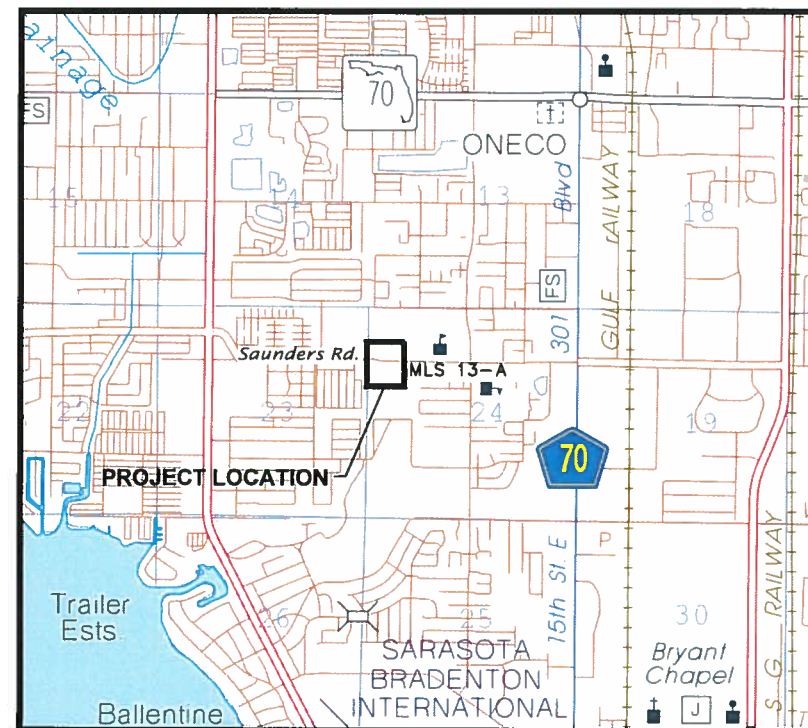




CONTRACT DRAWINGS  
**MLS 13-A (RTU #408)**  
**EMERGENCY GENERATOR**  
**REPLACEMENT**  
**FOR**  
**MANATEE COUNTY, FLORIDA**  
**COUNTY PROJECT NUMBER: 6022382**



**INDEX OF SHEETS**

SHEET NO	SHEET DESCRIPTION
G-1	COVER
G-2	GENERAL NOTES & SYMBOLOGY
C-1	SITE PLAN
C-2	SITE LAYOUT
C-3	BUILDING LAYOUT
C-4	SITE PHOTOS
C-5	DETAIL SHEET
E-1 TO E-6	ELECTRICAL SHEETS
S-1	STRUCTURAL SHEET - GENERATOR BUILDING PLAN AND DETAILS



48 HOURS BEFORE DIGGING  
"CALL SUNSHINE"  
1-800-432-4770

**UTILITY WARNING NOTE**

ABOVE GROUND AND / OR UNDERGROUND UTILITIES MAY BE IN THE AREA OF THIS PROJECT - PROCEED WITH CAUTION - THE CONTRACTOR SHALL CALL SUNSHINE STATE "ONE CALL" AT 1-800-432-4770 AND THE UTILITY OWNERS IN ADVANCE OF BEGINNING WORK, IN ACCORDANCE WITH CHAPTER 556, FLORIDA STATUTES.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS  
MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION.  
THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

REVISIONS		
DATE	BY	DESCRIPTION



PLANS PREPARED BY:



KELLY S. WEHNER, PE  
ENGINEER OF RECORD

60273  
FL. LICENSE NO.

DATE: SEPT 2015  
SHEET: G-1

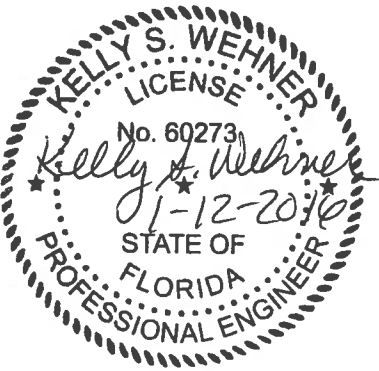
GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS USED IN THE CONSTRUCTION OF THIS PROJECT SHALL BE NEW AND UNUSED AND CONFORM TO, OR EXCEED THE LATEST LOCAL JURISDICTION STANDARDS.
2. CONTACT SUNSHINE STATE ONE CALL FOR UTILITY LOCATES A MINIMUM OF 48-HOURS AND A MAXIMUM OF 5-DAYS PRIOR TO START OF CONSTRUCTION AT 1-800-432-4770.
3. THE CONTRACTOR SHALL NOTIFY UTILITY OWNERS A MINIMUM OF 2-DAYS AND A MAXIMUM OF 5-DAYS PRIOR TO START OF CONSTRUCTION.

UTILITY OWNER	CONTACT NAME	CONTACT NUMBER
BRIGHT HOUSE NETWORKS	TOM WRIGHT	(941) 345-1348 EXT 21348
FLORIDA POWER AND LIGHT	TRACY STERN	(800) 868-9554
TECO PEOPLES GAS	DANNY SHANAHAN	(941) 342-4006
VERIZON FLORIDA INC.	DAVID WYNNS	(813) 978-2164
MANATEE COUNTY TRANSPORTATION	KATHY McMAHON	(941) 792-8811 EXT 5002
MANATEE COUNTY UTILITY OPERATIONS	KATHY McMAHON	(941) 792-8811 EXT 5002

4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT FPL/GTE FOR RESTRAINING OF POLES DURING CONSTRUCTION. ALL ASSOCIATED COSTS WILL BE AT CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE LOCAL NOISE ORDINANCE.
6. HOURS OF WORK SHALL BE: NON-FEDERAL HOLIDAYS, MONDAY - FRIDAY 7AM - 5PM. WORK OUTSIDE THESE HOURS MUST BE SCHEDULED 48 HOURS IN ADVANCE AND MAY BE SUBJECT TO REIMBURSEMENT FOR ADDITIONAL INSPECTION SERVICES.
7. THE CONTRACTOR SHALL OBTAIN REQUIRED PERMITS PRIOR TO CONSTRUCTION. THESE MAY INCLUDE:
- UTILITY CONSTRUCTION PERMIT.
  - R.O.W. USE PERMIT
  - EPA NPDES PERMIT
  - DEWATERING PERMIT (AS REQUIRED)
  - TREE REMOVAL PERMIT
8. THESE DRAWNGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION SAFETY. SPECIAL PRECAUTIONS MAY BE REQUIRED IN THE VICINITY OF POWER LINES AND OTHER UTILITIES.
9. THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL NECESSARY TRAFFIC CONTROL AND SAFETY DEVICES, IN ACCORDANCE WITH THE US DEPARTMENT OF TRANSPORTATION, "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND THE LATEST FLORIDA DEPARTMENT OF TRANSPORTATION "ROADWAY AND TRAFFIC DESIGN STANDARDS", LATEST EDITION AND CONTRACT SPECIFICATIONS.
10. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN EFFECTIVE BARRICADES, DANGER SIGNALS, SIGNS AND PEDESTRIAN DETOURS IN ALL AREAS WHERE REQUIRED FOR THE PROTECTION OF THE WORK AND THE SAFETY OF THE PUBLIC.
11. THE CONTRACTOR SHALL PROVIDE ACCESS FOR TRAFFIC AT ALL TIMES DURING CONSTRUCTION. CONSTRUCTION SHALL BE CONDUCTED IN SUCH A MANNER THAT RESIDENTS RETAIN ACCESS TO THEIR DRIVEWAYS AT ALL TIMES.
12. REFERENCES TO FDOT INDEXES REFER TO THE MOST RECENT EDITION OF THE FDOT "ROADWAY AND TRAFFIC DESIGN STANDARDS."
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL AND PREVENT EROSION AND THE TRANSPORTATION OF SEDIMENT TO SURFACE DRAINS AND OUTFALLS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE A REVIEW OF THE SITE TO DETERMINE EXISTING CONDITIONS AND ANYTHING NOT SHOWN ON THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND SHALL NOT CONSTITUTE AN EXTRA APPROVED BY THE ENGINEER.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY DAMAGED ITEMS INCLUDING, BUT NOT LIMITED TO, DRIVEWAYS, IRRIGATION SYSTEMS, MAILBOXES, SIDEWALKS, STREET SIGNS, AND PRIVATE FENCES AS REQUIRED BY E.O.R./OTHER GOVERNING ENTITIES.
16. ALL SECTION CORNERS OR PROPERTY CORNERS DISLOCATED OR DISTURBED BY THE CONSTRUCTION ACTIVITIES SHALL BE RESET BY A REGISTERED LAND SURVEYOR AT THE CONTRACTORS EXPENSE.
17. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE NOTED. FINAL GRADE IS TO GENERALLY BE THE SAME AS EXISTING GRADE. RESTORE UNIFORMLY AND FOR PROPER DRAINAGE GRADE TOWARD ROADWAY.
18. THE CONTRACTOR IS RESPONSIBLE FOR THE DISPOSAL OF ALL CLEARED VEGETATION WITHIN FIVE (5) DAYS OF CLEARING AND GRUBBING WORK.
19. ALL EXCESS SOIL RESULTING FROM CONSTRUCTION ACTIVITIES THAT IS NOT CLAIMED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

20. ALL VOIDS AFTER PLACEMENT OF SOD SHALL BE FILLED WITH PREPARED SOIL MIX. THE SOD SHALL BE ROLLED TO MEET THE PROPOSED GRADES. SOD PLACED ON SLOPES (3:1 OR STEEPER) SHALL BE PEGGED.
21. AREAS OF EXPOSED EARTH RESULTING FROM CONSTRUCTION SHALL BE SODDED IN KIND AS DIRECTED BY THE ENGINEER UNLESS OTHERWISE NOTED ON PLANS.
22. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATION, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING HIS WORK PRIOR TO CONSTRUCTION.
23. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION AND ELEVATION OF ALL EXISTING UTILITY CONNECTION POINTS PRIOR TO STARTING CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY THE ENGINEER AND OWNER OF ANY DISCREPANCIES FOUND.
24. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE MAY BE SOME CONFLICTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, PROTECT, AND REPLACE (IF DAMAGED) ANY AND ALL EXISTING UTILITIES ON THIS PROJECT AT THEIR OWN EXPENSE.
25. THE CONSTRUCTION LIMITS INDICATED IN THESE PLANS ARE APPROXIMATE. ACTUAL LIMITS MAY BE SET IN THE FIELD AS DIRECTED BY THE ENGINEER.
26. ALL POTABLE WATER, FIRE, IRRIGATION SYSTEM, SANITARY SYSTEM, STORM SYSTEM AND OTHER UTILITIES COMPONENTS SHALL BE PROTECTED AND SHALL REMAIN OPERATIONAL DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ANY DAMAGE TO THE SYSTEMS.
27. CONTRACTOR SHALL ENSURE THAT EXCAVATIONS ARE FREE OF DEBRIS PRIOR TO BACKFILLING.
28. THE CONTRACTOR SHALL NOT ENTER OR OCCUPY ANY LAND OUTSIDE THE RIGHTS-OF-WAY OR PRIVATE PROPERTY WITHOUT THE WRITTEN CONSENT OF THE PROPERTY OWNER.
29. THE CONTRACTOR SHALL TAKE ALL REASONABLE MEANS TO ELIMINATE THE TRANSPORT OF DUST FROM THE PROJECT SITE. SPECIAL MEASURES, SUCH AS PERIODICALLY APPLYING WATER TO THE WORK SITE TO PREVENT DUST SHALL BE INCORPORATED INTO THE CONTRACTORS WORK PLAN.
30. WHERE REFERENCED STANDARDS CONFLICT, THE MORE STRINGENT STANDARD SHALL APPLY.
31. CONTRACTOR SHALL SUPPORT AND PROTECT ALL EXISTING UTILITIES AS REQUIRED. THIS SHOULD INCLUDE BY-PASS PUMPING IF REQUIRED.



