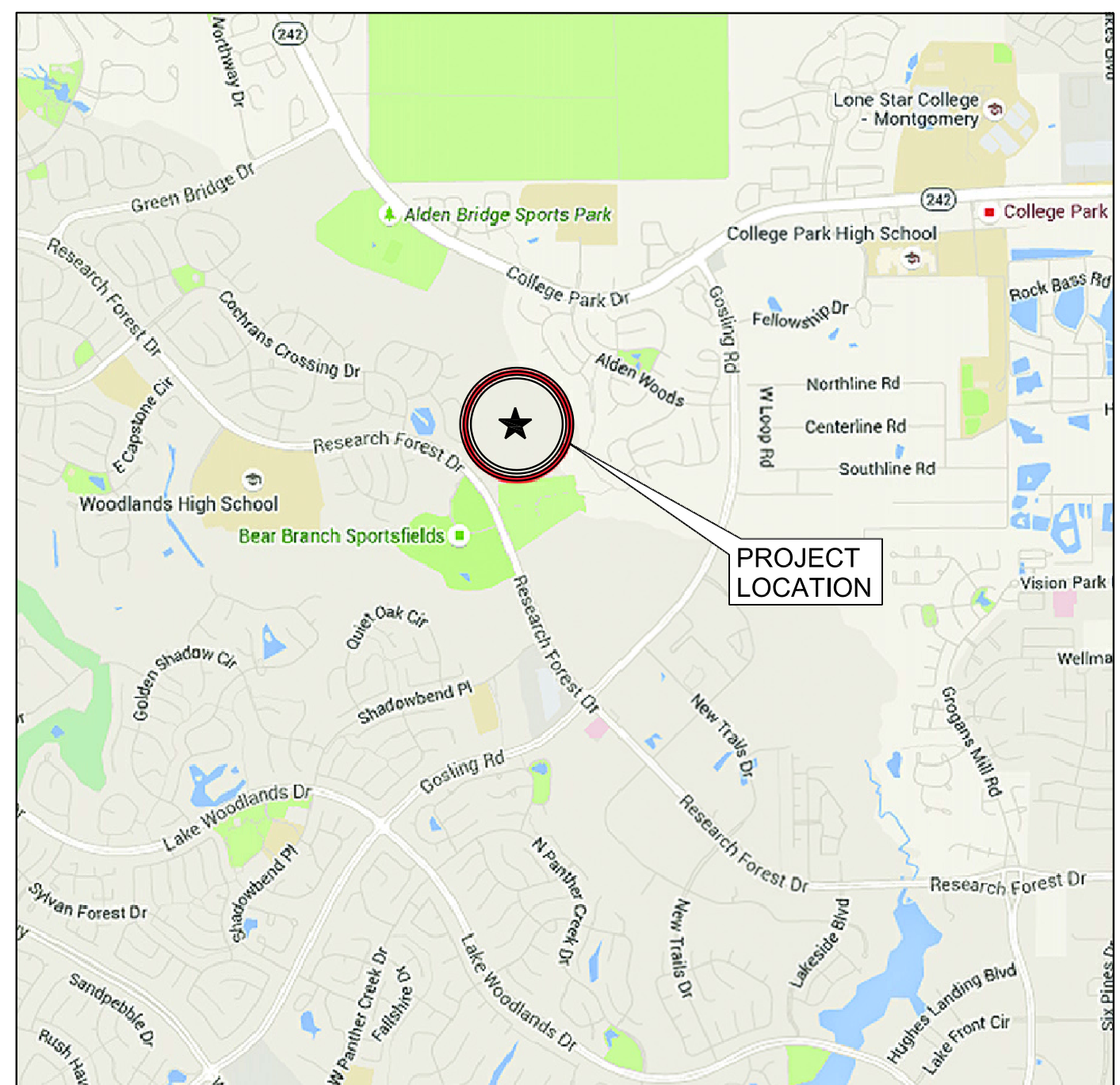


SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION
WASTEWATER TREATMENT FACILITY NO. 2
GENERATOR REPLACEMENT
CSP NO. 19-0055
CONTRACT NO. 19-0055



VICINITY MAP
N.T.S



N.T.S
LOCATION MAP



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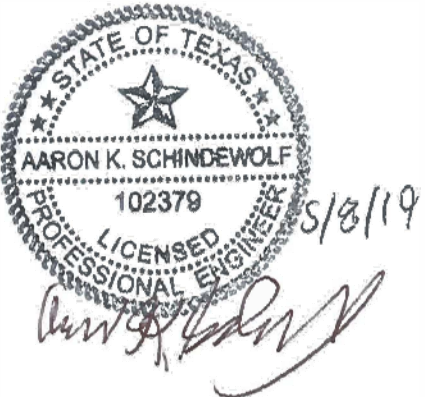


SAN JACINTO RIVER AUTHORITY

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Consulting Engineers & Project Managers
TBPE Registration No. F-665

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SAN JACINTO RIVER AUTHORITY

COVER SHEET

G-0

SHEET 1 OF 16

100% SUBMITAL
ISSUE DATE: MAY 2019

FILE: C:\SJRA Work\Projects\Woodlands Projects\WD WWTF2 Generator\Drawings\G-1 Sheet Index.dwg LAYOUT: G-1 DATE: 5/8/2019 10:15:10 AM BY: SARJIMAND

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GENERAL NOTES

1. THERE WILL BE NO PAYMENT FOR THE WORK SHOWN IN THESE PLANS, UNLESS SPECIALLY ESTABLISHED IN BID SECTION OF CONTRACT DOCUMENTS. CONTRACTOR SHOULD INCLUDE COST OF THIS WORK IN THE CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL.
2. THE FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONSTRUCTION DRAWINGS AS IF THEY WERE WRITTEN ENTIRELY ON EACH SHEET.
3. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND ALL REGULATIONS OF UTILITY COMPANIES CONCERNING SAFETY AND HEALTH PRACTICES.
4. CONTRACTOR SHALL REMOVE ALL MUD, DIRT AND DEBRIS DEPOSITED OR DROPPED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY DAILY. MATERIAL THAT IS HAZARDOUS TO TRAFFIC SHALL BE REMOVED IMMEDIATELY.
5. THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE LICENSED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THESE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEM(S).
6. CONTRACTOR SHALL PROTECT ALL TREES ADJACENT TO WORK AREA. NO TREES OUTSIDE THE WORK AREA SHALL BE REMOVED WITHOUT PERMISSION OF OWNER
7. MONTGOMERY COUNTY ENGINEERING DEPARTMENT SHALL BE NOTIFIED BY WRITTEN NOTIFICATION BY THE CONTRACTOR 48 HOURS IN ADVANCE OF STARTING CONSTRUCTION, FOLLOWED BY TELEPHONE NOTIFICATION 24 HOURS IN ADVANCE OF STARTING CONSTRUCTION.
8. CONTRACTOR SHALL NOTIFY THE SAN JACINTO RIVER AUTHORITY CONSTRUCTION MANAGER IN WRITING, AND AT (936-588-3111) AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION.
9. A COPY OF ALL WRITTEN NOTIFICATIONS SHALL BE SENT TO THE OWNER.
10. CONTRACTOR SHALL PROTECT AND/OR BRACE ALL UTILITY POLES AND OTHER STRUCTURES WITHIN AND ADJACENT TO THE WORK ZONE, AS NECESSARY TO COMPLETE THE WORK.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND BONDS PRIOR TO START OF CONSTRUCTION WORK.
12. THE CONTRACTOR SHALL PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES, WHETHER OR NOT INDICATED ON THE DRAWINGS.
13. NO FIREARMS SHALL BE PERMITTED ON SITE.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SECURITY TO PROTECT HIS/HER PROPERTY, EQUIPMENT, WORK IN PROGRESS AND COMPLETED WORK.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING HIS/HER PROPERTY, EQUIPMENT, WORK IN PROGRESS AND COMPLETED WORK FROM ALL WEATHER CONDITIONS AT NO ADDITIONAL COST TO SJRA.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE SAFETY OF HIS/HER LABORERS (INCLUSIVE OF ALL SUB-CONTRACTORS) FOR THE ENTIRE DURATION OF THE PROJECT.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN-UP OF THE SITE AND ADJOINING ACCESS ROADS DURING ALL ASPECTS OF THE CONSTRUCTION. SITE AND IMPACTED ACCESS ROADS SHALL BE CLEAR OF TRASH AT THE END OF CONSTRUCTION EVERY DAY. ALL ACCESS ROADS TO BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO COST TO SJRA.

DEMOLITION NOTES

1. CONTRACTOR SHALL COMPLETELY REMOVE AND PROPERLY DISPOSE OF ALL STRUCTURES DESIGNATED FOR DEMOLITION AS INDICATED ON THE DEMOLITION PLAN.
2. ALL DEMOLISHED STRUCTURES AND NON-SALVAGED EQUIPMENT AS WELL AS EXCESS EXCAVATED SOILS SHALL BE REMOVED AND DISPOSED OF IMMEDIATELY IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS, REGULATIONS AND OTHER ORDINANCES AT NO ADDITIONAL COST TO SJRA. FURNISH WRITTEN VERIFICATION FROM SJRA OF THE DISPOSAL SITE AUTHORIZING THE CONTRACTOR TO DISPOSE OF MATERIALS AT THAT LOCATION AND WRITTEN VERIFICATION FROM SJRA OF THE DISPOSAL SITE AFTER PLACEMENT THAT IT IS ACCEPTABLE.

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SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION

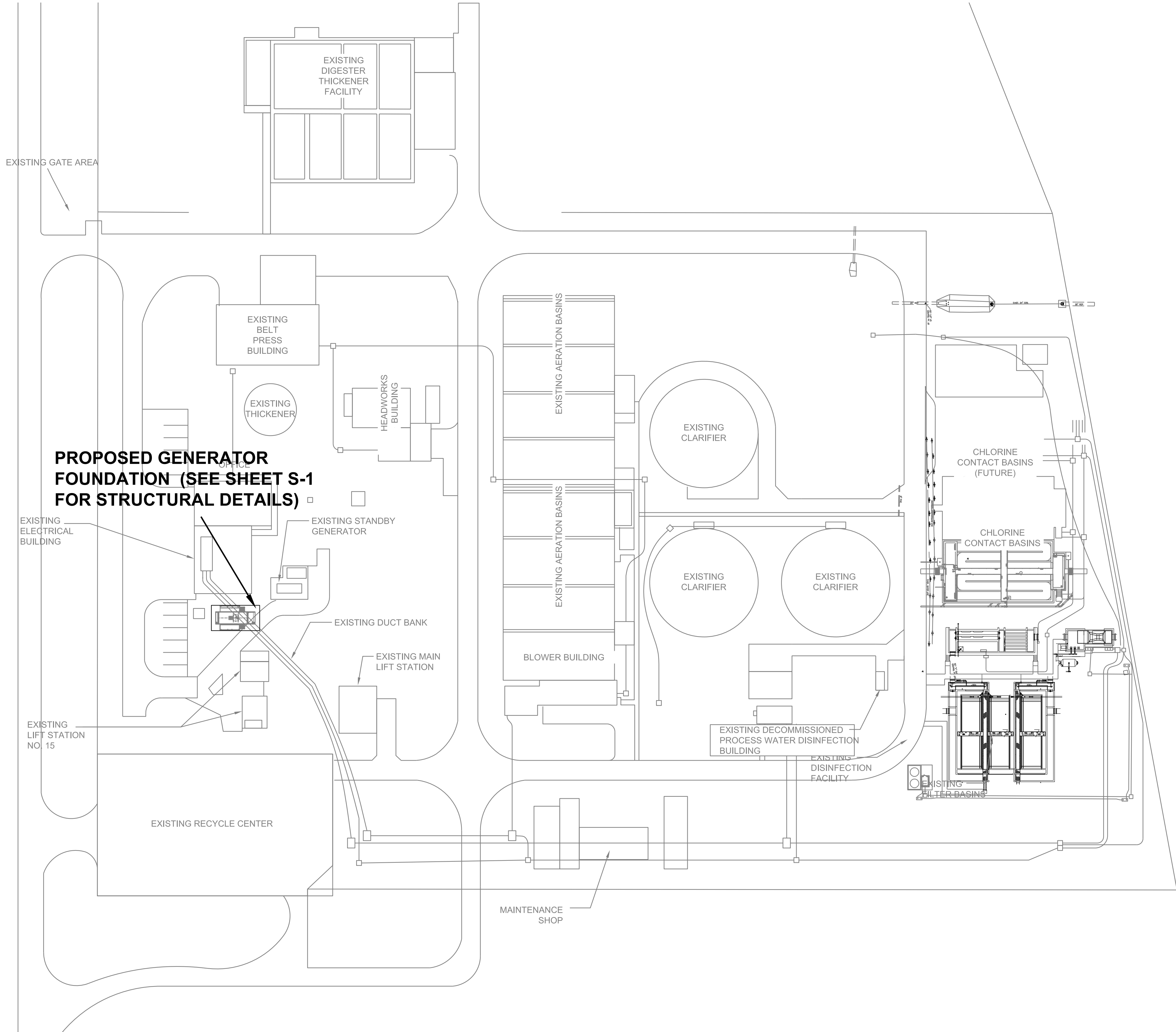


WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO: WDP0101.1003.2N001		
KALLURI PROJECT NO: 4141		
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SCALE: AS NOTED		

SHEET INDEX &
GENERAL NOTES

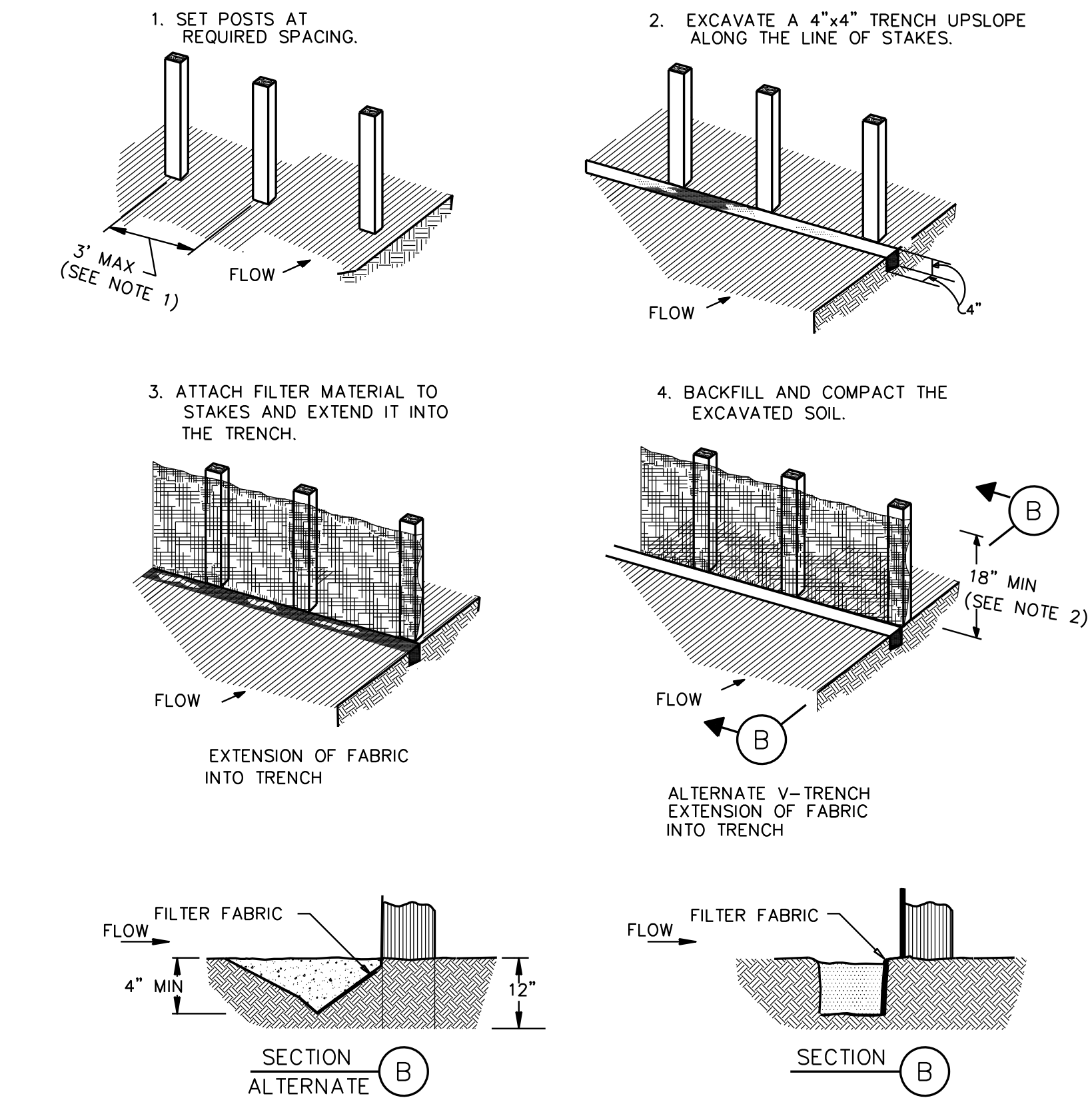
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SHEET 2 OF 16



A OVERALL SITE PLAN
SCALE: 1"=50'
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GENERAL NOTES:

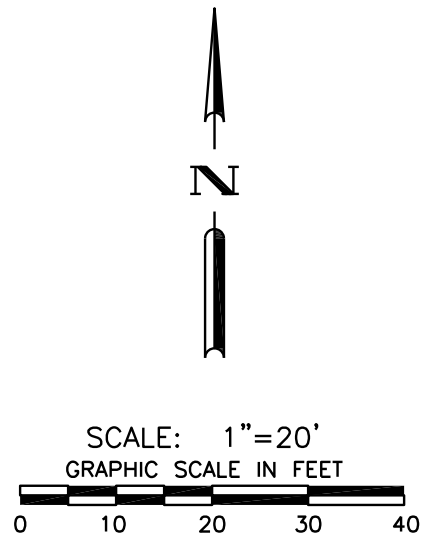
- A. GENERATOR CONCRETE FOUNDATION TO BE INSTALLED BY OTHERS.
- B. EDGE OF THE PROPOSED CONCRETE FOUNDATION SHALL BE LOCATED MINIMUM 10 FT. SOUTH OF THE EXISTING ELECTRICAL BUILDING.
- C. EXISTING PAVEMENT TO BE REMOVED AND REROUTED BY OTHERS.
- D. CONTRACTOR TO LOCATE THE EXISTING DUCT BANK. CONTRACTOR CAN PLACE THE CONCRETE FOR THE FOUNDATION AROUND ANY EXISTING DUCT BANKS THAT ARE EXPOSED DURING EXCAVATION.
- E. CONTRACTOR TO PROVIDED STORMWATER POLLUTION PREVENTION PLAN APPROVED BY SJRA.



