLER Power Systems

KOHLER CO., Kohler, Wisconsin 53044
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales/service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

TP-5581 9/13d

1 FOR DIESEL ENGINES PROVIDE: BLOCK HEATER AND DAY TANK (MINIMUM 24 HR FULL LOAD RUN TIME) WITH DOUBLE CONTAINMENT SYSTEM.

EMERGENCY GENERATOR SHALL BE KOHLER 200REOZJC OR "ROCKWALL" APPROVED EQUAL.

1. ENGINE – 6068HF475 (DIESEL) OR EQUAL
2. ALTERNATOR – 4UA13W OR EQUAL
3. VOLTAGE STARTERS
4. WEATHER ENCLOSURE
5. QUIET-RUN EXHAUST SYSTEM
6. ALTERNATOR PROTECTION
7. BATTERY RACK & CABLES
8. EMISSION COMPLIANT ENGINE
9. INTEGRATED VIBRATION ISOLATION
10. OIL DRAIN EXTENSION–
11. BATTERY AND BATTERY CHARGER
12. AIR CLEANER, HEAVY DUTY
13. VOLTAGE REGULATION 1%
14. VOLTAGE REGULATOR SENSING, 3-PHASE
15. GENERAL MAINTENANCE KIT (FILTER SET)
16. COMMON FAILURE RELAY KIT
17. ALARM FAULT SYSTEM CONNECTED TO AUTO-DIALER
18. AUTOMATIC TRANSFER SWITCH AND RELATED ITEMS FOR A COMPLETE OPERATING SYSTEM IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND CODES (KOHLER OR APPROVED EQUAL)
19. FURNISH AND INSTALL AUTOMATIC EXERCISE TIMER THAT WILL START THE GENERATOR AND PICK UP THE STATION LOAD DURING THE EXERCISE PERIOD.
20. PRIOR TO ACCEPTANCE OF THE THE GENERATOR, A LOAD BANK TEST SHALL BE PERFORMED ON THE GENERATOR SYSTEM. LOAD SHALL BE NOT LESS THAN PROJECTED PUMP MOTOR LOADINGS.
21. FIVE YEAR COMPREHENSIVE WARRANTY FOR LABOR AND PARTS.

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE TEAGUE NALL & PERKINS, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFROMATION PROVIDED BY THE CONTRACTOR
DATE: 1/08/2018

STATE OF TEXAS TOMMY D. TABOR 57248 REGISTERED PROFESSIONAL ENGINEER

1 2017/02/14 CITY COMMENTS

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699
BRAZOS ENVIRONMENTAL AND ENGINEERING SERVICES, INC.
(Firm # 639)

NO.	DATE	DESCRIPTION	BY
1	2017/02/14	CITY COMMENTS	TDT

ELECTRICAL ONE-LINE & DETAILS

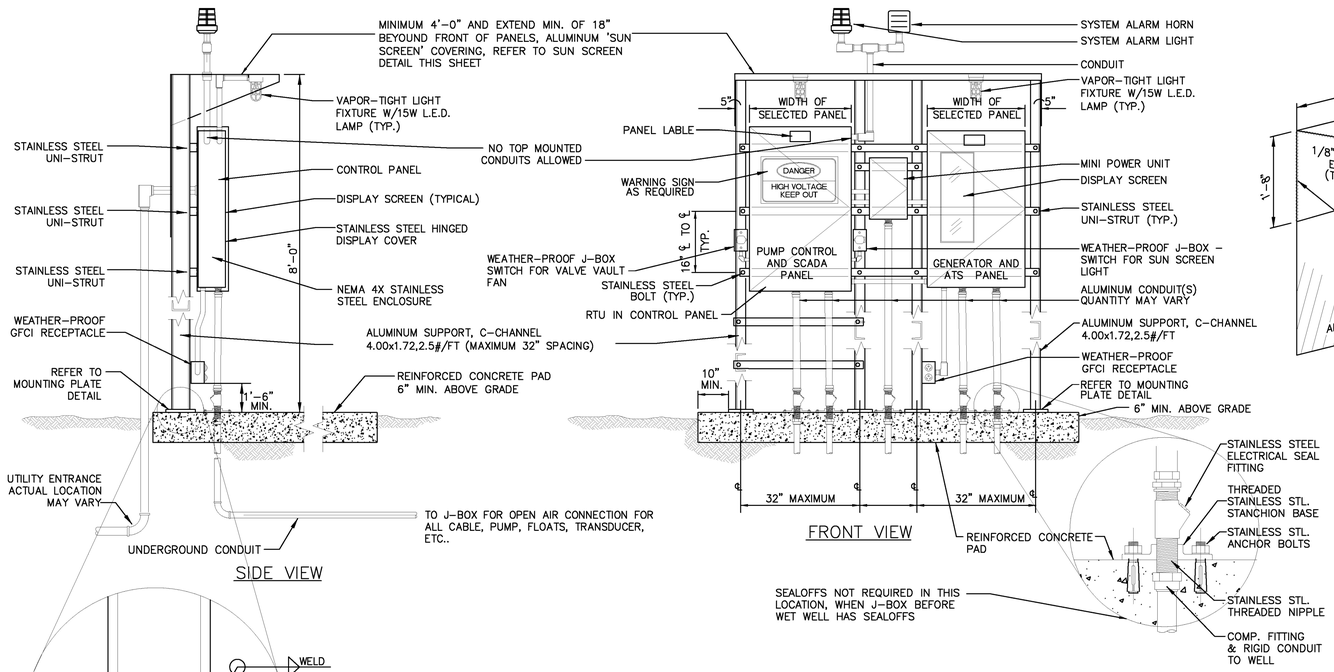
CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

16-047-D

Date: 02/01/2017
Designed: TDT
Drawn: MLH, ED, CC
Reviewed: TDT
PEC Proj. No. TNP 14-002
SEQ. of