SURVEYOR'S NOTES & SYMBOLOGY

NOTE: EXISTING FEATURES ARE SHOWN LIGHT-LINED AND DASHED

LEGEND

	UTILITY POLE		SPOT ELEVATION (TYP)
	UTILITY ANTENNA		GUY WIRE
	WATER CONTROL VALVE		UTILITY VALVE
	PIPE		SANITARY MANHOLE
	CONTROL PANEL		UTILITY BOX
	BACKFLOW PREVENTER		BOLLARD
	SITE BENCHMARK		PALM TREE
	TREE		SIGN
	PINE TREE		OAK TREE
	WET WELL		MAPLE TREE
			UTILITY METER

1. THE FOLLOWING NGS VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR THE ELEVATIONS INDICATED HEREIN:  
"WHITE ASH" NAVD 1988 ELEVATION 18.29'
2. THIS SURVEY IS REFERENCED TO A PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE NAD 1983/2007 ADJUSTMENT).
3. TITLE WORK WAS NOT PROVIDED FOR THIS SURVEY. PARCEL LINES SHOWN HEREIN ARE BASED ON FOUND BOUNDARY MONUMENTATION TOGETHER WITH PUBLIC INFORMATION AVAILABLE ON THE MANATEE COUNTY CLERK WEBSITE.
4. THIS SURVEY IS SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.

SURVEY PROVIDED BY:

Hyatt Survey Services, Inc.  
LB No.: 7203 Geographic Data Specialists  
11007 8th Avenue East Bradenton, Florida 34212  
Phone: (941) 748-4693 Fax: (941) 744-1643

LINE WORK & SYMBOLOGY

	ASPHALT ROADWAY		CHAIN LINK FENCE
	BACK OF CURB		BUILDING BOUNDARY
	SHELL DRIVEWAY		TOP OF BANK
	CONCRETE DRIVEWAY		WETLAND LINE
	RIGHT-OF-WAY/PROPERTY LINE		GUARDRAIL
	PROPERTY LINE		CONTOUR LINE AND ELEV

EXISTING UTILITY LINE WORK SYMBOLOGY

NOTE: PIPES 12-INCHES AND LARGER SHOWN WITH DOUBLE LINES.

	WATER MAIN		BURIED ELECTRIC
	BURIED FIBER OPTIC		BURIED TELEPHONE
	GAS MAIN		SANITARY FORCE MAIN
	BURIED CABLE TV		RECLAIMED WATER MAIN
	UNKNOWN UTILITY		TEST HOLE LOCATION

NOTE:  
THE LEGEND LISTED REPRESENT A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE. THEREFORE, NOT ALL OF THE SYMBOLS AND ABBREVIATIONS CONTAINED ON THIS SHEET ARE NECESSARILY USED ON THIS PARTICULAR CONTRACT.

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT



KELLY S. WEHNER, PE  
LIC. NO.: 60273

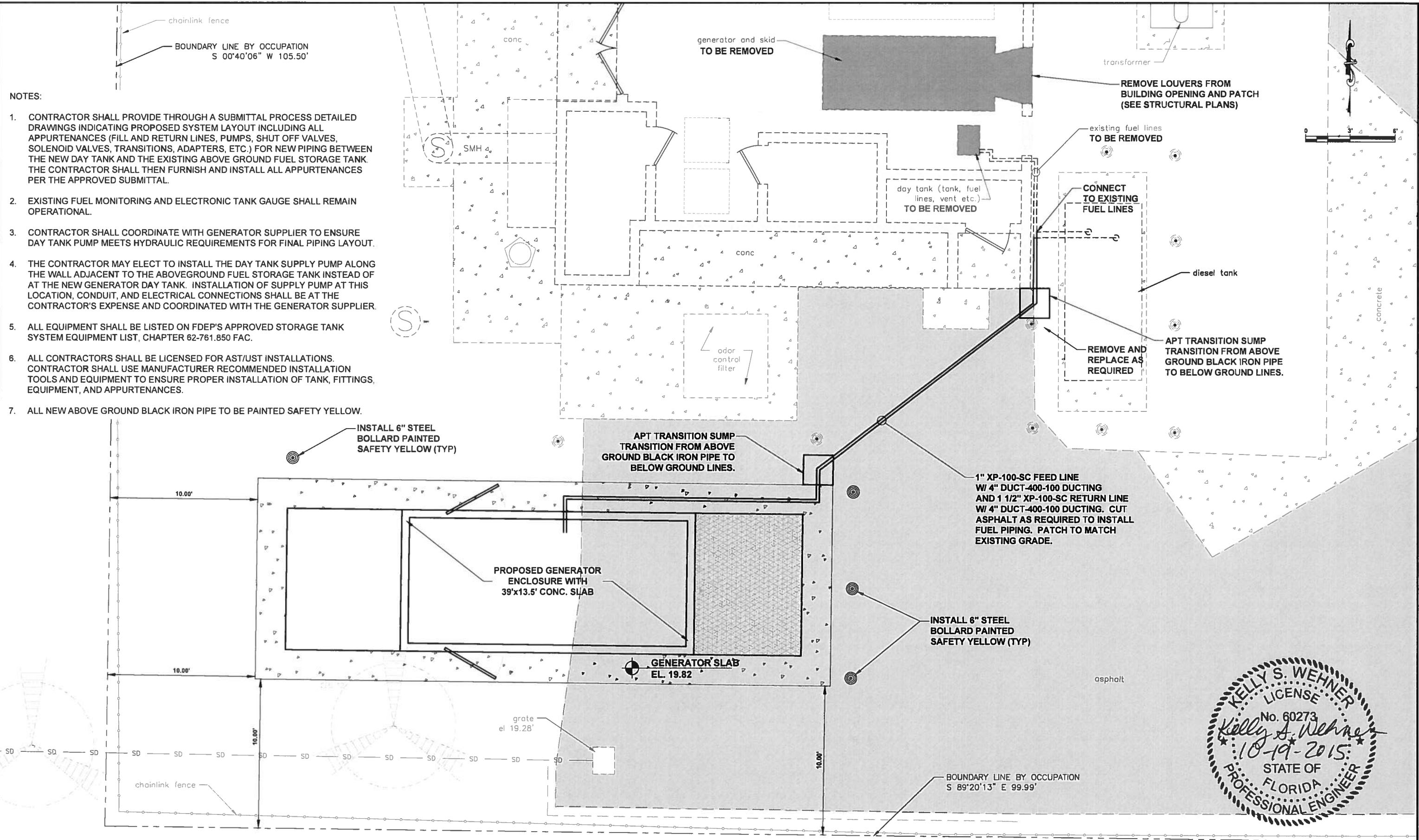
DESIGNED	DRM
DRAWN	RFN
C.C.	DRM
APPROVED	

GENERAL NOTES &  
SYMBOLOGY

PROJECT NO:	00193009 06
DATE:	SEPT 2015
SHEET NO:	G-2







- NOTES:
1. CONTRACTOR SHALL PROVIDE THROUGH A SUBMITTAL PROCESS DETAILED DRAWINGS INDICATING PROPOSED SYSTEM LAYOUT INCLUDING ALL APPURTENANCES (FILL AND RETURN LINES, PUMPS, SHUT OFF VALVES, SOLENOID VALVES, TRANSITIONS, ADAPTERS, ETC.) FOR NEW PIPING BETWEEN THE NEW DAY TANK AND THE EXISTING ABOVE GROUND FUEL STORAGE TANK. THE CONTRACTOR SHALL THEN FURNISH AND INSTALL ALL APPURTENANCES PER THE APPROVED SUBMITTAL.
  2. EXISTING FUEL MONITORING AND ELECTRONIC TANK GAUGE SHALL REMAIN OPERATIONAL.
  3. CONTRACTOR SHALL COORDINATE WITH GENERATOR SUPPLIER TO ENSURE DAY TANK PUMP MEETS HYDRAULIC REQUIREMENTS FOR FINAL PIPING LAYOUT.
  4. THE CONTRACTOR MAY ELECT TO INSTALL THE DAY TANK SUPPLY PUMP ALONG THE WALL ADJACENT TO THE ABOVEGROUND FUEL STORAGE TANK INSTEAD OF AT THE NEW GENERATOR DAY TANK. INSTALLATION OF SUPPLY PUMP AT THIS LOCATION, CONDUIT, AND ELECTRICAL CONNECTIONS SHALL BE AT THE CONTRACTOR'S EXPENSE AND COORDINATED WITH THE GENERATOR SUPPLIER.
  5. ALL EQUIPMENT SHALL BE LISTED ON FDEP'S APPROVED STORAGE TANK SYSTEM EQUIPMENT LIST, CHAPTER 62-761.850 FAC.
  6. ALL CONTRACTORS SHALL BE LICENSED FOR AST/UST INSTALLATIONS. CONTRACTOR SHALL USE MANUFACTURER RECOMMENDED INSTALLATION TOOLS AND EQUIPMENT TO ENSURE PROPER INSTALLATION OF TANK, FITTINGS, EQUIPMENT, AND APPURTENANCES.
  7. ALL NEW ABOVE GROUND BLACK IRON PIPE TO BE PAINTED SAFETY YELLOW.

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT

**Cardno**  
Shaping the Future  
380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759  
TEL: (727) 531-3505 (800) 861-8314  
www.cardno.com Certificate of Authorization No. 29915

