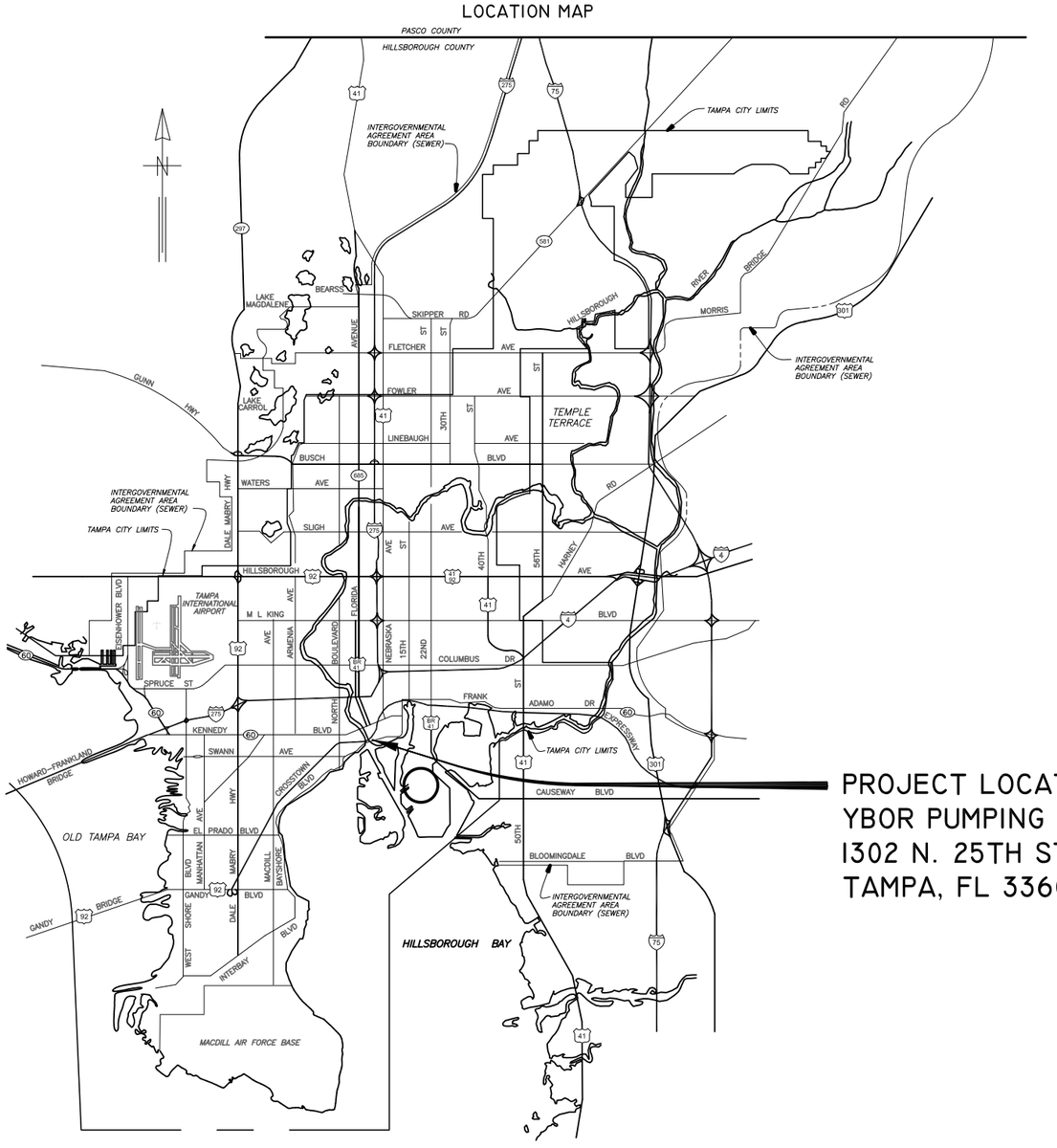
LOCATION MAP



PROJECT LOCATION
YBOR PUMPING STATION
1302 N. 25TH STREET
TAMPA, FL 33605

PLANS

FOR

CITY OF TAMPA FLORIDA
WASTEWATER DEPARTMENT

FOR
THE CONSTRUCTION OF THE

YBOR PUMPING STATION
STANDBY GENERATORS

CONTRACT: 21-C-00010

MARCH 2020

CITY OF TAMPA FLORIDA
ORGANIZED JULY 15 1887
MASCOTTE

MICHAEL A. SEMAGO, P.E. No. 87501

SETH E. SCHMID, P.E. No. 54640

Kimley»Horn
KIMLEY-HORN AND ASSOCIATES, INC.
100 2nd Avenue South
Suite 105-N
St. Petersburg, FL 33701
727-547-3999
Certificate of Authorization No. 0696

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777 S. Harbour Island Blvd,
Suite 350
Tampa, FL 33602
813,227,9190
Certificate of Authorization No. 8363

TIMOTHY THOMAS, P.E. No. 47079

DRAWING INDEX

SHEET No.	SHEET TITLE
1	COVER SHEET
2	SHEET INDEX AND LOCATION MAP
C-0.1	YBOR GENERATOR DESIGN DEMO PLAN
C-0.2	YBOR GENERATOR DESIGN SITE PLAN
C-0.3	YBOR GENERATOR DESIGN SITE CIVIL DETAILS
S-0.1	YBOR GENERATOR DESIGN STRUCTURAL NOTES
S-0.2	YBOR GENERATOR DESIGN FOUNDATION SECTION DETAIL
S-0.3	YBOR GENERATOR DESIGN FRAME DETAILS
S-0.4	YBOR GENERATOR DESIGN STAIR AND RAILING DETAILS
EG1	ELECTRICAL GENERAL NOTES AND SCOPE OF WORK
EG2	ELECTRICAL SYMBOLS AND LEGEND SHEET 1 OF 2
EG3	ELECTRICAL SYMBOLS AND LEGEND SHEET 2 OF 2
E-0.1	ELECTRICAL SITE PLAN
E-0.2	YBOR PUMP STATION EXISTING EQUIPMENT LAYOUT
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E-1.5	EXISTING SWITCHGEAR 'SES-1' PLC CONTROL MODIFICATIONS
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E-3.0	EXISTING PUMP CONTROL PANEL 'CP-Y01' INTERIOR ELEVATION
E-3.1	GENERATOR DISCRETE INPUT ADDITIONS
E-3.2	DIESEL TANK ANALOG INPUT ADDITIONS
E-4.0	TYPICAL GENERATOR ELEVATION AND DETAILS
E-5.0	EXISTING PANELBOARD 'LP1' CIRCUIT ADDITIONS
E-5.1	CONDUIT AND CABLE SCHEDULE

LOCATION MAP

SCALE: NOT TO SCALE

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JOB No.	2319015542					
DESIGNED	TDT					
DRAWN	JLH					
CHECKED	TDT					
DATE	3/2021	No.	DATE	BY	APP	REVISION DESCRIPTION

SCALE: NOT TO SCALE

City of Tampa Wastewater Department

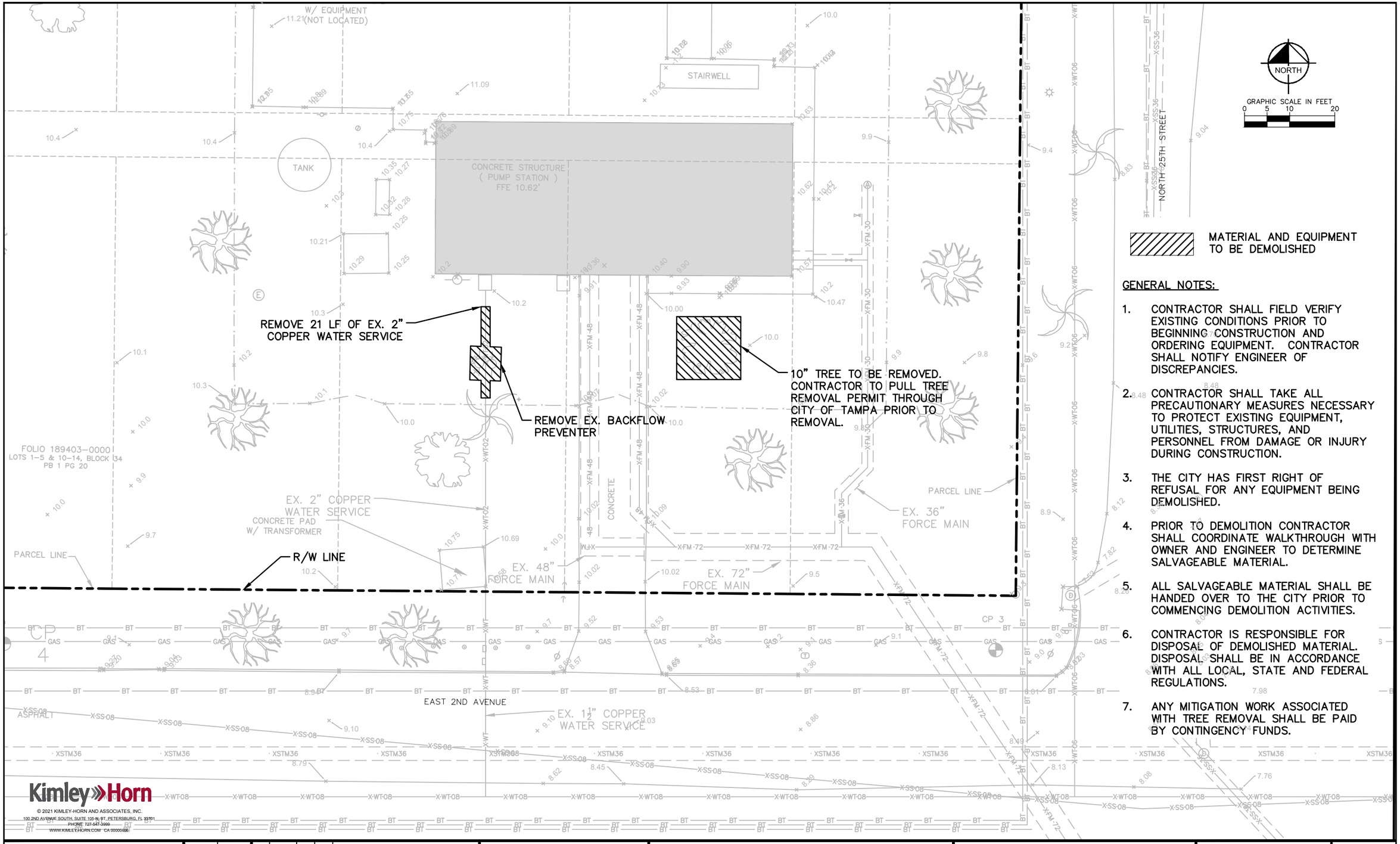
YBOR PUMPING STATION
STANDBY GENERATORS

SHEET INDEX AND LOCATION MAP

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER 2

FILE: 231901542



MATERIAL AND EQUIPMENT TO BE DEMOLISHED

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
3. THE CITY HAS FIRST RIGHT OF REFUSAL FOR ANY EQUIPMENT BEING DEMOLISHED.
4. PRIOR TO DEMOLITION CONTRACTOR SHALL COORDINATE WALKTHROUGH WITH OWNER AND ENGINEER TO DETERMINE SALVAGEABLE MATERIAL.
5. ALL SALVAGEABLE MATERIAL SHALL BE HANDED OVER TO THE CITY PRIOR TO COMMENCING DEMOLITION ACTIVITIES.
6. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
7. ANY MITIGATION WORK ASSOCIATED WITH TREE REMOVAL SHALL BE PAID BY CONTINGENCY FUNDS.

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City of Tampa Wastewater Department

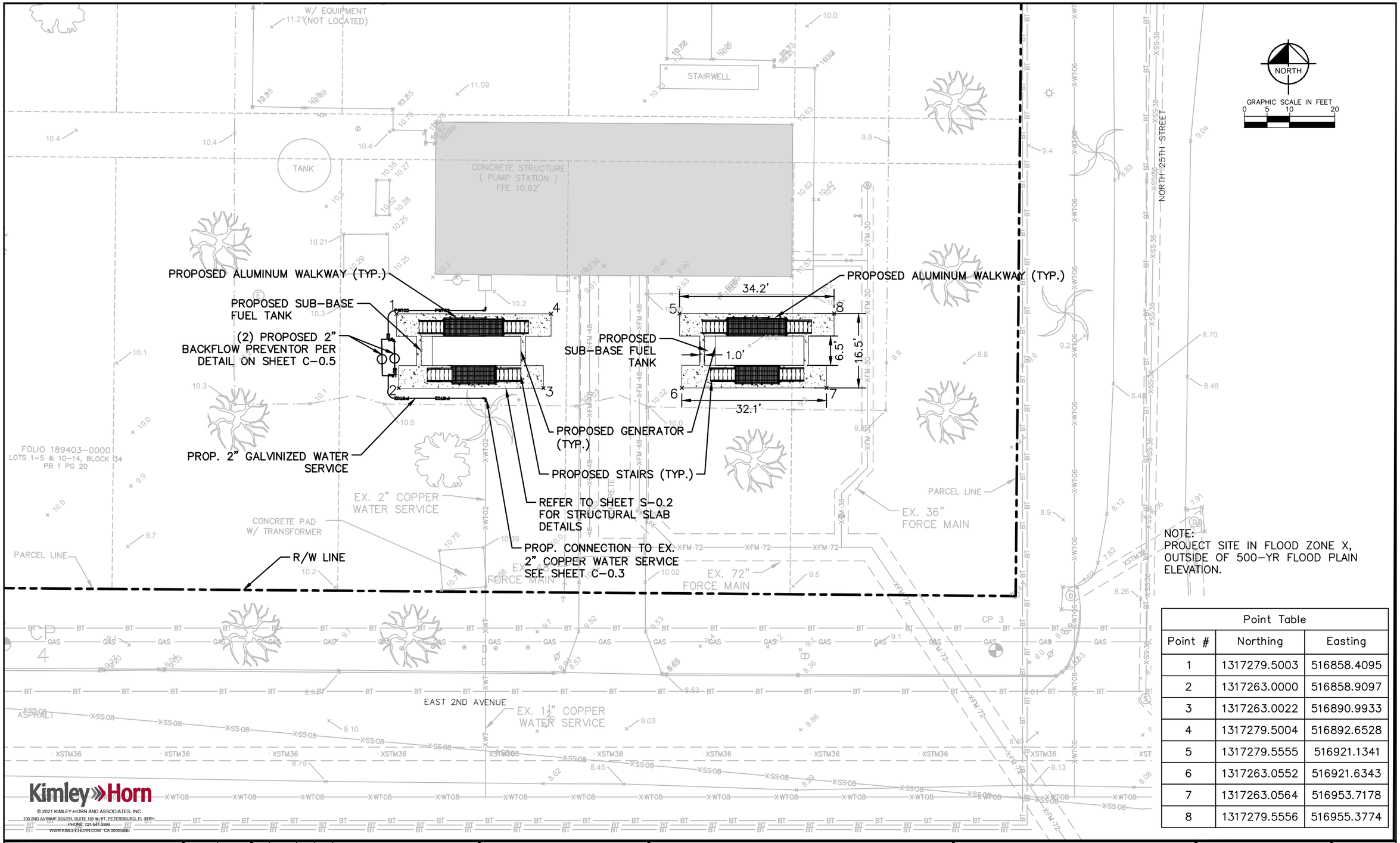
YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN DEMO PLAN

MICHAEL A. SEMAGO, P.E. NO. 87501

SHEET NUMBER C-0.1

FILE: 231902342E2



NOTE:
PROJECT SITE IN FLOOD ZONE X, OUTSIDE OF 500-YR FLOOD PLAIN ELEVATION.