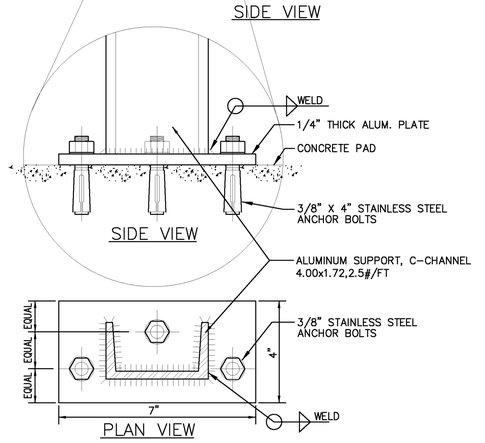
SHEET NO.
LSE - 3



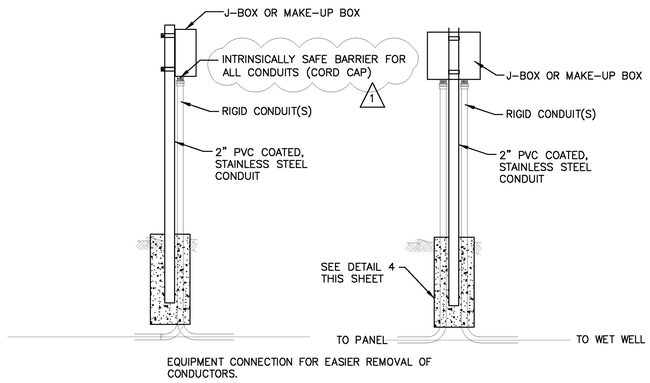
1 CONTROL PANEL MOUNTING WITH SUN SCREEN DETAIL

NO SCALE
DISPLAY SHALL FACE SOUTH

CONTRACTOR SHALL VERIFY PANEL DIMENSIONS AND REQUIRED CLEARANCES PRIOR SETTING OF SUPPORT COLUMNS OR CONSTRUCTION.



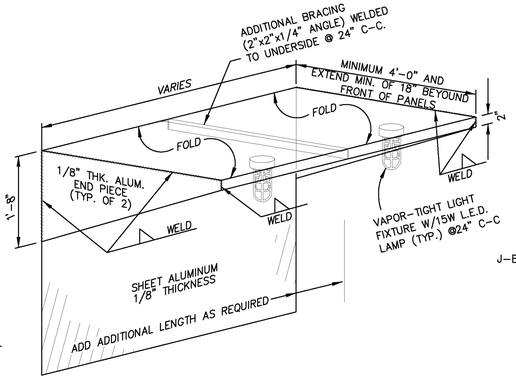
MOUNTING PLATE DETAIL



EQUIPMENT CONNECTION FOR EASIER REMOVAL OF CONDUCTORS.

4 EQUIPMENT CONNECTION DETAIL

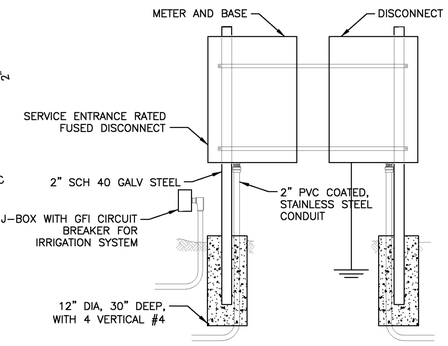
NO SCALE



SUN SCREEN AND VERTICAL SUPPORTS IS DESIGNED TO WITHSTAND 90 MPH WIND (3-SECOND GUST) AND 75MPH SUSTAINED WIND SPEED

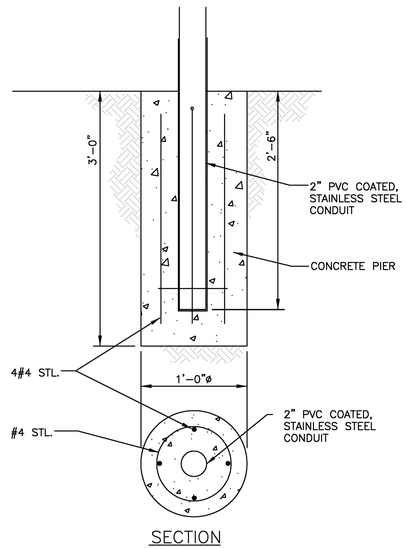
2 SUN SCREEN DETAIL

NO SCALE



3 UNDERGROUND SERVICE METER PEDESTAL DETAIL

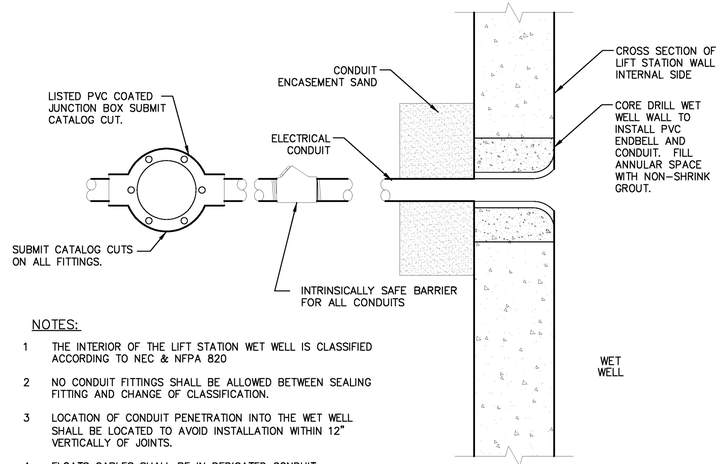
NO SCALE



SECTION

5 CONCRETE PIER DETAIL

NO SCALE



NOTES:

1. THE INTERIOR OF THE LIFT STATION WET WELL IS CLASSIFIED ACCORDING TO NEC & NFPA 820
2. NO CONDUIT FITTINGS SHALL BE ALLOWED BETWEEN SEALING FITTING AND CHANGE OF CLASSIFICATION.
3. LOCATION OF CONDUIT PENETRATION INTO THE WET WELL SHALL BE LOCATED TO AVOID INSTALLATION WITHIN 12" VERTICALLY OF JOINTS.
4. FLOATS CABLES SHALL BE IN DEDICATED CONDUIT.
5. POWER CABLES SHALL BE IN DEDICATED CONDUIT.
6. LEVEL TRANSMITTER CABLES SHALL BE IN DEDICATED CONDUIT.