SWPPP CONSTRUCTION NOTES:

- 1. 2 IN. THICK BY 2 IN WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 IN. IF PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
- 2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC FENCE SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 IN. ABOVE NATURAL GROUND.
- 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 IN. AT THE POSTS, AND FOLDED.
- 4. ALL FABRIC FENCE NEEDS TO BE REINFORCED WITH WIRE MESH.
- 5. USE WOVEN OR NONWOVEN GEOTEXTILE FILTER FABRIC MADE OF EITHER POLYPROPYLENE, POLYETHYLENE, ETHYLENE, OR POLYAMIDE MATERIAL, IN CONTINUOUS ROLLS OF LONGEST PRACTICAL LENGTH.

B SWPPP DETAIL
SCALE: NTS
FILE:



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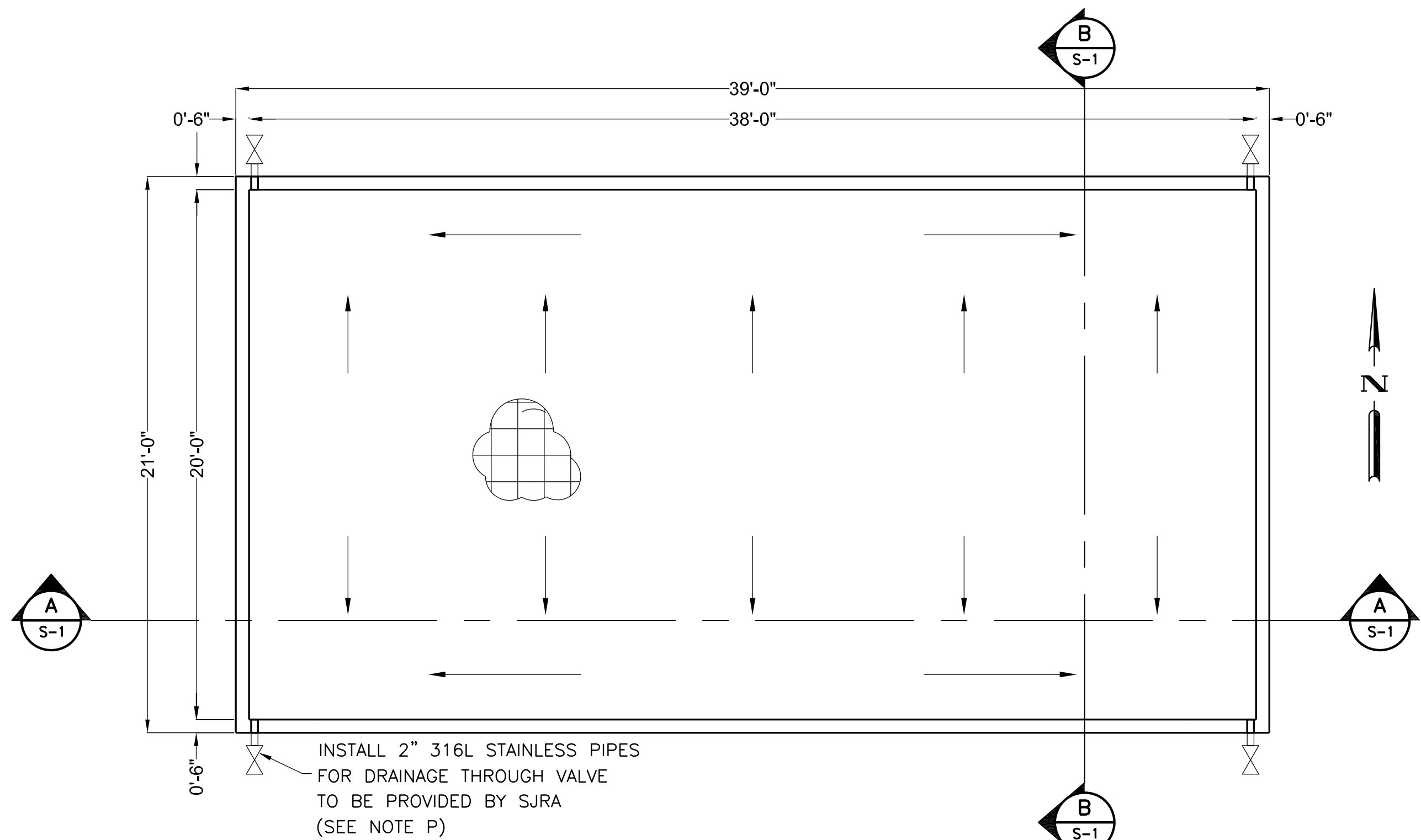


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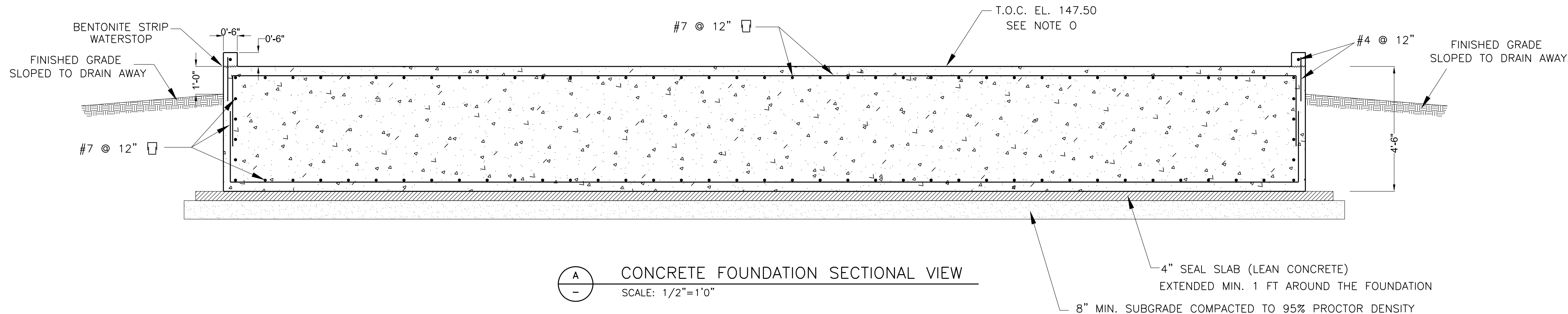
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PROPOSED SITE PLAN
STORM WATER POLLUTION
PREVENTION PLAN

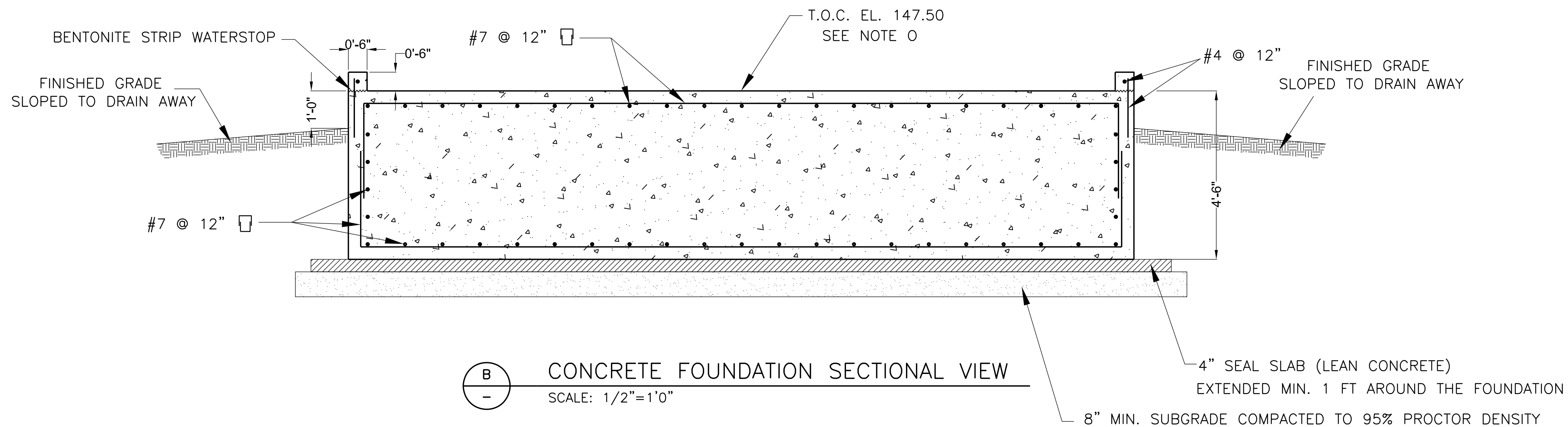
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GENERATOR FOUNDATION PLAN VIEW



A CONCRETE FOUNDATION SECTIONAL VIEW
SCALE: 1/2"=1'0"



B CONCRETE FOUNDATION SECTIONAL VIEW
SCALE: 1/2"=1'0"

GENERAL NOTES:

- CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITIONS OF ACI 301 AND ACI 318.
- CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
- SEAL SLAB (LEAN CONCRETE) SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
- ALL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM A 615, GRADED 60, DEFORMED.
- ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315) LATEST EDITION.
- CONCRETE CLEAR COVER OVER REINFORCING SHALL BE 4 IN. UNLESS OTHERWISE NOTED. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4 IN. INSIDE FORMS OR TOOLED 3/4 IN. RADIUS ON SLABS UNLESS OTHERWISE NOTED.
- USE #5 REBAR STANDEES SPACED AT 4 FT. FOR SUPPORTING THE TOP LAYER OF REINFORCEMENT REBARS.
- INSTALL BENTONITE STRIP WATERSTOPS (HYDROPHILIC) AROUND THE CURBS.
- CONTRACTOR TO LOCATE EXISTING DUCT BANKS. CONTRACTOR CAN PLACE THE CONCRETE FOR THE FOUNDATION AROUND ANY EXISTING DUCT BANKS THAT ARE EXPOSED DURING EXCAVATION.
- REMOVE SOIL TO A DEPTH OF 12 IN. AND REMOVE ALL REMAINING ROOTS, ROCKS, GRASS AND THERE DEBRIS FROM EXCAVATED AREA. BACKFILL WITH REMOVED SOIL AS NEEDED TO ENSURE THAT FOUNDATION EXTENDS A MINIMUM OF 1 FT. ABOVE FINISHED GRADE AND COMPACT WELL.
- REGRADE THE AREA AROUND FOUNDATION WITH A MINIMUM SLOP OF 1/4" PER 10 FT. TO MAINTAIN POSITIVE DRAINAGE AWAY ON ALL SIDES. BACKFILL SHOULD BE FREE OF ROOTS, ROCKS, GRASS, AND OTHER DEBRIS. DISPOSE OF EXCESS SOIL IN LOCATION DESIGNATED BY OWNER'S REPRESENTATIVE. SOIL COMPACTION SHALL

BE APPROVED BY OWNERS'S REPRESENTATIVE PRIOR TO CONCRETE PLACEMENT.

- INSTALL 4 IN. SEAL SLAB ON COMPACTED SUBGRADE TO ENSURE A CLEAR LEVEL TO PLACE CONCRETE FOUNDATION.
- EXCAVATION TO TAKE PLACE ADJACENT TO AND/OR ACROSS EXISTING UTILITIES OR PIPELINES (REMAINING IN PLACE) SHALL BE EXCAVATED BY HAND AND IN SUCH A MANNERS AS TO AVOID DAMAGE TO THE EXISTING FACILITIES.
- ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES, WHETHER OR NOT INDICATED ON THE DRAWINGS, SHALL BE PROVIDED.
- T.O.C. ELEVATION OF THE NEW FOUNDATION SHALL BE MINIMUM AT 147.50 FT. T.O.C. ELEVATION OF THE EXISTING GENERATOR SLAB IS APPROX. 147.25 FT. CONTRACTOR TO VERIFY THE ELEVATIONS. T.O.C OF THE NEW FOUNDATION SHALL BE MINIMUM 1 FT. (12 IN.) ABOVE EXISTING GRADE ON ALL SIDES. SURFACE OF THE CONCRETE FOUNDATION SHALL BE BROOM FINISHED, AND SHALL SLOPE A MINIMUM OF 1/8 IN. PER FT. AS SHOWN ON PLAN VIEW TO DRAIN THE SURFACE WATER AWAY FROM EQUIPMENT TOWARDS DRAINAGE VALVES.
- INSTALL FOUR 2 IN. 316L STAINLESS PIPES WITH A 316L STAINLESS THREADED COUPLING THAT ARE FLUSH WITH THE OUTSIDE EDGE OF THE CONCRETE. SJRA WILL PROVIDE VALVES FOR DRAINAGE.
- INSTALL STANDARD SWPPP ON ALL FOUR SIDES 10 FT. AWAY FROM THE CONCRETE FOUNDATION.
- PLACE ST. AUGUSTINE TYPE SOD AROUND THE FINISHED CONCRETE FOUNDATION.

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KALLURI PROJECT NO:	4141	
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SCALE:	AS NOTED	

STRUCTURAL
GENERATOR FOUNDATION

S-1
SHEET 3 OF 16

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-1 Symbols and Abbreviations.dwg LAYOUT: E-1 DATE: 5/8/2019 9:44:30 AM BY: HOWARD

PLAN SYMBOLS

SYMBOL	DESCRIPTION
A	LIGHT FIXTURE TYPE A
B	LAY-IN LIGHT FIXTURE TYPE B
W	WALL MOUNTED LIGHT FIXTURE TYPE W
X	LIGHT FIXTURE TYPE X
GFCI WP	DUPLEX 20A RECEPTACLE. WP INDICATES WEATHERPROOF "IN-USE" COVER. GFCI INDICATES GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE.
	SIMPLEX 20A RECEPTACLE. WP INDICATES WEATHERPROOF "IN-USE" COVER.
	TELEPHONE OUTLET
	PANELBOARD
	TELEPHONE BACKBOARD
	CABINET
PB	PULL BOX
	UNFUSED DISCONNECT SWITCH – NEMA 4X 316, 3P, 30A, 600V UNLESS OTHERWISE INDICATED.
	FUSED DISCONNECT SWITCH – NEMA 4X 316, 3P, 600V, 30A MINIMUM OR AS REQUIRED TO ACCOMODATE FUSE SIZE INDICATED
JB	JUNCTION BOX
	COMBINATION MAGNETIC STARTER
	SINGLE UNIT PUSHBUTTON STATION
	E-STOP
	2-UNIT PUSHBUTTON STATION
	3-UNIT PUSHBUTTON STATION
	ELECTRIC MOTOR
	ACTUATOR
	LIMIT SWITCH
	FLOW SWITCH
	PRESSURE SWITCH
	TORQUE SWITCH
	MAGNETIC REED DOOR SWITCH
	TERMINAL BOX
	RADIO ANTENNA

CONDUIT SYSTEM NOTES

- ANY CONDUIT WITHOUT DESIGNATION SHALL CONTAIN 3 #10, #10 GND IN 1" CONDUIT.
- CONDUITS IMBEDDED IN STRUCTURAL CONCRETE SHALL BE SO LOCATED AS NOT TO UNDULY IMPAIR THE STRENGTH OF THE CONSTRUCTION AND SHALL BE SPACED NOT LESS THAN TWO TIMES THE CONDUIT OD BETWEEN ADJACENT CONDUITS EXCEPT WHERE CROSSING OR AS OTHERWISE APPROVED BY THE ENGINEER.
- WIRING FOR LIGHTING, RECEPTACLES AND OTHER MISCELLANEOUS CIRCUITS SHALL CONFORM TO THE CIRCUITING INDICATED ON THE DRAWINGS WITH ARRANGEMENT AND ROUTING AS REQUIRED. THE WIRING SHALL BE SO ARRANGED THAT NO MORE THAN 6 CURRENT CARRYING CONDUCTORS SHALL BE INSTALLED PER CONDUIT AND CIRCUITS OF DIFFERENT PANELS SHALL BE INSTALLED IN SEPARATE RACEWAYS.
- UNDERGROUND CONDUITS OUTSIDE THE LIMITS OF BUILDING FOOTPRINTS SHALL BE INSTALLED IN CONCRETE ENCASED STEEL REINFORCED DUCT BANKS.