Point Table		
Point #	Northing	Easting
1	1317279.5003	516858.4095
2	1317263.0000	516858.9097
3	1317263.0022	516890.9933
4	1317279.5004	516892.6528
5	1317279.5555	516921.1341
6	1317263.0552	516921.6343
7	1317263.0564	516953.7178
8	1317279.5556	516955.3774

100 2ND AVENUE SOUTH, SUITE 105-N, ST. PETERSBURG, FL 33701
PHONE 727-547-3999
WWW.KIMLEY-HORN.COM CA 00000698

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City of Tampa Wastewater Department

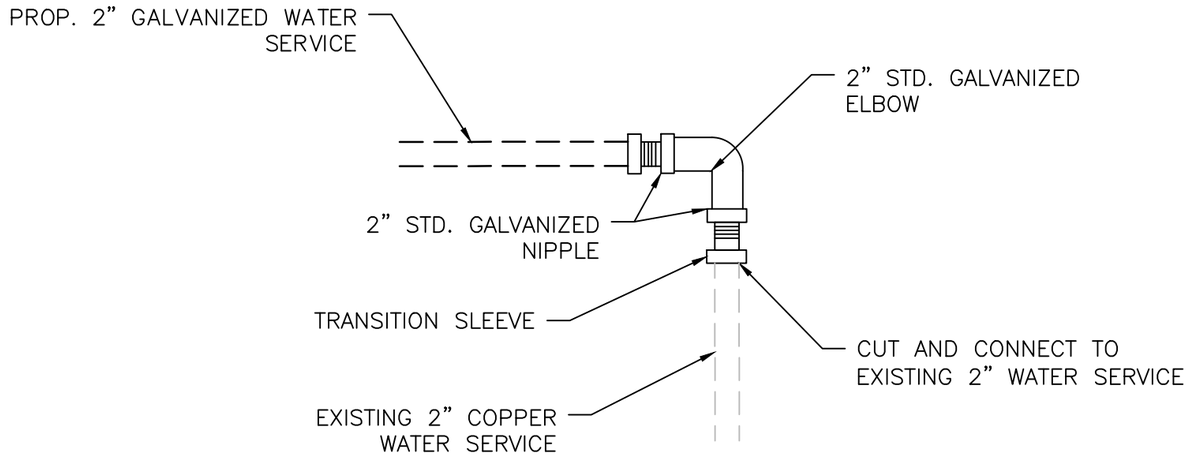
YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN SITE PLAN

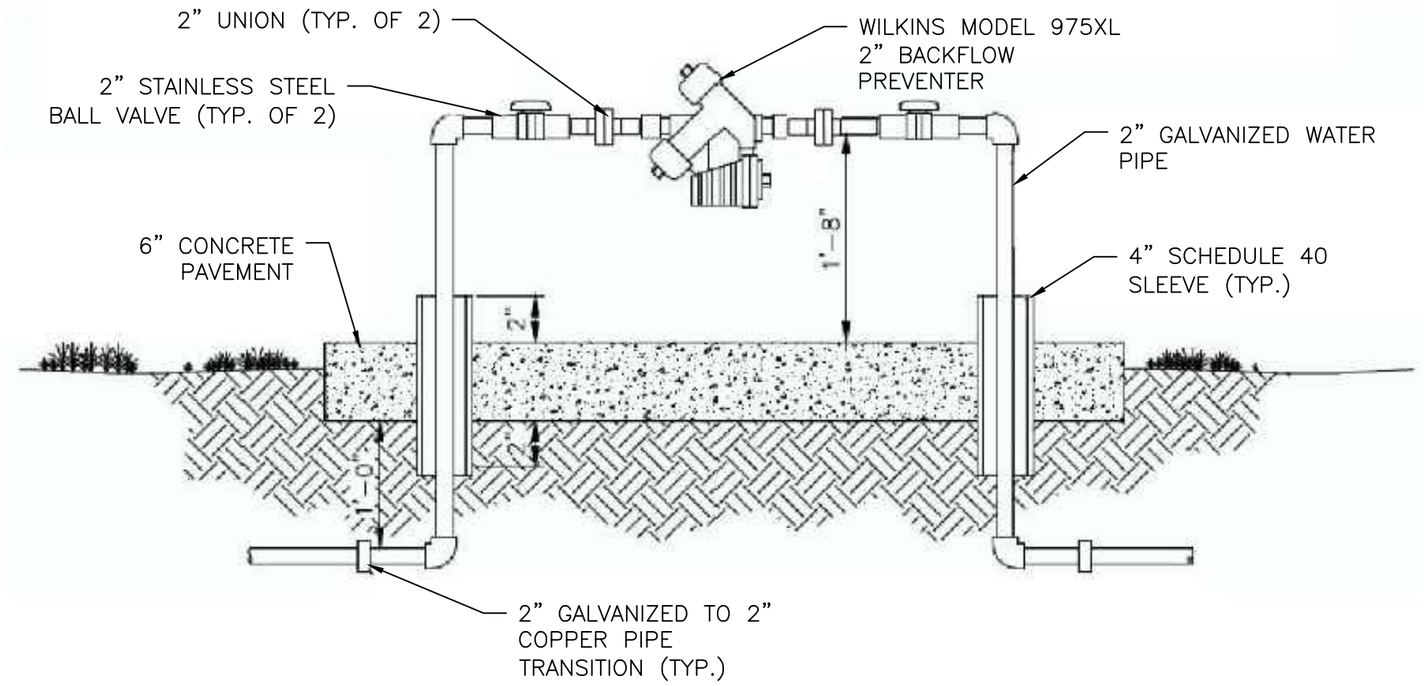
MICHAEL A. SEMAGO, P.E. NO. 87501

SHEET NUMBER: C-0.2

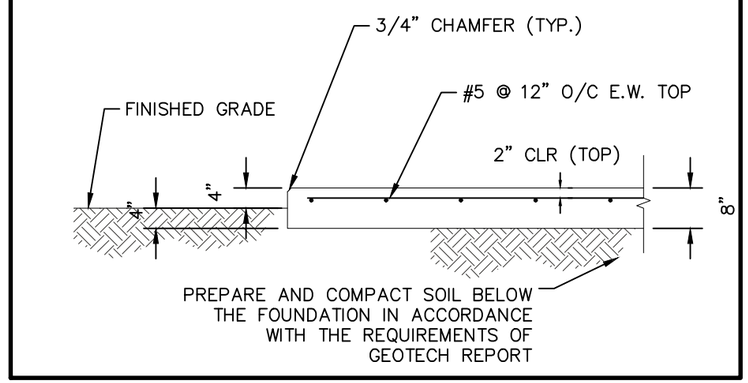
FILE: 231902342E2



1 / C-0.2 WATER SERVICE CONNECTION DETAIL
SCALE: NTS



2 / C-0.3 BACKFLOW PREVENTER DETAIL
SCALE: NTS



3 / C-0.3 TYPICAL GENERATOR SWITCH FOUNDATION SECTION
SCALE: 1/4" = 1'-0"

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City of Tampa Wastewater Department

YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN CIVIL DETAILS

MICHAEL A. SEMAGO, P.E. NO. 87501

SHEET NUMBER C-0.3

FILE: 231902342E2

STRUCTURAL NOTES

1. GENERAL:

(A) PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM ALL DAMAGE. CONTRACTOR SHALL PROTECT THE WORK, ADJACENT PROPERTY, AND THE PUBLIC. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE OR INJURY DUE TO HIS ACT OR NEGLECT.

(B) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY AND CONSTRUCTION PROCEDURES.

(C) PRIOR TO CONSTRUCTION, FIELD VERIFY ALL DIMENSIONS IN THE DRAWINGS AND DETAILS AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.

(D) REFER TO THE ENGINEER FOR INSTRUCTION FOR ANY DIMENSION NOT GIVEN ON DRAWINGS. SCALING OF DRAWINGS SHALL NOT BE USED TO OBTAIN OR VERIFY ANY DIMENSION SHOWN ON THE DRAWINGS.

2. CONCRETE:

(A) ALL CONCRETE MATERIALS, PLACING AND HANDLING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318 AND ACI 301.

(B) ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4000 PSI (UNLESS OTHERWISE NOTED).

(C) PROVIDE 3" CONCRETE COVER OVER REINFORCING BARS EXCEPT AS OTHERWISE NOTED.

(D) FORM TIES AND REINFORCING BAR SUPPORTS SHALL BE OF NON–CORROSIVE MATERIAL INCLUDING, BUT NOT LIMITED TO, FIBERGLASS, PLASTIC, AND/OR CONCRETE BLOCK.

(E) CONCRETE FINISHES: FORMED SURFACE–SMOOTH FORM FINISH PER ACI 301.

(F) ALL GROUT SHALL BE NON–SHRINK, NON–METALLIC.

(G) CONCRETE SHALL BE CURED IMMEDIATELY AFTER FINISHING OPERATIONS IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS:
1. APPLY A LIQUID MEMBRANE CHEMICAL CURING COMPOUND IN ACCORDANCE WITH ASTM C–309.
2. WET CURE IN ACCORDANCE WITH ACI 301.

(H) ALL CONCRETE CONSTRUCTION SHALL BE DONE IN THE DRY.

(I) PROVIDE 3/4" CHAMFER ON ALL EXPOSED EDGES UNLESS OTHERWISE NOTED.

(J) CONCRETE SHALL BE IN ACCORDANCE WITH ASTM C94:
1. TYPE II PORTLAND CEMENT – ASTM C150
2. AGGREGATES (3/4" MAX.) – ASTM C33
3. USE OF CALCIUM CHLORIDE IS NOT PERMITTED
4. AIR ENTRAINING (4% MAX.) – ASTM C260
5. WATER REDUCING – ASTM C494
6. FLY ASH (MAX 20% BY WEIGHT), TYPE F – ASTM C618
7. WATER – CLEAN AND POTABLE
8. MAXIMUM WATER CEMENT RATIO FOR 4,000 PSI, 28–DAY COMPRESSIVE STRENGTH = 0.45

(K) REQUIRED SLUMP: 2" TO 4"

(L) CONTRACTOR IS RESPONSIBLE FOR THE PROPER DESIGN AND CONSTRUCTION OF ALL FORMWORK AND SHORING.

(M) A QUALIFIED TESTING LABORATORY SHALL BE RETAINED TO PERFORM THE FOLLOWING CONCRETE TESTS:
1. CYLINDER STRENGTH TESTS – ASTM C39. ONE SET OF FIVE CYLINDERS FOR EACH 50 CUBIC YARDS OR FRACTION THEREOF PLACED. TEST ONE AT 3 DAYS, ONE AT 7 DAYS, TWO AT 28 DAYS, AND HOLD ONE.
2. SLUMP TESTS – ASTM C143

(N) ONE COPY OF ALL TEST REPORTS SHALL BE SENT DIRECTLY TO OWNER, ENGINEER, AND CONTRACTOR.

(O) CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCH TIME

(P) ALL CONCRETE SHALL BE CONSOLIDATED IN PLACE USING INTERNAL VIBRATORS

(Q) SUBMITTALS:
1. SUBMIT PROPOSED CONCRETE MIX DESIGN PRIOR TO CONSTRUCTION
2. SUBMIT DETAILED SHOP DRAWINGS OF REINFORCING BARS SHOWING NUMBER, SIZE, AND LOCATION. INCLUDE BAR LISTS AND BEND DIAGRAMS.

3. REINFORCEMENT:

(A) REINFORCING STEEL SHALL BE A.S.T.M. A–615 WITH SUPPLEMENT, GRADE 60: MINIMUM WORKING STRESS – 24,000 PSI.

(B) ALL REINFORCEMENT SHALL BE UNCOATED (BLACK).

(C) ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCING BARS ARE TO CENTERLINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE.

(D) REINFORCEMENT DETAIL DIMENSION ARE OUT–TO–OUT OF BARS.

(E) ACI STANDARD HOOKS SHALL BE USED UNLESS OTHERWISE NOTED.

(F) ALL LAP AND SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318 AND CRSI STANDARD PRACTICES, EXCEPT AS OTHERWISE NOTED.

4. FOUNDATIONS:

(A) A REPORT OF GEOTECHNICAL EXPLORATION HAS BEEN PREPARED BY AREHNA ENGINEERING., INC. (DATED FEBRUARY 3, 2020, PROJECT NO. B–19–128). ANY ADDITIONAL GEOTECHNICAL WORK WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

(B) NOTIFY THE ENGINEER IMMEDIATELY OF ANY EXISTING FOUNDATION CONDITIONS OR DETAILS THAT ARE IN CONFLICT WITH THOSE INDICATED AND SHOWN IN THE DRAWINGS.

(C) ADHERE TO THE RECOMMENDATIONS MADE IN THE GENERAL SITE PREPARATION SECTION OF THE GEOTECHNICAL REPORT.

(D) ALL FILL AND COMPACTION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.

(E) MAXIMUM ALLOWABLE SOIL BEARING PRESSURE = 2,000 PSF.

5. STRUCTURAL ALUMINUM:

(A) STRUCTURAL ALUMINUM SHALL BE DOMESTIC ALLOY 6061–T6.

(B) ALUMINUM WORK SHALL BE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION'S SPECIFICATIONS FOR ALUMINUM STRUCTURES, LATEST EDITION.