6 CONDUIT PENETRATION DETAIL

NO SCALE

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

RECORD DRAWINGS
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DATE: 1/08/2018

STATE OF TEXAS
TOMMY D. TABOR
57248
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION	BY
1	2017/02/14	CITY COMMENTS	

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699

BRAZOS ENVIRONMENTAL AND ENGINEERING SERVICES, INC. (Firm # 639)

ELECTRICAL CONTROL PANEL DETAILS

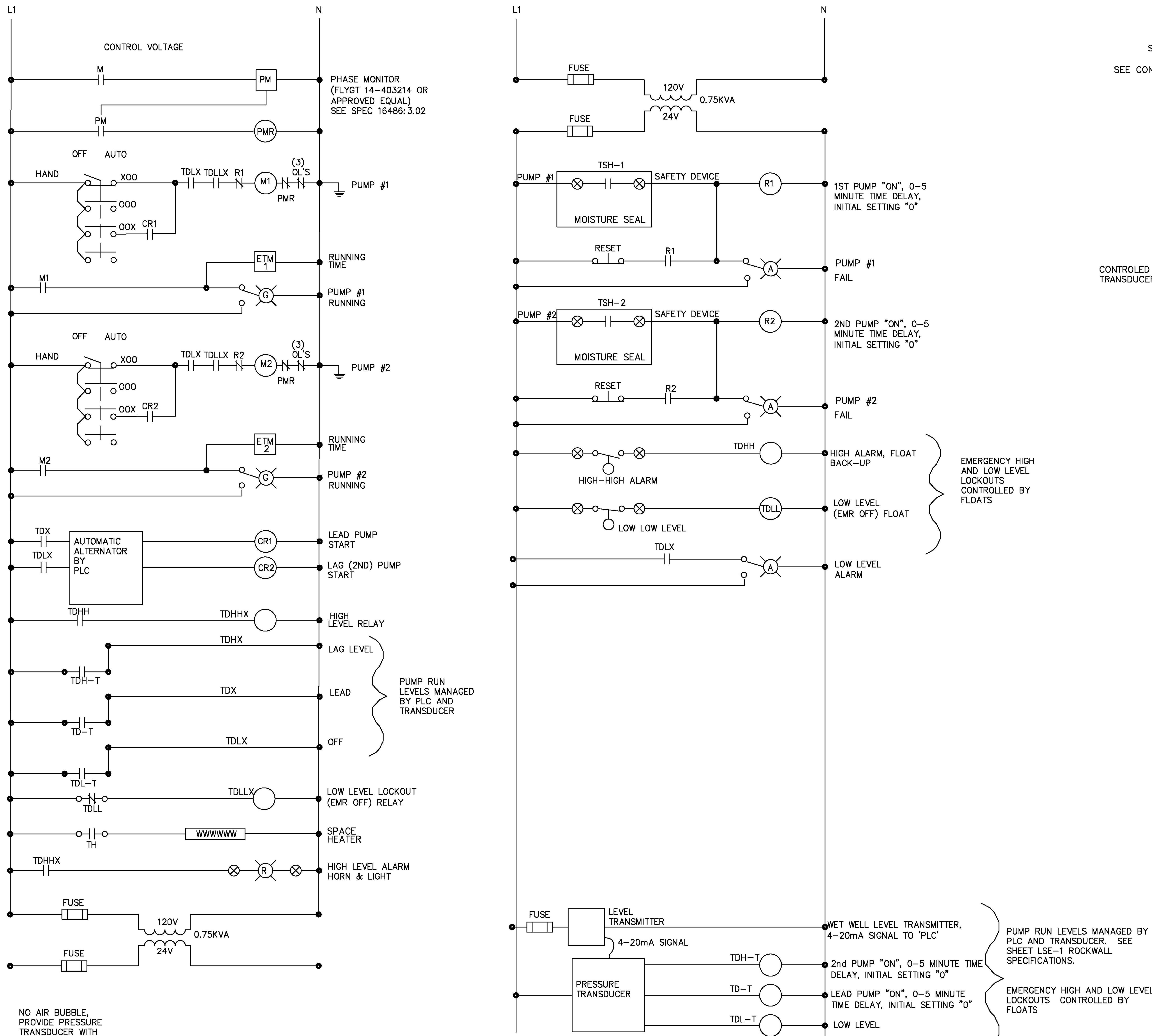
CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