SYMBOL	DESCRIPTION
	FLOAT SWITCH
	ELECTRO-PNEUMATIC VALVE
	SOLENOID VALVE
	ELECTRIC THERMOSTAT
	TEMPERATURE ACTUATED DEVICE
	SINGLE POLE TOGGLE SWITCH
	DOUBLE POLE TOGGLE SWITCH
	3 – WAY SWITCH
	WEATHER PROOF SWITCH
	MOTOR RATED TOGGLE SWITCH
	MANUAL ROTARY TIMER LIGHT SWITCH
	BATTERY POWERED EMERGENCY LIGHT FIXTURE
	CONDUIT CONCEALED IN FLOOR SLAB UNDERGROUND OR UNDER FLOOR SLAB. (CONDUITS 1-1/2" OR LARGER SHALL BE INSTALLED BELOW FLOOR SLAB). CONDUITS RUN UNDER FLOOR SLAB SHALL BE ENCASED IN CONCRETE. ALSO SEE CONDUIT SYSTEM NOTE 2
	HOMERUN TO PANELBOARD OR MCC AS NOTED
	3/4"x20' GROUND ROD
	3/4"x20' GROUND ROD & TEST WELL
	4/0 BARE COPPER GROUND LOOP AT 24" BELOW GRADE. CONDUIT TAG
	GROUND BUS
	OVERHEAD ELECTRICAL LINE
	EXIT LIGHT – SHADED AREA IS THE ILLUMINATED FACE
	EXISTING CONDUIT & CONDUCTOR TO BE REMOVED
	EQUIPMENT FOUNDATION TO BE REMOVED
	PROPOSED OR NEW
	EXISTING (LINE WORK IS SCREENED)

GENERAL NOTES:

- CONFIRM "AS FOUND" CONDITIONS MATCH THE DRAWINGS. IF A CONFLICT IS FOUND BETWEEN EXISTING CONDITIONS AND THE DRAWINGS, CONTACT PROJECT MANAGEMENT PRIOR TO START OF WORK.
- COORDINATE REQUIRED OUTAGE TIMES WITH OWNER AND OPERATIONS.

DIAGRAM SYMBOLS

SYMBOL	DESCRIPTION
	CONTACT, NORMALLY OPEN
	CONTACT, NORMALLY CLOSED
	PUSHBUTTON, NORMALLY CLOSED
	PUSHBUTTON, NORMALLY OPEN
	SELECTOR SWITCH
	OVERLOADS
	FUSE
	PILOT LIGHT, PUSH TO TEST
	AUXILIARY STARTER CONTACTS
	PRESSURE SWITCH, OPENS ON RISE
	PRESSURE SWITCH, CLOSSES ON RISE
	LIMIT SWITCH, NORMALLY CLOSED
	LIMIT SWITCH, NORMALLY OPEN
	TEMPERATURE ACTUATED SWITCH, OPENS ON RISE
	TEMPERATURE ACTUATED SWITCH, CLOSSES ON RISE
	VACUUM SWITCH, OPENS ON RISE
	VACUUM SWITCH, CLOSSES ON RISE
	THERMAL OVERLOAD
	EQUIPMENT SPACE HEATER
	GROUND CONNECTION
	SOLENOID
	MOTORIZED TIME DELAY RELAY
	TIME DELAY RELAY
	TIME DELAY CONTACT (O=OPEN, X=CLOSED, DESIGNATION INDICATES CONTACT POSITION WHEN RELAY IS RESET-TIMING-TIMED OUT)
	AUXILIARY RELAY
	ELAPSED TIME METER
	CONTROL POWER TRANSFORMER
	MOTOR STARTER OPERATING COIL
	SEPARABLE CONTACTS
	CIRCUIT BREAKER
	COMBINATION MOTOR STARTER
	POWER METER
	CURRENT TRANSFORMER (CT) DESIGNATION INDICATES QUANTITY & RATIO
	POTENTIAL TRANSFORMER
	LIGHTING TRANSFORMER
	POWER FACTOR CORRECTION CAPACITOR
	PHASE FAILURE/UNDERVOLTAGE MONITOR RELAY
	FUSED DISCONNECT SWITCH
	SURGE ARRESTER
	ELECTRIC MOTOR – NUMBER INDICATES HORSEPOWER

ABBREVIATIONS

ACL	ACROSS LINE STARTER
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
ALT	ALTERNATOR
AO	ANALOG OUTPUT
ASD	ADJUSTABLE SPEED DRIVE
C	CONDUIT
CA	CABLE
CAB	CABINET
CAT.	CATALOG
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CNP	CENTERPOINT ENERGY
COMM	COMMUNICATIONS
CONT	CONTINUED
CPT	CONTROL POWER TRANSFORMER
CPT-N	CONTROL POWER TRANSFORMER NEUTRAL
CPU	CENTRAL PROCESSING UNIT
CT	CURRENT TRANSFORMER
CU	COPPER
DI	DISCRETE INPUT
DIREC	DIRECTIONAL
DIV	DIVISION
DN	DOWN
DO	DISCRETE OUTPUT
ETM	ELAPSED TIME METER
FIT	FLOW TRANSMITTER
G.E	GENERAL ELECTRIC
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPT
GND	GROUND
HOA	HAND OFF AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
ISW	ISOLATION SWITCH
JB	JUNCTION BOX
KA SYM	THOUSAND AMPS SYMMETRICAL
KS	KEY SWITCH
KVA	KILO-VOLT-AMPS
L	LINE
LOS	LOCK OUT STOP
LS	LIMIT SWITCH
LV	LOW VOLTAGE
LVN	LOW VOLTAGE NEUTRAL
M	MOTOR RUN CONTACT
mA	MILLIAMPERE
MA	MILLIAMPERE
MADC	MILLIAMPERE DIRECT CURRENT
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MIN	MINUTES
MOR	MOTOR OVERLOAD RELAY
ms	MILLISECOND
MTH	MOTOR TEMPERATURE SWITCH
N	NEUTRAL
nA	NANOAMPERE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEUT	NEUTRAL
NO	NORMALLY OPEN
OD	OVERLOAD
OD	OUTSIDE DIAMETER
P	POLE
PFCC	POWER FACTOR CORRECTION CAPACITOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
POS	POSITION
PPW	PLANT PROCESS WATER
PS	PRESSURE SWITCH
PVC	POLYVINYL CHLORIDE
PVC RGS	PVC COATED RIGID GALV CONDUIT
PWR	POWER
R	RELAY
RALM	PUMP ALARM RELAY
REE	ELEC BLDG ENTRY AUX RELAY
RGS	RIGID GALVANIZED STEEL CONDUIT
RHLA	HIGH LEVEL ALARM RELAY
RM	PUMP RUN AUX RELAY
RMOR	MOTOR OVERLOAD AUX RELAY
R.O.W.	RIGHT OF WAY
RPLC	PLC MODE AUX RELAY
RPLCOR	PLC OVERRIDE
RPLM	PLC PUMP RUN RELAY
RPLMP	BACKUP SYSTEM RUN RELAY
RR	RUN RELAY
RRST	PUMP RESET AUX RELAY
RTAH	TEMPERATURE ALARM AUX RELAY
RUV	UNDERVOLTAGE AUX RELAY
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
RWD	WATCHDOG RELAY
SEC	SECONDS
SL	SEAL LEAK SWITCH
SN	SOLID NEUTRAL
SPD	SURGE PROTECTOR DEVICE
SPST	SINGLE POLE SINGLE THROW
SS	STAINLESS STEEL
SW	SWITCH
TB	TERMINAL BOX
TEMP	TEMPERATURE
TD	TIME DELAY RELAY
TDLP	LOSS OF POWER TIME DELAY RELAY
TDBM	PUMP TIME DELAY RELAY
TSD	Twisted Shielded Pair
TST	Twisted Shielded Triad
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT-AMP
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VT	VOLTAGE TRANSFORMER
W	WATT OR WIRE
WWTF	WASTE WATER TREATMENT FACILITY

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Wade A. Hubble

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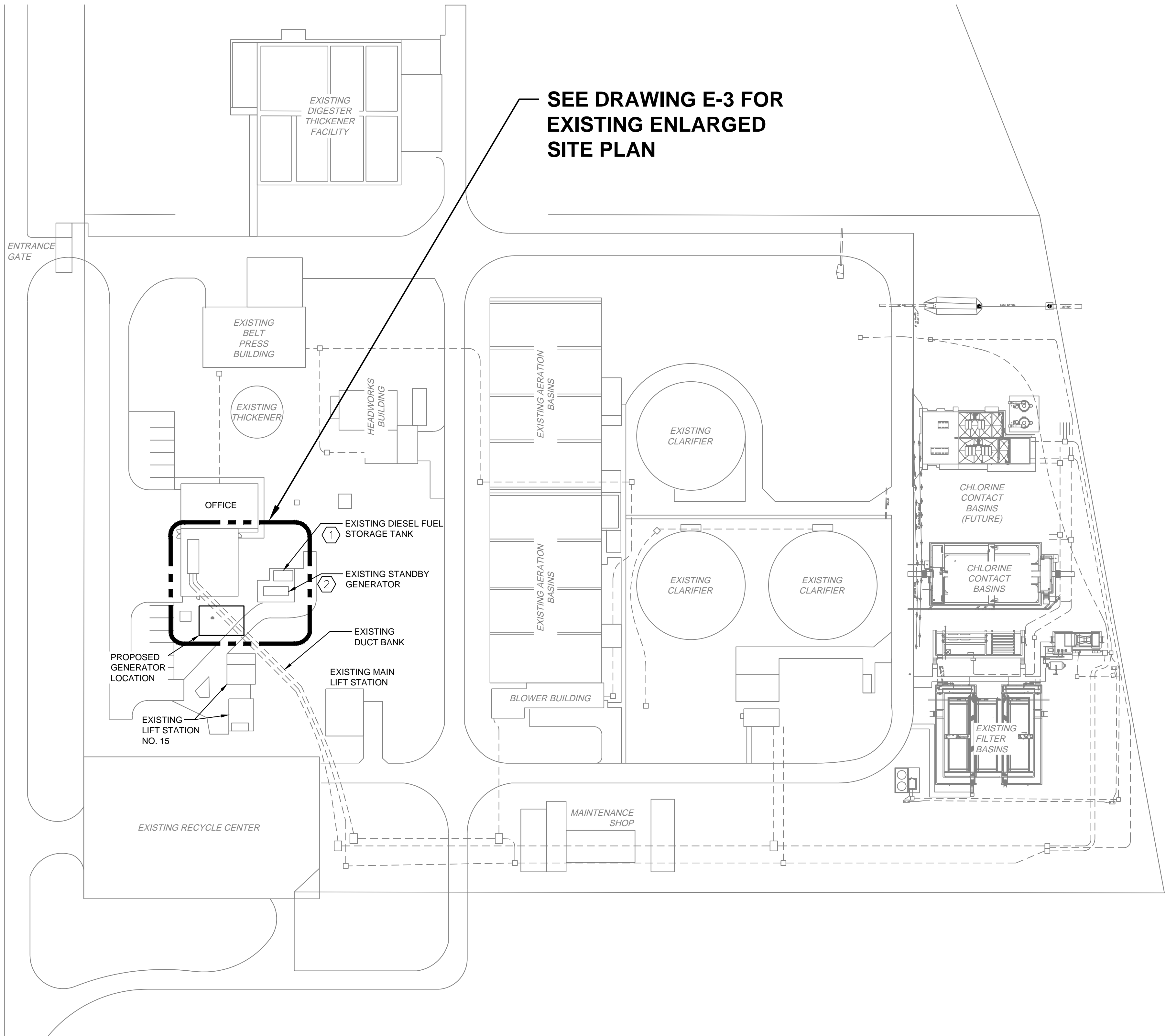


WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO: WDPR		
KALLURI PROJECT NO: 4141		
DRAWN BY: MA		
CHECKED BY: MHW		
SCALE: NONE		

ELECTRICAL
SYMBOLS AND
ABBREVIATIONS

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-2 Overall Site Plan.dwg LAYOUT: E-2 DATE: 5/8/2019 9:44:35 AM BY: HOWARD

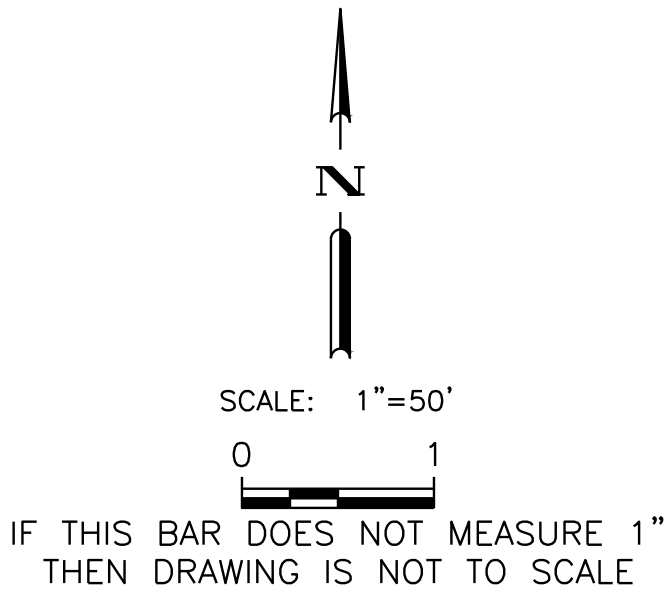


GENERAL NOTES:

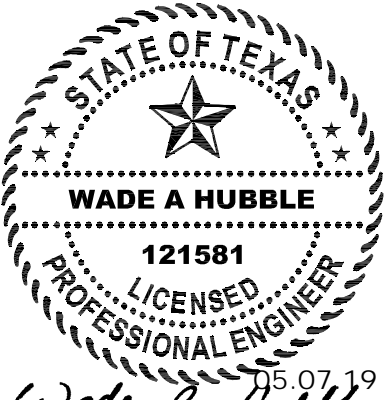
1. THE SJRA WOODLANDS DIVISION WASTEWATER TREATMENT FACILITY NO. 2 IS AN OPERATIONAL FACILITY AND SHALL REMAIN IN SERVICE THROUGHOUT THE PROJECT.
2. THE CONTRACTOR SHALL NOT OPERATE ANY EQUIPMENT OR ELECTRICAL DEVICES THAT ARE IN SERVICE.
3. ELECTRICAL CONSTRUCTION SHALL CONFORM TO AND BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
4. ALL ELECTRICAL WORK SHALL COMPLY WITH PROJECT SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE SPECIFICATIONS.
5. ALL ELECTRICAL EQUIPMENT, CUSTOM FABRICATION, FIELD FABRICATION AND INSTALLATION MATERIALS SHALL COMPLY WITH THE PROJECT SPECIFICATIONS.
6. IN THE SCOPE OF THIS PROJECT, EXISTING ELECTRICAL FACILITIES ARE TO BE REMOVED. CONDUIT, CABLES AND SUPPORTS SHALL BE REMOVED AS DEFINED IN THE DRAWINGS. THE PROJECT IS TO BE SCHEDULED SUCH THAT NO EXTENDED OUTAGES ARE REQUIRED.
7. EXISTING CIRCUITS ON SITE WILL BE DISCONNECTED AND RECONNECTED TO PROPOSED EQUIPMENT IN THIS PROJECT.
8. EXISTING UNDERGROUND DUCT BANKS ARE TO BE UTILIZED IN THIS PROJECT. THE DUCT BANK WAS INSTALLED IN A PREVIOUS PROJECT AND WILL BE USED TO CONNECT THE NEW GENERATOR TO THE EXISTING SYSTEM.
9. IN THE ELECTRICAL BUILDING, A CUSTOM FABRICATED ENCLOSURE WILL BE REQUIRED. EXTENSION OF THE EXISTING HOUSEKEEPING PAD IS REQUIRED AND DEFINED IN THE STRUCTURAL DRAWINGS.

KEY NOTES:

1. EXISTING DIESEL FUEL STORAGE TANK SHALL REMAIN.
2. EXISTING GENERATOR IS TO BE DISCONNECTED AND ABANDONED IN PLACE FOR FUTURE REMOVAL.