(C) FASTENERS: UNLESS NOTED OTHERWISE, ALL FASTENERS SHALL BE 316 STAINLESS STEEL MEETING THE REQUIREMENTS OF ASTM F593 OR ASTM A193 FOR BOLTS AND ASTM F594 OR ASTM A194 FOR NUTS. ALL CONNECTIONS WITH DISSIMILAR MATERIALS (E.G. 316 STAINLESS STEEL TO ALUMINUM) SHALL RECEIVE NEOPRENE OR VINYL WASHER. WASHER SHALL BE LARGER THAN BOLT HEAD.

(D) ALL WELDING SHALL CONFORMS WITH AWS D1.2, LATEST STRUCTURAL WELDING CODE – ALUMINUM.

(E) PROVIDE NON–SLIP ALUMINUM STAIR TREADS WITH A MINIMUM LIVE LOAD CAPACITY OF 100 PSF.

(F) PROVIDE SHOP DRAWINGS FOR ALUMINUM FRAMING PRIOR TO FABRICATION AND INSTALLATION.

(G) WHERE THE CONTACT OF DISSIMILAR MATERIALS MAY CAUSE ELECTROLYSIS OR WHERE ALUMINUM WILL COME IN CONTACT WITH CONCRETE, MORTAR, OR PLASTER, THE CONTACT SURFACE OF THE ALUMINUM SHALL BE COATED WITH ONE HEAVY COAT OF BITUMINOUS PAINT.

6. DELEGATED DESIGN

(A) THE PRE–FABRICATED ALUMINUM ACCESS PLATFORM, STAIRS AND RAILING SHALL BE DESIGNED BY A DELEGATED ENGINEER.

(B) THE DESIGN CRITERIA FOR THE PRE–FABRICATED ALUMINUM ACCESS PLATFORM, STAIRS AND RAILING SHALL BE AS ESTABLISHED IN THESE CONSTRUCTION PLANS AND NOTES AND IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

(C) THE DELEGATED ENGINEER FOR THE PRE–FABRICATED ALUMINUM ACCESS PLATFORM, STAIRS AND RAILING SHALL SUBMIT PLANS/SHOP DRAWINGS AND CALCULATIONS, SIGNED AND SEALED BY A FLORIDA REGISTERED ENGINEER, TO THE OWNER AND ENGINEER OF RECORD FOR REVIEW.

(D) REVIEW OF SUBMITTALS FROM THE DELEGATED ENGINEER IS LIMITED TO VERIFYING THE FOLLOWING:
1. THAT THE SPECIFIED STRUCTURAL SUBMITTALS HAVE BEEN FURNISHED.
2. THAT THE STRUCTURAL SUBMITTALS HAVE BEEN SIGNED AND SEALED BY THE DELEGATED ENGINEER.
3. THAT THE DELEGATED ENGINEER HAS UNDERSTOOD THE DEISGN INTENT AND HAS USED THE SPECIFIED STRUCTURAL CRITERIA. (NO DETAILED CHECK OF CALCULATIONS WILL BE MADE.)
4. THAT THE CONFIGURATION SET FORTH IN THE STRUCTURAL SUBMITTALS IS CONSISTENT WITH THE CONTRACT DOCUMENTS. (NO DETAILED CHECK OF DIMENSIONS OR QUANTITIES WILL BE MADE.)

DESIGN CRITERIA:

CODE:
2020 FLORIDA BUILDING CODE, 7TH EDITION
ACI 318–14

DESIGN LOADS:

DEAD LOAD (GRATING):	5 PSF
LIVE LOADS:	
A. PLATFORM	125 PSF
B. STAIRS	100 PSF
WIND LOAD:	(ASCE 7–16)
BASIC WIND SPEED	150 MPH
EXPOSURE	C
RISK CATEGORY	III

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SCALE: NOT TO SCALE

City of Tampa Wastewater Department

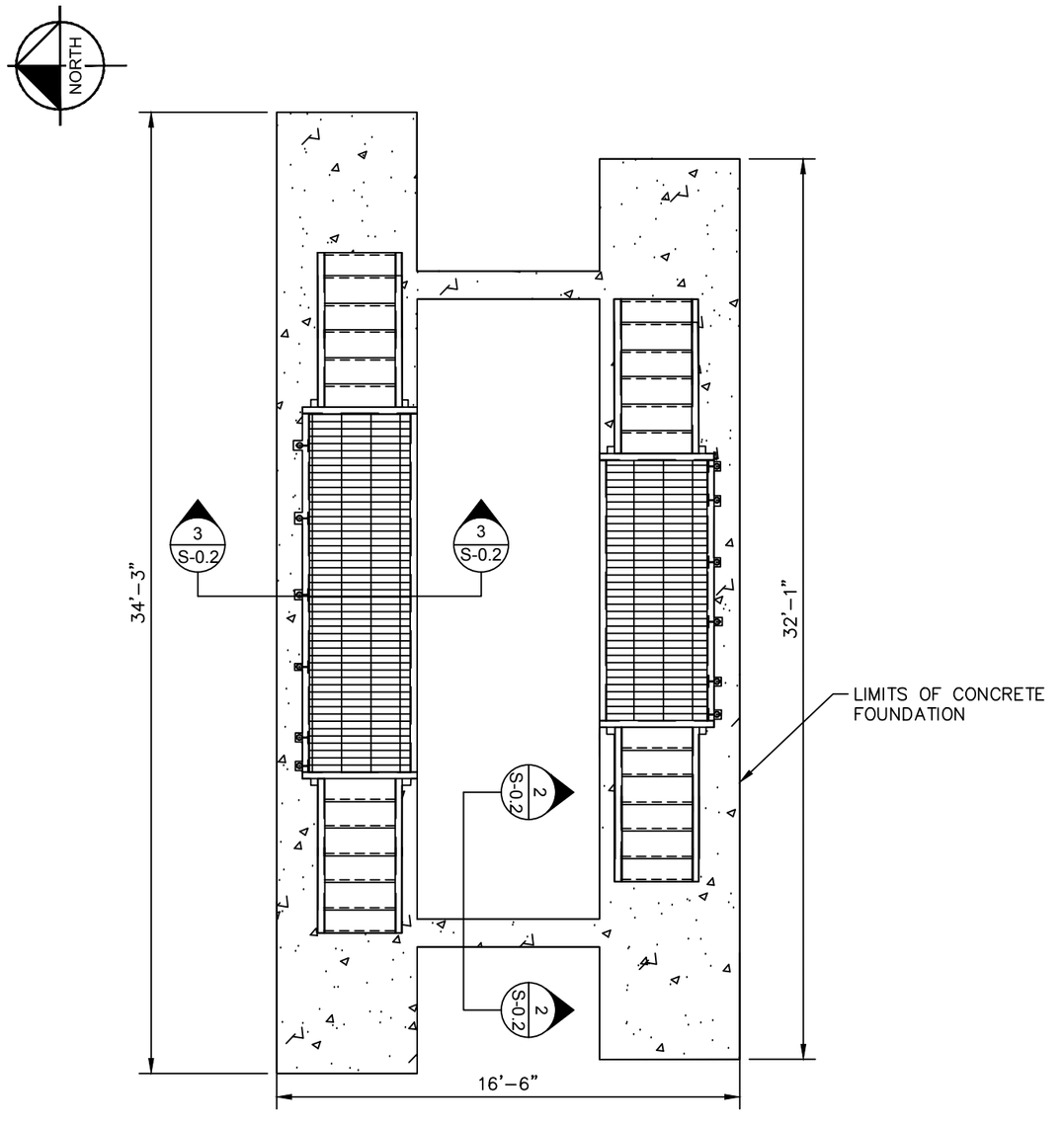
YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN STRUCTURAL NOTES

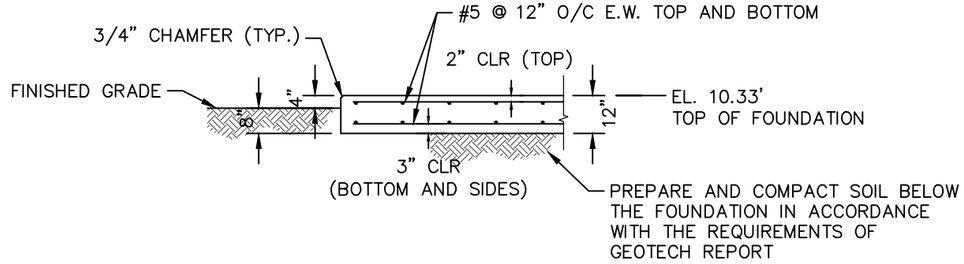
SETH E. SCHMID, P.E. NO. 54640

SHEET NUMBER: S-0.1

FILE: 231902342E2

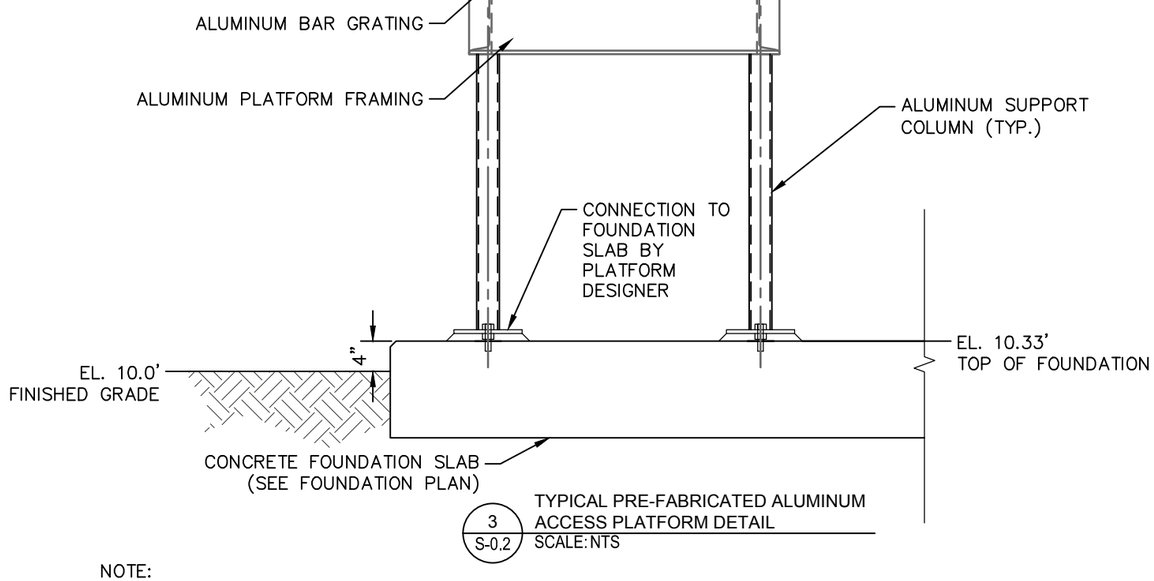


1 / S-0.2 TYPICAL FOUNDATION PLAN
SCALE: NTS



2 / S-0.2 TYPICAL FOUNDATION SECTION
SCALE: 1/4" = 1'-0"

NOTES:
1. EQUIPMENT AND PLATFORM NOT SHOWN FOR CLARITY
2. ATTACH SUB-BASE FUEL TANK TO CONCRETE SLAB FOUNDATION PER MANUFACTURERS REQUIREMENTS AND IN ACCORDANCE WITH THE CURRENT EDITION OF THE FLORIDA BUILDING CODE.



3 / S-0.2 TYPICAL PRE-FABRICATED ALUMINUM ACCESS PLATFORM DETAIL
SCALE: NTS

NOTE: TYPICAL AT TWO (2) LOCATIONS. PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY FOUNDATION DIMENSIONS WITH APPROVED GENERATOR, GENERATOR ENCLOSURE, SUB-BASE FUEL TANK, AND PRE-FABRICATED PLATFORMS TO CONFIRM FOUNDATION SIZE IS ADEQUATE AND THERE ARE NO CONFLICTS BETWEEN THE EQUIPMENT AND PLATFORMS

NOTE:
1. PRIOR TO CONSTRUCTION AND FABRICATION CONTRACTOR/PLATFORM MANUFACTURER SHALL VERIFY HEIGHT OF SUB-BASE FUEL TANK.
2. ACCESS PLATFORM MANUFACTURER'S ENGINEER SHALL DESIGN THE PRE-FABRICATED PLATFORM SYSTEM IN ACCORDANCE WITH THE DESIGN CRITERIA AND REQUIREMENTS OF THESE CONSTRUCTION PLANS AND THE PROJECT CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.

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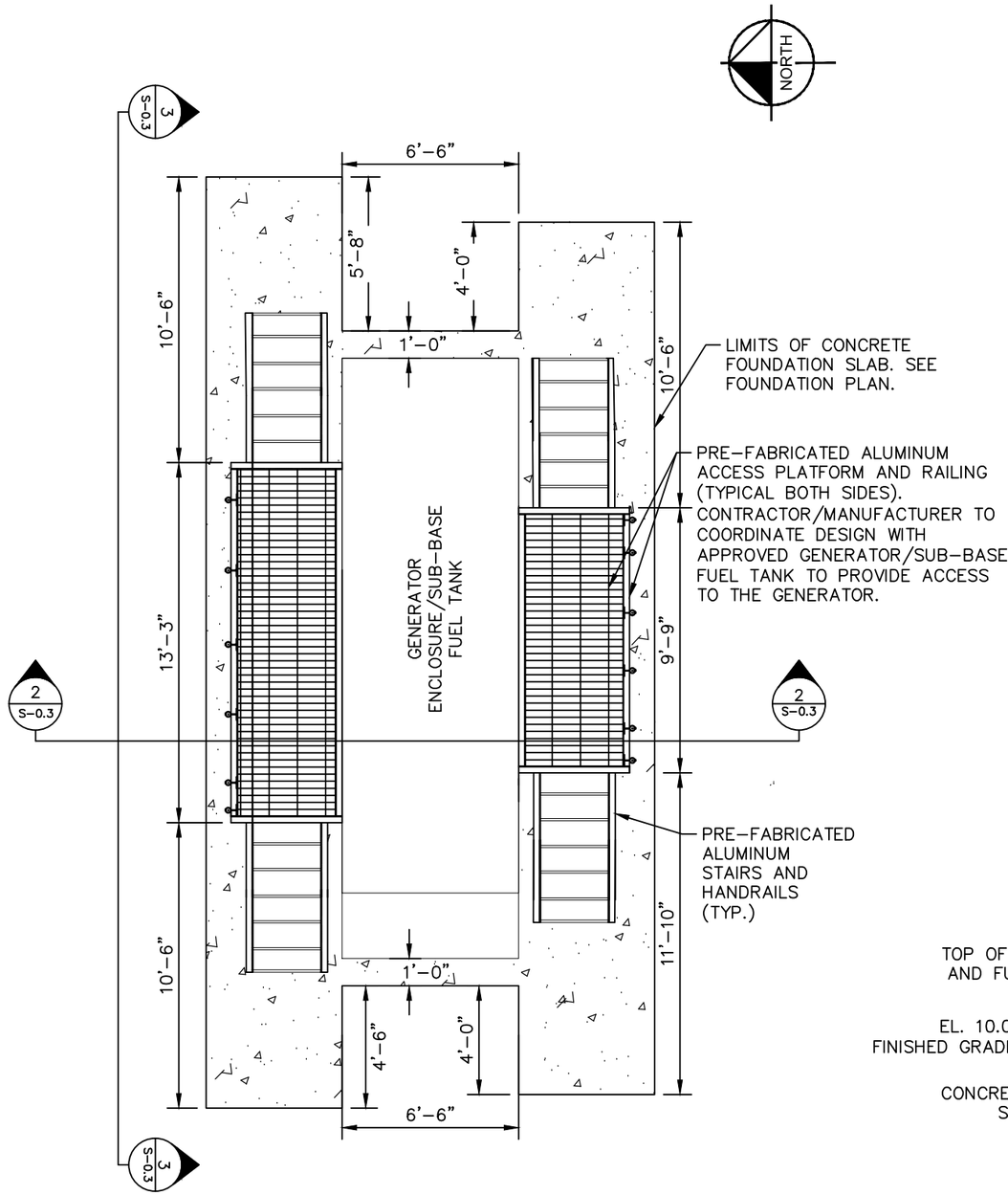
City of Tampa Wastewater Department
YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN FOUNDATION SECTION DETAIL