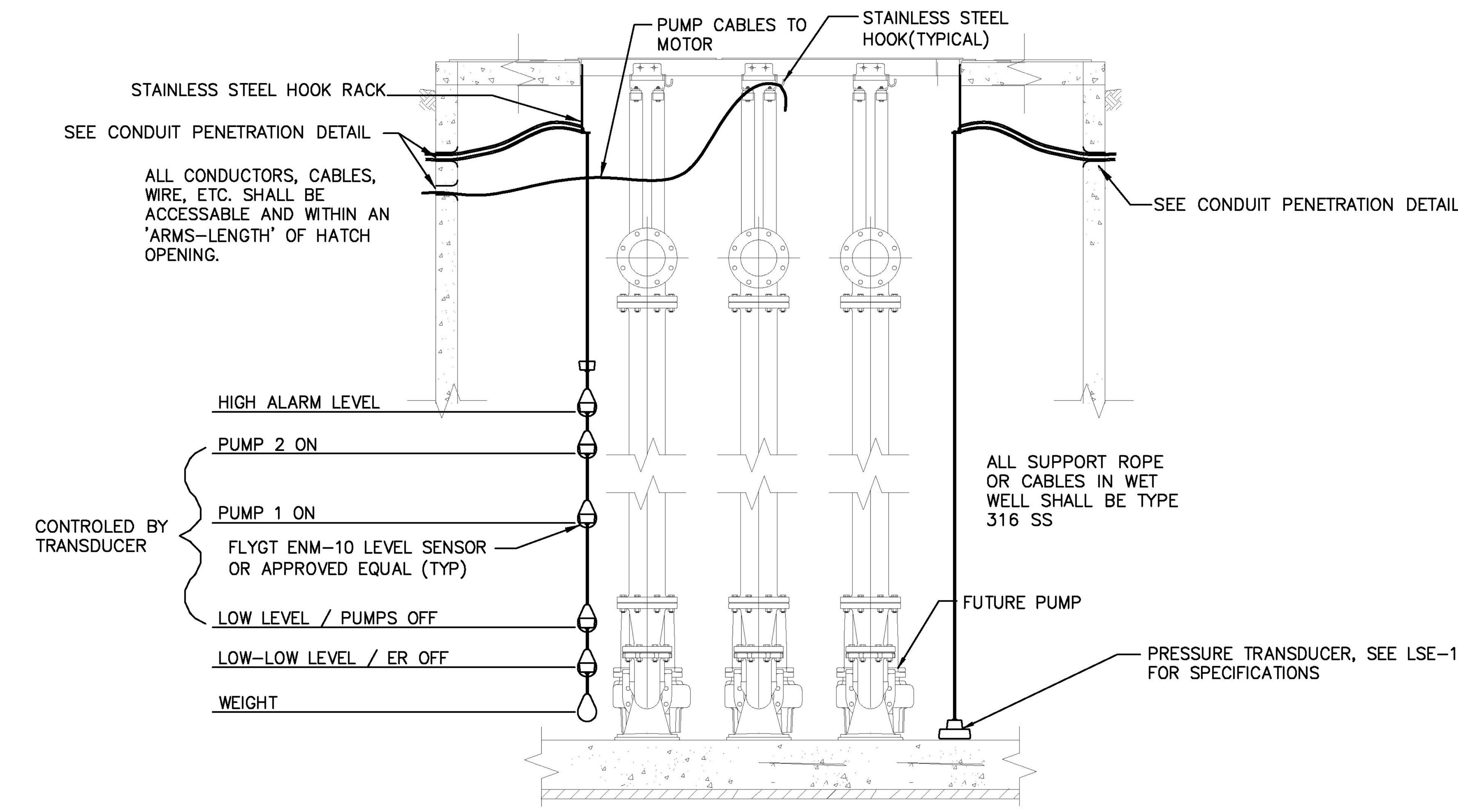
16-047-D

Date:	02/01/2017	
Designed:		TDT
Drawn:		MLH, ED, CC
Reviewed:		TDT
PEC Proj. No.		TNP 14-002
SEQ.		of