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SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION



WWTF NO. 2
GENERATOR
REPLACEMENT

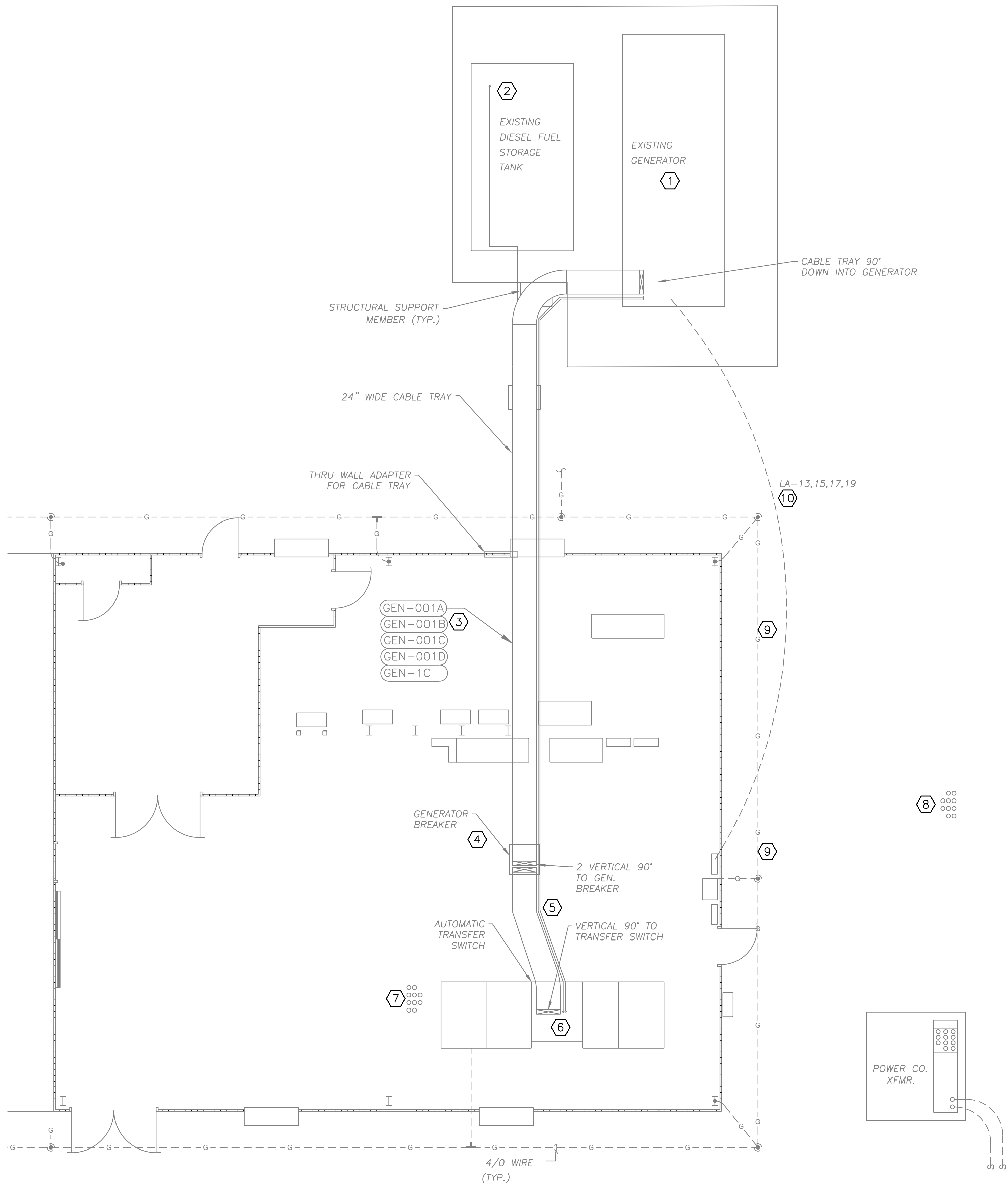
ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO: WDPR		
KALLURI PROJECT NO: 4141		
DRAWN BY: MA		
CHECKED BY: MHW		
SCALE: AS NOTED		

ELECTRICAL
OVERALL
SITE PLAN

E-2

SHEET 6 OF 16

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-3 Existing Enlarged Site Plan.dwg LAYOUT: E-3 DATE: 5/8/2019 9:44:40 AM BY: HOWARD

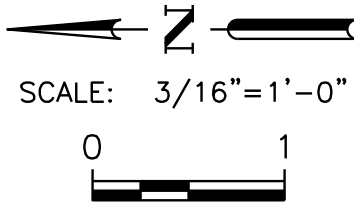


GENERAL NOTES:

A. NO EQUIPMENT MAY BE REMOVED FROM SERVICE UNTIL THE NEW GENERATOR IS COMMISSIONED AND IN SERVICE. REQUEST FORMAL PERMISSION TO DISCONNECT THE EXISTING GENERATOR.

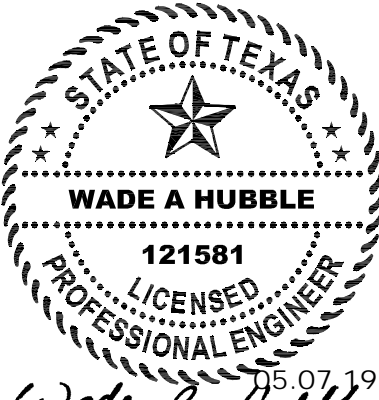
KEYED NOTES:

- 1 THE EXISTING GENERATOR SHALL REMAIN IN SERVICE UNTIL THE NEW GENERATOR IS COMMISSIONED AND READY FOR CONNECTION.
- 2 THE EXISTING FUEL TANK SHALL REMAIN IN SERVICE. THE PROPOSED GENERATOR LOAD CENTER WILL SUPPLY POWER TO THE EXISTING FUEL PUMP.
- 3 EXISTING FEEDER CABLES FROM THE GENERATOR TO THE BREAKER, CABLE TRAY, TRAPEZE SUPPORTS AND AUXILIARY GENERATOR SUPPORT CIRCUITS SHALL REMAIN.
- 4 THE EXISTING GENERATOR BREAKER IS TO REMAIN.
- 5 THE CABLE TRAY AND CABLES FROM THE GENERATOR BREAKER TO THE ATS ARE TO BE REMOVED AFTER THE NEW GENERATOR IS IN SERVICE. CONTROL CIRCUIT CONDUITS FROM THE EXISTING GENERATOR TO THE ATS ARE TO BE DISCONNECTED FROM THE GENERATOR CONNECTION AND REMOVED FROM THE ATS, PROVIDE JUNCTION BOXES ABOVE THE GENERATOR BREAKER ENCLOSURE, TO COIL THE CONDUCTORS IN.
- 6 COORDINATE SUCH THAT THE EXISTING CABLES FROM THE GENERATOR BREAKER, THAT DROP INTO THE AUTOMATIC TRANSFER SWITCH, SHALL BE THE FIRST TASK PERFORMED FOR SWITCHOVER FROM THE EXITING TO THE NEW GENERATOR. THE TRAY WILL HAVE TO BE REMOVED FOR THE PROPOSED CONDUITS TO BE INSTALLED, THE CABLES MAY BE SHAPED OUT OF THE WAY.
- 7 EXISTING UNDERGROUND DUCTS ARE TO BE UTILIZED IN THIS PROJECT. CHIPPING OF CONCRETE AND PREPARATION FOR USE OF THE EXISTING DUCTS IS REQUIRED. A NEW EQUIPMENT PAD IS REQUIRED FOR THE PROPOSED CUSTOM ENCLOSURE TO BE INSTALLED OVER THE EXISTING STUB UPS.
- 8 EXISTING UNDERGROUND DUCTS ARE TO BE UTILIZED IN THIS PROJECT. EXTENSION OF THE EXISTING DUCTS AND PREPARATION FOR USE IS REQUIRED.
- 9 HAND DIG TO LOCATE THE EXISTING GROUND RING. IT IS TO BE CONNECTED TO THE PROPOSED GROUND RING AROUND THE GENERATOR FOUNDATION.
- 10 EXACT LOCATION OF THE EXISTING GENERATOR AUXILIARY CIRCUIT DUCT BANK IS NOT KNOWN. THE CIRCUITS ARE TO REMAIN ENERGIZED TO SUPPORT THE EXISTING GENERATOR BATTERIES AND HEATERS.



SCALE: 3/16"=1'-0"
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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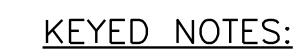


WWTF NO. 2
GENERATOR
REPLACEMENT

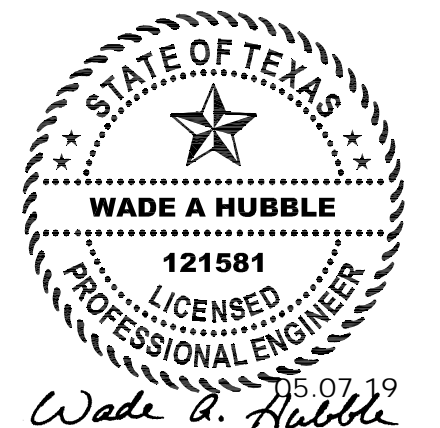
ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO: WDPR		
KALLURI PROJECT NO: 4141		
DRAWN BY: MA		
CHECKED BY: MHW		
SCALE: AS NOTED		

ELECTRICAL
EXISTING ENLARGED
SITE PLAN

E-3
SHEET 7 OF 16



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The logo of the San Jacinto River Authority (SJRA) is a circular emblem. It features a dark blue outer ring with the text "SAN JACINTO RIVER AUTHORITY" in white, uppercase letters. Inside the ring is a light green circle containing a white five-pointed star. Overlaid on the star is the acronym "SJRA" in a bold, dark blue, serif font. At the bottom of the green circle, the website address "www.SJRA.net" is written in a small, dark blue, sans-serif font, flanked by two small white stars.

ELECTRICAL EXISTING ONE LINE AND EQUIPMENT ELEVATION

SHEET 8 OF 16

SCALE: NTS

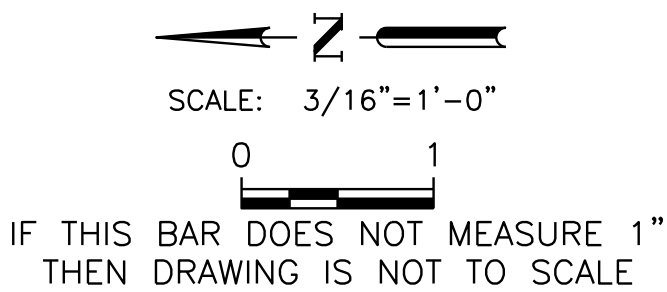




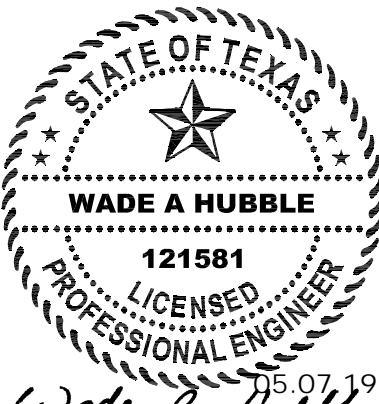
- A. THIS DRAWING IS PROVIDED TO ILLUSTRATE THE CONNECTIONS BETWEEN THE PROPOSED GENERATOR AND THE EXISTING FACILITIES.
- B. NO EQUIPMENT MAY BE REMOVED FROM SERVICE UNTIL THE NEW GENERATOR IS COMMISSIONED AND IN SERVICE. REQUEST FORMAL PERMISSION TO DISCONNECT THE EXISTING GENERATOR.
- C. IF GROUND RODS CANNOT BE DRIVEN WHERE SHOWN MOVE LOCATION SUCH THAT THE DISTANCE BETWEEN THE RODS IS INCREASED.
- D. SEE DRAWING E-6 FOR ADDITIONAL PROPOSED EQUIPMENT INFORMATION.

KEYED NOTES:

- ⑦ THE CONTRACTOR SHALL COORDINATE TO ENSURE THE PROPOSED GENERATOR INSTALLATION LOCATION IS DIRECTLY OVER THE EXISTING DUCT BANK STUB UPS. EXTENSION OF THE CONDUITS UP THROUGH THE FOUNDATION, SUCH THAT THE CONDUITS FIT THE BLOCK-OUT AND CAN BE CHANGED TO FLEXIBLE CONDUIT, WILL REQUIRE MULTIPLE BENDS IN THE SHORT LENGTH.
- ② PROVIDE 4/0 AWG BARE COPPER GROUND RING 24 INCHES BELOW GRADE. PROVIDE 3/4" COPPER CLAD, 20'-0", 2 SEGMENT GROUND RODS AND TEST WELLS AS SHOWN. SEE DETAIL 5 ON DRAWING E-11 FOR TEST WELL DETAIL. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONNECT EXISTING GROUND RING TO PROPOSED GROUND RING WITH 4/0 AWG.
- ③ PROVIDE CUSTOM ENCLOSURE TO MATCH EXISTING EATON CUTLER-HAMMER ENCLOSURES IN HEIGHT AND DEPTH. SEE DRAWING E-6 FOR ENCLOSURE REQUIREMENTS.
- ④ EXISTING DUCT BANK IS TO BE UTILIZED FOR GENERATOR FEEDER CONDUCTOR INSTALLATION. SEE ONE LINE FOR CABLE REQUIREMENTS.
- ⑤ PROVIDE A 2 INCH CONDUIT FROM THE PLC-02 CABINET, FLOOR MOUNTED GUTTER, TO THE MAIN SWITCHGEAR.
- ⑥ PROVIDE A 2 INCH CONDUIT FROM THE EXISTING PANEL LA TO THE CUSTOM ENCLOSURE, FOR ROUTING TO THE GENERATOR LOAD CENTER, THROUGH EXISTING DUCT BANK.
- ⑦ THE EXACT LOCATION OF THE EXISTING UNDERGROUND DUCT BANK, TO THE EXISTING GENERATOR IS NOT KNOWN. PROBE TO FIND THE DUCT BANK PRIOR TO PROPOSED DUCT BANK INSTALLATION. THE EXISTING DUCT BANK IS TO REMAIN IN SERVICE FOR BATTERY CHARGER AND HEATER CIRCUITS.
- ⑧ THE DIESEL FUEL STORAGE TANK PUMP CIRCUIT IS CURRENTLY ROUTED ON THE CABLE TRAY. WHEN PROPOSED CONTROL STATION FOR THE PUMP IS IN SERVICE DISCONNECT THE CIRCUIT FROM THE BREAKER IN PANEL LA, AND CABLE FROM THE TANK. COIL THE CABLE AND TY-RAP TO CABLES IN THE TRAY. REMOVE THE CONDUIT ROUTED ACROSS THE TOP OF THE TANK. RETURN BOX, GFCI RECEPTACLE AND COVER TO OWNER.
- ⑨ SEE DETAIL 3 ON DRAWING E-11 FOR DUCT BANK INSTALLATION. HAND DIG TO LOCATE EXISTING UNDERGROUND FACILITIES AND PROVIDE DUCT BANK FROM THE PROPOSED FUEL TRANSFER PUMP STATION TO THE EXISTING FUEL STORAGE TANK. INSTALL TWO 1" DUCTS, AND ONE 3" DUCT FOR FLEXIBLE FUEL LINE TO BE INSTALLED BY OWNER. ONE 1" DUCT IS TO BE ROUTED TO THE BLOCK OUT AND UP TO THE GENERATOR CONTROL PANEL, FOR FUTURE FUEL STORAGE TANK LEVEL SIGNAL. THE SECOND 1" CONDUIT IS FOR STORAGE TANK TRANSFER PUMP POWER.
- ⑩ FABRICATE AND INSTALL THE FUEL TRANSFER CONTROL STATION AS ILLUSTRATED ON DRAWING E-12. PROVIDE THE CIRCUIT, INDICATED IN THE PANELBOARD CIRCUIT SCHEDULE, FROM GENERATOR LOAD CENTER "DG-L" TO SUPPLY THE FUEL TRANSFER PUMP CONTROL STATION POWER.
- ① ROUTE BOTH 1 INCH CONDUITS UP THE SIDE OF THE TANK TO THE TOP. PROVIDE NEW BOX, GFCI RECEPTACLE AND IN-USE COVER FOR EXISTING PUMP. CONNECT THE SECOND 1" CONDUIT TO THE LEVEL GAUGE, WITH FLEXIBLE CONDUIT.
- ② ROUTE STANCHION LIGHT AND RECEPTACLE CIRCUIT CONDUIT FROM PANEL DG-L TO STANCHION LIGHTS. EXTEND CIRCUITS UNDER FOUNDATION TO NORTH SIDE OF GENERATOR FOR PLATFORM LIGHTS AND OUTLETS.