SETH E. SCHMID, P.E. NO. 54640

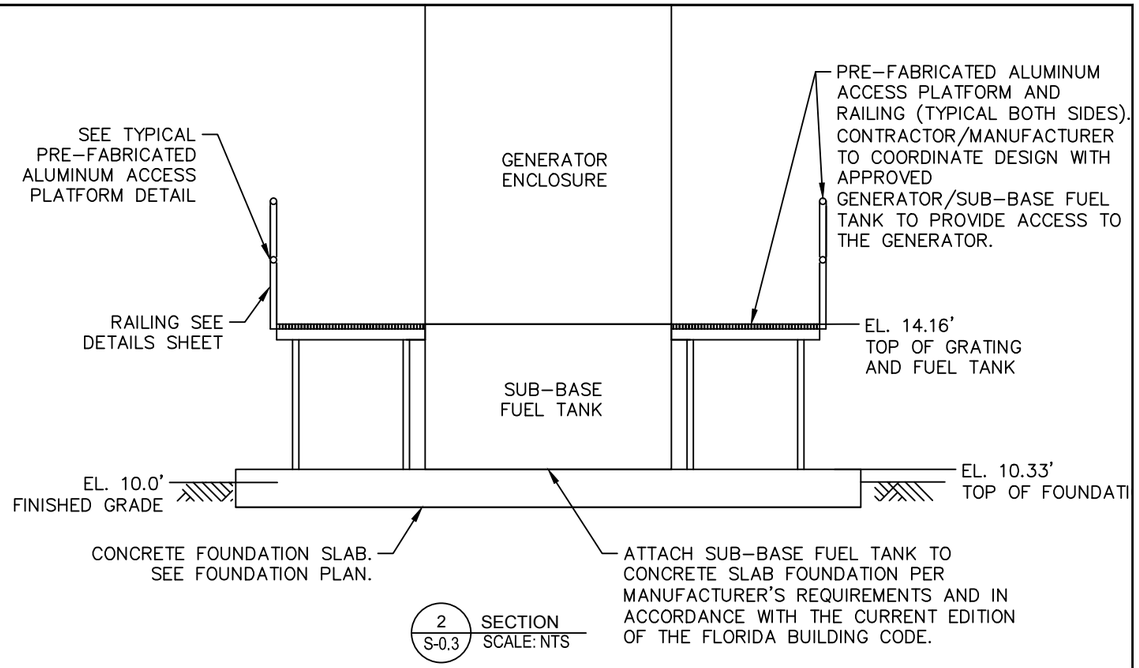
SHEET NUMBER S-0.2

FILE: 231902342E2



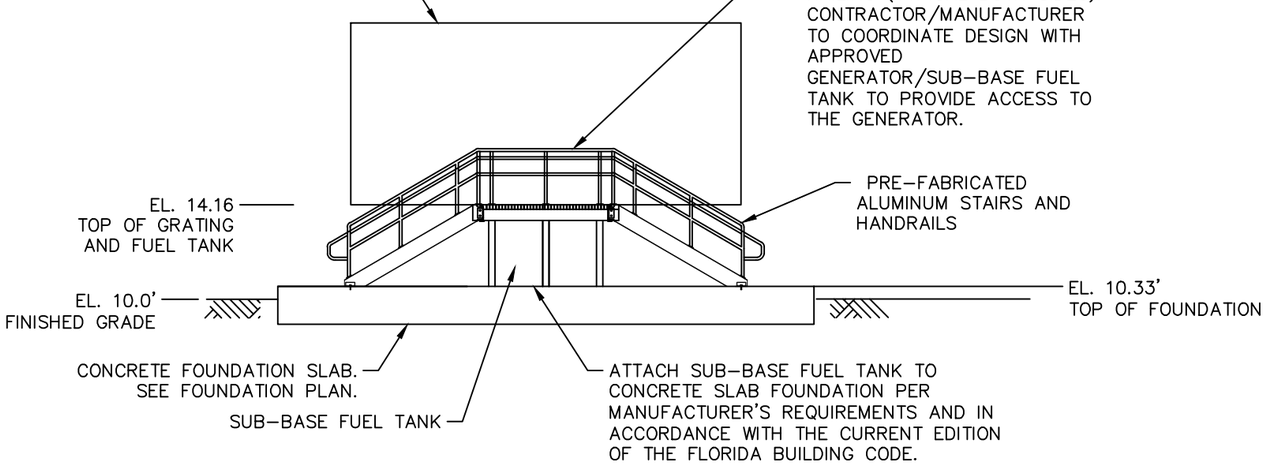
1 S-0.3 TYPICAL GENERATOR PLAN
SCALE: NTS

NOTE: TYPICAL AT TWO (2) LOCATIONS



2 S-0.3 SECTION
SCALE: NTS

NOTE: PRIOR TO CONSTRUCTION AND FABRICATION CONTRACTOR TO VERIFY THE HEIGHT OF THE SUB-BASE FUEL TANK



3 S-0.3 ELEVATION
SCALE: NTS

NOTE: PRIOR TO CONSTRUCTION AND FABRICATION CONTRACTOR TO VERIFY THE HEIGHT OF THE SUB-BASE FUEL TANK

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City of Tampa Wastewater Department

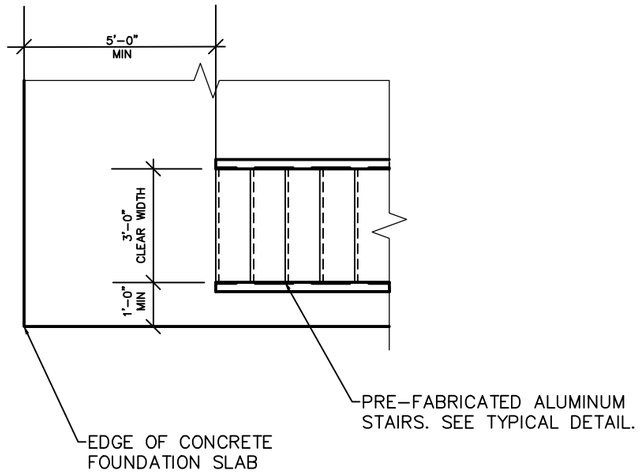
YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN FRAME DETAILS

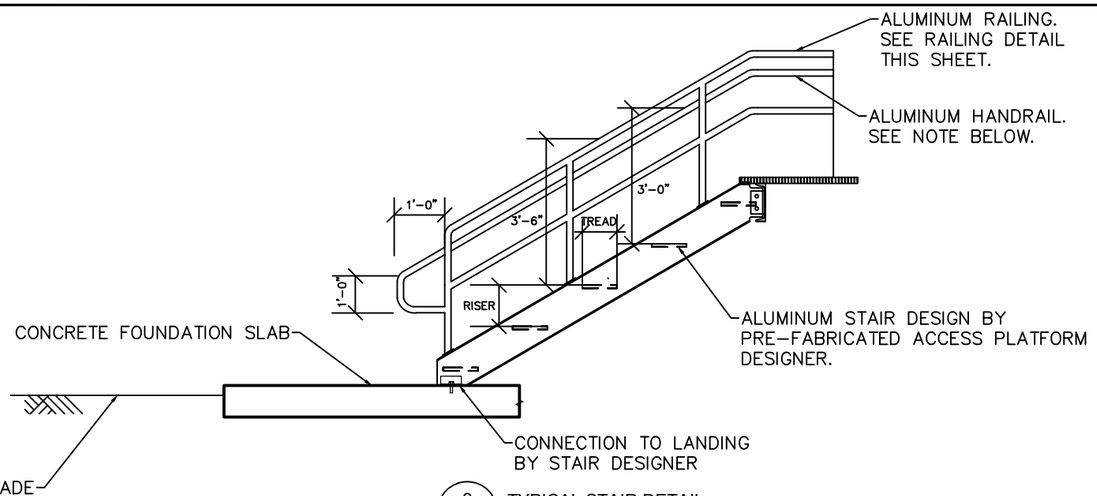
SETH E. SCHMID, P.E. NO. 54640

SHEET NUMBER S-0.3

FILE: 231902342E2



1 S-0.4 TYPICAL STAIR LANDING PLAN
SCALE: NTS



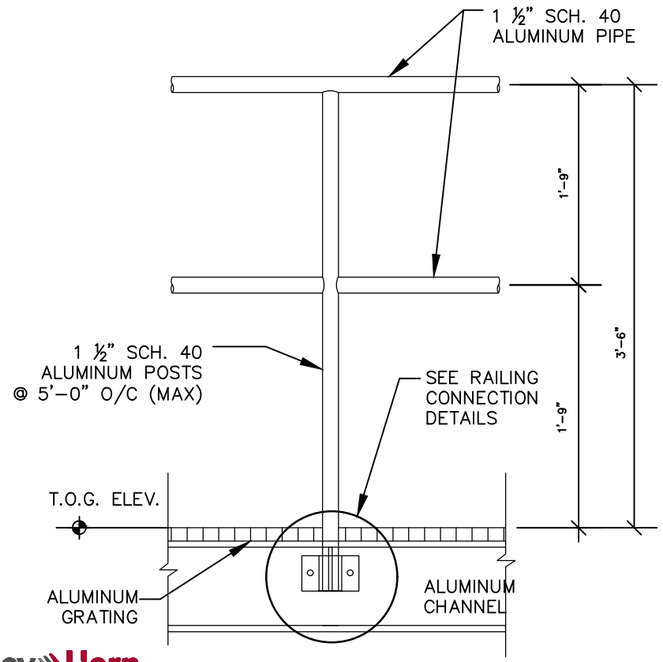
2 S-0.4 TYPICAL STAIR DETAIL
SCALE: NTS

NOTES:

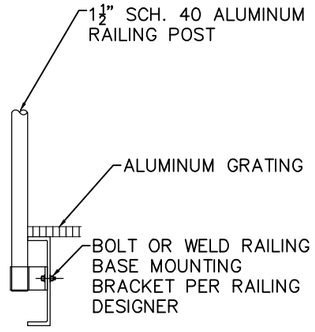
1. RISER HEIGHT SHALL BE BETWEEN 6" AND 7" AND SHALL BE THE SAME VALUE FOR ALL RISERS IN A FLIGHT OF STAIRS
2. TREAD WIDTH SHALL BE 11" MIN, 12" MAX
3. ACCESS PLATFORM MANUFACTURER'S ENGINEER SHALL DESIGN THE STAIRS IN ACCORDANCE WITH THE DESIGN CRITERIA AND REQUIREMENTS OF THESE CONSTRUCTION PLANS AND THE PROJECT CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.
4. HANDRAILS SHALL BE CONSTRUCTED OF 1 1/4" IPS ALUMINUM SCHEDULE 40 ALLOY 6063-T6 PIPE. ALL FITTINGS SHALL BE OF ONE-PIECE EXTRUSION OR CAST AND MACHINED TO FINAL SHAPE. PROVISIONS SHALL BE MADE TO DRAIN WATER FROM THE HANDRAIL SYSTEM. ATTACH HANDRAILS TO ALUMINUM RAILING PER MANUFACTURER'S INSTRUCTIONS AND IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE.