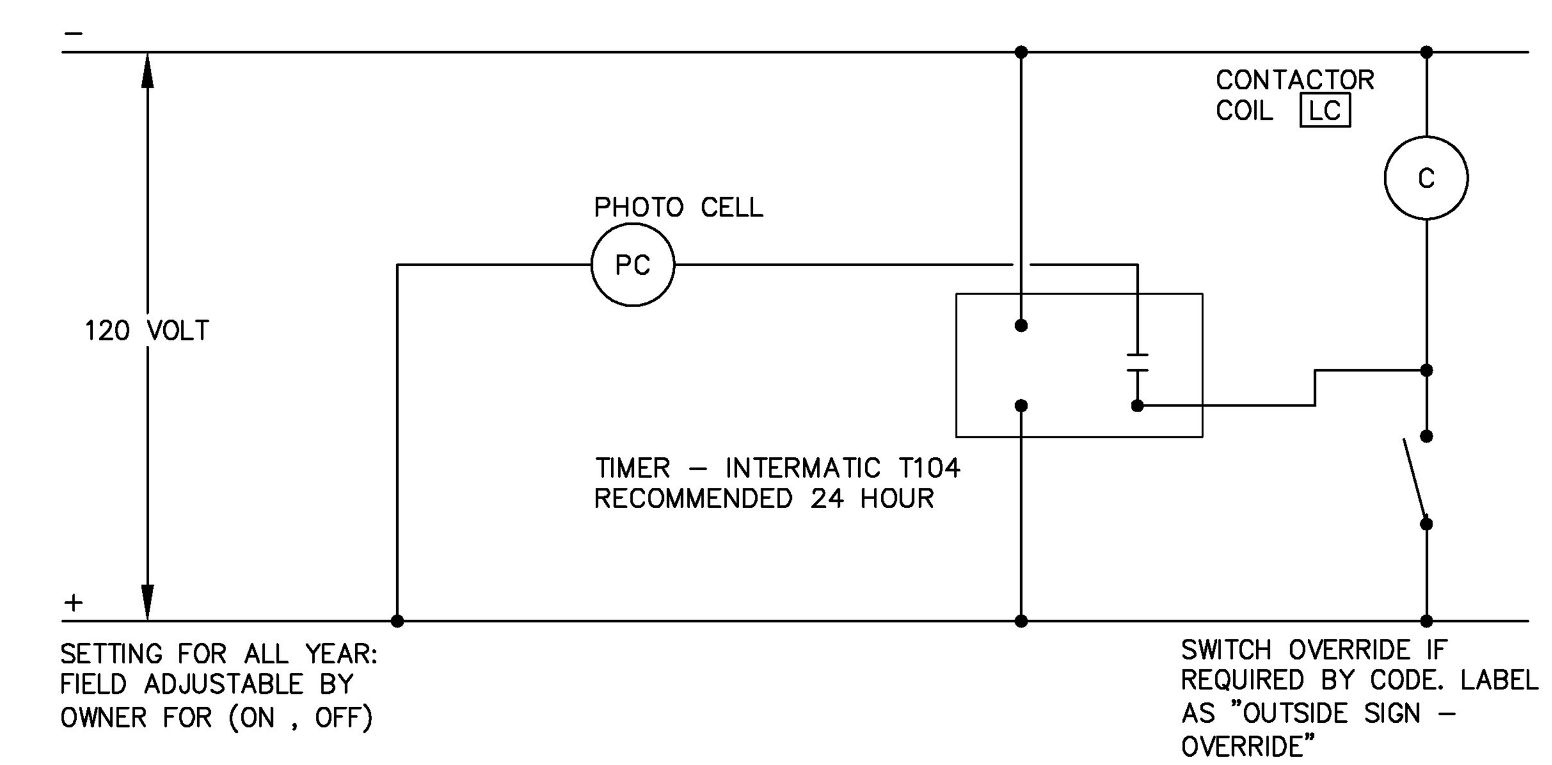
SHEET NO.
LSE - 4



1 PUMP CONTROL SCHEMATIC
NO SCALE



2 ELECTRICAL SECTION - WET WELL
NO SCALE



2 TIME CLOCK-PHOTOCELL AND MANUAL CONTROL SWITCH FOR POLE MOUNTED LIGHT
NO SCALE

1. LEVEL TRANSMITTER SHALL BE USED TO CONTROL ALL LIFT STATION PUMP FUNCTIONS. FLOAT SWITCHES SHALL BE USED AS BACK-UP CONTROLS FOR HIGH LEVEL AND LOW LEVEL LOCKOUT ALL PUMPS "OFF".
2. THE 4-20 MA OUTPUT FROM LEVEL TRANSMITTER SHALL BE THE INPUT TO THE "PLC". THE "PLC" SHALL BE CONFIGURED WITH SETPOINTS AS DIRECTED BY CITY OF ROCKWALL FOR PUMPS OFF, PUMP 1 ON, PUMP 2 ON, HIGH ALARM LEVEL. POWER TO PLC AND LEVEL TRANSMITTER SHALL BE FROM CONTROL PANEL. THESE DEVICES SHALL BE INTEGRATED INTO THE PUMP CONTROL PANEL FOR POWER AND RESPONSE FUNCTION. PUMP ON/OFF SETTINGS SHALL BE CONTROLLED BY PLC EXCEPT FOR HIGH LEVEL AND LOW-LEVEL LOCK-OUT FLOATS. PUMPS MUST RUN IN 'HAND-ON' EVEN IF LOW-LEVEL LOCKOUT FLOAT IS OPEN.
3. THESE DIAGRAMS ARE TO CONVEY THE GENERAL INTENT FOR THE CONTROL SEQUENCE OF OPERATION FOR A DUPLEX SEWER LIFT STATION WITH FLOAT SWITCHES AND LEVEL TRANSMITTER. CONTROL METROLOGY SHALL BE SELECTABLE FOR EITHER FLOATS OR LEVEL TRANSMITTER PROTOCOL. NOT ALL ELEMENTS ARE REPRESENTED IN THIS PUMP CONTROL SCHEMATIC.
4. THE ELECTRICAL CONTROL PANEL SUPPLIER SHALL SUBMIT FOR APPROVAL A COMPLETE WIRING DIAGRAM INCLUDING, BUT NOT LIMITED TO, THE SPECIFIC MOTOR STARTERS, BREAKERS, LEVEL TRANSMITTER, FLOATS, SCADA, RELAYS, ALTERNATOR AND ALL ADDITIONAL INTEGRAL ELEMENTS FOR THE CONTROL PANEL.

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.
ONE INCH

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STATE OF TEXAS
TOMMY D. TABOR
57248
REGISTERED PROFESSIONAL ENGINEER

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699
BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC.
(Firm # 839)

NO.	DATE	DESCRIPTION	BY

PUMP CONTROL SCHEMATIC & SECTION

CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

16-047-D

Date:	02/01/2017
Designed:	TDT
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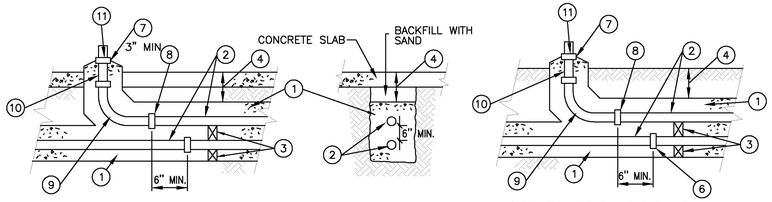
SEQ.	of

SHEET NO.
LSE - 5



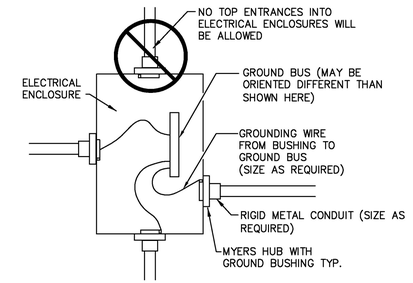
TRANSITION UNDER CONCRETE SLAB

TRANSITION UNDER EARTH COVER

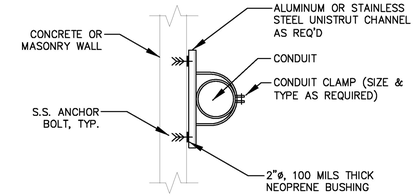
NOTES BY SYMBOL "◯"