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05.07.19
Wade A. Hubble
Kalluri Group, Inc
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**SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION**



WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO:	WDPR	
KALLURI PROJECT NO:	4141	
DRAWN BY:	MA	
CHECKED BY:	MHW	
SCALE:	AS NOTED	

ELECTRICAL
PROPOSED ENLARGED
SITE PLAN

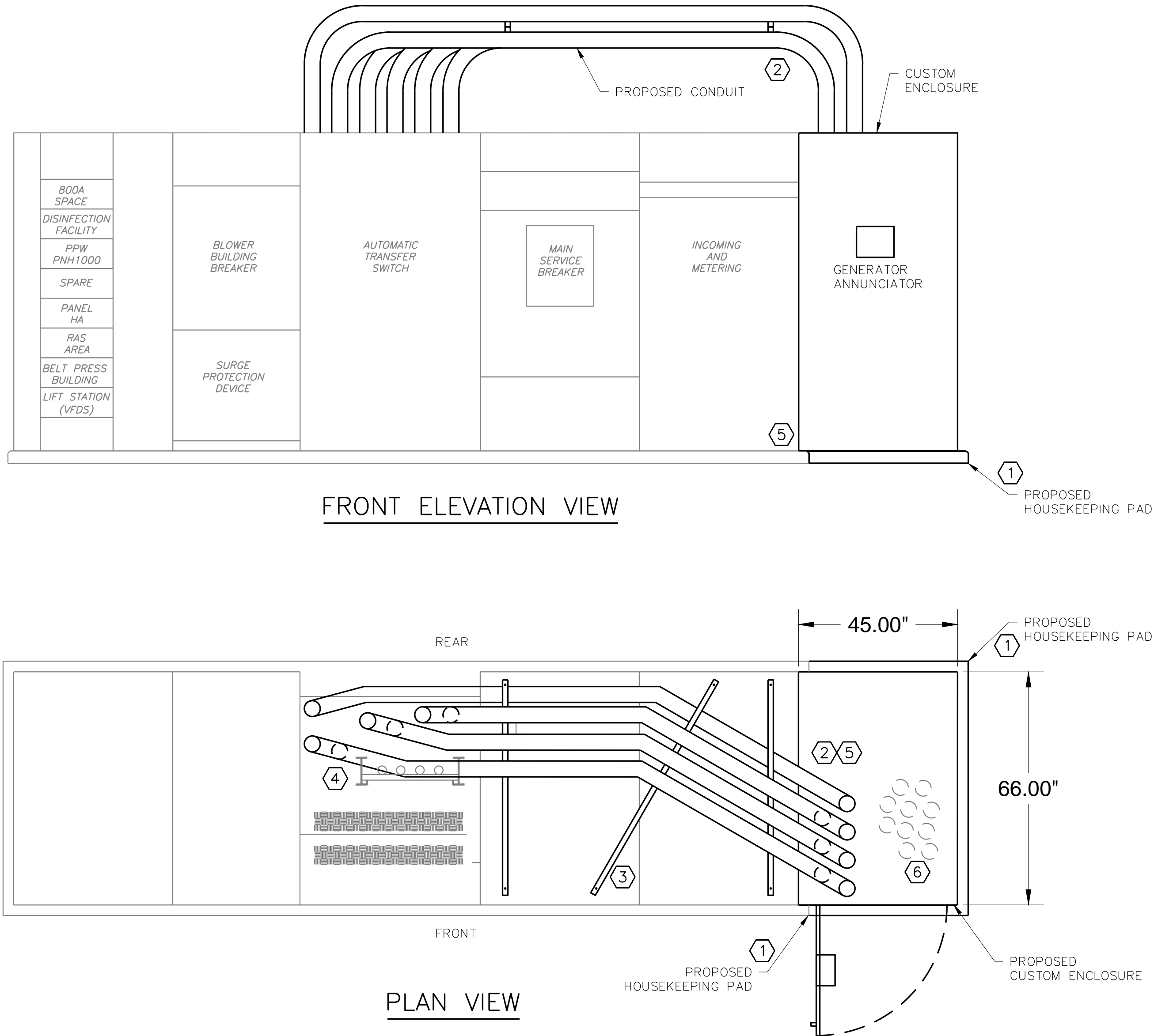
E-5

SHEET 9 OF 16

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-6 Proposed Equipment Elevation.dwg LAYOUT: E-6 DATE: 5/8/2019 9:44:50 AM BY: HOWARD

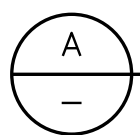
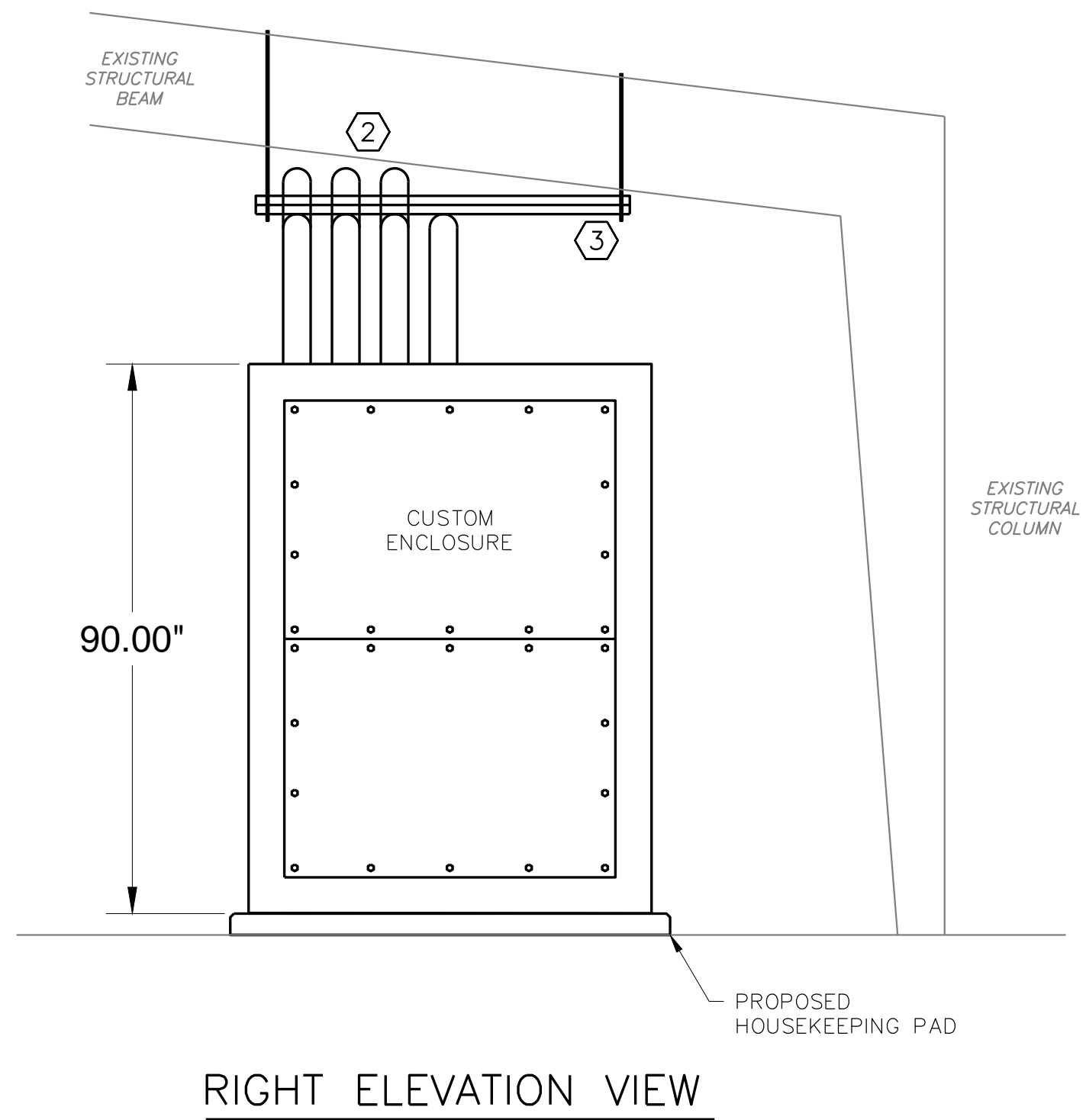
CUSTOM ENCLOSURE NOTES:

- A. CUSTOM ENCLOSURE SHALL MATCH EXISTING IN ANSI GRAY COLOR, HEIGHT, DEPTH AND STRUCTURE CONSTRUCTION CHARACTERISTICS. THE ENCLOSURE SHALL BE PROVIDED ANCHORING HOLES AT EACH CORNER.
- B. THE FRONT SHALL HAVE A MINIMUM 36 INCH WIDE FULL HEIGHT DOOR WITH THREE POINT LATCHING. THE GENERATOR ANNUNCIATOR PANEL SHALL BE "SHOP" INSTALLED, IN THE FRONT DOOR, FOR CLEAN CUT AND FINISH.
- C. RIGHT HAND EXTERIOR SIDE PANELS SHALL OVERLAP (OR HAVE REMOVABLE BRACE) AND ALLOW FULL ACCESS TO THE CABLES, WITHOUT A CROSS BRACE IN THE WAY, FOR CABLE PULLING AND RESTRAINT.
- D. LEFT HAND INTERIOR WALL OF ENCLOSURE SHALL BE PROVIDED WITH TWO HORIZONTAL CABLE SUPPORT MEMBERS, FOR ATTACHMENT OF VERTICAL CABLES PASSING THROUGH THE ENCLOSURE. PROVIDE A COPPER GROUND BAR INSTALLED ON THE LEFT INTERIOR WALL, WITH ROOM FOR LUG HARDWARE INSTALLATION. THE BAR SHALL BE PREPARED FOR 12 TWO HOLE, STANDARD 1 3/4" SPACED, LUGS.



KEYED NOTES:

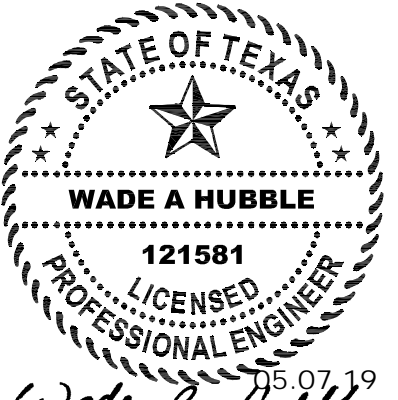
- 1 PRIOR TO CUSTOM ENCLOSURE INSTALLATION, AND AFTER SHOP DRAWING ACCEPTANCE, EXTEND HOUSEKEEPING PAD TO SERVE THE PROPOSED CUSTOM ENCLOSURE. EXISTING HOUSEKEEPING PAD IS APPROXIMATELY THREE INCHES LARGER THAN THE FOOTPRINT OF THE EXISTING EQUIPMENT. FIELD MEASURE AND MATCH EXISTING INSTALLATION. SEE STRUCTURAL DRAWING FOR HOUSEKEEPING PAD CONSTRUCTION REQUIREMENTS.
- 2 INSTALL PROPOSED GENERATOR FEEDER CONDUITS AROUND EXISTING STRUCTURE ELEMENTS.
- 3 INSTALL SUPPORTS SUCH THAT CONDUITS ARE SOLIDLY INSTALLED AND STRAPPED PER NEC REQUIREMENTS. SEE DETAIL 2 ON DRAWING E-11 FOR TRAPEZE HANGER INSTALLATION.
- 4 PROPOSED CONDUITS MUST ENTER THE ATS AT THE REAR OF THE ENCLOSURE. EXISTING GENERATOR FEEDER CABLES MAY INTERFERE WITH PROPOSED CONDUIT INSTALLATION. REMOVE CABLE TRAY DROPPING INTO ATS AND FORCE EXISTING GENERATOR FEEDER CABLES OUT OF THE WAY, TO INSTALL PROPOSED CONDUITS.
- 5 PROVIDE CONNECTION OF PROPOSED CUSTOM ENCLOSURE GROUND BAR TO EXISTING GEAR GROUND BAR, SEE ONE LINE FOR CONDUCTOR DETAIL.
- 6 EXISTING UNDERGROUND STUB UPS ARE RGS COUPLINGS AT FINISH FLOOR ELEVATION. REMOVE PLUGS, CLEAN AND PREPARE COUPLING THREADS, INSTALL PVC FEMALE ADAPTORS. INSTALL PVC CLOSE NIPPLES AND PVC BELL ENDS, ABOVE TOP FINISH OF PROPOSED HOUSEKEEPING PAD.



MAIN DISTRIBUTION PANEL (MDP) EQUIPMENT PROPOSED ELEVATIONS

SCALE: NTS

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WOODLANDS DIVISION



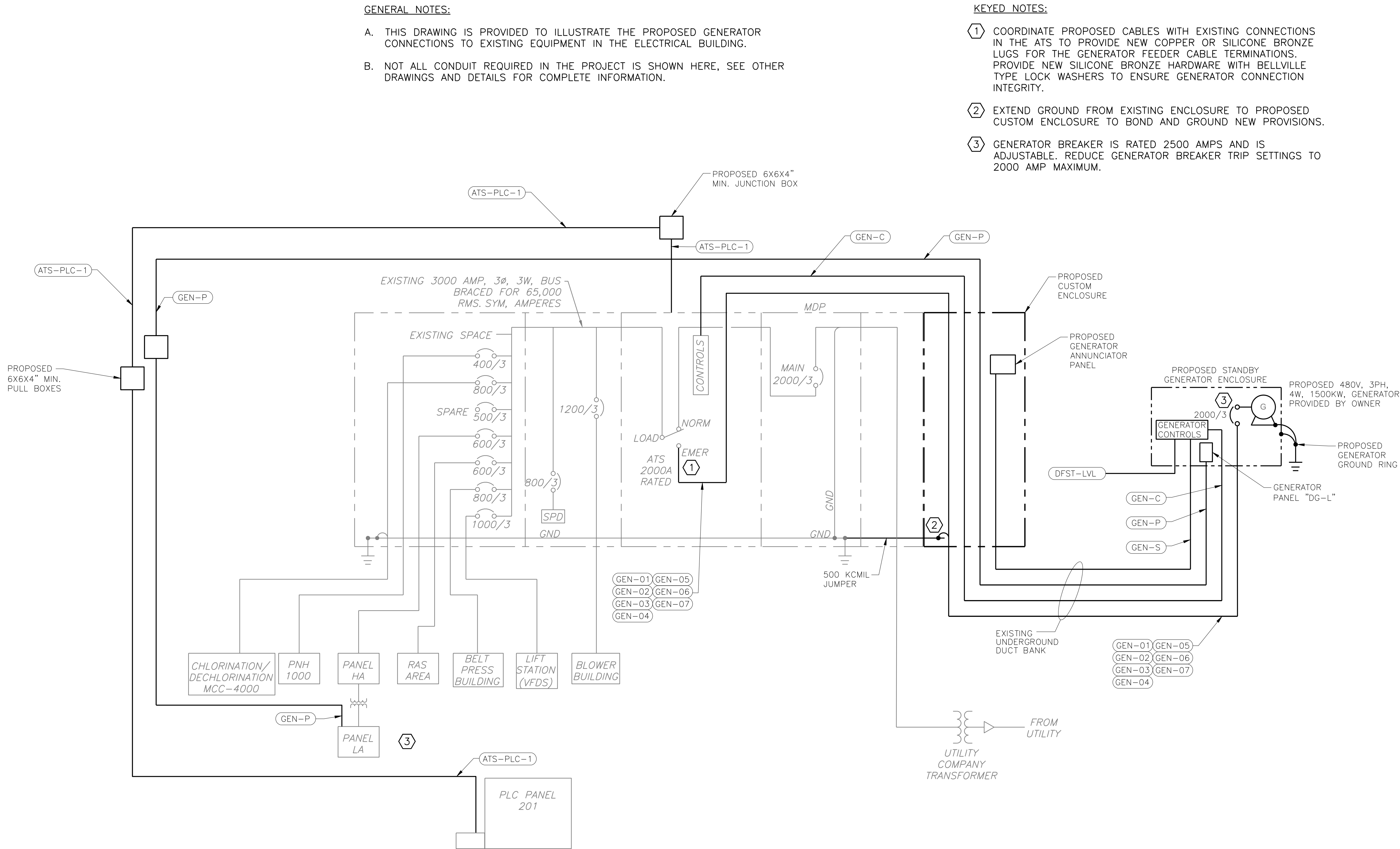
WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO:	WDPR	
KALLURI PROJECT NO:	4141	
DRAWN BY:	MA	
CHECKED BY:	MHW	
SCALE:	AS NOTED	

ELECTRICAL
PROPOSED EQUIPMENT
ELEVATIONS

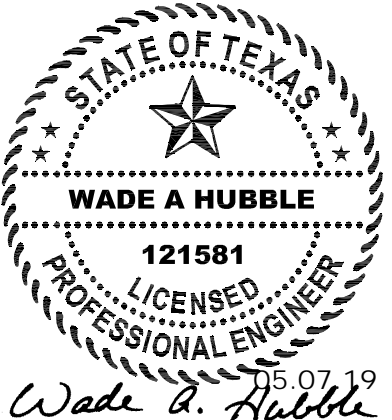
E-6
SHEET 10 OF 16

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-7 Proposed One Line.dwg LAYOUT: E-7 DATE: 5/8/2019 9:44:54 AM BY: HOWARD



OVERALL PROPOSED ONE LINE DIAGRAM

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WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO: WDPR		
KALLURI PROJECT NO: 4141		
DRAWN BY: MA		
CHECKED BY: MHW		
SCALE: NONE		
































ELECTRICAL
PROPOSED ONE LINE
DIAGRAM

E-7
SHEET 11 OF 16

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-8 Schedules.dwg LAYOUT: E-8 DATE: 5/8/2019 9:44:57 AM BY: HOWARD

120/240V,1ø,3W 18,000A RMS SYMMETRICAL INTEGRATED RATING MINIMUM				LIGHTING PANEL "LA"				SURFACE MOUNTED NEMA 1 ENCLOSURE LOCATION: ELECTRICAL BUILDING			
SERVES		LOAD (VA)	CB (AMPS)	CKT. NO.		CKT. NO.	CB (AMPS)	LOAD (VA)	SERVES		
EXIT LIGHTS		500	20	1		2	20	1,000	OUTSIDE LIGHTING VIA PHOTOCELL		
LIGHTS VIA PHOTOCELL		1,000	20	3		4	20	1,500	LIGHTS		
LIGHTS		900	20	5		6	20	1,000	FLOW RECORDER PANEL		
RECEPTACLE VERBATIM		720	20	7		8	20	--	LAB N. WALL PLUGS		
RECEPTACLES		720	20	9		10	20	--	LAB SPARE		
TELEPHONE RECEPTACLES		1,000	20	11		12	30	--	SPARE		
GENERATOR SPACE HEATER		1,000	20	13		14	20	--	SPARE		
GENERATOR BATTERY CHARGER		1,000	20	15		16	100	24,000	TRAILER (FUTURE)		
GENERATOR RADIATOR HEATER		1,000	20	17		18	--	24,000	TRAILER (FUTURE)		
GENERATOR RADIATOR HEATER		--	20	19		20	20	--	SPARE		
AC-1		2,500	40	21		22	40	2,500	AC-3		
AC-1		2,500	--	23		24	--	2,500	AC-3		
AC-2		2,500	40	25		26	40	2,500	AC-4		
AC-2		2,500	--	27		28	--	2,500	AC-4		
NEW		--	--	29		30	20	--	SPARE LS LIGHTS STP2 IONIZER RECEPT.		
SPACE		--	--	31		32	20	--	LIFT STATION RECEPTACLE		
GENERATOR PANELBOARD "DG-L"		--	100/2P	33		34	20	--	DIESEL PUMP PLUG		
		--		35		36	20	--	↓		

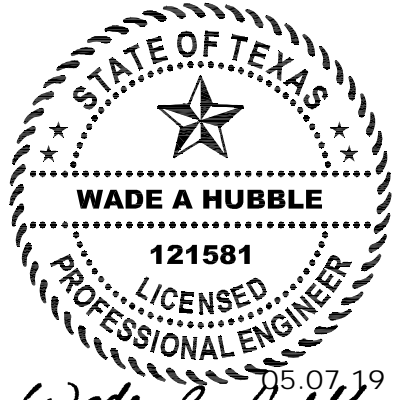
GENERATOR PANELBOARD IS INCLUDED WITH GENERATOR, IT IS SHOWN HERE FOR GENERAL INFORMATION. ALL GENERATOR ENCLOSURE CIRCUITS ARE PRE-WIRED BY ENCLOSURE VENDOR. CONTRACTOR SHALL PROVIDE PANELBOARD FEEDER, PLATFORM LIGHTING AND GFCI RECEPTACLES, TRANSFER PUMP FEEDER, STORAGE TANK LEVEL AND INTERCONNECTING CONTROL CIRCUITS AS REQUIRED TO PROVIDE A COMPLETE AND WORKING STANDBY GENERATOR SYSTEM.