DESIGN SPECIFICATIONS FOR FACTORY-INDUSTRIAL RAILING APPLICATIONS

1. RAILING SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT EDITION OF THE FLORIDA BUILDING CODE.
2. THE MANUFACTURER SHALL SUBMIT CALCULATIONS SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER FOR REVIEW.
3. POST SPACING SHALL BE A MAXIMUM OF 5'-0". POSTS AND RAILINGS SHALL BE A MINIMUM OF 1 ½" SCH. 40 ALUMINUM PIPE, ALLOY 6063-T6, ASTM-B-429 OR ASTM-B-221. THE RAILING MANUFACTURER SHALL SHOW THAT THEIR POSTS ARE OF ADEQUATE STRENGTH TO MEET THE LOADING REQUIREMENTS. IF THE MANUFACTURER'S POSTS ARE NOT OF ADEQUATE STRENGTH, THE MANUFACTURER MAY REDUCE POST SPACING, OR ADD REINFORCING DOWEL, OR DO BOTH TO MEET LOADING REQUIREMENTS.
4. THE RAILING SHALL BE MADE OF PIPES JOINED TOGETHER WITH COMPONENT FITTINGS. COMPONENTS THAT ARE GLUED AT THE JOINTS WILL NOT BE ACCEPTABLE. ALL COMPONENTS MUST BE MECHANICALLY FASTENED WITH STAINLESS STEEL HARDWARE.
5. POSTS SHALL NOT INTERRUPT CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS (OSHA 191023). THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND UNINTERRUPTED BY PROJECTING FITTINGS.
6. THE MIDRAIL AT A CORNER RETURN SHALL BE ABLE TO WITHSTAND A 200 LB. LOAD WITHOUT LOOSENING. THE MANUFACTURER IS TO DETERMINE THIS DIMENSION FOR THEIR SYSTEM. PROVIDE PHYSICAL TEST RESULTS FROM A LABORATORY TO CONFIRM COMPLIANCE.
7. FIELD WELDING OF THE ALUMINUM RAILING IS NOT ALLOWED



3 S-0.4 RAILING DETAIL
SCALE: NTS



4 S-0.4 RAILING CONNECTION DETAIL
SCALE: NTS

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City of Tampa Wastewater Department

YBOR PUMPING STATION
STANDBY GENERATORS

YBOR GENERATOR DESIGN STAIR AND RAILING DETAILS

SETH E. SCHMID, P.E. NO. 54640

SHEET NUMBER S-0.4

FILE: 231902342E2

GENERAL NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL MAIN POWER CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. W/XHHW-2 INSULATION, UNLESS OTHERWISE NOTED.
3. ALL WIRING SHALL BE IDENTIFIED W/NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
4. VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATING PRIOR TO CONNECTING.
5. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
6. PLANS ARE DESIGNED IN ACCORDANCE WITH THE 7TH EDITION 2020 OF THE FLORIDA BUILDING CODE, THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE AND CHAPTER 5 OF THE CITY OF TAMPA CODE AND SHALL BE INSPECTED BY CITY OF TAMPA/HILLSBOROUGH COUNTY ELECTRICAL INSPECTORS AS APPLICABLE. CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL WORK PERFORMED SHALL ADHERE TO THE SAME ACCORDANCE AND ALL APPLICABLE LOCAL ORDINANCES.
7. ALL THREADED CONNECTIONS SHALL BE COATED W/ ALUMA-SHIELD ANTI-SIEZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B) OR EQUAL.
8. ALL PANELS, DISCONNECTS, SWITCHES, AND EQUIPMENT COVERPLATES SHALL BE LABELED W/ NAMEPLATES. NAMEPLATES SHALL BE THREE-PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGE OF NAMEPLATE SHALL BE BEVELED 45 DEG.
9. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
10. ALL CIRCUITS SHALL HAVE A PROPERLY SIZED GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT W/ POWER CONDUCTORS.
11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS, NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNED IN THE DRAWINGS.
12. NEATLY COIL ALL SPARE CONDUCTORS & TAPE W/ VINYL ELECTRICAL TAPE (SCOTCH 33+).
13. PROVIDE A MINIMUM OF 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE W/ ARTICLE 110 OF THE NEC.
14. ALL FASTENING HARDWARE (SCREW, BOLTS, NUTS ETC.) SHALL BE 316-STAINLESS STEEL, FASTENING HARDWARE CONSTRUCTED OF FERROUS MATERIAL ARE NOT ACCEPTABLE.
15. EXPOSED CONDUITS SHALL BE NON-COATED RIGID ALUMINUM CONDUIT, UNLESS OTHERWISE NOTED (UON). INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL, UNLESS OTHERWISE NOTED (UON).
16. DIRECT BURIED AND CONCRETE ENCASED CONDUIT SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED. TRANSITIONS FROM ABOVE-GRADE RIGID ALUMINUM CONDUIT TO NONMETALLIC CONDUIT SHALL BE ACCOMPLISHED WITH A THREADED ADAPTER. RIGID ALUMINUM CONDUIT INSTALLED ABOVE GRADE AND EXTENDING BELOW GRADE SHALL INCLUDE THE FIRST 90° ELBOW. ALL RIGID ALUMINUM CONDUITS EXTENDING BELOW GRADE SHALL BE COATED WITH TWO COATS OF ASPHALTUM-TYPE PAINT ALONG ITS ENTIRE LENGTH BELOW GRADE AND EXTENDING 6" ABOVE GRADE OR ABOVE THE TOP OF THE FINISHED SLAB.
17. ABOVE GRADE INDOOR, AND NON-WASHDOWN AREAS, RIGID ALUMINUM CONDUIT CONNECTIONS TO CONTROL BOXES, ETC. SHALL BE MADE WITH ALUMINUM DOUBLE LOCKNUTS AND BUSHINGS. TURN DOWN ON THREADS TO SOLIDLY CONNECT RACEWAY TO BOX OR ENCLOSURE.
18. ALUMINUM WATERTIGHT HUBS (MYERS HUBS) SHALL BE USED FOR CONNECTIONS TO CONTROL BOXES, ETC. MOUNTED OUTDOORS, BELOW GRADE, OR WASHDOWN AREAS.
19. A 316-STAINLESS STEEL CHANNEL ERECTOR SYSTEM SHALL BE USED TO SUPPORT ALL CONDUITS, BOXES ETC. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
20. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
21. 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.
22. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX. PULL BOXES SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
23. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED AND AS SPECIFIED, OR AS APPROVED BY THE ENGINEER. THE PANEL BUILDER SHALL BE UL-508A CERTIFIED AND A UL LABEL SHALL BE ATTACHED TO THE INSIDE OF THE ENCLOSURE.
24. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED HOLES.
25. ALL CONTROL WIRING SHALL BE STRANDED XHHW-2 COPPER, MINIMUM AWG #14 AND SHALL HAVE SPADE LUG TERMINATIONS.
26. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED "*" TO BE DETERMINED AFTER EQUIPMENT SELECTION.
27. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL OR MANUFACTURER'S SPECIFICATIONS.
28. CONDUCTORS WITHIN THE ENCLOSURE AND NOT ROUTED IN WIREWAYS, SHALL BE SECURED TO THE BACK PANEL WITH MECHANICAL FASTENERS, FASTENERS SECURED WITH ADHESIVE ARE NOT ACCEPTABLE.
29. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER SECURED TO THE ENCLOSURE OR BACKPANEL.
30. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED OUTAGES/WORK WITH THE CITY OF TAMPA. THIS SHALL INCLUDE OUTAGES TO BOTH THE ELECTRICAL AND WATER SERVICES TO THE FACILITY. PRIOR TO ANY OUTAGE, THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE CITY OF TAMPA. THE REQUEST SHALL DETAIL THE NATURE OF THE OUTAGE, ALL EQUIPMENT AFFECTED BY THE OUTAGE, THE AMOUNT OF TIME REQUIRED FOR THE OUTAGE AND A CONTINGENCY PLAN FOR THE OUTAGE. THE OUTAGE REQUEST SHALL BE SUBMITTED TO THE CITY A MINIMUM OF 2 WEEKS PRIOR TO THE DATE OF THE REQUESTED OUTAGE. THE CONTRACTOR SHALL NOT BE ALLOWED TO INITIATE THE OUTAGE PRIOR TO RECEIVING WRITTEN APPROVAL FROM THE CITY OF TAMPA.

SCOPE OF WORK:

1. CONTRACTOR SHALL PROVIDE AND INSTALL TWO (2) NEW 500 KW GENERATORS AND ASSOCIATED 3,000 GALLON SUBBASE DIESEL FUEL STORAGE TANKS.
2. CONTRACTOR SHALL REMOVE THE TWO (2) EXISTING GENERATOR DISCONNECTS AND CAM LOCK TERMINAL BOXES AND ALL ASSOCIATED CONDUITS AND CONDUCTORS.
3. ONCE THE EXISTING GENERATOR DISCONNECTS AND CAM LOCK TERMINAL BOXES ARE REMOVED, THE CONTRACTOR SHALL INSTALL TWO (2) NEW 600V, 800A GENERATOR DOCKING STATIONS IN ORDER TO INSTALL TWO (2) NEW 600V, 1,200A GENERATOR DOCKING STATIONS.
4. THE CONTRACTOR SHALL INSTALL NEW CONDUIT AND CONDUCTORS FOR THE FOLLOWING:
   i. AS REQUIRED AND INDICATED ON THE DRAWINGS FOR PROPER OPERATION OF THE CIRCUIT BREAKERS 52-1, 52-2, 52-T, 52-G1 AND 52-G2.
   ii. AS REQUIRED AND INDICATED ON THE DRAWINGS FOR THE CONTROL AND MONITORING OF EACH NEW 500 KW GENERATOR UNITS.
   iii. AS REQUIRED AND INDICATED ON THE DRAWINGS FOR THE NEW 500 KW GENERATORS 120V AC POWER.
5. PROVIDE TESTING OF THE GENERATORS, CIRCUIT BREAKERS, GENERATOR OPERATION AND ALL CONTROL AND MONITORING FUNCTIONS PRIOR TO EQUIPMENT STARTUP.
6. PROVIDE STARTUP AND COMMISSIONING OF THE GENERATORS, CIRCUIT BREAKERS, GENERATOR OPERATION AND ALL CONTROL AND MONITORING FUNCTIONS.
7. PROVIDE TRAINING FOR GENERATOR OPERATION AND MAINTENANCE; AUTOMATIC TRANSFER SCHEME OPERATION; SYSTEM CONTROLS AND SCADA MONITORING FOR CITY PERSONNEL.

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SCALE: NOT TO SCALE

City of Tampa Wastewater Department

YBOR PUMPING STATION
STANDBY GENERATORS

ELECTRICAL GENERAL NOTES AND SCOPE OF WORK

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: EG1

FILE: 231901542

ONE LINE DIAGRAM SYMBOLS

- 600 A — BUS–RATING AS SHOWN
- INCOMING LINE
- OUTCOMING LINE
- DISCONNECTING DEVICE
- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED
- 100A — FUSE–RATING AS SHOWN
- 100A — SINGLE THROW DISCONNECT SWITCH–RATING AS SHOWN
- 100A/70A — FUSED DISCONNECT SWITCH–100A SWITCH, 70A FUSE
- 100A — LOW VOLTAGE AIR CIRCUIT BREAKER WITHOUT TRIP DEVICE 100A FRAME
- 225A/125A — LOW VOLTAGE AIR CIRCUIT BREAKER WITH 225A FRAME AND 125A TRIP
- 52 — MEDIUM VOLTAGE DRAWOUT TYPE AIR CIRCUIT BREAKER
- GROUND CONNECTION
- LIGHTNING OR SURGE ARRESTOR
- SURGE CAPACITOR
- POWER TRANSFORMER WITH WINDING CONNECTIONS INDICATED
- CPT — CONTROL POWER TRANSFORMER
- PT — POTENTIAL TRANFORMER
- CT — CURRENT TRANSFORMER

- THERMAL OVERLOAD ELEMENT (OL)
- (5) — SQUIRREL CAGE MOTOR (INDICATE HORSEPOWER)
- (G) — GENERATOR
- (R) — INDICATING LIGHT (R–RED, G–GREEN, A–AMBER, B–BLUE, W–WHITE)

COMBINATION STARTER WITH CONTROL TRANSFORMERS AND OVERLOAD RELAYS AND MOTOR CIRCUIT PROTECTOR

- (M) — FULL VOLTAGE NON REVERSING
- (F) (R) — FULL VOLTAGE REVERSING
- (F) (S) — FULL VOLTAGE TWO SPEED

SCHEMATIC AND WIRING DIAGRAM SYMBOLS

- (M) — OPERATING COIL
  - M–MOTOR STARTER
  - C– CONTACTOR
  - F– FORWARD
  - R– REVERSE
  - AR– AUXILIARY RELAY
  - CR– CONTROL RELAY
  - TR– TIME DELAY RELAY
- NORMALLY OPEN CONTACT (N.O.)
- NORMALLY CLOSED CONTACT (N.C.)
- NORMALLY OPEN CONTACT WITH TIME DELAY CLOSING (ON–DELAY)
- INSTANT OPEN– TIME DELAY CLOSED CONTACT (OFF DELAY)

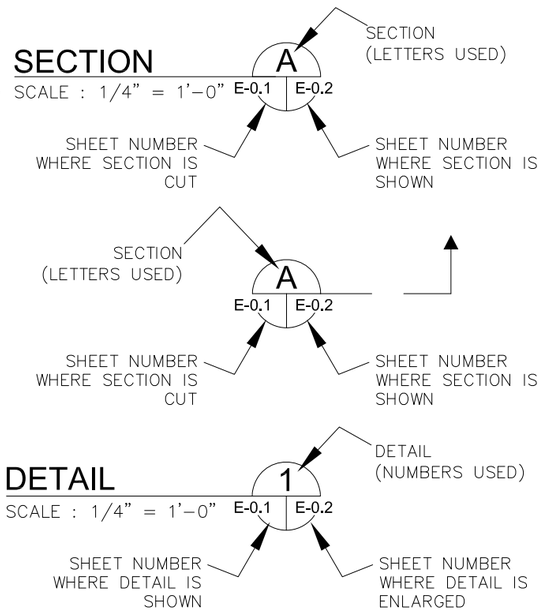
- NORMALLY CLOSED CONTACT WITH TIME DELAY OPENING (ON–DELAY)
- INSTANT CLOSE– TIME DELAY OPEN CONTACT (OFF DELAY)
- (R) — INDICATING LIGHT– PUSH TO TEST (R–RED, G–GREEN, A–AMBER, B–BLUE, W–WHITE)
- H O A — 3–POSITION SELECTOR SWITCH (SHOWN IN "H" POS.)
- NORMALLY OPEN PUSHBUTTON– MOMENTARY CONTACT
- NORMALLY CLOSED PUSHBUTTON– MOMENTARY CONTACT
- DOUBLE CIRCUIT PUSHBUTTON WITH SPRING RETURN TO NORMAL
- TRANSFORMER
- OL — OVERLOAD RELAY CONTACT
- THERMAL OVERLOAD ELEMENT (OL)
- ON–OFF SWITCH
- (G) — GROUND BUS
- (N) — NEUTRAL BUS (INSULATED)
- SINGLE–POLE CIRCUIT BREAKER

NORMALLY OPEN N.O.	NORMALLY CLOSED N.C.	
		LIMIT SWITCH
		FLOAT SWITCH
		PRESSURE SWITCH
		FLOW SWITCH
		TEMPERATURE

NOTE:

THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

EXAMPLE OF SECTION CUT AND DETAIL



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SCALE: AS SHOWN

City of Tampa Wastewater Department

YBOR PUMPING STATION
STANDBY GENERATORS

ELECTRICAL SYMBOLS AND LEGEND SHEET 1 OF 2

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: EG2

FILE: 231901542

POWER AND LIGHTING SYMBOLS

EXPOSED CONDUIT RUN

CONDUIT RUN CONCEALED IN FLOOR OR UNDERGROUND

CONDUIT RUN CONCEALED IN WALLS, ABOVE SUSPENDED CEILING, OR IN ROOF SLAB

CONDUIT WITH HOT, NEUTRAL AND GROUND WIRES (LONG LINE IS NEUTRAL; LONG LINE WITH DOTS DENOTE GROUND)

PNL–1 1,3,5 — HOMERUN TO LIGHTING PANELBOARD (PNL–1 INDICATES PANELBOARD AND 1, 3, 5 INDICATES 20A–1P CKTS. 1, 3 AND 5)

FLEXIBLE LIQUIDTIGHT CONDUIT

CONDUIT–UP (OR TOWARDS VIEWER)

CONDUIT–DOWN (OR AWAY FROM VIEWER)

GROUNDING CONDUCTOR

GROUND ROD

LIGHTNING ROD

CEILING MOUNTED INCANDESCENT OR MERCURY VAPOR FIXTURE. "A" INDICATES FIXTURE TYPE LISTED IN SCHEDULE

WALL MOUNTED LIGHTING FIXTURE

EXIT SIGN

EMERGENCY INCANDESCENT OR MERCURY VAPOR LIGHTING FIXTURE

FLUORESCENT FIXTURE

EMERGENCY FLUORESCENT FIXTURE

POLE MOUNTED LIGHTING FIXTURE

4 — DUPLEX RECEPTACLE– 20 A, 120 V, 3 WIRE (TO PNL– CIRCUIT No.4)

30 A — SINGLE RECEPTACLE – 2 POLE, 3 WIRE, 240V, RATING NOTED

60 A — 3 POLE, 4 WIRE, 240V WELDING OUTLET (60 A)

SINGLE POLE SWITCH

2P — TWO POLE SWITCH

3 — THREE WAY SWITCH

J — OUTLET BOX WITH BLANK COVER

JB — JUNCTION BOX

PB — PULL BOX

TB — TERMINAL BOX

GENERAL SYMBOLS

START–STOP PUSHBUTTON

ON/OFF/L — ON–OFF MAINTAINED CONTACT PUSHBUTTON WITH LOCK ATTACHMENT

S/L — INDICATING LIGHT AND START–STOP PUSHBUTTON WITH LOCK ATTACHMENT ON STOP

RESUME STOP/L — PUSH/PULL BUTTON WITH STOP LOCK. (PULL TO RESUME– PUSH TO STOP)

SELECTOR SWITCH ("HOA" INDICATES HAND, OFF, AND AUTO; "MOR" INDICATES MANUAL, OFF, AND REMOTE; ETC.)