1. CLASS 'C' CONCRETE.
2. CONDUIT SIZE AS REQUIRED BY NEC UNLESS OTHERWISE DIRECTED. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED ON THE PLANS.
3. SPACERS SHALL BE JOHNS MANVILLE PLASTIC SPACERS OR EQUIVALENT. SPACED 5'–0" O.C.
4. COVER SHALL BE 2'–0" MINIMUM BELOW SOIL SURFACE AND 1'–0" MINIMUM BELOW CONCRETE SLABS, OR AS SHOWN ON PLANS.
5. UNDERGROUND CONDUIT WITHIN PLANT FENCED AREA SHALL BE ENCASED IN AN ENVELOPE OF CONCRETE.
6. COUPLING.
7. PROTECT EXPOSED CONDUIT ENDS DURING CONSTRUCTION WITH PIPE PLUG OR CAPS. FUTURE AND SPARE CONDUIT ENDS SHALL HAVE PIPE PLUGS OR CAPS.
8. ADAPTOR FROM NON–METALLIC CONDUIT AS REQUIRED.
9. PVC COATED RIGID ALUMINUM CONDUIT BENDS FOR LESS THAN 2", PVC SCH 80 CONDUIT FOR 2 INCH AND LARGER.
10. RIGID ALUMINUM CONDUIT SIZE AND TYPE AS REQUIRED EXTEND THIS CONDUIT A MINIMUM OF 6" INTO CONCRETE.
11. CONDUIT TERMINATING IN AN ENCLOSURE CONTAINING A GROUND BUS SHALL HAVE A GROUNDING BUSHING WITH A GROUND WIRE TO THE GROUND BUS.

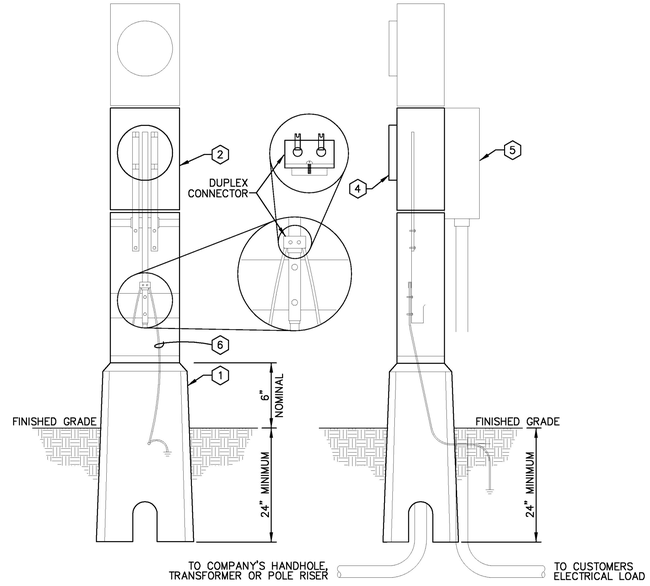
1 UNDERGROUND CONDUIT INSTALLATION DETAIL
NO SCALE



2 ENCLOSURE / CONDUIT DETAIL
NO SCALE



3 CONDUIT SUPPORT AT WALL DETAIL
NO SCALE



FRONT VIEW SIDE VIEW

NOTES BY SYMBOL "⬡"

1. PRECAST FOUNDATION PROVIDED BY ELECTRIC COMPANY.
2. ABOVE GROUND METER PEDESTAL PROVIDED, INSTALLED AND MAINTAINED BY CUSTOMER.
3. CUSTOMER PROVIDES ANCHOR CLIPS AND BOLTS WITH METER PEDESTAL. SERVICE LATERAL OF SOURCE CONDUCTORS PROVIDED AND INSTALLED AS PER 400.02, PAGE 28.
4. FOUR FEET CLEARANCE IS REQUIRED FROM METER SIDE OF PEDESTAL TO ANY OBSTRUCTION OR STRUCTURE.
5. CUSTOMER SERVICE EQUIPMENT MAY BE INSTALLED ON METER PEDESTAL IN ACCORDANCE WITH ALL APPLICABLE CODES.
6. CUSTOMER MAY CONNECT GROUNDING ELECTRODE CONDUCTOR TO DUPLEX CONNECTOR ON NEUTRAL BUS. THE GROUNDING ELECTRODE CONDUCTOR (#6 Cu MIN.) SHALL CONNECT TO AN APPROVED GROUND ELECTRODE. COMPANY RESERVES THE RIGHT TO REFUSE INSTALLATION OF SERVICE CONTINGENT UPON OBSERVING AN UNSAFE CUSTOMER CONNECTION.
7. ALTERNATE DESIGN – CUSTOMER SHALL OBTAIN COMPANY APPROVAL OF ANY ALTERNATE DESIGN PRIOR TO INSTALLATION.

4 UNDERGROUND SERVICE METER PEDESTAL DETAIL
NO SCALE

DETAIL PROVIDED PER ONCOR ELECTRICAL SERVICE COMPANY STANDARDS 2012 (FIG. 4–F)

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ONE INCH

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DATE: 1/08/2018

STATE OF TEXAS
TOMMY D. TABOR
57248
REGISTERED PROFESSIONAL ENGINEER

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F–8699
BRAZOS ENVIRONMENTAL ENGINEERING SERVICES, INC.
(Firm # 639)

NO.	DATE	DESCRIPTION	BY

ELECTRICAL DETAILS

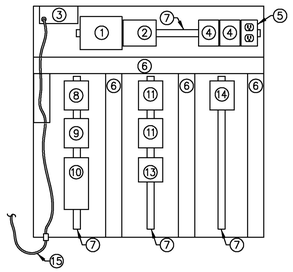
CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

16–047–D

Date:	02/01/2017
Designed:	TDT
Drawn:	MLH, ED, CC
Reviewed:	TDT
PEC Proj. No.	TNP 14–002
SCD.	of