BUS AMPS <u>100</u>				PANEL <u>"DG-L"</u>		NOTES			
MAIN BRKR. AMPS <u>100</u>				1. BREAKERS 1P/20A UNLESS MARKED OTHERWISE.					
VOLTS <u>120/240</u>				2. ADJ. CKTS. TO BAL. PNL.					
PHASE <u>1</u> WIRE <u>3</u> SN <u>YES</u>				3. SURFACE MOUNT, NEMA 1.					
				4. BOLT IN BREAKERS					
				5. ALL BUS SHALL BE COPPER					
<div><div></div><div>100</div></div>									
CKT. DESCRIPTION	WIRE	LOAD	BKR.	A	B	BKR.	LOAD	WIRE	CKT. DESCRIPTION
GENERATOR	10		30	 1	 2	20		12	ENCLOSURE LIGHTS
WATER JACKET HEATER	10			 3	 4	20		12	ALTERNATOR HEATER
GENERATOR	10		30	 5	 6	20		12	CONTROL CABINET HEATER
WATER JACKET HEATER	10			 7	 8	20		12	DUPLEX RECEPTACLES
STORAGE TANK DIESEL PUMP	12		20	 9	 10	20	-	12	BATTERY CHARGER
PLATFORM LIGHTS	12		20	 11	 12	20	-	-	SPARE
PLATFORM GFCI RECETACLES	12		20	 13	 14	20	-	-	
SPARE	-	-	20	 15	 16	20	-	-	
	-	-	20	 17	 18	20	-	-	
	-	-	20	 19	 20	20	-	-	
	-	-	20	 21	 22	20	-	-	
	-	-	20	 23	 24	20	-	-	
SPACE	-	-		 25	 26		-	-	SPACE
	-	-		 27	 28		-	-	
	-	-		 29	 30		-	-	
			X	 N			X		
TOTAL VA = X									
X VA = X AMPS AT 240 VOLTS									

CONDUIT AND CABLE SCHEDULE

TAG	DESCRIPTION	ROUTING		VIA	CONDUIT & WIRE SIZES
		FROM	TO		
GE-01	ATS STANDBY FEEDER 1	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GE-02	ATS STANDBY FEEDER 2	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GE-03	ATS STANDBY FEEDER 3	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GE-04	ATS STANDBY FEEDER 4	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GE-05	ATS STANDBY FEEDER 5	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GE-06	ATS STANDBY FEEDER 6	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GE-07	ATS STANDBY FEEDER 7	ATS	GENERATOR BREAKER	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4", WITH (3) 500 KCMIL, 4/0 AWG NEUT, 350 KCMIL GROUND
GEN-C	GENERATOR CONTROLS	AUTOMATIC TRANSFER SWITCH	GENERATOR LOADS	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4" IN DUCT BANK, REDUCE TO 2" WITH (1) 6C #14, 1/4" PULL ROPE
GEN-P	GENERATOR POWER PANEL FEEDER	PANELBOARD LA, (CKT-33,35)	GENERATOR PANELBOARD DG-L MAIN	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4" IN DUCT BANK, REDUCE TO 2" WITH (2) #1 AWG, #2 NEUT, #4 GND
GEN-S	GENERATOR SIGNALS	GENERATOR CONTROLS	REMOTE ANNUNCIATOR PANEL	EXISTING DUCT BANK AND CUSTOM ENCLOSURE	4" IN DUCT BANK, REDUCE TO 2" WITH COMM CABLE, 1/4" PULL ROPE
ATS-PLC-1	FOR SWITCHGEAR TO PLC CIRCUITS	AUTOMATIC TRANSFER SWITCH	PLC-02 CABINET GUTTER	OVERHEAD RACK	2" WITH (1) 6C #14, 1/4" PULL ROPE
DFST-PP	DIESEL FUEL TRANSFER PUMP POWER FEEDER	FUEL TRANSFER CONTROL STATION SWITCH	FUEL STORAGE TANK GFCI RECEPTACLE	DUCT BANK	1" WITH (2) #12, #12 GND
DFST-LVL	DIESEL FUEL STORAGE TANK LEVEL SIGNAL	FUEL STORAGE TANK LEVEL GAUGE	GENERATOR CONTROL PANEL	DUCT BANK	1" WITH (2) #18 TSP, #12 GND
DFST-FL	DIESEL FUEL TRANSFER LINE	DIESEL FUEL TRANSFER PUMP	GENERATOR SUB-BASE FUEL STORAGE TANK	DUCT BANK	3" WITH (1) 1/4" HEMP ROPE

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SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION



WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
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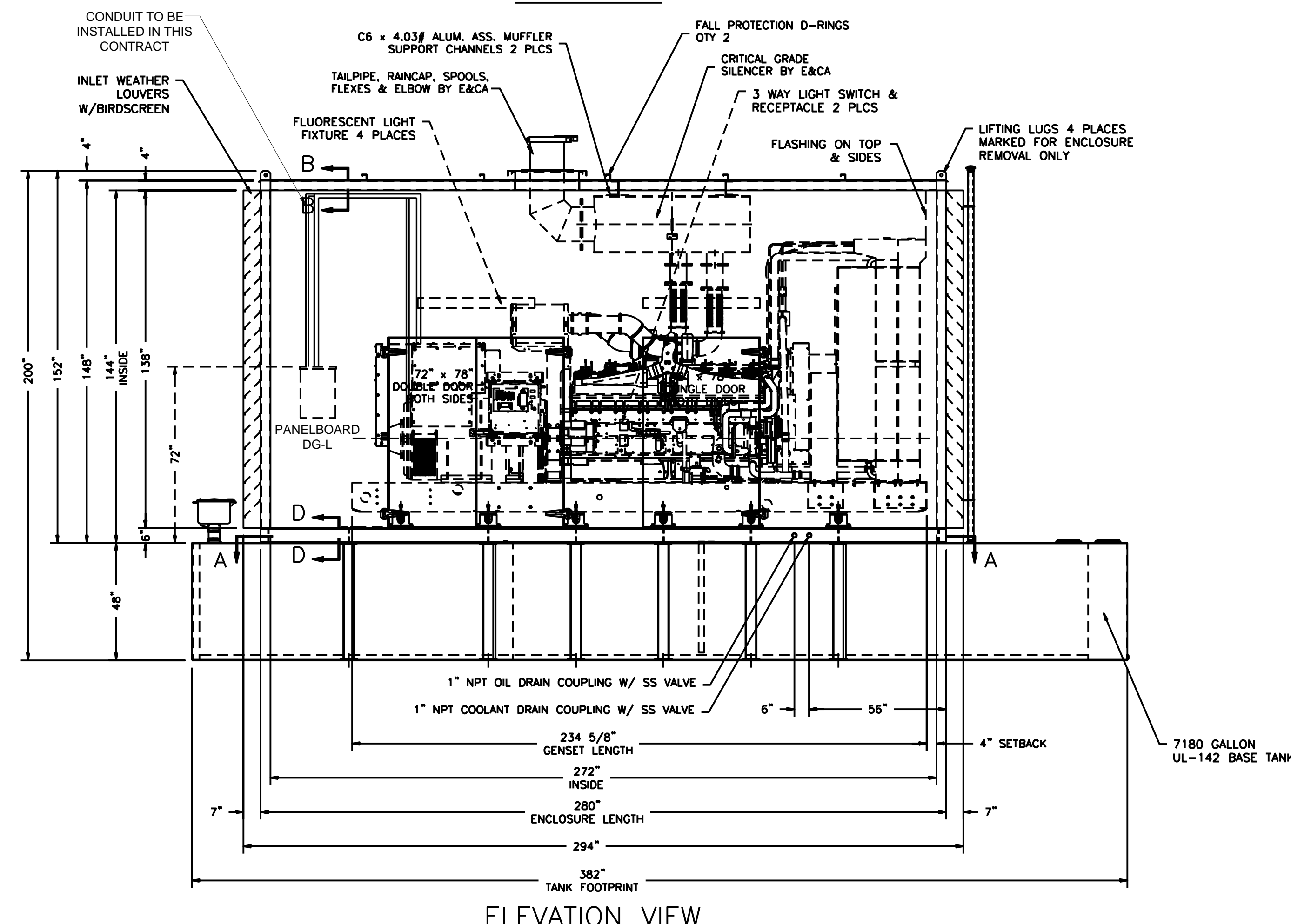
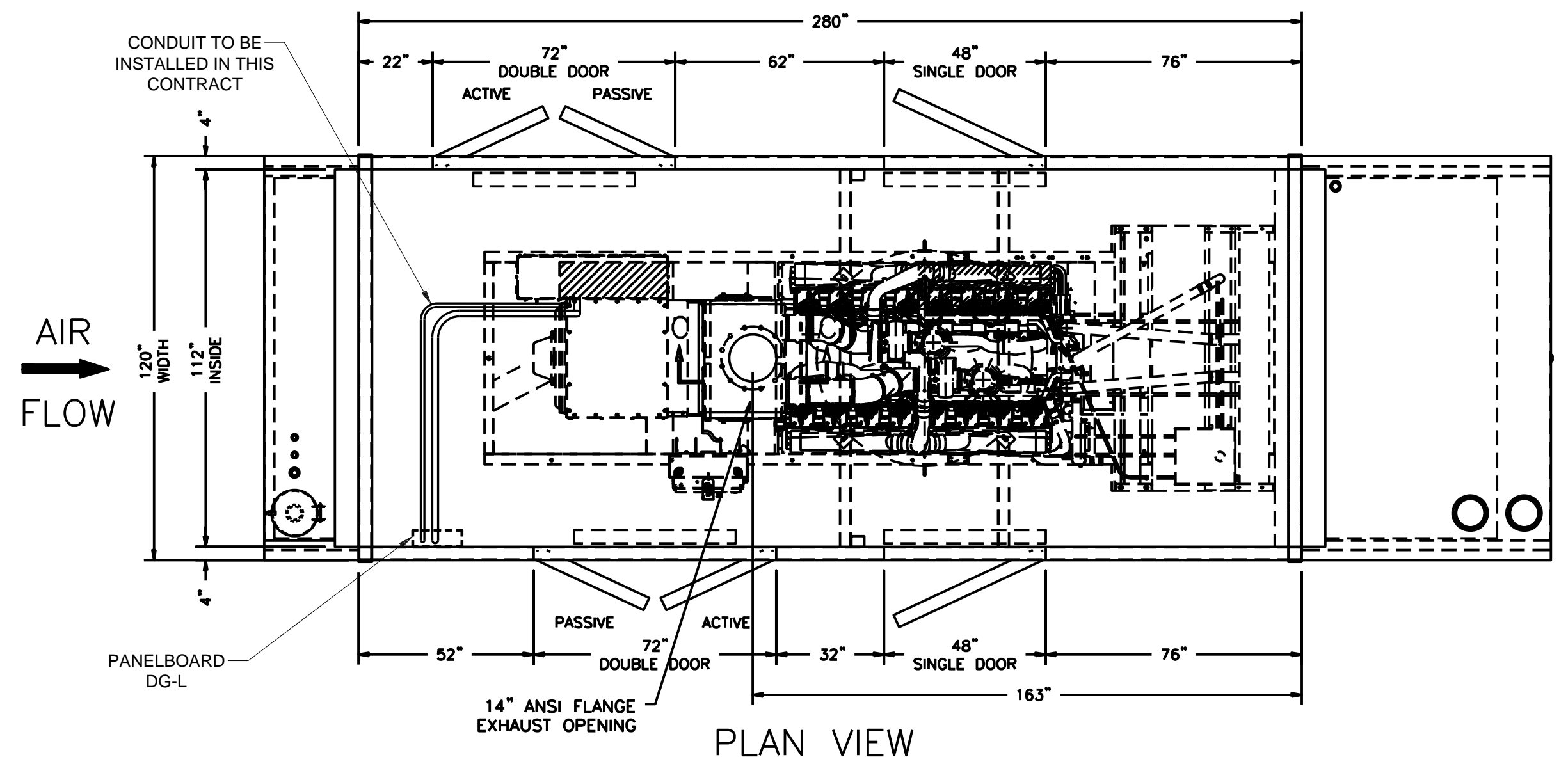
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KALLURI PROJECT NO: 4141
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CHECKED BY: MHW
SCALE: NONE

ELECTRICAL
SCHEDULES

E-8

SHEET 12 OF 16

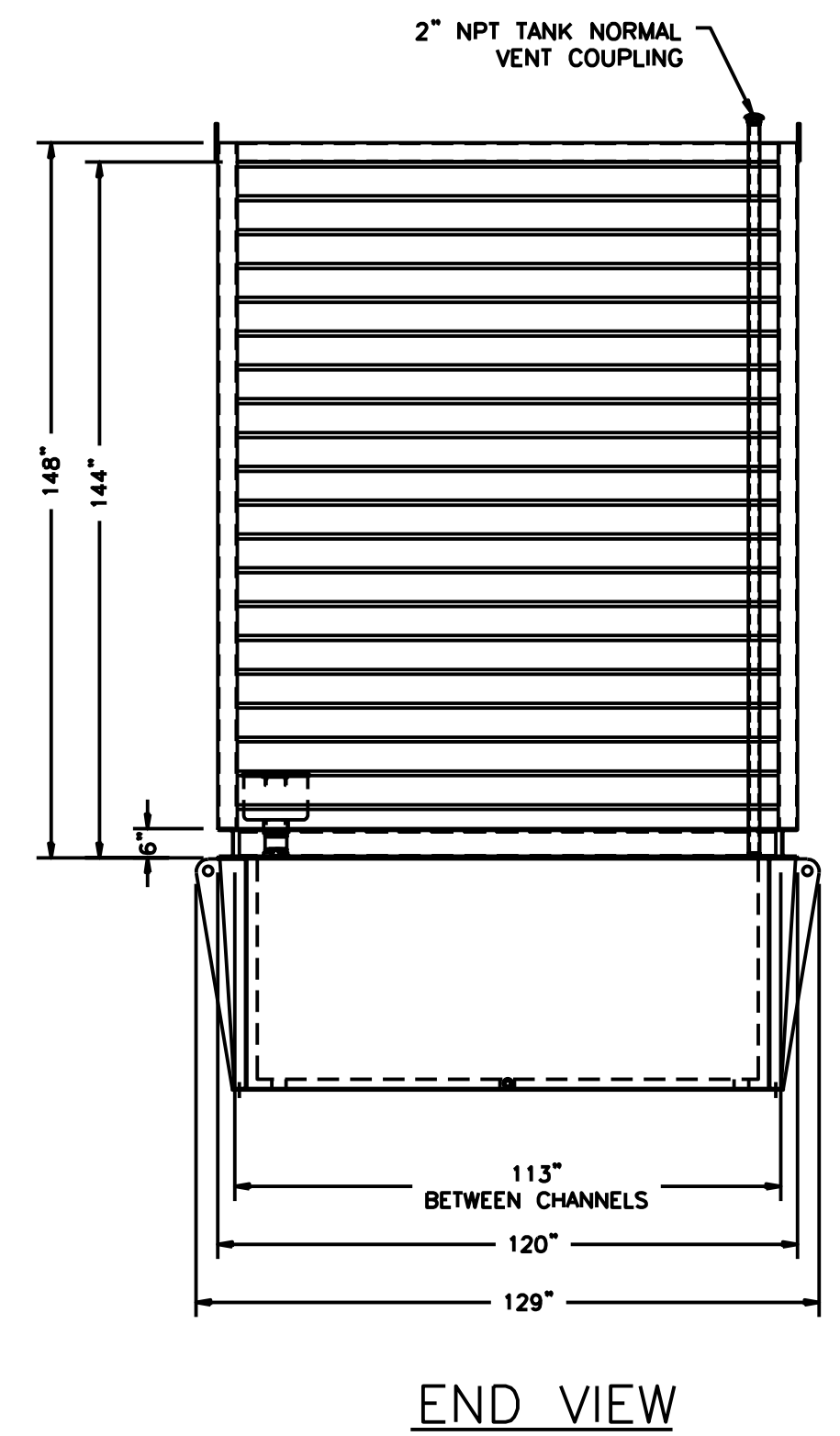
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GENERAL NOTES:

A. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY, AND WAS CREATED FROM THE MANUFACTURER'S SHOP DRAWING SUBMITTAL.