L — ON–OFF SWITCH WITH LOCK ATTACHMENT ON OFF POSITION

FL — FLOW SWITCH

LS — LIMIT SWITCH

P — PRESSURE SWITCH

S — SOLENOID OPERATED VALVE

T — TEMPERATURE SWITCH

F — FLOAT SWITCH

L — LEVEL TRANSMITTER (PRESSURE ANALOG TYPE)

LC — LEVEL TRANSMITTER (FLOAT TYPE)

T — TEMPERATURE TRANSMITTER

FT — FLOW TRANSMITTER

MH — DESIGNATES MOUNTING HEIGHT

WP — DESIGNATES WATERPROOF EQUIPMENT

XP — DESIGNATES EXPLOSIONPROOF EQUIPMENT

MOV — DESIGNATES MOTOR OPERATED VALVE

EX. — DESIGNATES EXISTING EQUIPMENT

PROP. — DESIGNATES PROPOSED EQUIPMENT

NOTE:

THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

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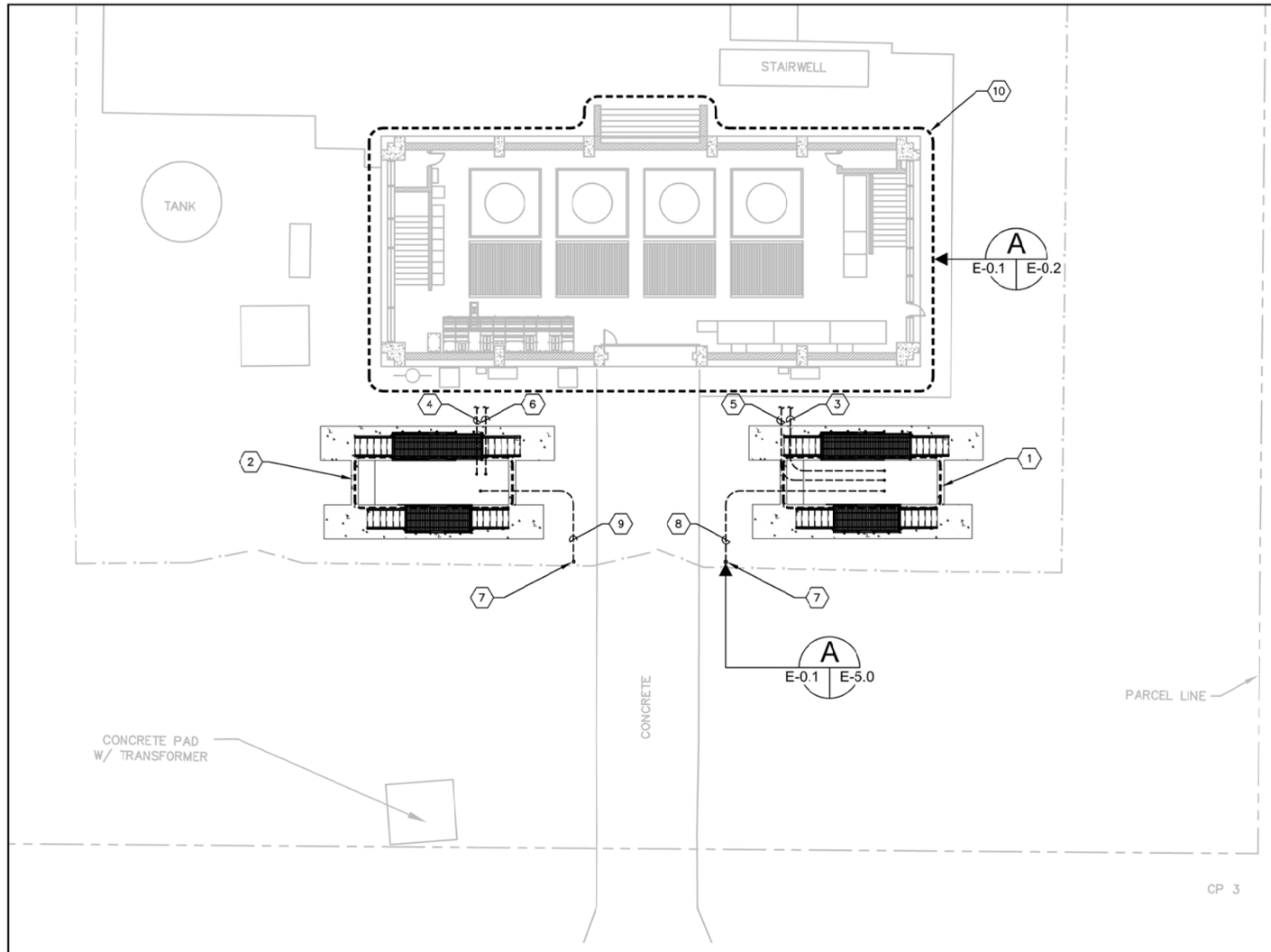
YBOR PUMPING STATION
STANDBY GENERATORS

ELECTRICAL SYMBOLS AND LEGEND SHEET 2 OF 2

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: EG3

FILE: 231901542



KEYED NOTES:

1. PROPOSED 500 KW, 277/480V, 4-WIRE GENERATOR WITH SOUND ATTENUATED ENCLOSURE AND 3,000 GALLON SUBBASE DIESEL STORAGE TANK. DESIGNATED 'A' (GENERATOR TO FEED BUS 'A') REFER TO SHEET E-4.0 FOR TYPICAL DETAILS AND ELEVATIONS. REFER TO STRUCTURAL PLANS FOR TYPICAL FOUNDATION DETAILS.
2. PROPOSED 500 KW, 277/480V, 4-WIRE GENERATOR WITH SOUND ATTENUATED ENCLOSURE AND 3,000 GALLON SUBBASE DIESEL STORAGE TANK. DESIGNATED 'B' (GENERATOR TO FEED BUS 'B') REFER TO SHEET E-4.0 FOR TYPICAL DETAILS. REFER TO STRUCTURAL PLANS FOR TYPICAL FOUNDATION DETAILS.
3. PROVIDE AND INSTALL 1S1A AND 1S1B. REFER TO SHEET E-0.2 FOR CONTINUATION.
4. PROVIDE AND INSTALL 1S5A AND 1S5B. REFER TO SHEET E-0.2 FOR CONTINUATION.
5. PROVIDE AND INSTALL C1D, C1E, C1F, LP1A, GAL1 AND N10. REFER TO SHEET E-0.2 FOR CONTINUATION.
6. PROVIDE AND INSTALL C2D, C2E, C2F, LP1B, GBL1 AND N11. REFER TO SHEET E-0.2 FOR CONTINUATION.
7. PROVIDE AND INSTALL GENERATOR EMERGENCY STOP PUSHBUTTON STATION. REFER TO SHEET E-5.0 FOR TYPICAL DETAIL.
8. PROVIDE AND INSTALL C1G.
9. PROVIDE AND INSTALL C2G.
10. EXISTING YBOR PUMPING STATION. REFER TO SHEET E-0.2 FOR EXISTING EQUIPMENT LAYOUT AND WORK REQUIRED IN THE INTERIOR OF THE PUMPING STATION.

ELECTRICAL SITE PLAN

SCALE: AS SHOWN

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

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City of Tampa Wastewater Department

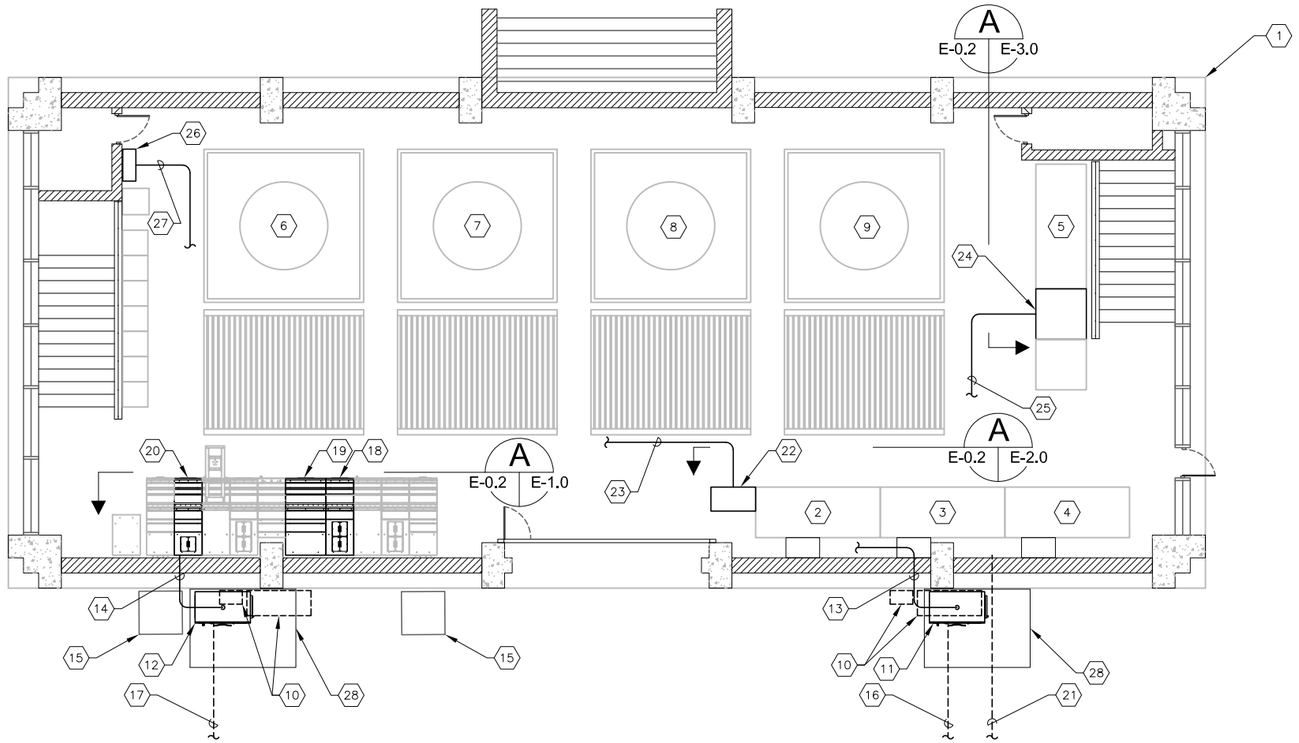
YBOR PUMPING STATION
STANDBY GENERATORS

ELECTRICAL SITE PLAN

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E-0.1

FILE: 231902342E2



YBOR PUMP STATION EXISTING EQUIPMENT LAYOUT

SCALE: AS SHOWN

A
E-0.1 | E-0.2

NORTH

GRAPHIC SCALE IN FEET
0 2.5 5 10

KEYED NOTES:

1. EXISTING YBOR PUMPING STATION.
2. EXISTING 500 HP AFD–P1. NO WORK REQUIRED.
3. EXISTING 500 HP AFD–P2. NO WORK REQUIRED.
4. EXISTING 500 HP AFD–P3. NO WORK REQUIRED.
5. EXISTING 500 HP AFD–P4. NO WORK REQUIRED.
6. EXISTING 400 HP, 480V PUMP #1. NO WORK REQUIRED.
7. EXISTING 400 HP, 480V PUMP #2. NO WORK REQUIRED.
8. EXISTING 400 HP, 480V PUMP #3. NO WORK REQUIRED.
9. EXISTING 400 HP, 480V PUMP #4. NO WORK REQUIRED.
10. CONTRACTOR TO REMOVE EXISTING GENERATOR DISCONNECT, CAM LOCK TERMINAL BOX AND ALL ASSOCIATED CONDUITS AND CONDUCTORS.
11. INSTALL NEW 600V, 1,200A GENERATOR DOCKING STATION FOR GENERATOR BUS 'A' CONNECTION.
12. INSTALL NEW 600V, 1,200A GENERATOR DOCKING STATION FOR GENERATOR BUS 'B' CONNECTION.
13. CONTRACTOR TO REMOVE EXISTING CONDUCTORS, MODIFY CONDUITS AS REQUIRED, CLEAN CONDUIT WITH MANDREL AND INSTALL 1S10A AND 1S10B.
14. CONTRACTOR TO REMOVE EXISTING CONDUCTORS, MODIFY CONDUITS AS REQUIRED, CLEAN CONDUIT WITH MANDREL AND INSTALL 1S12A AND 1S12B.
15. EXISTING ELECTRICAL SERVICE ENTRANCE PULL BOX. NO WORK REQUIRED.
16. CONTRACTOR TO PROVIDE AND INSTALL 1S1A AND 1S1B. REFER TO SHEET E–0.1 FOR CONTINUATION.
17. CONTRACTOR TO PROVIDE AND INSTALL 1S5A AND 1S5B. REFER TO SHEET E–0.1 FOR CONTINUATION.
18. EXISTING SWITCHGEAR 'SES–1' SECTION 104 CONTAINING GENERATOR BUS 'A' CIRCUIT BREAKER. REFER ALSO TO ELEVATION ON SHEET E–1.0.
19. EXISTING SWITCHGEAR 'SES–1' SECTION 105 CONTAINING TIE BREAKER AND SWITCHGEAR PLC. REFER ALSO TO ELEVATION ON SHEET E–1.0.
20. EXISTING SWITCHGEAR 'SES–1' SECTION 109 CONTAINING GENERATOR BUS 'B' CIRCUIT BREAKER. REFER ALSO TO ELEVATION ON SHEET E–1.0.
21. CONTRACTOR TO PROVIDE AND INSTALL C1F AND C2F. REFER TO SHEET E–0.1 FOR CONTINUATION.
22. EXISTING REMOTE CIRCUIT BREAKER CONTROL PANEL (RCBP). REFER TO SHEET E–2.0 FOR ELEVATION AND DETAILS.
23. CONTRACTOR TO PROVIDE AND INSTALL C1H AND C2H.
24. EXISTING PUMP CONTROL PANEL 'CP–Y01'. REFER TO SHEETS E–3.0 THROUGH E–3.5 FOR ELEVATION AND REQUIRED MODIFICATIONS.
25. CONTRACTOR TO PROVIDE AND INSTALL C1D, C1E, N10, C2D, C2E AND N11.
26. EXISTING 120/208V PANELBOARD 'LP1' WITH 150A MAIN CIRCUIT BREAKER. REFER TO SHEET E–5.0 FOR NEW CIRCUIT BREAKERS TO BE PROVIDED AND INSTALLED FOR GENERATOR'S ANCILLARY POWER REQUIREMENTS.
27. CONTRACTOR TO PROVIDE AND INSTALL LP1A, GAL1, LP1B AND GBL1.
28. CONTRACTOR TO PROVIDE AND INSTALL CONCRETE PAD FOR GENERATOR DOCKING STATION. PAD TO EXTEND 2" BEHIND STATION, 4" TO THE LEFT OF THE STATION, A 3' IN FRONT AND TO THE RIGHT OF THE STATION. PROVIDE CONDUIT WINDOW IN PAD TO ACCOMMODATE NEW CONDUITS. REFER TO SHEET S–0.2 DETAIL 2 FOR PAD CONSTRUCTION DETAILS.

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SCALE: NOT TO SCALE

City of Tampa Wastewater Department

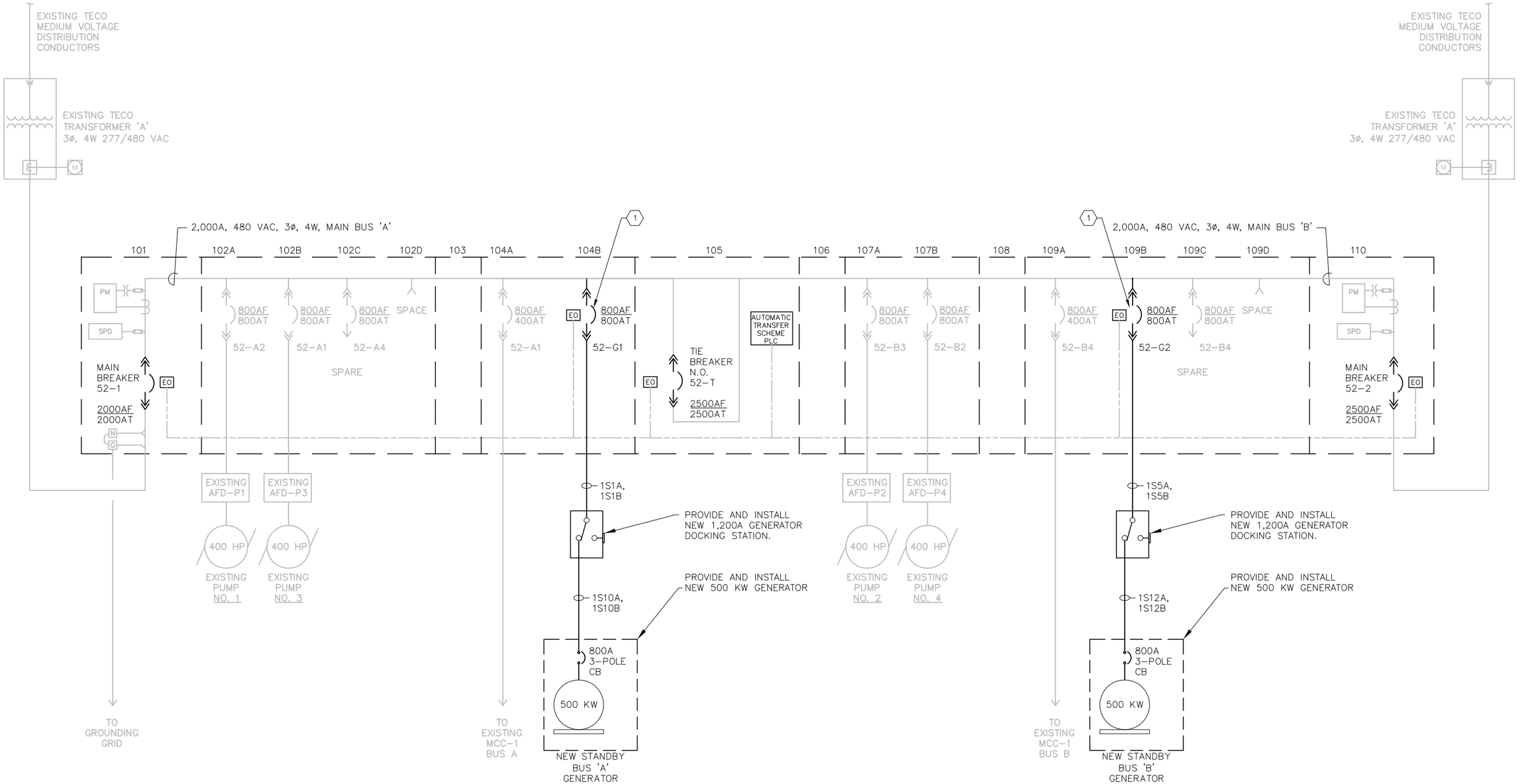
YBOR PUMPING STATION
STANDBY GENERATORS

YBOR PUMP STATION EXISTING EQUIPMENT LAYOUT

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E–0.2

FILE: 231801142



EXISTING SWITCHGEAR 'SES-1' ONE LINE DIAGRAM

KEYED NOTES:

(1) CONTRACTOR SHALL ADJUST CIRCUIT BREAKER PROTECTIVE SETTINGS AS REQUIRED TO ALLOW COMPLETE COORDINATION WITH MAIN CIRCUIT BREAKER PROVIDED WITH THE MANUFACTURER.

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YBOR PUMPING STATION
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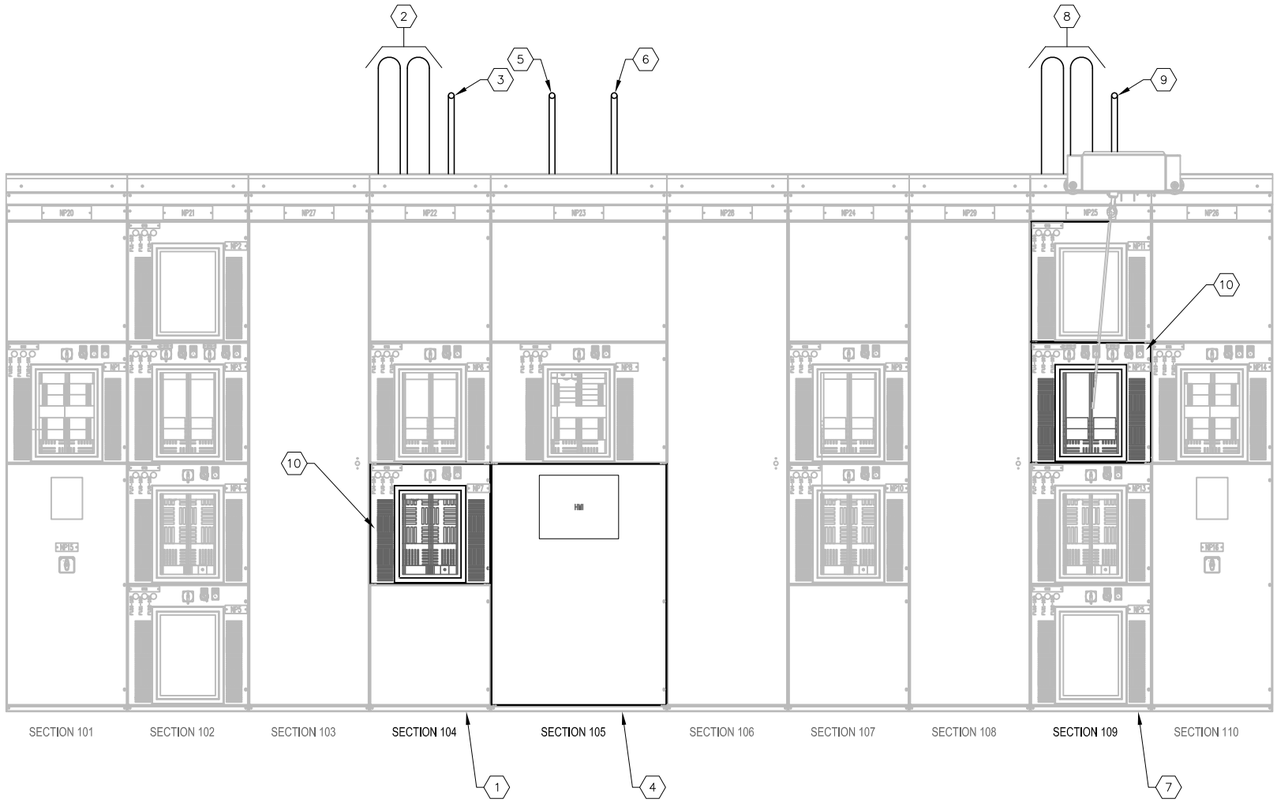
EXISTING SWITCHGEAR 'SES–1' ONE LINE DIAGRAM

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E–1.0

FILE: 231801142



KEYED NOTES:

1. EXISTING SWITCHGEAR 'SES–1' SECTION 104 CONTAINING GENERATOR CIRCUIT BREAKER 52–G1 (BUS 'A'). REFER SHEET E1.2 FOR 52–G1 CIRCUIT BREAKER CONTROL CIRCUIT MODIFICATIONS.
2. CONTRACTOR INSTALL 1S10A AND 1S10B TO GENERATOR BUS 'A' DOCKING STATION. REFER TO SHEET E–0.2 FOR DOCKING STATION LOCATION.
3. CONTRACTOR TO INSTALL C1H TO REMOTE CIRCUIT BREAKER PANEL (RCBP) FOR CIRCUIT BREAKER 52–G1 CONTROL MODIFICATIONS. REFER TO SHEET E–0.2 FOR RCBP LOCATION.
4. EXISTING SWITCHGEAR 'SES–1' SECTION 105 CONTAINING TIE CIRCUIT BREAKER 52–T AND SWITCHGEAR 'SES–1' PLC CONTROLLER. REFER SHEET E1.4 FOR PLC MODIFICATIONS.
5. CONTRACTOR TO INSTALL C1F TO NEW BUS 'A' GENERATOR FOR GENERATOR START COMMAND AND GENERATOR RUNNING INDICATION SIGNAL. REFER TO SHEET E–0.1 FOR NEW BUS 'A' GENERATOR LOCATION.
6. CONTRACTOR TO INSTALL C2F TO NEW BUS 'B' GENERATOR FOR GENERATOR START COMMAND AND GENERATOR RUNNING INDICATION SIGNAL. REFER TO SHEET E–0.1 FOR NEW BUS 'B' GENERATOR LOCATION.
7. EXISTING SWITCHGEAR 'SES–1' SECTION 109 CONTAINING GENERATOR CIRCUIT BREAKER 52–G2 (BUS 'B'). REFER TO SHEET E1.3 FOR 52–G2 CIRCUIT BREAKER CONTROL CIRCUIT MODIFICATIONS.
8. CONTRACTOR TO INSTALL 1S12A AND 1S12B TO GENERATOR BUS 'A' DOCKING STATION. REFER TO SHEET E–0.2 FOR DOCKING STATION LOCATION.
9. CONTRACTOR TO INSTALL C2H TO REMOTE CIRCUIT BREAKER PANEL (RCBP) FOR CIRCUIT BREAKER 52–G2 CONTROL MODIFICATIONS. REFER TO SHEET E–0.2 FOR RCBP LOCATION.
10. CONTRACTOR SHALL ADJUST CIRCUIT BREAKER PROTECTIVE SETTINGS AS REQUIRED TO ALLOW COMPLETE COORDINATION WITH MAIN CIRCUIT BREAKER PROVIDED WITH THE MANUFACTURER.

EXISTING SWITCHGEAR 'SES-1' FRONT ELEVATION

SCALE: N.T.S.