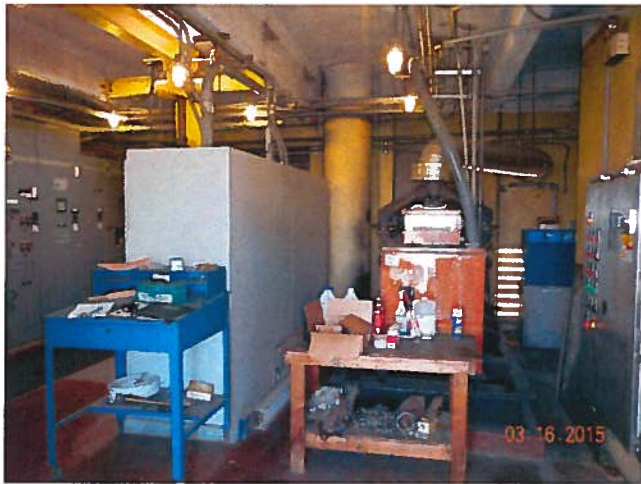
KELLY S. WEHNER, PE  
LIC. NO.: 60273

DESIGNED  
DRAWN  
Q.C.  
APPROVED

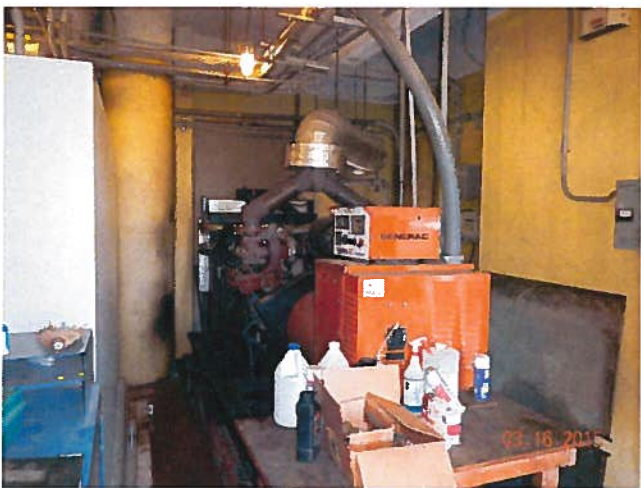
SITE LAYOUT

PROJECT NO:  
00193009.06  
DATE:  
SEPT 2015  
SHEET NO:  
C-2





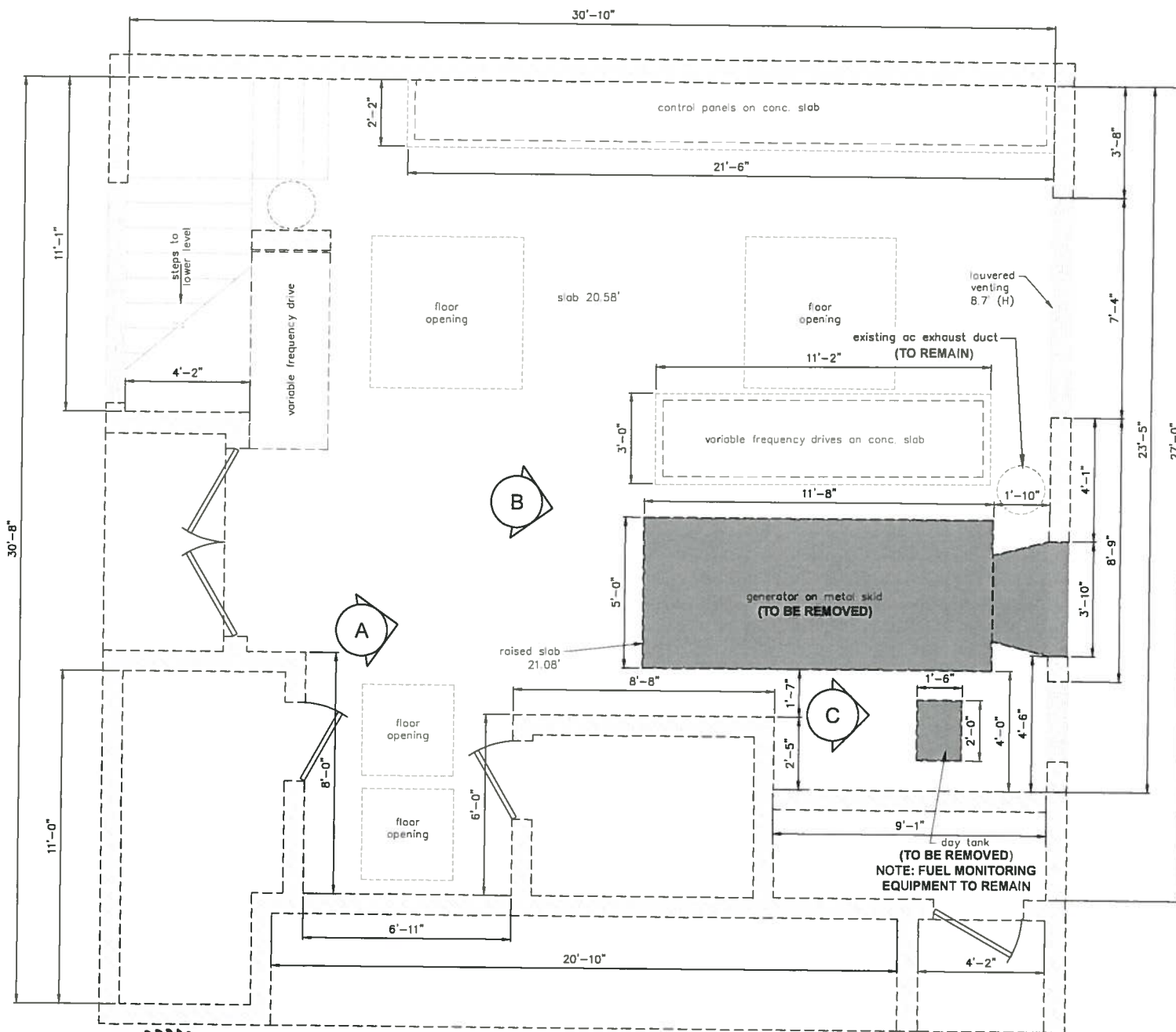
INTERIOR PHOTO  
(FACING EAST)



EXISTING GENERATOR  
(TO BE REMOVED)



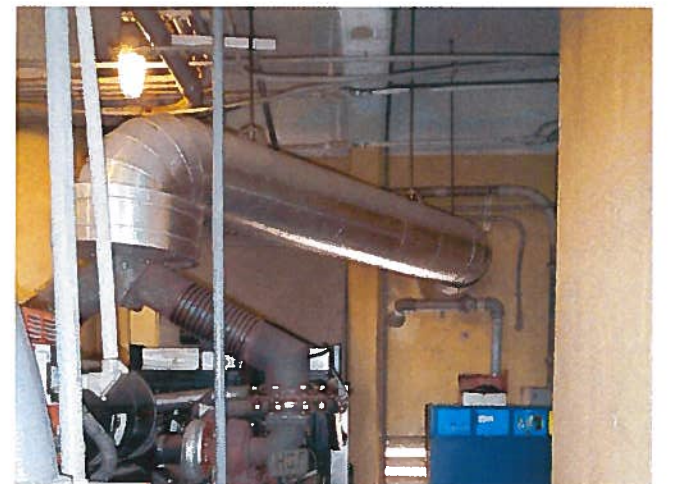
EXISTING DAY TANK  
(TANK, FUEL LINES, VENT, ETC.)  
TO BE REMOVED



# GROUND LEVEL FLOOR PLAN



existing ac exhaust duct  
(TO REMAIN - SEE ASBESTOS REPORT)



EXISTING GENERATOR EXHAUST DUCT  
(TO BE REMOVED)



EXISTING GENERATOR EXHAUST DUCT  
(TO BE REMOVED)



EXISTING GENERATOR RADIATOR AND DUCT  
(TO BE REMOVED)

NO	DESCRIPTION	BY	DATE

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT



KELLY S. WEHNER, PE  
LIC. NO. 60273

DESIGNED  
DRAWN  
CHECKED  
APPROVED

BUILDING LAYOUT

PROJECT NO.  
00193009.06  
DATE  
SEPT 2015  
SHEET NO.  
C-3





PROPOSED GENERATOR LOCATION  
(FACING WEST)



PROPOSED GENERATOR LOCATION  
(FACING WEST)



SITE PHOTO  
(FACING NORTH)



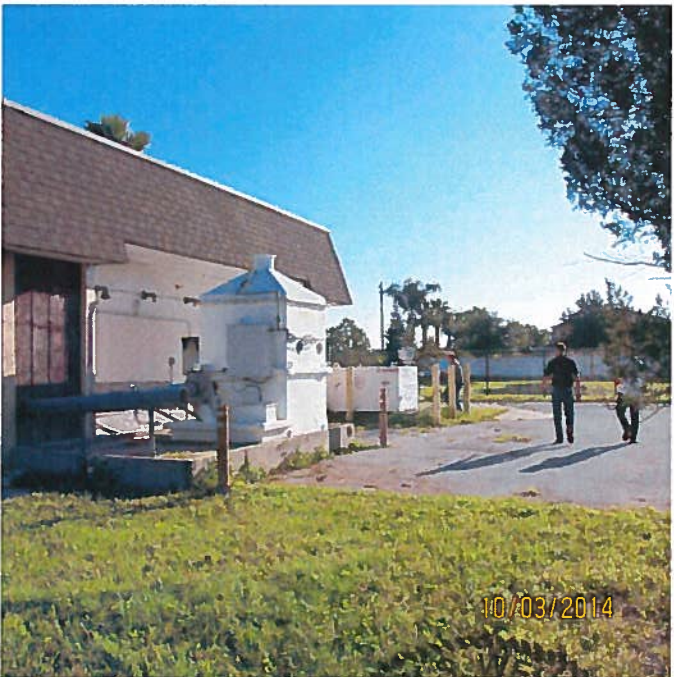
SITE PHOTO  
(FACING SOUTH WEST)



BUILDING MAIN ENTRY  
(FACING EAST)



EXISTING DIESEL TANK  
(FACING WEST)



PROPOSED GENERATOR LOCATION  
(FACING EAST)



EXISTING GENERATOR MUFFLER  
(FACING SOUTH EAST)

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT

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380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759  
TEL: (727) 531-3505 (800) 861-8314  
www.cardno.com Certificate of Authorization No. 29915

**Professional Engineer**  
No. 60273  
Kelly A. Wehr  
10-19-2015  
STATE OF FLORIDA  
Professional Engineer

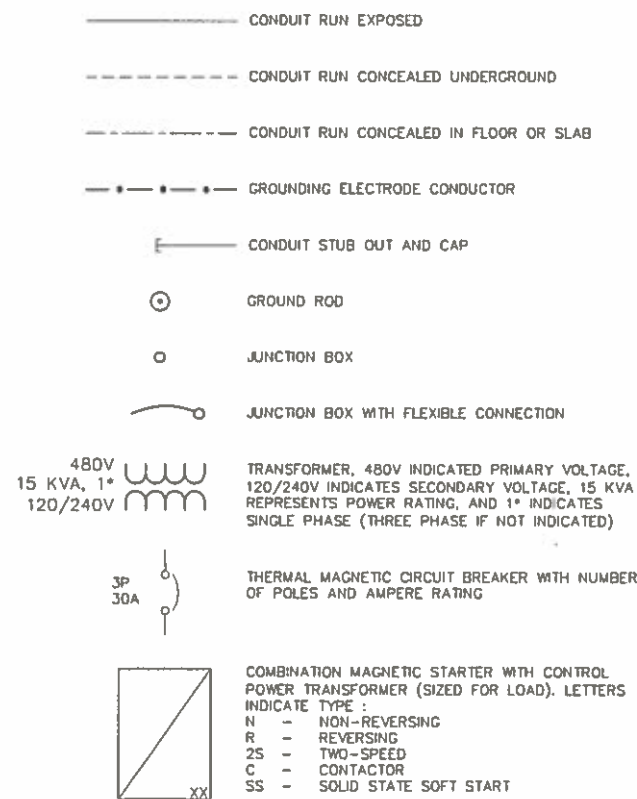
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DRAWN: DES  
Q.C.: DRM  
APPROVED: DRM

SITE PHOTOS

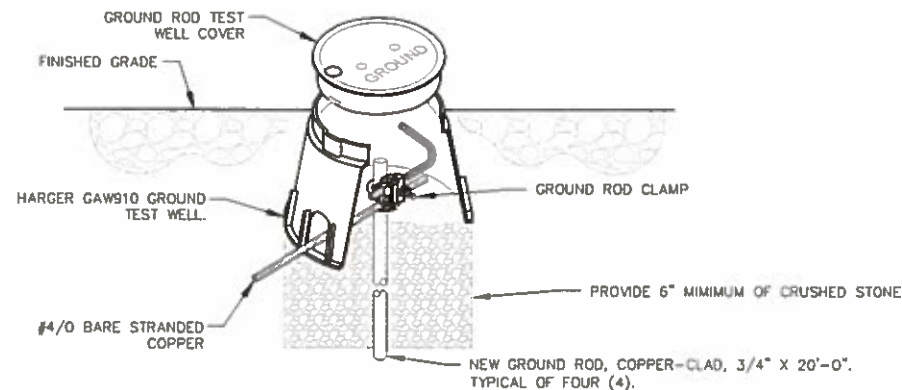
PROJECT NO:  
00193009.06  
DATE:  
SEPT 2015  
SHEET NO:  
C-4







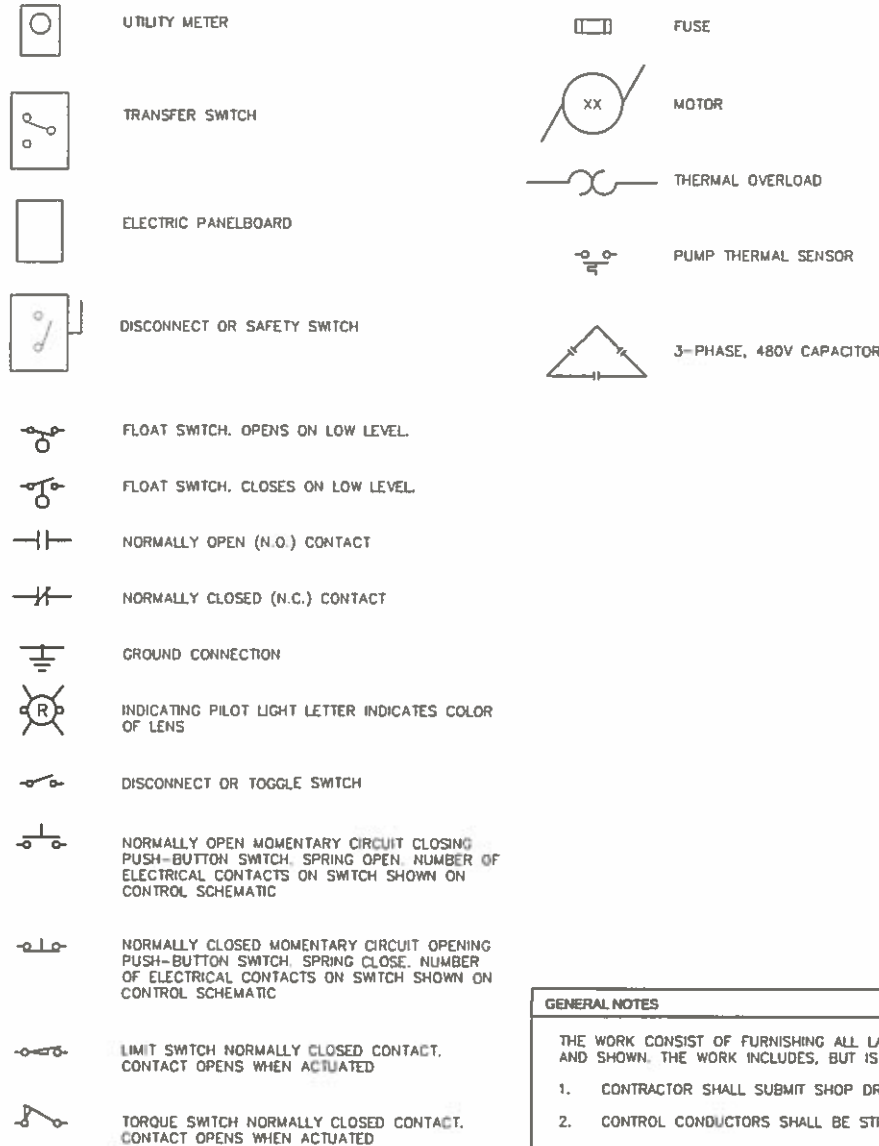
XXX	XXX_DEVICE	DESCRIPTION
HLS		HIGH LEVEL SWITCH
HOA		HAND-OFF-AUTO
LD		LEAK DETECTION
LLS		LOW LEVEL SWITCH
LOR		LOCAL-OFF-REMOTE
PB		PUSH BUTTON
RTU		REMOTE TERMINAL UNIT
SS		SOFT STARTER
SS/B		SOFT START OR BYPASS
TS		TEMPERATURE SWITCH
TVSS		TRANSIENT VOLTAGE SURGE SUPPRESSOR
ZS		POSITION SENSOR (LIMIT SWITCH)