- NOTES:
- ENCLOSURE ASSEMBLY:**
- FOR A CUMMINS 1500 DOGAB GEN-SET.
 - FULLY ASSEMBLED DROP OVER ENCLOSURE TO BE ANCHORED TO THE BASE TANK.
 - PANEL JOINTS ARE SKIP WELDED AND CAULKED.
- ENCLOSURE CONSTRUCTION:**
- WALLS AND ROOF - .09" 5052-H32 ALUMINUM.
 - FRAME CONSTRUCTION - 6061-T6 ALUMINUM STRUCTURAL CHANNEL & 6061-T6 ALUMINUM TUBING.
 - INNER LINER - PERFORATED ALUMINUM.
 - INSULATION - MINERAL WOOL AND POLY LINER.
 - DOORS - TWO (2) SINGLE & TWO (2) DOUBLE ACCESS SERVICE DOORS STAINLESS STEEL HINGES AND DOOR LATCHES.
 - LOUVERS - INLET & DISCHARGE WEATHER LOUVERS W/STAINLESS STEEL BIRDSCREEN. ALUMINUM CONSTRUCTION.
 - BOLTING HARDWARE - STAINLESS STEEL.
- DESIGN SPECIFICATIONS:**
- BASED ON A TOTAL AIR REQUIREMENT OF 65,045 CFM AT LESS THAN 1/2" W.G. BACK PRESSURE THROUGH THE ENCLOSURE.
 - ENGINE EXHAUST IS NOT INCLUDED
 - GEN-SET TO BE ISOLATED FROM SKID.
- PAINTING:**
- ALL EXTERIOR ALUMINUM SURFACES TO BE SOLVENT CLEANED PER SSPC-SP1 AND PAINTED AS FOLLOWS:
PRIMER - ONE COAT PRIMER (0.5-1 MILS DFT)
INTERMEDIATE - ONE COAT AMERICAN COATINGS POLYURETHANE (1-2 MILS DFT)
FINISH - ONE COAT AMERICAN COATINGS POLYURETHANE (1.5-2 MILS DFT)
• COLOR - ENCLOSURE - ONAN GREEN.
TANK - GLOSS BLACK
- ELECTRICAL:**
- SEE DRAWING H1025183C
- ENCLOSURE SHIPPING SIZE & WEIGHT:**
- SIZE - 294" L x 126" W x 152" H
 - WEIGHT - 7,000 LBS.
- TOTAL ENCLOSURE/TANK SHIPPING SIZE & WEIGHT:**
- SIZE - 382" L x 129" W x 201" H
 - WEIGHT - 58,500 LBS.



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www.SJRA.net

WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION

SJRA PROJECT NO: W DPR
KALLURI PROJECT NO: 4141
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CHECKED BY: MHW
SCALE: NTS

ELECTRICAL
GENERATOR ENCLOSURE
PLAN AND ELEVATIONS

E-9

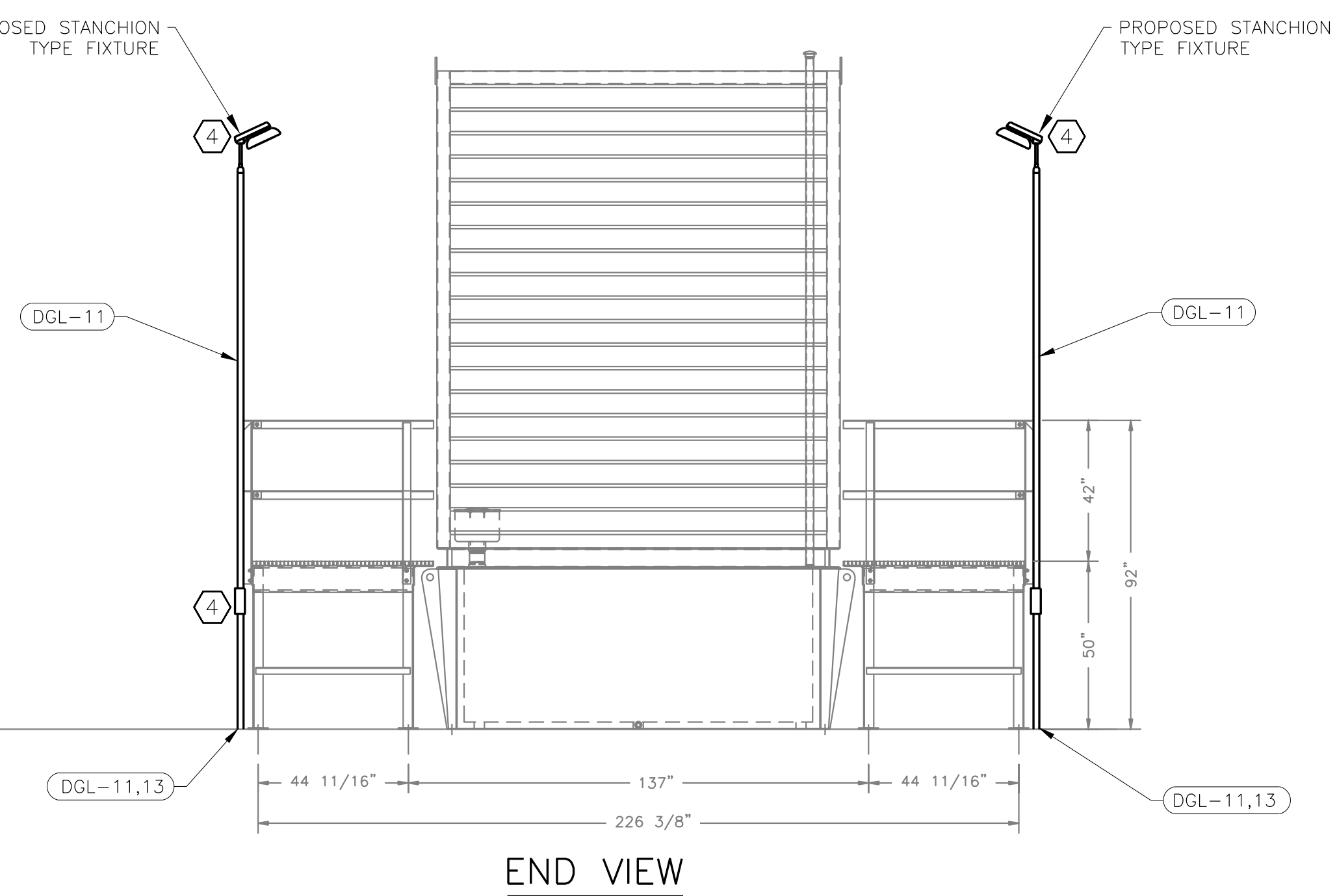
SHEET 13 OF 16



A. THIS DRAWING IS PROVIDED TO ILLUSTRATE THE PROPOSED GENERATOR ACCESS PLATFORM AND ANCILLARY COMPONENT LAYOUT.

B. NOT ALL CONDUIT REQUIRED IS SHOWN HERE, SEE OTHER DRAWINGS AND DETAILS FOR COMPLETE INFORMATION.

- ① ROUTE 2 INCH PANEL DG-L FEEDER, STANCHION LIGHT AND DIESEL FUEL PUMP CIRCUIT CONDUITS UP THROUGH BLOCK OUT, AROUND ENCLOSURE TO CEILING, AND INTO PANEL DG-L.
- ② EXACT LOCATION OF GENERATOR CONTROLS IS NOT KNOWN, HOWEVER THE CONTRACTOR SHALL ROUTE CONTROL AND ANNUNCIATOR CONDUIT FROM BLOCK OUT TO CONTROL PANEL.
- ③ GENERATOR FEEDERS SHALL TERMINATE IN THE GENERATOR BREAKER ENCLOSURE ABOVE THE BLOCK OUT.
- ④ COORDINATE EXACT FIXTURE ELEVATION WITH PLANT OPERATIONS FOR BEST USAGE OF THE LIGHT, PRIOR TO RISER CONDUIT ASSEMBLY. SEE DRAWING E-11 FOR STANCHION LIGHT INFORMATION AND INSTALLATION DETAILS.
- ⑤ PROVIDE ALUMINUM CONDUIT, COPPER FREE ALUMINUM BOXES, ALL STAINLESS STRAPS AND HARDWARE. SEE E-11 FOR LIGHT FIXTURE TO BE AT EACH STAIR.
- ⑥ SEE DRAWING E-12 FOR FUEL TRANSFER CONTROL STATION DETAIL.



STATE OF TEXAS
WADE A HUBBLE
121581
LICENSED
PROFESSIONAL ENGINEER
05.07.19

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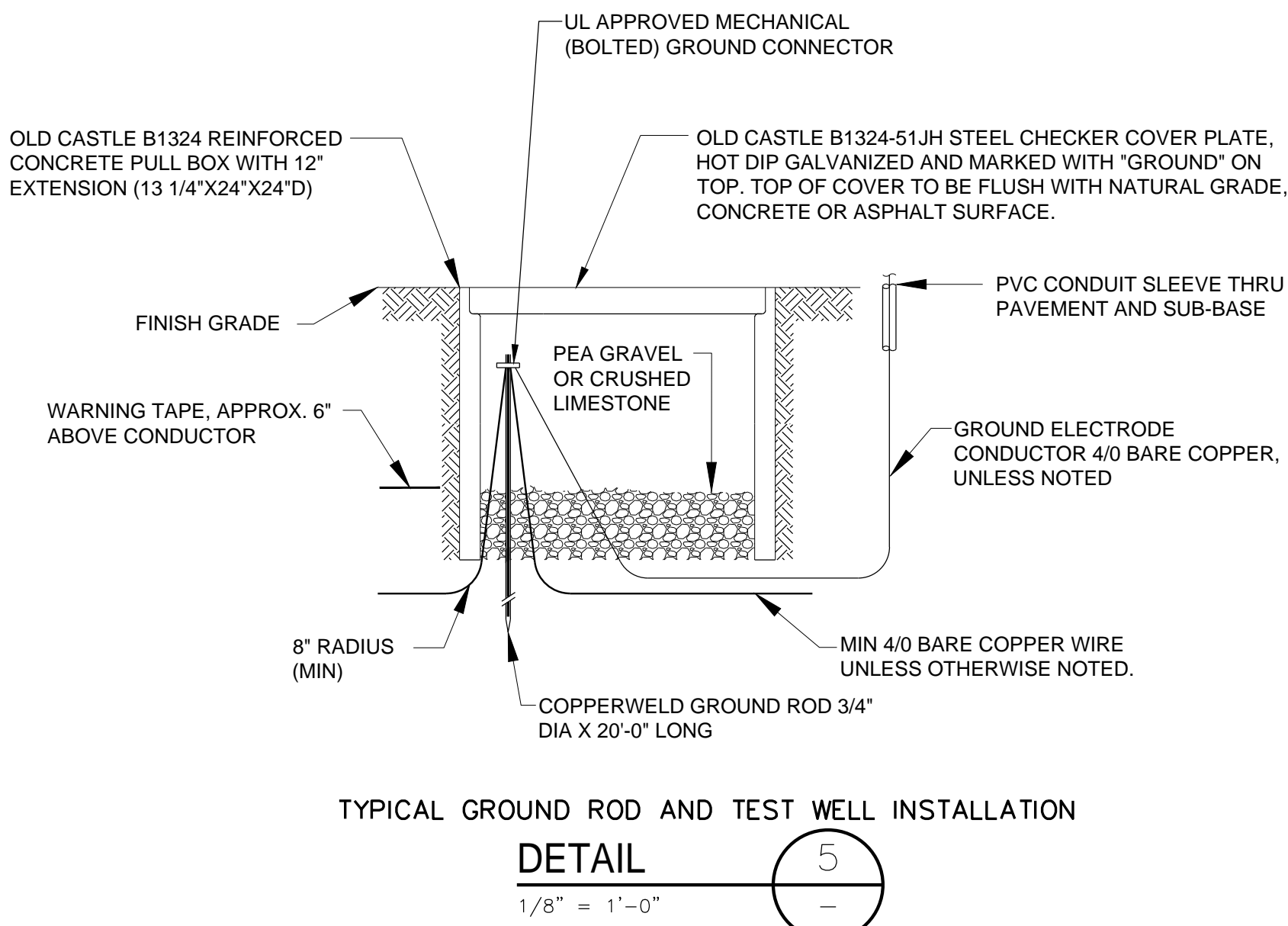
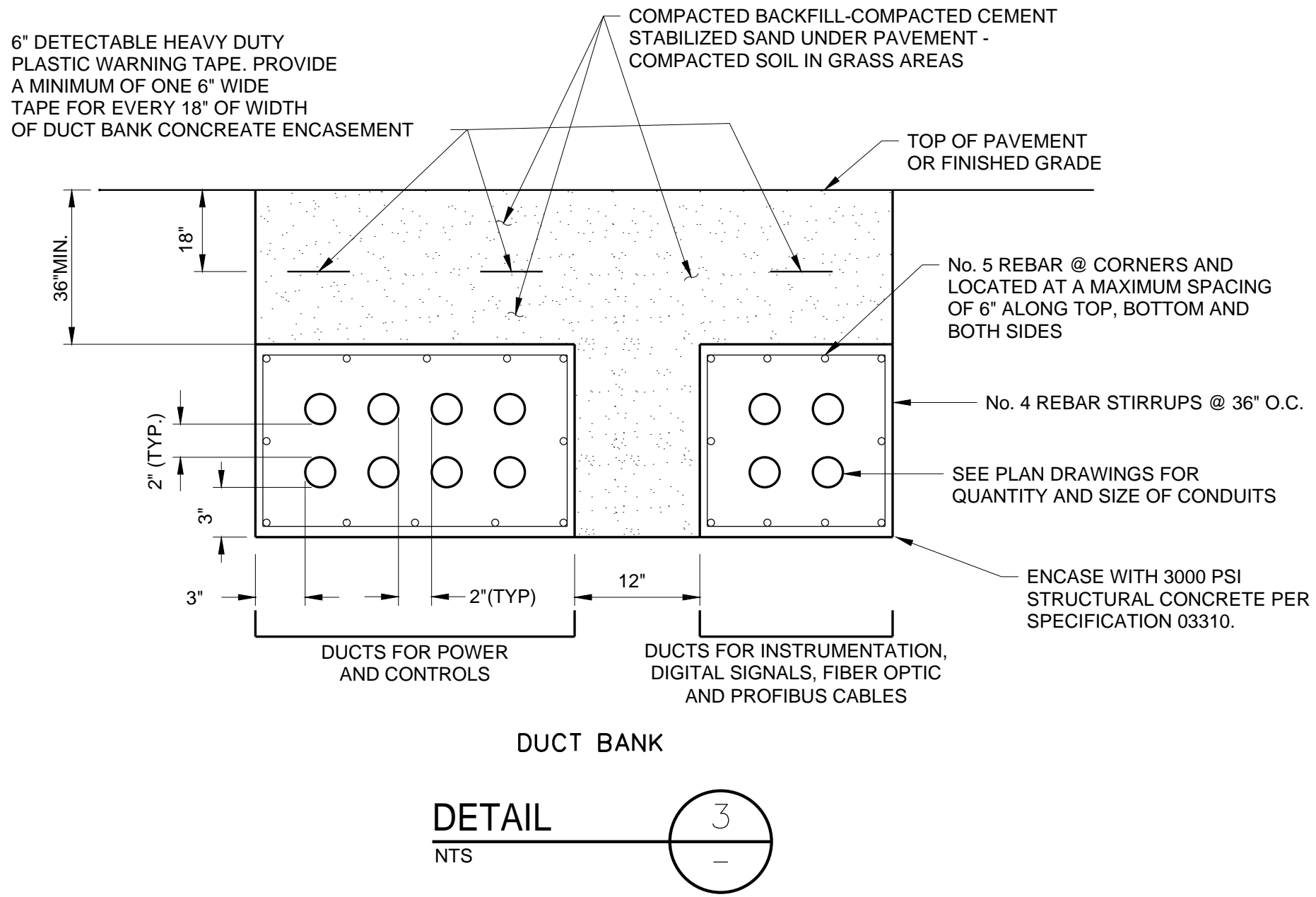
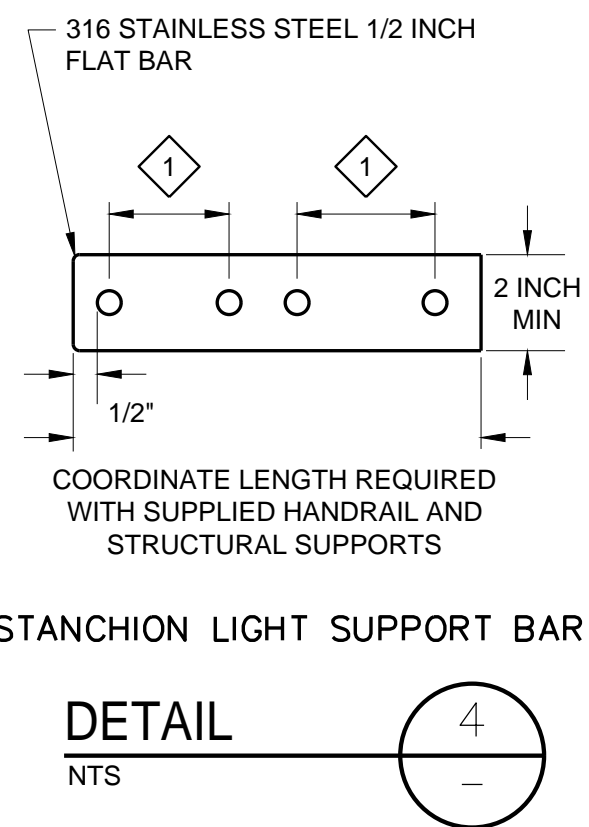
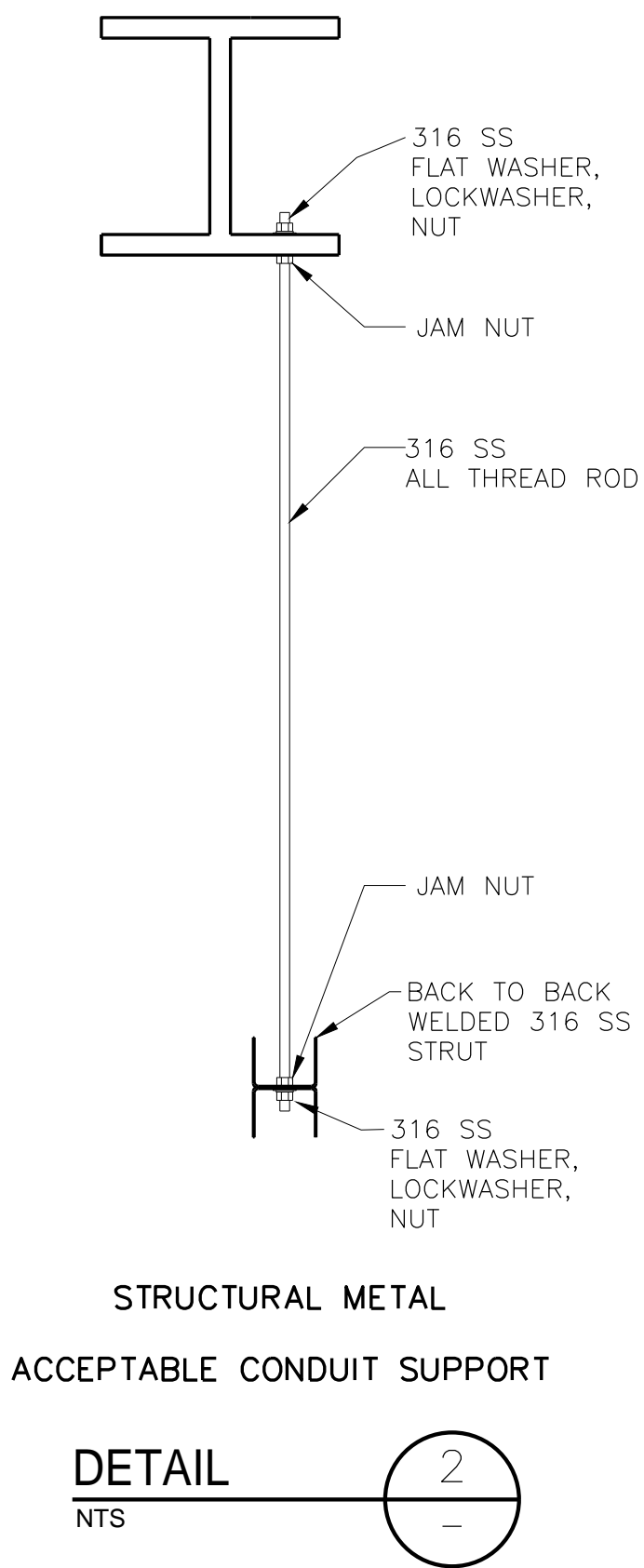
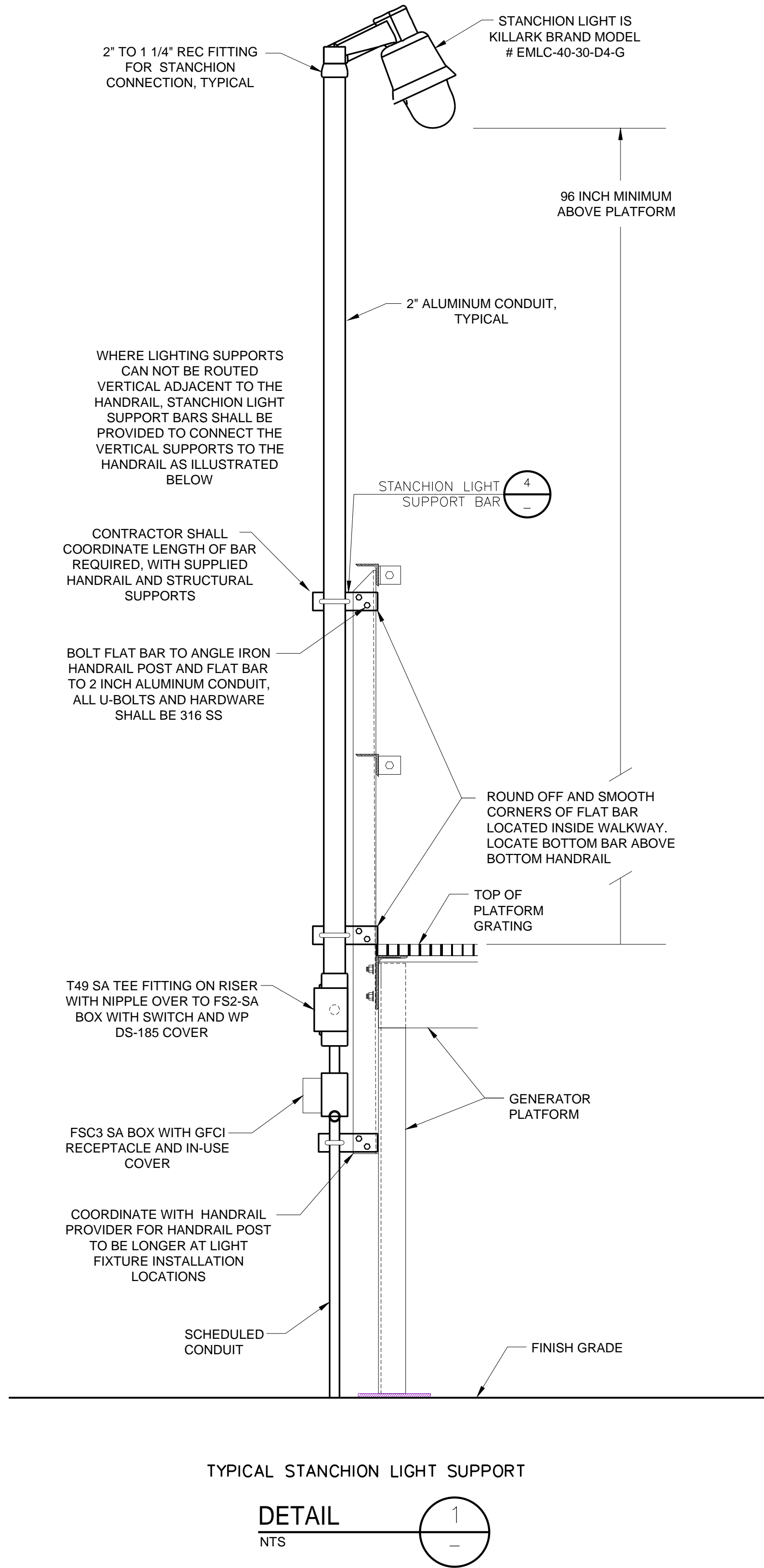
WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
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KALLURI PROJECT NO: 4141		
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SCALE: NTS		