SHEET NO.
LSE - 6



RTU I/O SCHEDULE

DESCRIPTION	I/O TYPE	FUNCTION	FIELD DEVICE	COMMENTS
WET WELL LEVEL	A/I	MONITOR	HYDRORANGER	FLOW RATE
FLOW TRANSMITTER	D/I	ALARM	HYDRORANGER	ALARM
INTRUSION ALARM INSTRUMENT ENCLOSURE	D/I	ALARM	SENSOR SWITCH	OPEN DOOR
INTRUSION ALARM INSTRUMENT ENCLOSURE	D/I	ALARM	SENSOR SWITCH	GATE OPEN
INTRUSION ALARM INSTRUMENT ENCLOSURE	D/I	ALARM	SENSOR SWITCH	HATCH OPEN
MANUAL TRANSFER SWITCH	D/I	ALARM	TRANSFER SWITCH	ONE PER ALARM
PUMP CONTROL PANEL	D/I	ALARM & MONITOR	PUMP CONTROL PANEL	ONE PER ALARM
POWER MONITOR	A/I & D/I	ALARM & MONITOR	POWER MONITOR	ONE PER ALARM

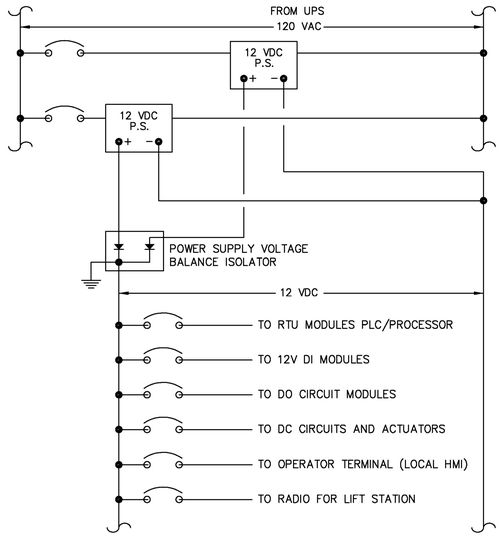
NOTES:
1. PROVIDE NECESSARY ANALOG TRANSDUCERS FOR POWER QUALITY METER (PQM) FOR MONITORING SIGNALS TO THE RTU.

2 RTU INSTRUMENT BLOCK DIAGRAM
NO SCALE

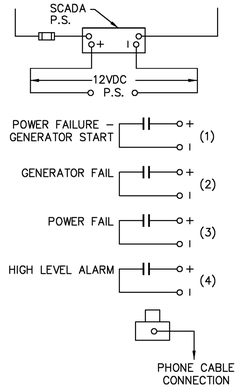
TAG	DESCRIPTION	MANUFACTURER	MODULE / TYPE	COMMENTS
1	HSQ PROCESSOR		PROCESSOR	WITH ETHERNET PORT
2	HSQ PROCESSOR MODULE		AS REQUIRED	
3	RADIOS FOR METERING STATION		AS REQUIRED PER SCADA SYSTEM	
4	POWER SUPPLY	PHOENIX CONTACT	DIN RAIL MOUNTED	AS REQUIRED
5	120 VAC RECEPTACLE	PHOENIX CONTACT	DIN RAIL MOUNTED	AS REQUIRED
6	WIRE DUCT WITH COVER	PANDUIT	2" X 3" (WHITE)	AS REQUIRED
7	DIN RAILS	PHOENIX CONTACT	AS REQUIRED	
8	CIRCUIT BREAKER	PHOENIX CONTACT	SIZE AS REQUIRED	
9	SURGE PROTECTION DEVICE	PHOENIX CONTACT	TRAB TECH	AS REQUIRED
10	FUSE & TERMINAL BLOCKS	PHOENIX CONTACT	AS REQUIRED	
11	D/I RELAY MODULE	PHOENIX CONTACT	DIN RAIL MOUNTED	16 POINT D/I
12	ANALOG SURGE PROTECTORS	PHOENIX CONTACT	TRAB TECH	AS REQUIRED
13	D/O RELAYS	PHOENIX CONTACT	DIN RAIL MOUNTED	AS REQUIRED
14	POWER SUPPLY DIODES ISOLATOR	PHOENIX CONTACT	DIN RAIL MOUNTED	REDUNDANT PS DIODES
15	ANTENNA COAX SURGE ARRESTOR	POLYPHASER	AS REQUIRED	NOT SHOWN

NOTES:
1. OPERATOR INTERFACE PANEL (OIP) TO BE MOUNTED IN FRONT DOOR OF PANEL. SEE SPECIFICATION.
2. UPS TO MOUNT IN FRONT OF PANEL.
3. CAUTION PLATE TO BE MOUNTED ON EXTERIOR OF FRONT DOOR.

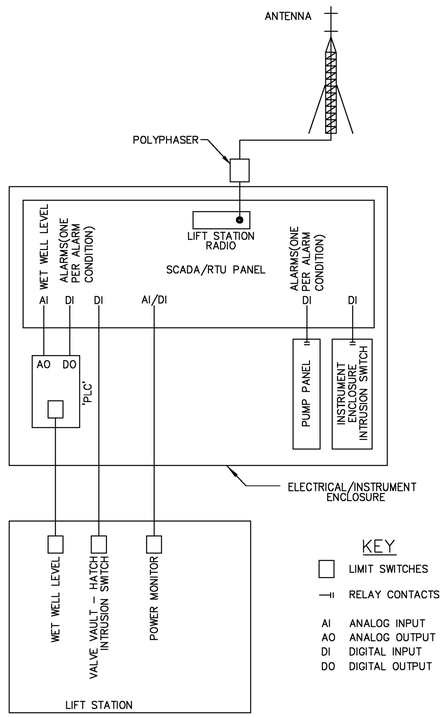
1 RTU / SCADA POWER SIMPLIFIED SCHEMATIC
NO SCALE



12 VOLT RTU INSTRUMENT ONE-LINE DIAGRAM
NO SCALE



3 SCADA RADIO ONE-LINE DIAGRAM
NO SCALE



CITY REQUIRED INSTRUCTIONS TO CONTRACTOR
SCADA CONNECTION TO OWNER'S SYSTEM. ALL PROGRAMMING SHALL COMPLY WITH OWNER'S REQUIREMENTS. SEE CITY SPECIFICATIONS FOR SCADA REQUIREMENTS.