GROUND ROD TEST WELL DETAIL 1

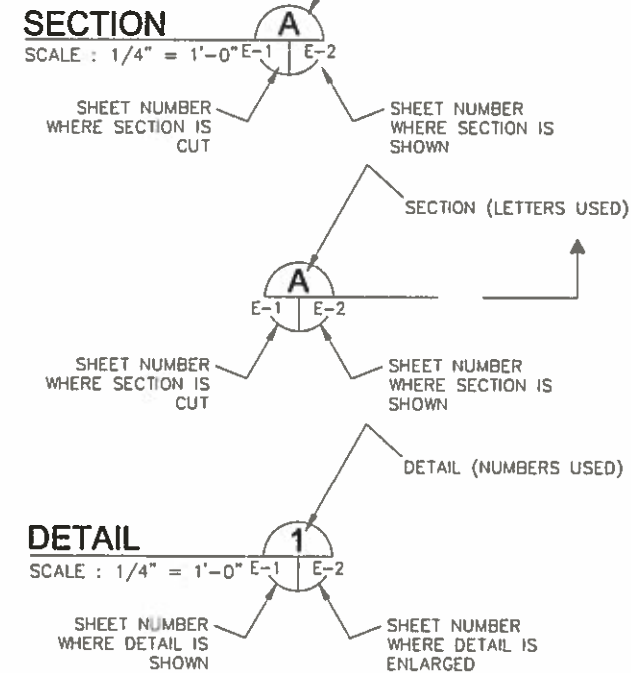
SCALE : N.T.S.

E-4 E-1



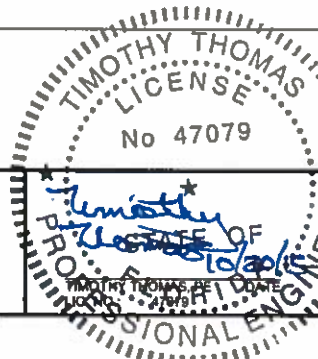
ABBREVIATIONS:	
A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATL	ACROSS-THE-LINE
C	CONDUIT
CU	COPPER
EX	EXISTING
ELEC	ELECTRICAL
EXP	EXPLOSION PROOF
FU	FUSE
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
TYP	TYPICAL
V	VOLTS
WP	WEATHERPROOF

EXAMPLE OF SECTION CUT AND DETAIL



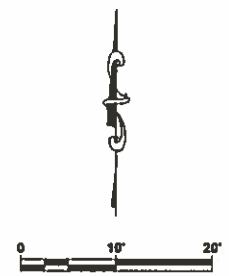
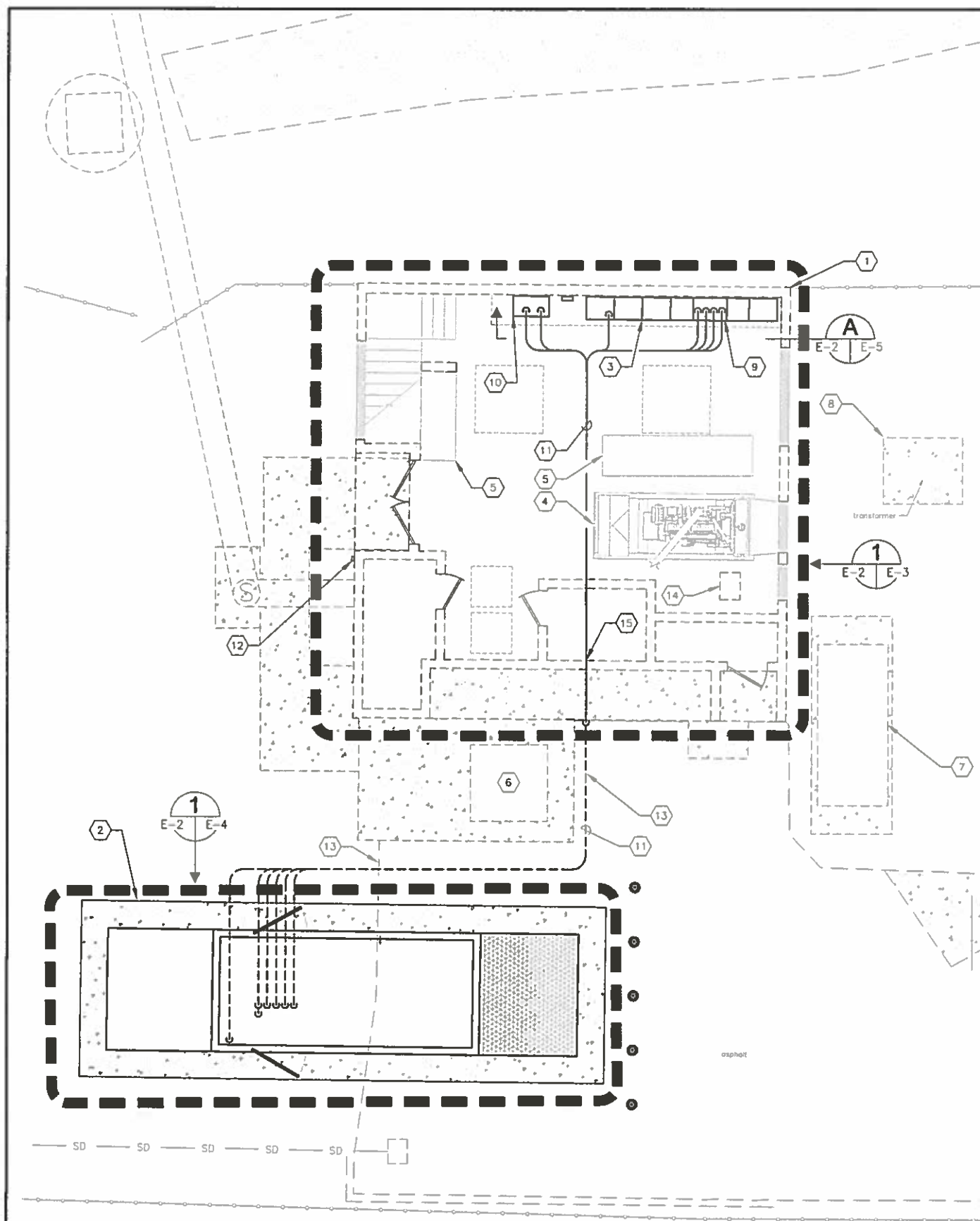
GENERAL NOTES

- THE WORK CONSIST OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, AND TECHNICAL SUPERVISION TO INSTALL A NEW GENERATOR AND ASSOCIATED EQUIPMENT AS INDICATED AND SHOWN. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
  - CONTROL CONDUCTORS SHALL BE STRANDED COPPER, 14AWG MINIMUM, WITH THWN INSULATION, UNLESS OTHERWISE NOTED.
  - ALL WIRING SHALL BE IDENTIFIED WITH NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
  - FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
  - ALL NEW EQUIPMENT SHALL BE PERMANENTLY IDENTIFIED WITH A BLACK ON WHITE LAMACOID TAG ENGRAVED WITH MINIMUM 3/16 INCH LETTERING.
  - ALL CIRCUITS SHALL HAVE A GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT WITH POWER CONDUCTORS.
  - ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
  - ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
  - CONDUITS SHALL BE RIGID HEAVY WALL ALUMINUM, FLEXIBLE CONDUITS SHALL BE NONMETALLIC LIQUID TIGHT.
  - MAKE MODIFICATIONS TO THE EXISTING MOTOR CONTROL CENTER AS SHOWN AND SPECIFIED.
  - PROVIDE AND INSTALL GENERATOR WITH WEATHER-PROOF, SOUND ATTENUATED ENCLOSURE AS SHOWN AND SPECIFIED.
  - MAKE REQUIRED INTERCONNECTIONS BETWEEN MOTOR CONTROL CENTER COMPONENTS AND NEW GENERATOR AS SHOWN AND SPECIFIED.
  - PROVIDE AND INSTALL STAINLESS STEEL CHANNEL ERECTOR SYSTEMS TO MOUNT AND SUPPORT ENCLOSURES, BOXES, CONDUITS AND OTHER EQUIPMENT. ALL MOUNTING HARDWARE SHALL BE 316 SS.
  - ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2014 NATIONAL ELECTRICAL CODE (NEC).
  - AFTER COMPLETING THE EQUIPMENT INSTALLATION, THE SYSTEM SHALL BE TESTED TO SHOW FUNCTIONALITY.
  - TEST AND START-UP REPORTS FOR THE GENERATOR SYSTEM AND WIRE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE (O&M) MANUALS PROVIDED UNDER THIS CONTRACT.



MANATEE COUNTY				MLS 13A EMERGENCY GENERATOR REPLACEMENT				Cardno				ELECTRICAL LEGEND AND ABBREVIATIONS				PROJECT NO: 00193009.06			
NO.				DESCRIPTION				BY				DATE				DATE: OCTOBER 2015			
																SHEET NO: E-1			