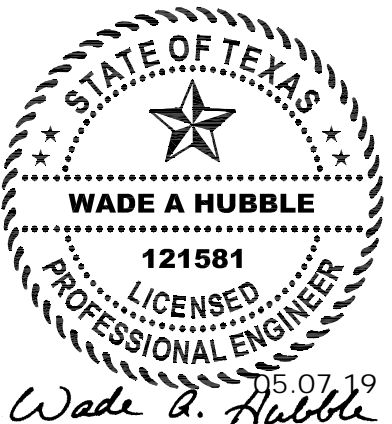
ELECTRICAL GENERATOR PLATFORM PLAN AND ELEVATIONS

SHEET 14 OF 16

FILE: L:\Active projects\4141-SJRA (WWTF 2 Generator Replacement)\Drawings\E-11 Details Sheet 1.dwg LAYOUT: E-11 DATE: 5/8/2019 9:45:08 AM BY: HOWARD



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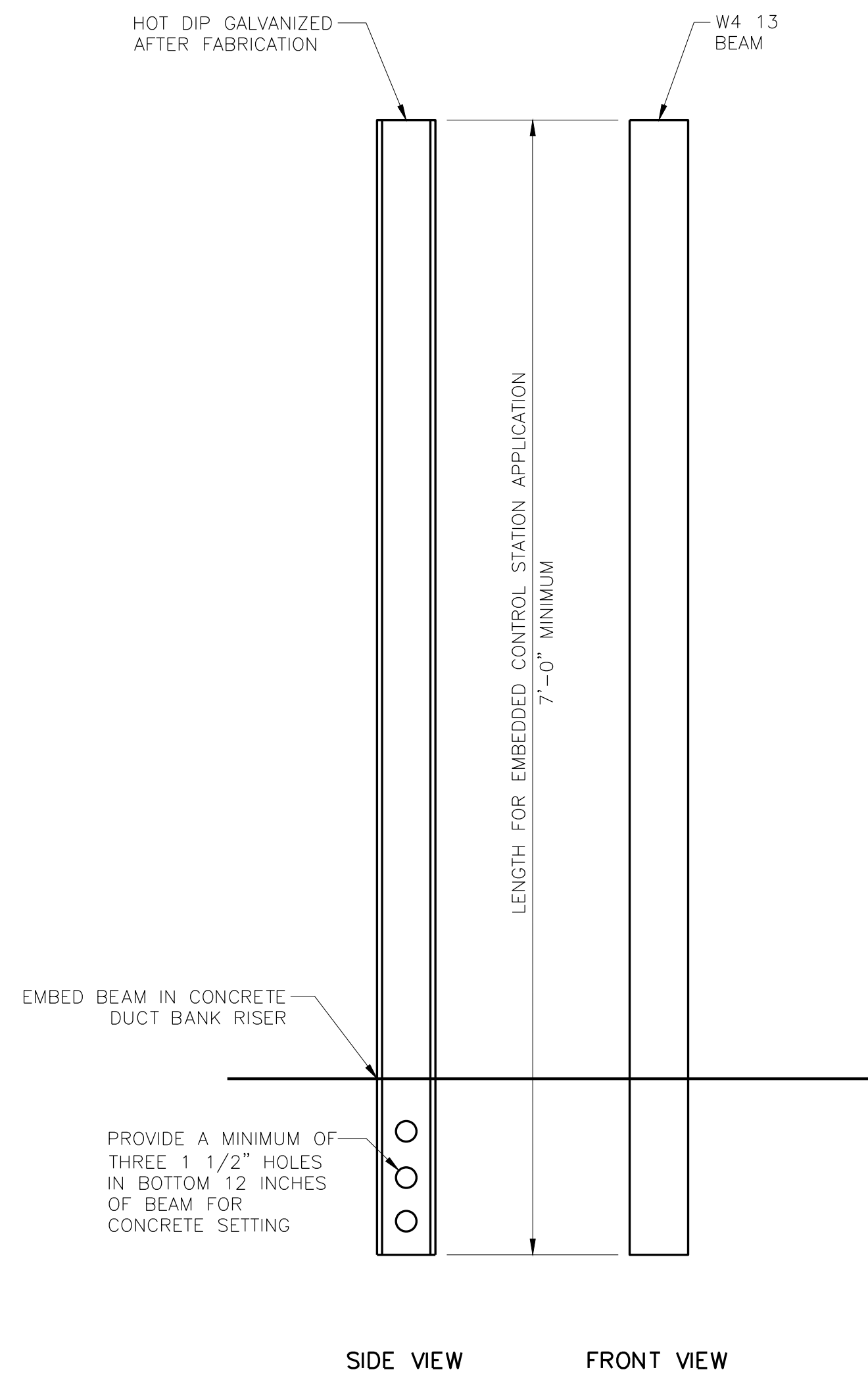
WWTF NO. 2
GENERATOR
REPLACEMENT

ISSUE	DATE	DESCRIPTION
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KALLURI PROJECT NO:	4141	
DRAWN BY:	MA	
CHECKED BY:	MHW	
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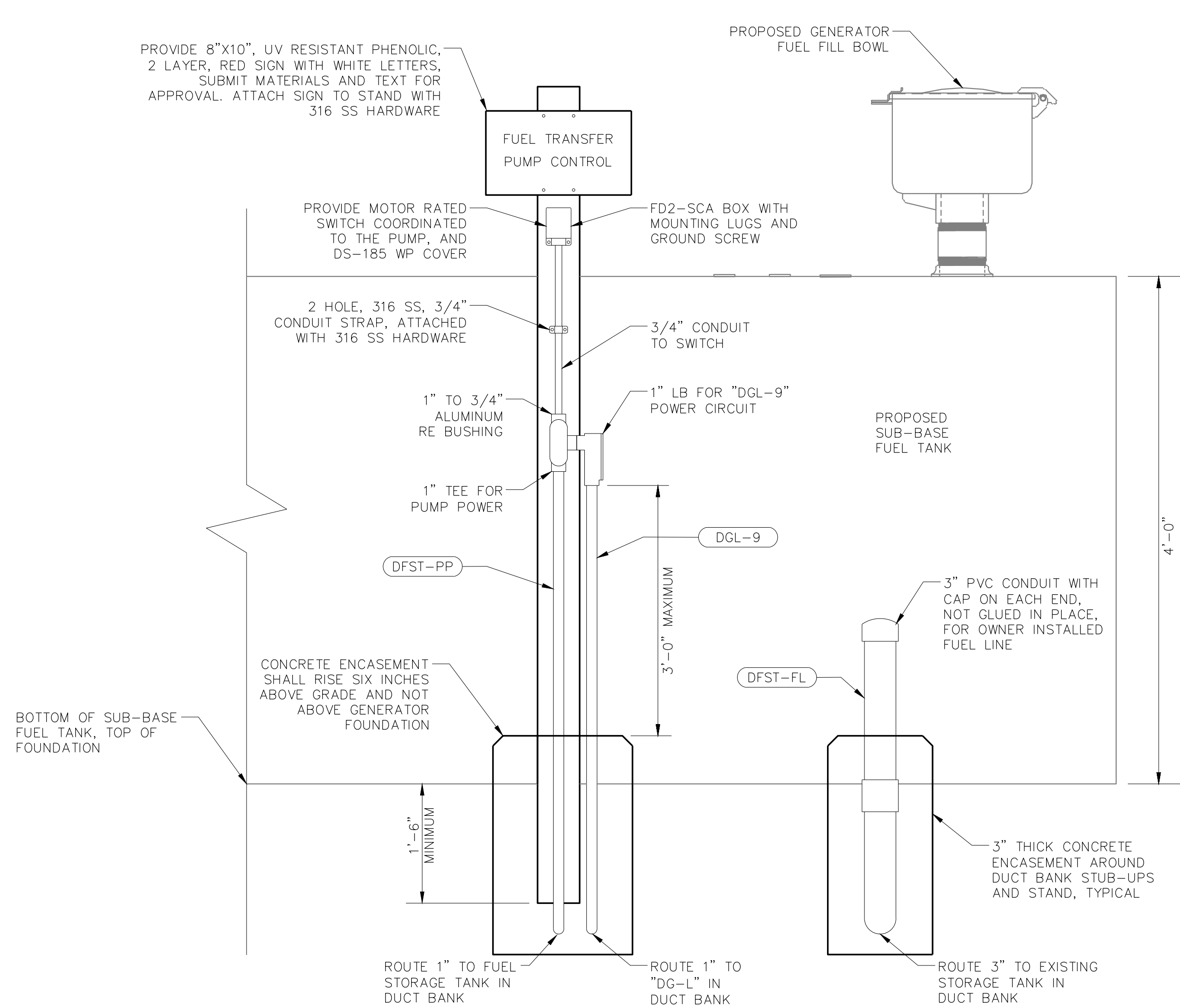
ELECTRICAL
DETAILS
SHEET 1 OF 2

E-11
SHEET 15 OF 16

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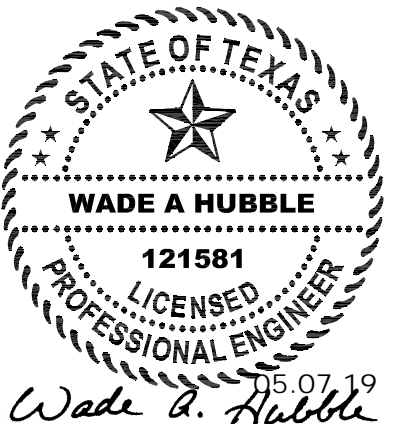
CONTROL STATION VERTICAL SUPPORT



FUEL TRANSFER CONTROL STATION



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WWTF NO. 2
GENERATOR
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ISSUE	DATE	DESCRIPTION
SJRA PROJECT NO: WDPDR		
KALLURI PROJECT NO: 4141		
DRAWN BY: MA		
CHECKED BY: MHW		
SCALE: AS NOTED		

ELECTRICAL
DETAILS
SHEET 2 OF 2

SHEET 16 OF 16