UPS SHALL BE APC-BR700G OR APPROVED EQUAL.

TVSS SHALL BE SIEMENS TPS3F1115D OR APPROVED EQUAL

DC POWER SUPPLIES SHALL PHOENIX, MINIMUM 2.4AMP, 12 VOLT OR APPROVED EQUAL.

INTRUSION DETECTION SHALL BE SQUARE D, STAINLESS STEEL LIMIT SWITCHED OR APPROVED EQUAL.

RADIO SHALL MATCH THE EXISTING SYSTEMS RADIOS OR APPROVED EQUAL..

ANTENNA SHALL MATCH THE EXISTING SYSTEMS ANTENNAS, OR APPROVED EQUAL.

ANTENNA CABLE SHALL BE 1/2" DIAMETER IF LESS THAN 50 FT, OR 7/8" FOR GREATER THAN 50 FT.

SCADA SHALL MONITOR THE OPERATION OF THE LIFT STATION ONLY.

THE LIFT STATION SHALL BE CONTROLLED FROM THE LOCAL LEVELS.

AUTOMATIC PUMP ALTERNATOR SHALL NOT BE CONTROLLED BY THE 'PLC'.

INTRINSICALLY SAFE BARRIER ON ALL CABLES, OR CONDUCTORS TO WET WELL.

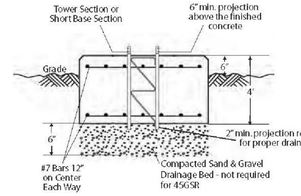
100 MPH 3-Second Gust

Height	25G EPA Exp.B	25G EPA Exp.C	25G Part No.	45G EPA Exp.B	45G EPA Exp.C	45G Part No.	45GSR EPA Exp.B	45GSR EPA Exp.C	45GSR Part No.	55G EPA Exp.B	55G EPA Exp.C	55G Part No.	65G EPA Exp.B	65G EPA Exp.C	65G Part No.
10'	20.7	16.4	25SSS010	47.4	39.5	45SS010	82	66	45SR010	78	63	55SS010	95	95	65SS010
20'	14.0	9.9	25SSS020	23.2	16.9	45SS020	74	55	45SR020	43	32	55SS020	95	95	65SS020
30'	5.3	2.2	25SSS030	9.7	4.8	45SS030	66	43	45SR030	24	14	55SS030	81	55	65SS030
35'	2.1	-	25SSS035	5.1	0.7	45SS035	59	38	45SR035	17	8	55SS035	61	40	65SS035
40'				1.2	-	45SS040	46	30	45SR040	10	3	55SS040	47	29	65SS040
45'							35	22	45SR045	5	-	55SS045	35	20	65SS045
50'							27	15	45SR050				26	13	65SS050
55'							20	9	45SR055				17	6	65SS055
60'							13	4	45SR060				11	1	65SS060

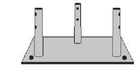
– NO ICE –

SELF-SUPPORTING TOWERS (SS)

SELF-SUPPORTING G-SERIES FOUNDATIONS

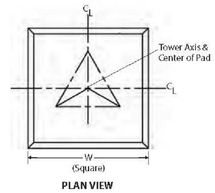


ELEVATION VIEW
25G (shown), 45G & 55G
SELF-SUPPORTING TOWER FOUNDATION



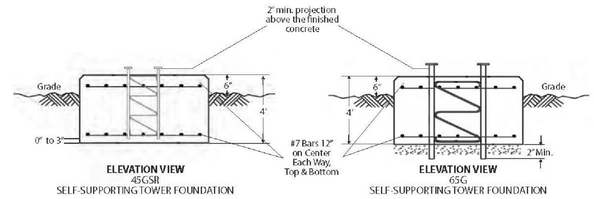
CONCRETE BASE PLATE WITH ANCHORS
25GSSB
FOR USE WITH SELF-SUPPORTING 25G TOWERS.
ALTERNATIVE TO USING SHORT BASE. BASE BOLTS & TEMPLATE MUST BE ORDERED SEPARATELY.

BASE BOLTS & TEMPLATE
KH81754
FOR USE WITH 25GSSB IN SELF-SUPPORTING 25G TOWER APPLICATIONS. KIT INCLUDES (1) TEMPLATE & (4) BASE BOLTS.



PLAN VIEW

Tower	Mat Width (W)	Concrete Volume (Cu. Yds.)
25G	4'-0"	2.4
45G	5'-3"	4.1
55G	6'-0"	5.3
45GSR 65G	7'-9"	8.9



ELEVATION VIEW
45GSR
SELF-SUPPORTING TOWER FOUNDATION

ELEVATION VIEW
65G
SELF-SUPPORTING TOWER FOUNDATION

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE TEAGUE NALL & PERKINS, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.
DATE: 1/08/2018

STATE OF NEBRASKA — TOMMY D. TABOR — 57248 — REGISTERED PROFESSIONAL ENGINEER

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

PERKINS ENGINEERING CONSULTANTS, INC.
TBPE REGISTRATION NO. F-8699
BRAZOS ENVIRONMENTAL AND ENGINEERING SERVICES, INC.
(Firm # 639)

NO.	DATE	DESCRIPTION	BY

SCADA DETAILS

CITY OF ROCKWALL, TEXAS
SOMERSET PARK

PHASE I
LIFT STATION

16-047-D

Date:	02/01/2017		
Designed:	TDT		
Drawn:	MLH, ED, CC		
Reviewed:	TDT		
PEC Proj. No.	TNP 14-002	SEQ.	of

SHEET NO.
LSE - 7