# KEYED NOTES:

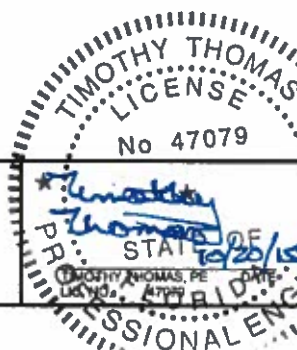
- 1 EXISTING BUILDING FOR LIFT STATION 13A. REFER TO SHEET E-3 FOR WORK REQUIRED WITHIN THE LIFT STATION BUILDING.
- 2 NEW 480V, 750 KW GENERATOR IN WEATHER-PROOF, SOUND ATTENUATED ENCLOSURE. REFER TO SHEET E-4 FOR GENERATOR DETAILS.
- 3 EXISTING MOTOR CONTROL CENTER (MCC) FOR LIFT STATION 13A. REFER TO SHEET E-5 FOR MCC ELEVATION AND WORK REQUIRED.
- 4 EXISTING GENERATOR SET TO BE REMOVED. REFER TO CML/MECHANICAL SHEETS FOR DETAILS.
- 5 EXISTING VARIABLE FREQUENCY DRIVES (VFD'S) NO WORK REQUIRED.
- 6 EXISTING ODOR CONTROL FILTER. NO WORK REQUIRED.
- 7 EXISTING DIESEL STORAGE TANK. REFER TO CML/MECHANICAL SHEETS FOR ANY WORK REQUIRED.
- 8 EXISTING UTILITY TRANSFORMER. NO WORK REQUIRED.
- 9 EXISTING TRANSFER SWITCH FOR LIFT STATION 13A. REFER TO SHEET E-5 FOR TRANSFER SWITCH ELEVATION AND WORK REQUIRED.
- 10 EXISTING PLC CONTROL CABINET FOR LIFT STATION 13A. REFER TO SHEET E-5 FOR PLC CONTROL CABINET ELEVATION AND WORK REQUIRED.
- 11 CONTRACTOR TO PROVIDE AND INSTALL THE FOLLOWING :  
 PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM PLC CONTROL CABINET TO NEW GENERATOR FOR SCADA MONITORING OF GENERATOR. 2-#12 FOR GENERATOR RUNNING INDICATION, 2-#12 FOR GENERATOR FAIL INDICATION AND 4-#12 SPARE.  
 PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO EXISTING PLC CONTROL CABINET FOR SCADA MONITORING OF GENERATOR DAY TANK. 2-#12 DAY TANK LEAK DETECTION ALARM, 2-#12 FOR DAY TANK LOW LEVEL ALARM, 2-#12 FOR DAY TANK HIGH LEVEL ALARM AND 2-#12 SPARE. CONTRACTOR SHALL COORDINATE/VERIFY CONNECTION LOCATION AND TYPE WITH ENCLOSURE MANUFACTURER.  
 PROVIDE AND INSTALL THREE (3) PARALLEL RUNS CONSISTING OF 3-#600 kcmil THWN CU + 1-3/0 THWN CU GND IN 4" CONDUIT. FIELD ROUTE CONDUIT FROM EXISTING TRANSFER SWITCH TO NEW GENERATOR FOR 480V STANDBY POWER FEEDER CIRCUIT.  
 PROVIDE AND INSTALL 4-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM EXISTING TRANSFER SWITCH TO NEW GENERATOR FOR GENERATOR START SIGNAL. CONTRACTOR TO COORDINATE/VERIFY GENERATOR STARTER CONTROL REQUIREMENTS WITH GENERATOR AND TRANSFER SWITCH MANUFACTURERS.  
 PROVIDE AND INSTALL 3-#8 THWN CU + 1-#10 THWN CU GND IN 1" CONDUIT. FIELD ROUTE CONDUIT FROM NEW MCC FEEDER CIRCUIT BREAKER TO NEW GENERATOR DISCONNECT SWITCH FOR 480V ANCILLARY EQUIPMENT FEEDER CIRCUIT.
- 12 GENERATOR EMERGENCY SHUT DOWN PUSH BUTTON STATION. MAINTAINED 2 POSITION SWITCH WITH 1-5/8" DIA. OPERATOR, 1 N.O. & 1 N.C. CONTACT MOUNTED IN A NEMA 4X SS ENCLOSURE, 4'-6" ABOVE FINISHED GRADE. BREAK-GLASS OPERATORS ARE NOT AN ACCEPTABLE SUBSTITUTION. PROVIDE PHENOLIC NAMEPLATE ABOVE PUSH BUTTON STATION. NAMEPLATE SHALL BE THREE-PLY PHENOLIC RED-WHITE-RED ENGRAVED THROUGH THE FIRST RED LAYER. LETTERING SHALL BE 1/2" MIN., EDGES OF NAMEPLATE SHALL BE BEVELED 45 DEG. NAMEPLATE SHALL READ AS FOLLOWS: "GENERATOR EMERGENCY SHUT DOWN". PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO NEW GENERATOR FOR SHUT DOWN SIGNAL.
- 13 CONTRACTOR TO CUT ASPHALT AS REQUIRED TO INSTALL CONDUIT, GROUNDING GRID AND GROUND RODS. AFTER INSTALLATION, ASPHALT SHALL BE REPLACED TO MATCH EXISTING.
- 14 EXISTING DAY TANK TO BE REMOVED. REFER TO CML/MECHANICAL SHEETS FOR DETAILS.
- 15 CORE DRILL PENETRATION 1/4" LARGER THAN CONDUIT DIAMETER. FILL VOID WITH PAINTABLE SILICONE CHALK (BOTH SIDES OF WALL). PAINT WITH COLOR TO MATCH EXISTING WALL. TYPICAL FOR ALL EXTERIOR WALL PENETRATIONS.

# GENERAL NOTES :

1. THIS DRAWING SHOWS EXISTING CONDITIONS USING THE BEST AS-BUILT INFORMATION AVAILABLE AT THE TIME OF DESIGN. IT IS PROVIDED FOR REFERENCE ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING INSTALLATIONS PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
2. CONDUIT ROUTING SHOWN IS DIAGRAMMATICAL. CONTRACTOR SHALL FIELD ROUTE CONDUIT BASED ON EXISTING FIELD CONDITIONS. CONTRACTOR SHALL PROVIDE JUNCTION BOXES, PULL BOXES AND/OR CONDUIT LB FITTING AS REQUIRED TO MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

**TRICON**  
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Certificate of Authorization No. 00031028



NO.	DESCRIPTION	BY	DATE

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT

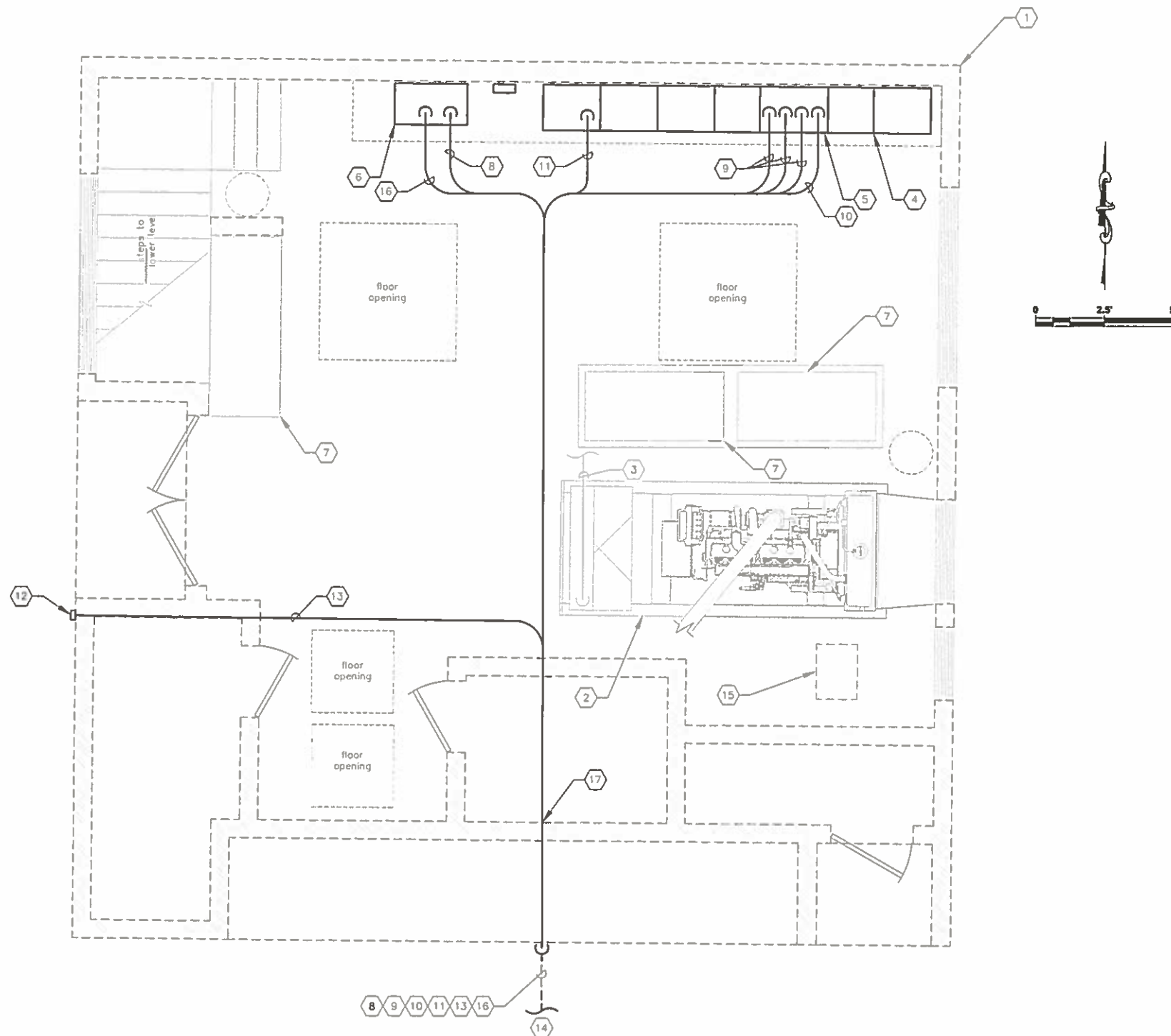
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DESIGNED	TDT
DRAWN	JHL
CHECKED	DEV
APPROVED	

ELECTRICAL SITE PLAN

PROJECT NO:	00193009.06
DATE:	OCTOBER 2015
SHEET NO:	E-2





**BUILDING GROUND LEVEL  
FLOOR PLAN**

1  
E-2 E-3

**KEYED NOTES:**

- 1 EXISTING BUILDING FOR LIFT STATION 13A.
- 2 EXISTING GENERATOR SET TO BE REMOVED. REFER TO CIVIL/MECHANICAL SHEETS FOR DETAILS.
- 3 EXISTING GENERATOR 480V FEEDER TO BE REMOVED. FEEDER CONDUCTORS ARE ROUTED TO EXISTING TRANSFER SWITCH THROUGH EXISTING MOTOR CONTROL CENTER (MCC). CONTRACTOR SHALL REMOVE ENTIRE LENGTH OF CONDUCTORS AND CONDUIT. CONTRACTOR SHALL ALSO REMOVE ALL ANCILLARY EQUIPMENT CONDUCTORS AND CONDUIT (BATTERY CHARGER CIRCUIT, GENERATOR STARTER CIRCUIT, ETC., NOT SHOWN FOR CLARITY). CONTRACTOR SHALL REMOVE ENTIRE LENGTH OF CONDUCTORS AND CONDUIT.
- 4 EXISTING MOTOR CONTROL CENTER (MCC) FOR LIFT STATION 13A. REFER TO SHEET E-5 FOR MCC ELEVATION AND WORK REQUIRED.
- 5 EXISTING TRANSFER SWITCH FOR LIFT STATION 13A. REFER TO SHEET E-5 FOR TRANSFER SWITCH ELEVATION AND WORK REQUIRED.
- 6 EXISTING PLC CONTROL CABINET. REFER TO SHEET E-5 FOR ELEVATION OF PLC CONTROL CABINET ELEVATION AND WORK REQUIRED.
- 7 EXISTING VARIABLE FREQUENCY DRIVE (VFD) NO WORK REQUIRED.
- 8 PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM PLC CONTROL CABINET TO NEW GENERATOR FOR SCADA MONITORING OF GENERATOR. 2-#12 FOR GENERATOR RUNNING INDICATION, 2-#12 FOR GENERATOR FAIL INDICATION AND 4-#12 SPARE.
- 9 PROVIDE AND INSTALL THREE (3) PARALLEL RUNS CONSISTING OF 3-#600 kcmil THWN CU + 1-3/0 THWN CU GND IN 4" CONDUIT. FIELD ROUTE CONDUIT FROM EXISTING TRANSFER SWITCH TO NEW GENERATOR FOR 480V STANDBY POWER FEEDER CIRCUIT.
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- 11 PROVIDE AND INSTALL 3-#8 THWN CU + 1-#10 THWN CU GND IN 1" CONDUIT. FIELD ROUTE CONDUIT FROM NEW MCC FEEDER CIRCUIT BREAKER TO NEW GENERATOR DISCONNECT SWITCH FOR 480V ANCILLARY EQUIPMENT FEEDER CIRCUIT.
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- 14 FOR CONTINUATION OF CONDUITS TO GENERATOR REFER TO SHEET E-5.
- 15 EXISTING DAY TANK TO BE REMOVED. REFER TO CIVIL/MECHANICAL SHEETS FOR DETAILS.
- 16 PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO EXISTING PLC CONTROL CABINET FOR SCADA MONITORING OF GENERATOR DAY TANK. 2-#12 DAY TANK LEAK DETECTION ALARM, 2-#12 FOR DAY TANK LOW LEVEL ALARM, 2-#12 FOR DAY TANK HIGH LEVEL ALARM AND 2-#12 SPARE. CONTRACTOR SHALL COORDINATE/VERIFY CONNECTION LOCATION AND TYPE WITH ENCLOSURE MANUFACTURER.
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Certificate of Authorization No. 000379228



NO.	DESCRIPTION	BY	DATE

**MANATEE COUNTY**

**MLS 13A EMERGENCY  
GENERATOR REPLACEMENT**

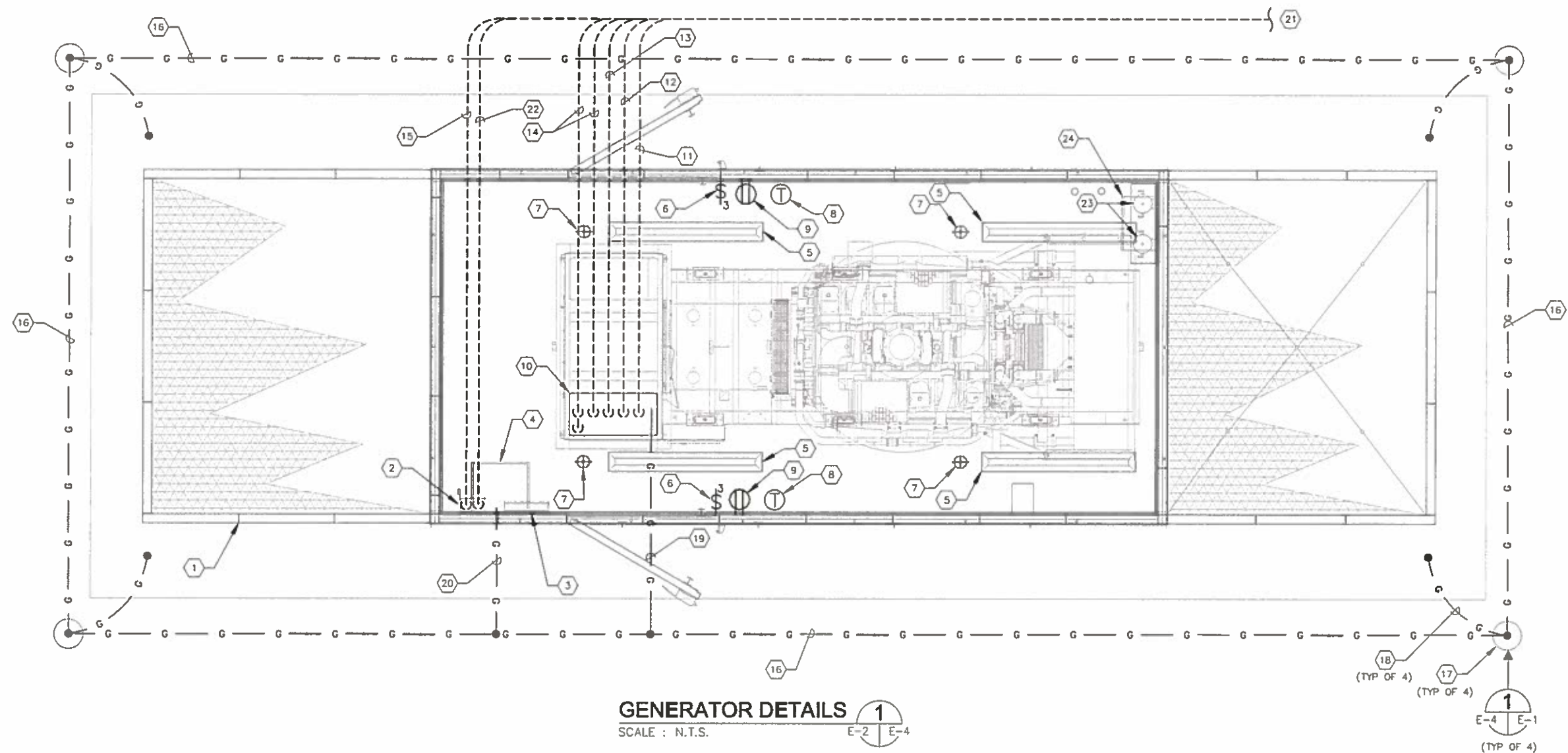
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DESIGNED TDT  
DRAWN JHL  
CHECKED DEV  
APPROVED

**BUILDING LAYOUT  
GROUND LEVEL**

PROJECT NO:  
00193009.06  
DATE:  
OCTOBER 2015  
SHEET NO:  
E-3





# GENERATOR DETAILS

SCALE: N.T.S.

1  
E-2 E-4

## KEYED NOTES:

- 1 NEW 480V, 750 KW GENERATOR IN WEATHER-PROOF, SOUND ATTENUATED ENCLOSURE. REFER ALSO TO SPECIFICATIONS.
- 2 60 AMPERE FUSED DISCONNECT SWITCH PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 3 100 AMPERE, 120/208V, 3Ø, MCB LOADCENTER PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 4 25 KVA, 480V-120/208V, 3Ø, TRANSFORMER PROVIDED AS PART OF THE ENCLOSURE PACKAGE. TRANSFORMER LOCATED ABOVE DISCONNECT AND LOADCENTER.
- 5 DUAL TUBE FLUORESCENT LIGHT FIXTURE PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 6 3-WAY SWITCHES PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 7 DC LIGHT FIXTURES PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 8 60 MINUTE TIMER SWITCHES FOR DC LIGHT FIXTURES PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 9 20A, 125V DUPLEX GFCI RECEPTACLE PROVIDED AS PART OF THE ENCLOSURE PACKAGE.
- 10 STUBUP LOCATION FOR 480V FEEDER CIRCUIT, GENERATOR STARTER CIRCUIT, GENERATOR SHUT DOWN AND SCADA I/O. COORDINATE/VERIFY EXACT LOCATION WITH ENCLOSURE MANUFACTURER.

- 11 PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO EXISTING PLC CONTROL CABINET FOR SCADA MONITORING OF GENERATOR. 2-#12 FOR GENERATOR RUNNING INDICATION, 2-#12 FOR GENERATOR FAIL INDICATION AND 4-#12 SPARE.
- 12 PROVIDE AND INSTALL 4-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO EXISTING TRANSFER SWITCH FOR GENERATOR START SIGNAL. CONTRACTOR TO COORDINATE/VERIFY GENERATOR STARTER CONTROL REQUIREMENTS WITH GENERATOR AND TRANSFER SWITCH MANUFACTURERS.
- 13 PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO NEW EMERGENCY SHUT DOWN PUSH BUTTON STATION FOR SHUT DOWN SIGNAL.
- 14 PROVIDE AND INSTALL THREE (3) PARALLEL RUNS CONSISTING OF 3-#600 kernil THWN CU + 1-#3/0 THWN CU GND IN 4" CONDUIT TO EXISTING TRANSFER SWITCH FOR 480V STANDBY POWER FEEDER CIRCUIT. NOT ALL CONDUITS SHOWN FOR CLARITY.
- 15 PROVIDE AND INSTALL 3-#8 THWN CU + 1-#10 THWN CU GND IN 1" CONDUIT TO NEW MCC FEEDER CIRCUIT BREAKER FOR 480V ANCILLARY EQUIPMENT FEEDER CIRCUIT.
- 16 CONTRACTOR TO PROVIDE AND INSTALL GROUND RING CONSISTING OF #4/0 BARE STRANDED COPPER DIRECT BURIED IN SOIL A MINIMUM OF 24" BELOW GRAVEL BASE.

- 17 CONTRACTOR TO PROVIDE AND INSTALL NEW GROUND ROD, COPPER-CLAD, 3/4" X 20'-0" AND GROUND ROD TEST WELL. REFER ALSO TO GROUND ROD DETAIL ON THIS SHEET. TYPICAL OF FOUR (4).
- 18 CONTRACTOR TO PROVIDE AND INSTALL A #2/0 AWG BARE COPPER CONDUCTOR BETWEEN THE GROUND ROD AND THE REINFORCING STEEL EMBEDDED IN THE GENERATOR CONCRETE PAD. PROVIDE EXOTHERMIC WELDS.
- 19 CONTRACTOR TO PROVIDE AND INSTALL #4/0 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR FOR GENERATOR FRAME. PROVIDE EXOTHERMIC WELD TO GROUNDING GRID.
- 20 CONTRACTOR TO PROVIDE AND INSTALL #8 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR FOR ANCILLARY TRANSFORMER GROUNDING. PROVIDE EXOTHERMIC WELD TO GROUNDING GRID.
- 21 FOR CONTINUATION OF CONDUITS TO GENERATOR REFER TO SHEET E-3.
- 22 PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT TO EXISTING PLC CONTROL CABINET FOR SCADA MONITORING OF GENERATOR DAY TANK. 2-#12 DAY TANK LEAK DETECTION ALARM, 2-#12 FOR DAY TANK LOW LEVEL ALARM, 2-#12 FOR DAY TANK HIGH LEVEL ALARM AND 2-#12 SPARE. CONTRACTOR SHALL COORDINATE/VERIFY CONNECTION LOCATION AND TYPE WITH ENCLOSURE MANUFACTURER.
- 23 DAY TANK SUPPLY AND RETURN PUMPS. PUMPS SHALL BE PROVIDED AND INSTALLED AS PART OF THE ENCLOSURE PACKAGE.
- 24 DAY TANK CONTROLLER. DAY TANK CONTROLLER SHALL BE PROVIDED AND INSTALLED AS PART OF THE ENCLOSURE PACKAGE.

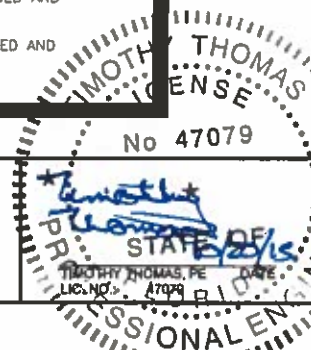
## GENERAL NOTES :

1. THIS DRAWING SHOWS LAYOUTS AND DIMENSIONS BASED ON A PARTICULAR MANUFACTURER. THE CONTRACTOR SHALL COORDINATE DIMENSIONS, STUBUP LOCATIONS AND EQUIPMENT LOCATIONS WITH THE MANUFACTURER SUBMITTED/PROVIDED.
2. THE GENERATOR ENCLOSURE SHALL BE PROVIDED WITH A 60 AMPERE DISCONNECT SWITCH, 120/208V, 3Ø, MCB LOADCENTER, 25 KVA, 480V-120/208V, 3Ø, TRANSFORMER, FLUORESCENT LIGHTING FIXTURES, 3-WAY SWITCHES, DC LIGHTING FIXTURES, 60 MINUTE TIMER SWITCHES FOR DC LIGHT FIXTURES, DUPLEX GFCI RECEPTACLES, DAY TANK, DAY TANK SUPPLY AND RETURN PUMPS AND DAY TANK CONTROLLER AS NOTED AND SPECIFIED. ALL EQUIPMENT PROVIDED BY THE SUPPLIER OF THE ENCLOSURE PACKAGE SHALL BE PROVIDED AND INSTALLED WITH ALL ASSOCIATED CONDUIT AND CONDUCTORS FOR POWER AND CONTROLS AS REQUIRED FOR A COMPLETE AND FUNCTIONING UNIT.

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT

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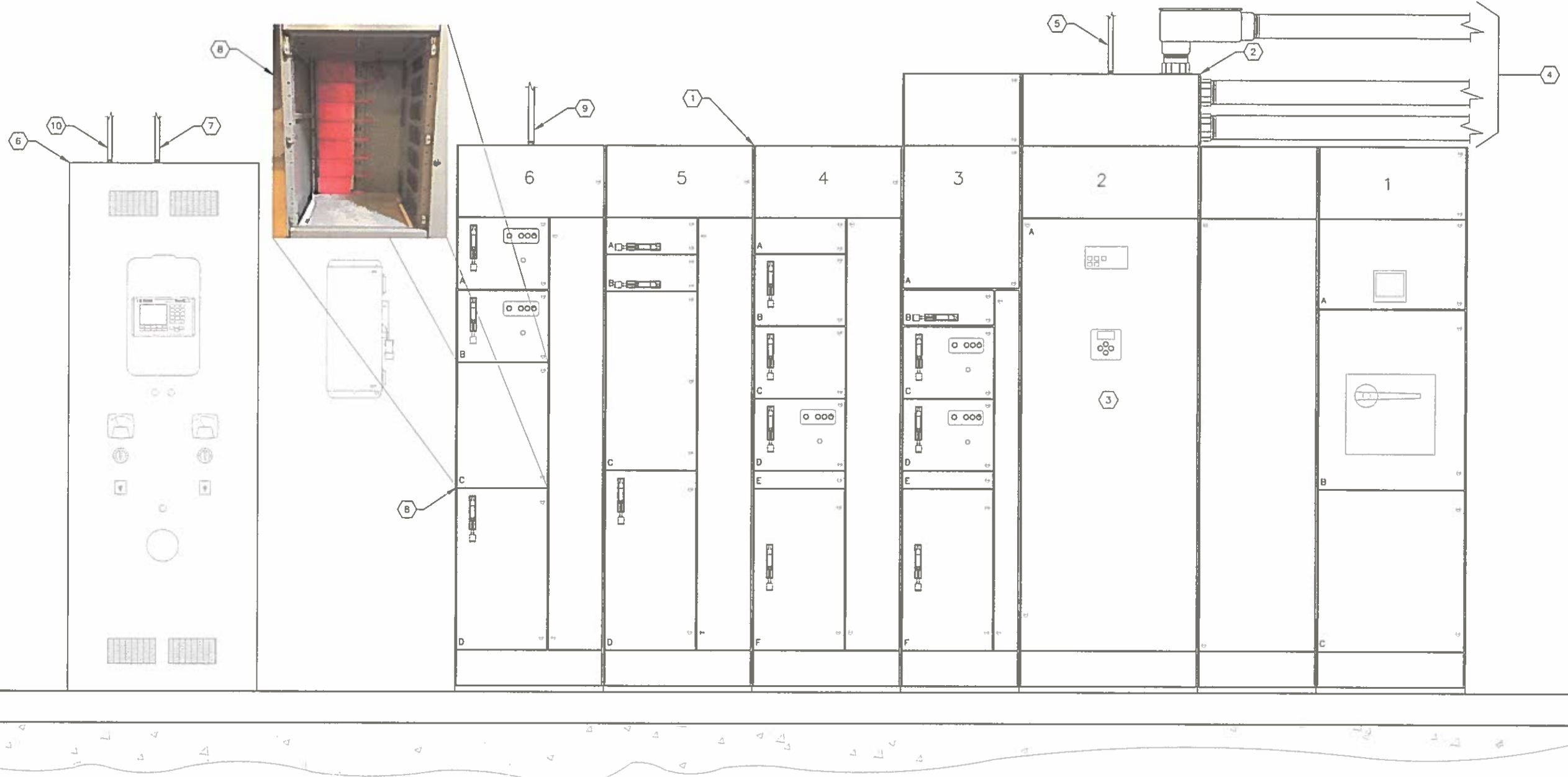


DESIGNED TDT  
DRAWN JHL  
CHECKED DEV  
APPROVED

GENERATOR DETAILS

PROJECT NO:  
00193009.06  
DATE:  
OCTOBER 2015  
SHEET NO:  
E-4





**LIFT STATION 13A MCC ELEVATION**

NO SCALE



**KEYED NOTES:**

1. EXISTING SQUARE D MODEL 6 MOTOR CONTROL CENTER FOR LIFT STATION 13A.
2. EXISTING TOP HAT ON MOTOR CONTROL CENTER. CONTRACTOR MAY UTILIZE TOP HAT AS REQUIRED TO INSTALL NEW GENERATOR FEEDERS.
3. EXISTING 1200A, 480V, 3-POLE, S/N TRANSFER SWITCH.
4. PROVIDE AND INSTALL THREE (3) PARALLEL RUNS CONSISTING OF 3-#600 kcmil THWN CU + 1-#3/0 THWN CU GND IN 4" CONDUIT. FIELD ROUTE CONDUIT FROM EXISTING TRANSFER SWITCH TO NEW GENERATOR FOR 480V STANDBY POWER FEEDER CIRCUIT.
5. PROVIDE AND INSTALL 4-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM EXISTING TRANSFER SWITCH TO NEW GENERATOR FOR GENERATOR START SIGNAL. CONTRACTOR TO COORDINATE/VERIFY GENERATOR STARTER CONTROL REQUIREMENTS WITH GENERATOR AND TRANSFER SWITCH MANUFACTURERS.

6. EXISTING PLC CONTROL CABINET.
7. PROVIDE AND INSTALL 8-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM PLC CONTROL CABINET TO NEW GENERATOR FOR SCADA MONITORING OF GENERATOR. 2-#12 FOR GENERATOR RUNNING INDICATION, 2-#12 FOR GENERATOR FAIL INDICATION AND 4-#12 SPARE.
8. EXISTING SPARE 24" BUCKET IN SQUARE D MODEL 6 MCC (AT 6C). CONTRACTOR SHALL PROVIDE NEW 480V, 3-POLE, 40A CIRCUIT BREAKER FOR THE NEW GENERATOR 480V ANCILLARY EQUIPMENT FEEDER CIRCUIT. CONTRACTOR SHALL PROVIDE CIRCUIT BREAKER AND ALL ASSOCIATED EQUIPMENT (BUCKET, CIRCUIT BREAKER DOOR, CIRCUIT BREAKER THROUGH-DOOR OPERATING HANDLE, CIRCUIT BREAKER STABS, ETC.) FOR COMPLETE INSTALLATION.

9. PROVIDE AND INSTALL 3-#8 THWN CU + 1-#10 THWN CU GND IN 1" CONDUIT. FIELD ROUTE CONDUIT FROM NEW MCC FEEDER CIRCUIT BREAKER TO NEW GENERATOR DISCONNECT SWITCH FOR 480V ANCILLARY EQUIPMENT FEEDER CIRCUIT.
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**GENERAL NOTES:**

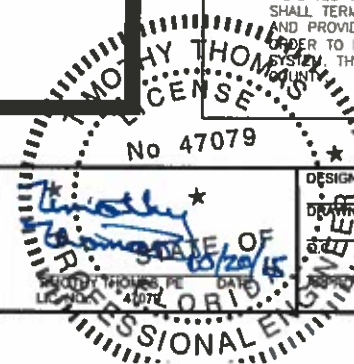
1. THE CONTRACTOR SHALL PROVIDE FOR THE NEW SCADA INPUT/OUTPUTS (I/O) AS REQUIRED FOR THE NEW GENERATOR INSTALLATION. THE NEW SCADA I/O SHALL CONSIST OF THE FOLLOWING :  
DISCRETE INPUT - GENERATOR RUNNING INDICATION  
DISCRETE INPUT - GENERATOR FAIL INDICATION  
DISCRETE INPUT - DAY TANK LEAK DETECTION ALARM  
DISCRETE INPUT - DAY TANK LOW LEVEL ALARM  
DISCRETE INPUT - DAY TANK HIGH LEVEL ALARM
2. THE CONTRACTOR SHALL PROVIDE NEW CONDUCTORS AND CONDUIT AS INDICATED ON THE DRAWINGS FOR THE NEW SCADA I/O. THE CONTRACTOR SHALL TERMINATE ALL NEW CONDUCTORS ON THE EXISTING CONTROLLER AND PROVIDE FOR THE PROGRAMMING OF THE EXISTING CONTROLLER IN ORDER TO INTEGRATE THE NEW I/O INTO THE COUNTY'S EXISTING SCADA. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH MANATEE

NO.	DESCRIPTION	BY	DATE

**MANATEE COUNTY**

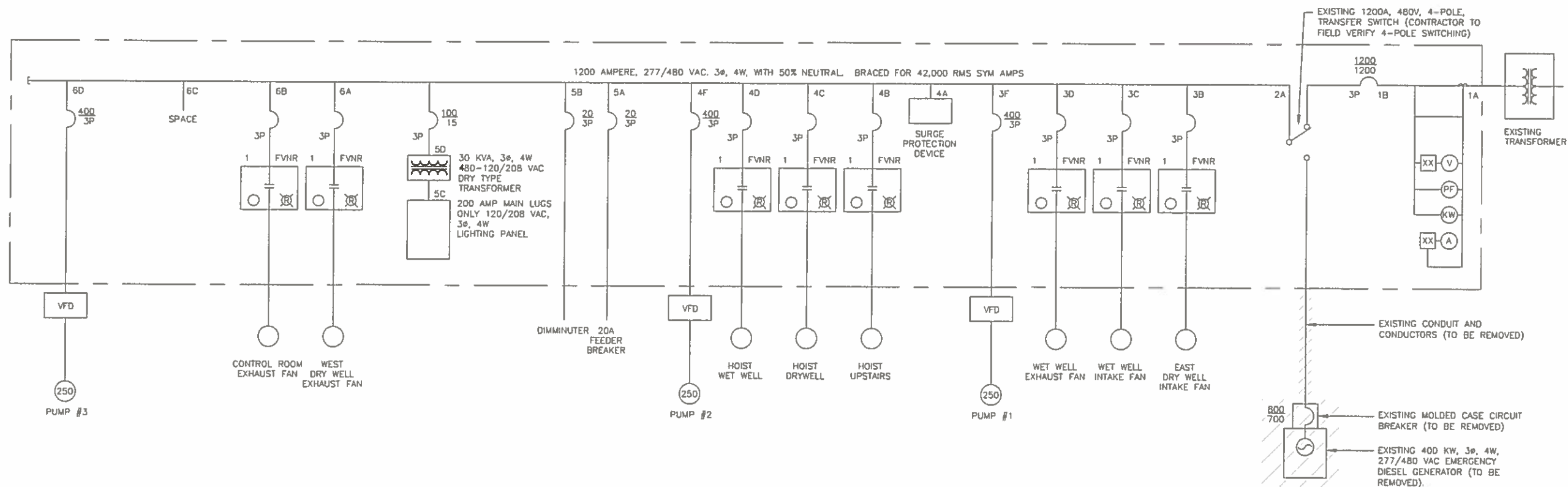
**MLS 13A EMERGENCY  
GENERATOR REPLACEMENT**

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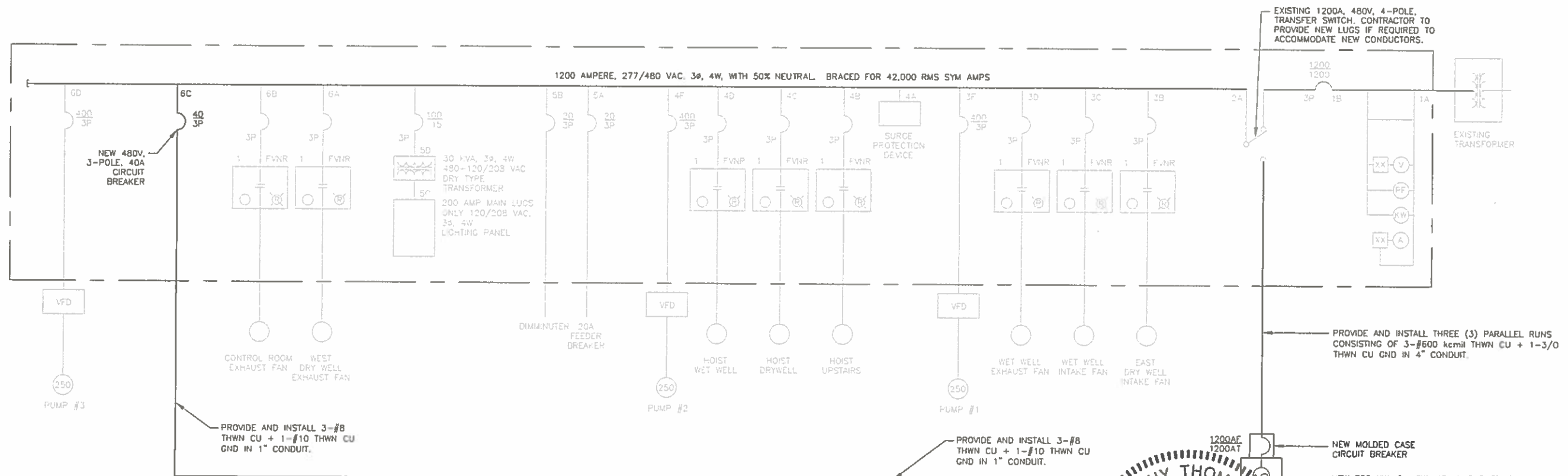


**LIFT STATION 13A  
MCC ELEVATION**

PROJECT NO:  
00193009.06  
DATE:  
OCTOBER 2015  
SHEET NO:  
E-5



LIFT STATION 13A - EXISTING ONE LINE DIAGRAM



LIFT STATION 13A - PROPOSED ONE LINE DIAGRAM

NO.	DESCRIPTION	BY	DATE

MANATEE COUNTY

MLS 13A EMERGENCY  
GENERATOR REPLACEMENT

**Cardno**  
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DESIGNED  
DRAWN  
DEV  
APPROVED

LIFT STATION 13A  
ONE LINE DIAGRAMS

PROJECT NO:  
00193009.06  
DATE:  
OCTOBER 2015  
SHEET NO:  
E-6

**TRICON**  
ENGINEERING  
777 S. Highway 100, Suite 100, Clearwater, FL 33762  
813.227.9180 FAX 813.227.9185  
Certificate of Authorization No. 00031023



# GENERAL STRUCTURAL NOTES

## DESIGN CRITERIA

### CODES:

2014 FLORIDA BUILDING CODE

REINFORCED CONCRETE:

ACI 318-11 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

MASONRY: "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530-08/ASCE 5-08/TMS 402-08)

STRUCTURAL STEEL: AISC MANUAL OF STEEL CONSTRUCTION 13TH EDITION

THE ALUMINUM ASSOCIATION, ALUMINUM DESIGN MANUAL 2005

### DESIGN LIVE LOADS:

- PROCESS RELATED STRUCTURES

WALKWAYS, STAIRWAYS AND LANDINGS	100 PSF
ELEVATED SLABS	200 PSF
PROCESS SLABS ON GRADE	300 PSF, UNO

### SUPERIMPOSED DEADLOADS:

- ROOFS	AS NOTED
- FLOORS	AS NOTED

### WIND LOADS:

- ULTIMATE DESIGN WIND SPEED, $V_{ult}$ (3-SECOND GUST)	182 MPH
- NOMINAL DESIGN WIND SPEED, $V_{nom}$	140 MPH
- RISK CATEGORY	II
- EXPOSURE CATEGORY	B
- ENCLOSURE CLASSIFICATION	PARTIALLY ENCLOSED
- INTERNAL PRESSURE COEFFICIENT, $GCF_i$	$\pm 0.55$
- DESIGN PRESSURES: PER ASCE 7-10	

### GENERAL CONDITIONS

ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE MECHANICAL, CIVIL, ELECTRICAL AND SHOP DRAWINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FACILITY. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.

FOR ALL ITEMS EMBEDDED IN OR PASSED THROUGH CONCRETE, THE CONTRACTOR SHALL INITIALLY REFER TO MECHANICAL DRAWINGS FOR TYPE, SIZE, LOCATION, AND SPECIAL INSTALLATION REQUIREMENTS FOR THESE ITEMS.

THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT EXISTING STRUCTURES FROM DAMAGE WHEN WORKING IN AND AROUND EXISTING STRUCTURES PERFORMING WORK SUCH AS DEMOLITION, FOUNDATION EXCAVATION, AND OTHERS.

SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURERS REQUIREMENTS.

ANY EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURES.

ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

STANDARD DETAILS APPLY TO ALL SIMILAR SITUATIONS ON THE PROJECT EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

### CONCRETE

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS (LATEST EDITION)

ALL CONCRETE SHALL BE AIR-ENTRAINED WITH 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. SEE MIX DESIGN NOTES BELOW:

- FINE AGGREGATE: SAND CONFORMING TO REQUIREMENTS OF ASTM C33.
- COURSE AGGREGATE: WELL GRADED CRUSHED STONE CONFORMING TO REQUIREMENTS OF ASTM C33.
- WATER-REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494
- AIR-ENTRAINING ADMIXTURE SHALL BE IN ACCORDANCE WITH ASTM C260
- MAXIMUM W/C RATIO : 0.44
- SLUMP OF CONCRETE SHALL BE LIMITED TO 3" - 5"
- MAX. SUBSTITUTION OF FLY ASH : 25 % (CLASS C OR F)
- PERCENT AIR ENTRAINMENT : 3-5

ALL CONCRETE SURFACES EXPOSED TO AIR, SHALL BE TREATED WITH AN APPROPRIATE CURING METHOD AS SOON AS CEMENT FINISHING IS COMPLETED OR FORMS ARE REMOVED.

EXPOSED CONCRETE SLAB TO RECEIVE LIGHT BROOMED FINISH.

ALL EXPOSED CORNERS SHALL HAVE A MINIMUM CHAMFER OF 3" UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATIONS OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWINGS.

### REINFORCING STEEL

REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS. WELDED WIRE FABRIC, ASTM A183. ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:

- CONCRETE CAST AGAINST EARTH	3"
- FORMED SURFACES IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER	2"
- FORMED SURFACES NOT EXPOSED TO WEATHER OR IN CONTACT WITH SOIL	
- SLABS, WALLS, AND JOIST	3/4"
- BEAMS AND COLUMNS	1 1/2"

LAP SPICES SHALL BE AS SHOWN ON THE DRAWINGS. FOR LAP SPICES NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL.

THE CONTRACTOR SHALL PREPARE PLACING DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI 315 REQUIREMENTS.

UNLESS OTHERWISE NOTED, THE MINIMUM REINFORCING FOR ALL CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:

MINIMUM REINFORCING						
THICKNESS	6"	8"	10"	12"-16"	18"-22"	24"
REINF. EACH WAY	#4AT12"	#5AT12"	#4AT12"	#5AT12"	#6AT12"	#7AT12"
LOCATION	CENTER	CENTER	EF	EF	EF	EF

### MASONRY

- DESIGN COMPRESSIVE STRENGTH OF MASONRY AT 28 DAYS

$f'_m = 1500 \text{ PSI}$

- ALLOWABLE STEEL STRESS

$f_s = 24,000 \text{ PSI}$

### MATERIALS:

- BLOCK: CONFORM TO ASTM C90 - LOAD BEARING, NORMAL WEIGHT TWO-CELL, 8"x8"x16", 12"x8"x16".

- MORTAR: CONFORM TO ASTM C270, TYPE S, MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 1800 PSI. UTILIZE TYPE II CEMENT AND TYPE S LIME. MASONRY CEMENT WILL NOT BE CONSIDERED.

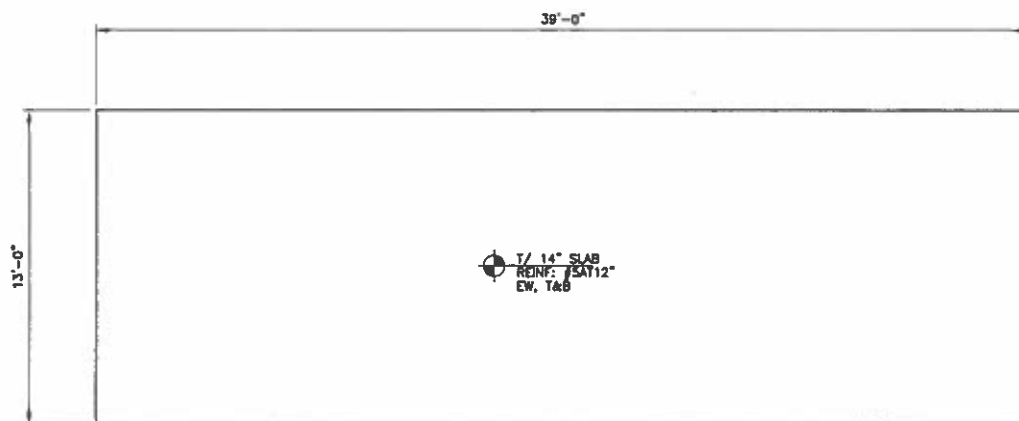
- GROUT: CONFORM TO C476, COURSE GROUT, MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 2500 PSI

- STEEL: BOND BEAM AND FILLED CELL REINFORCEMENT AS NOTED ON DRAWINGS (ASTM A615, GRADE 60). DUR-D-WALL OR EQUAL JOINT REINFORCEMENT AT EVERY OTHER COURSE (16" O.C.).

### CONSTRUCTION

- THE CONCRETE FOR FILLED CELLS SHALL BE RODDED OR PUDDLED DURING PLACEMENT TO INSURE COMPLETE FILLING TO THE BLOCK CORE.

- PROVIDE CLEAN OUT AND INSPECTION BLOCK OUT IN CELLS CONTAINING REINFORCEMENT FOR GROUT LIFTS EXCEEDING 5'-0"

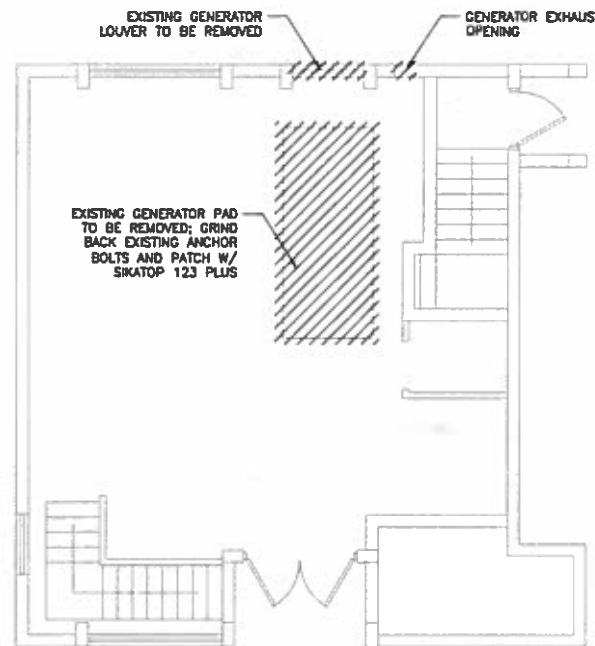


PROPOSED GENERATOR SLAB

PLAN  
1/4"=1'-0"

### NOTE:

1. ALL ORGANIC MATERIALS ARE TO BE REMOVED FROM THE TOP 18" OF EXISTING SUBGRADE BELOW GENERATOR PAD. SUBGRADE IS THEN TO BE COMPACTED TO 95% DRY DENSITY PER STD. PROCTOR TEST. WHERE FILL IS NECESSARY THEN GRANULAR BACKFILL SHALL BE PLACED AT 12" MAXIMUM LIFTS AND COMPACTED. PROCTOR TEST RESULTS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
2. ALL EQUIPMENT (GENERATOR, ETC.) ANCHOR BOLTS SHALL BE DRILLED AND EPOXIED INTO CONCRETE W/ A 5" MINIMUM EMBEDMENT AND A 4" MINIMUM EDGE DISTANCE TO THE EDGE OF CONCRETE. ANCHORS SHALL BE SS316 AND DIAMETER SHALL BE DETERMINED BY HOLE SIZE PROVIDED BY EQUIPMENT MANUFACTURER.

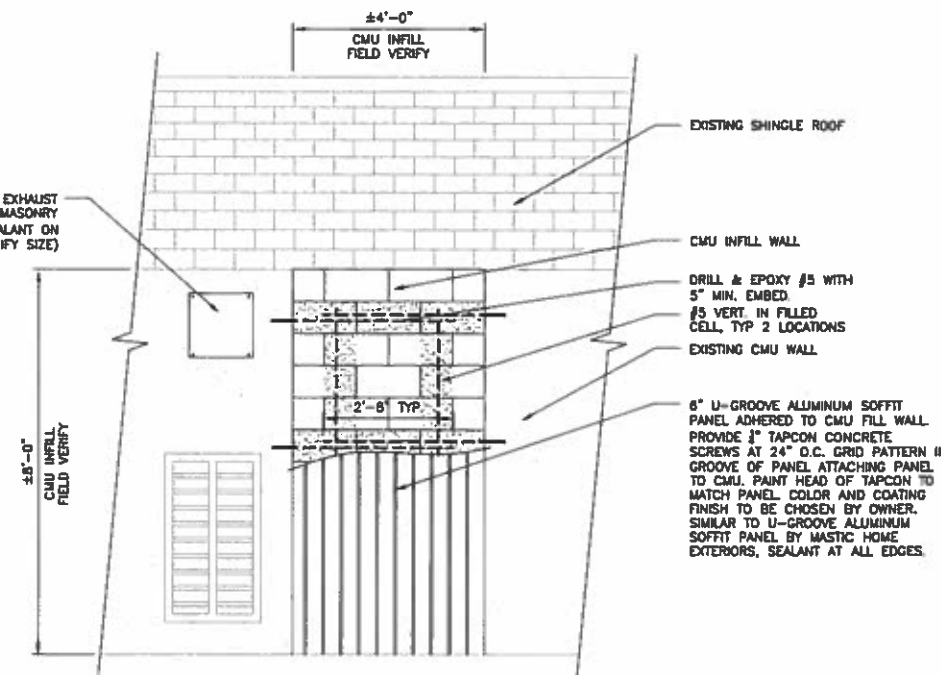


EXISTING SITE  
PLAN  
3/16"=1'-0"

INDICATES ITEMS TO BE REMOVED



REMOVE EXISTING  
GENERATOR LOUVER AND  
EXHAUST



PROPOSED ELEVATION

ELEVATION  
1/2"=1'-0"

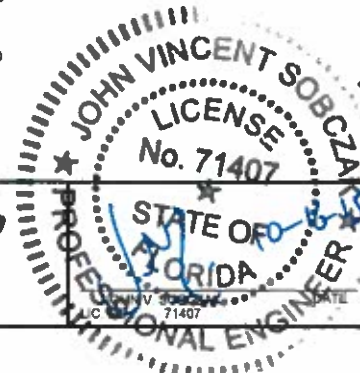
**e/T ENGINEERING TECHNOLOGIES, INC.**

3551 W. LAKE MARY BLVD., SUITE 210  
LAKE MARY, FL 32746  
PHONE: (407) 322-0500 FAX: (407) 322-0523  
ET PROJECT NO. - 10-141

MANATEE COUNTY

MLS 13-A EMERGENCY  
GENERATOR REPLACEMENT

**Cardno**  
Shaping the Future  
380 PARK PLACE BLVD., STE. 300, CLEARWATER, FL 33709  
TEL: (727) 631-2800 (800) 881-8314  
www.cardno.com Certificate of Authorization No. 20018



SIGNED JS  
DRAWN JS  
CHECKED BE  
APPROVED

GENERATOR BUILDING  
PLAN AND DETAILS

PROJECT NO:  
00193009.05  
DATE:  
OCTOBER 2015  
SHEET NO:  
S-1