A
E-0.2 | E-1.0

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SCALE: AS SHOWN

City of Tampa Wastewater Department

YBOR PUMPING STATION
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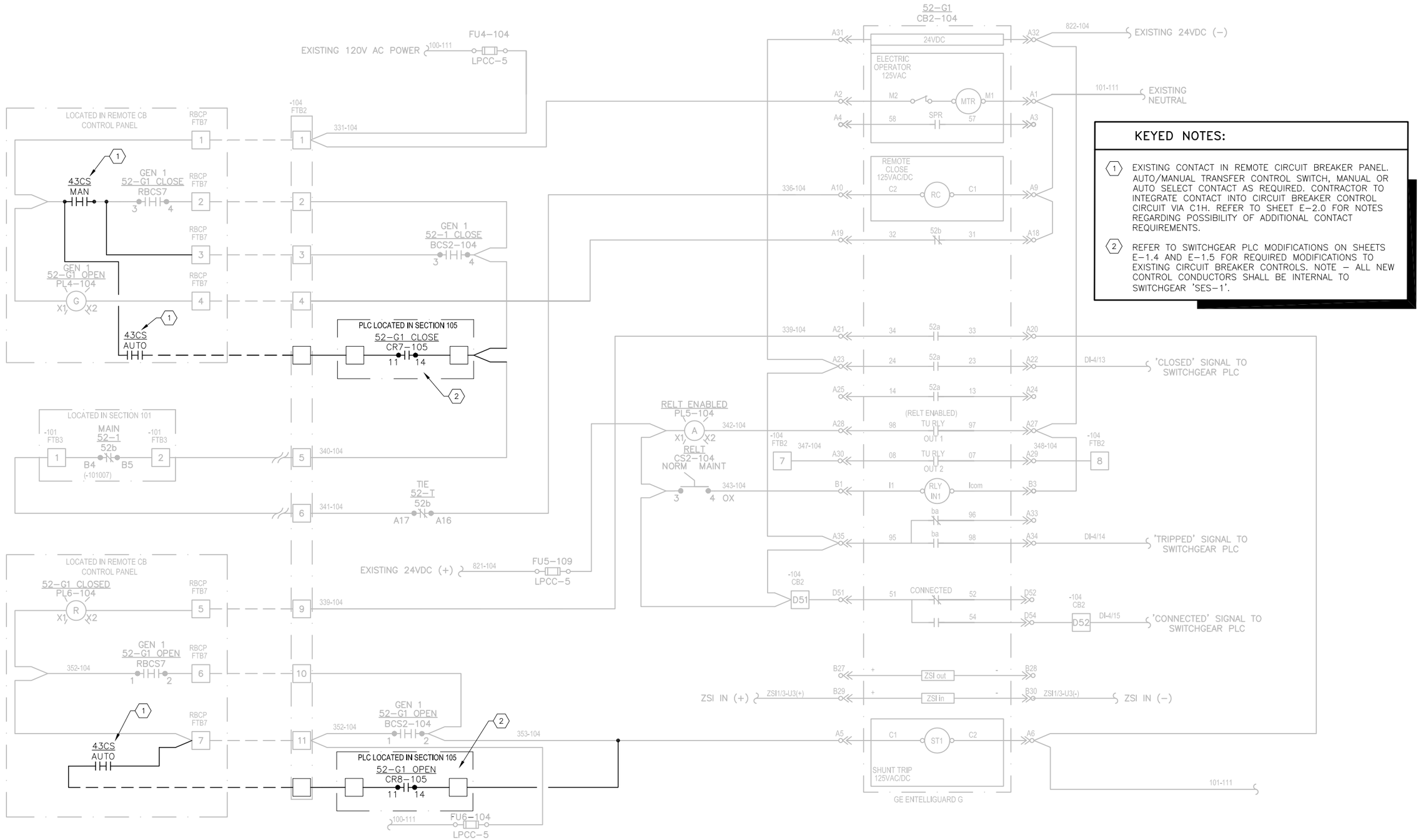
EXISTING SWITCHGEAR 'SES–1' FRONT ELEVATION

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E–1.1

FILE: 231801142



KEYED NOTES:

1. EXISTING CONTACT IN REMOTE CIRCUIT BREAKER PANEL. AUTO/MANUAL TRANSFER CONTROL SWITCH, MANUAL OR AUTO SELECT CONTACT AS REQUIRED. CONTRACTOR TO INTEGRATE CONTACT INTO CIRCUIT BREAKER CONTROL CIRCUIT VIA C1H. REFER TO SHEET E-2.0 FOR NOTES REGARDING POSSIBILITY OF ADDITIONAL CONTACT REQUIREMENTS.
2. REFER TO SWITCHGEAR PLC MODIFICATIONS ON SHEETS E-1.4 AND E-1.5 FOR REQUIRED MODIFICATIONS TO EXISTING CIRCUIT BREAKER CONTROLS. NOTE – ALL NEW CONTROL CONDUCTORS SHALL BE INTERNAL TO SWITCHGEAR 'SES-1'.

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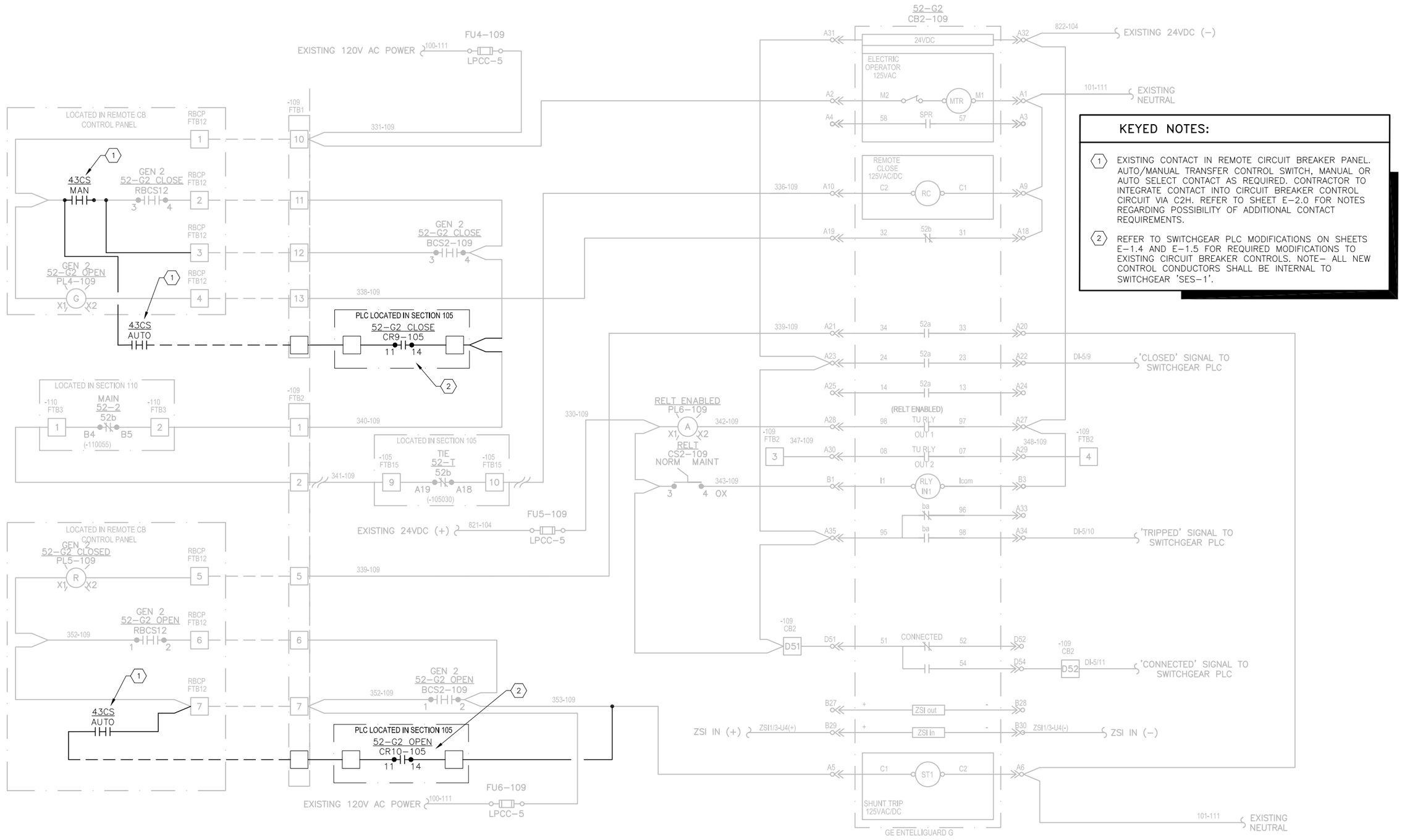
YBOR PUMPING STATION
STANDBY GENERATORS

CIRCUIT BREAKER 52-G1 CONTROL MODIFICATIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E-1.2

FILE: 231801142



KEYED NOTES:

1. EXISTING CONTACT IN REMOTE CIRCUIT BREAKER PANEL. AUTO/MANUAL TRANSFER CONTROL SWITCH, MANUAL OR AUTO SELECT CONTACT AS REQUIRED. CONTRACTOR TO INTEGRATE CONTACT INTO CIRCUIT BREAKER CONTROL CIRCUIT VIA C2H. REFER TO SHEET E-2.0 FOR NOTES REGARDING POSSIBILITY OF ADDITIONAL CONTACT REQUIREMENTS.
2. REFER TO SWITCHGEAR PLC MODIFICATIONS ON SHEETS E-1.4 AND E-1.5 FOR REQUIRED MODIFICATIONS TO EXISTING CIRCUIT BREAKER CONTROLS. NOTE- ALL NEW CONTROL CONDUCTORS SHALL BE INTERNAL TO SWITCHGEAR 'SES-1'.

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SCALE: AS SHOWN

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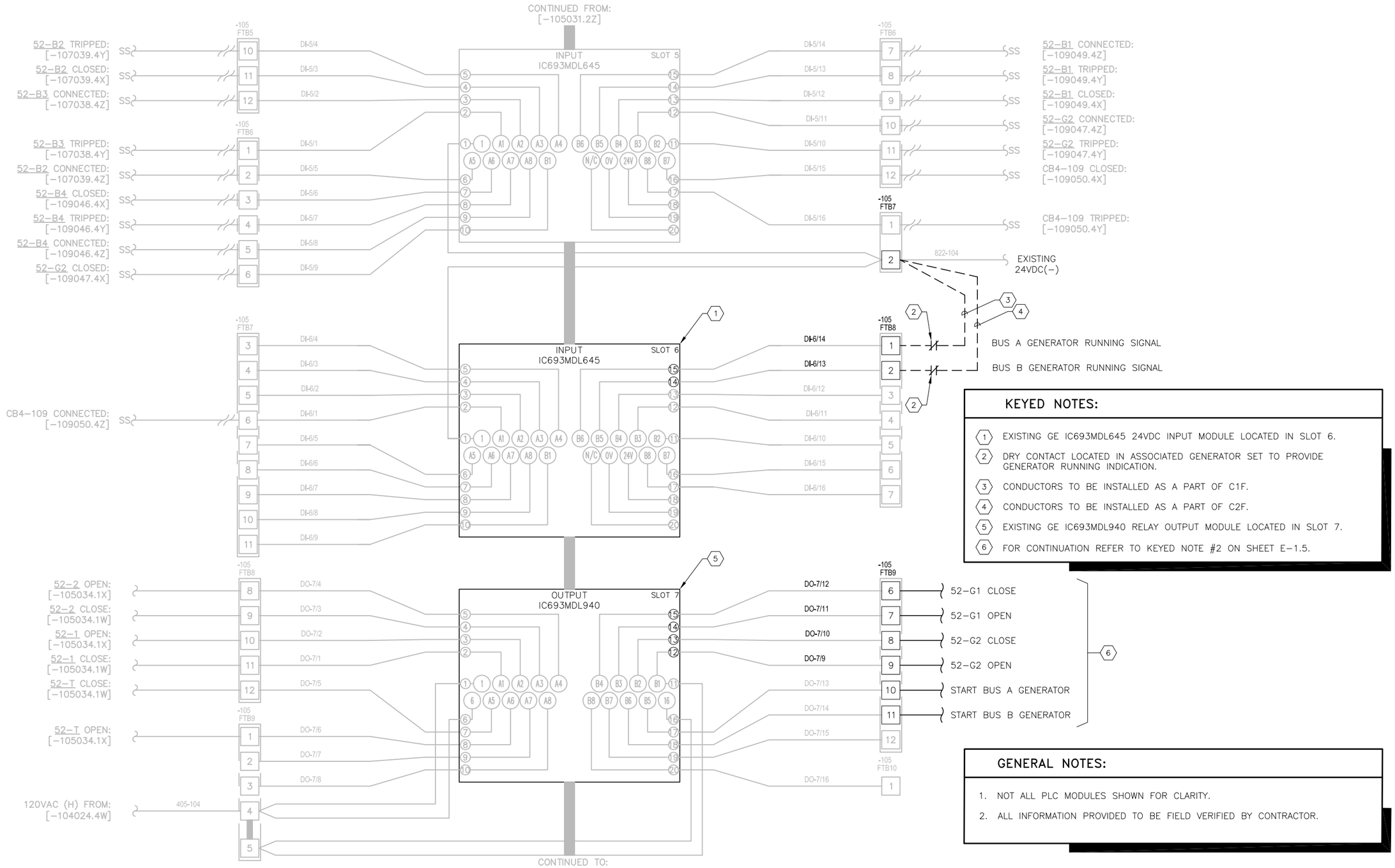
STANDBY GENERATORS

CIRCUIT BREAKER 52-G2 CONTROL MODIFICATIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E-1.3

FILE: 231801142



KEYED NOTES:

1. EXISTING GE IC693MDL645 24VDC INPUT MODULE LOCATED IN SLOT 6.
2. DRY CONTACT LOCATED IN ASSOCIATED GENERATOR SET TO PROVIDE GENERATOR RUNNING INDICATION.
3. CONDUCTORS TO BE INSTALLED AS A PART OF C1F.
4. CONDUCTORS TO BE INSTALLED AS A PART OF C2F.
5. EXISTING GE IC693MDL940 RELAY OUTPUT MODULE LOCATED IN SLOT 7.
6. FOR CONTINUATION REFER TO KEYED NOTE #2 ON SHEET E-1.5.

GENERAL NOTES:

1. NOT ALL PLC MODULES SHOWN FOR CLARITY.
2. ALL INFORMATION PROVIDED TO BE FIELD VERIFIED BY CONTRACTOR.

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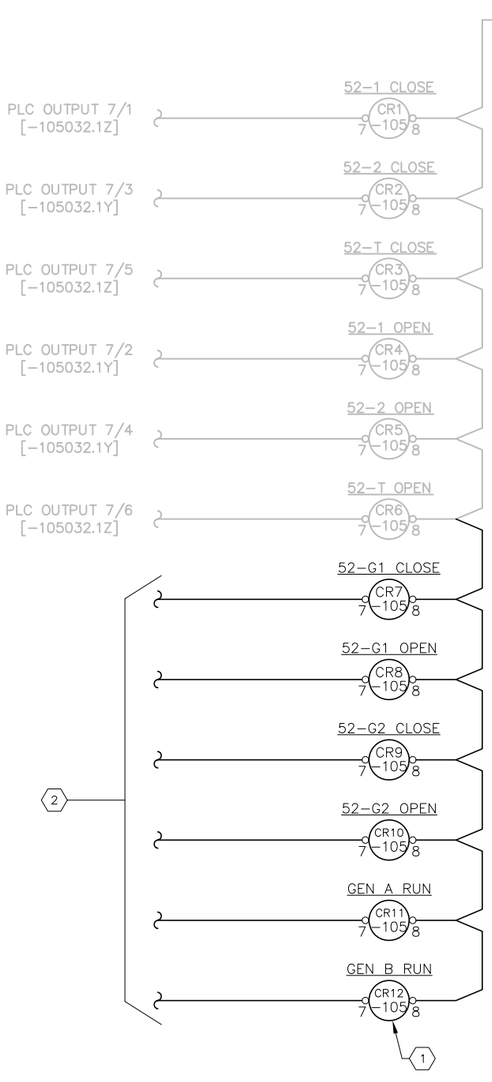
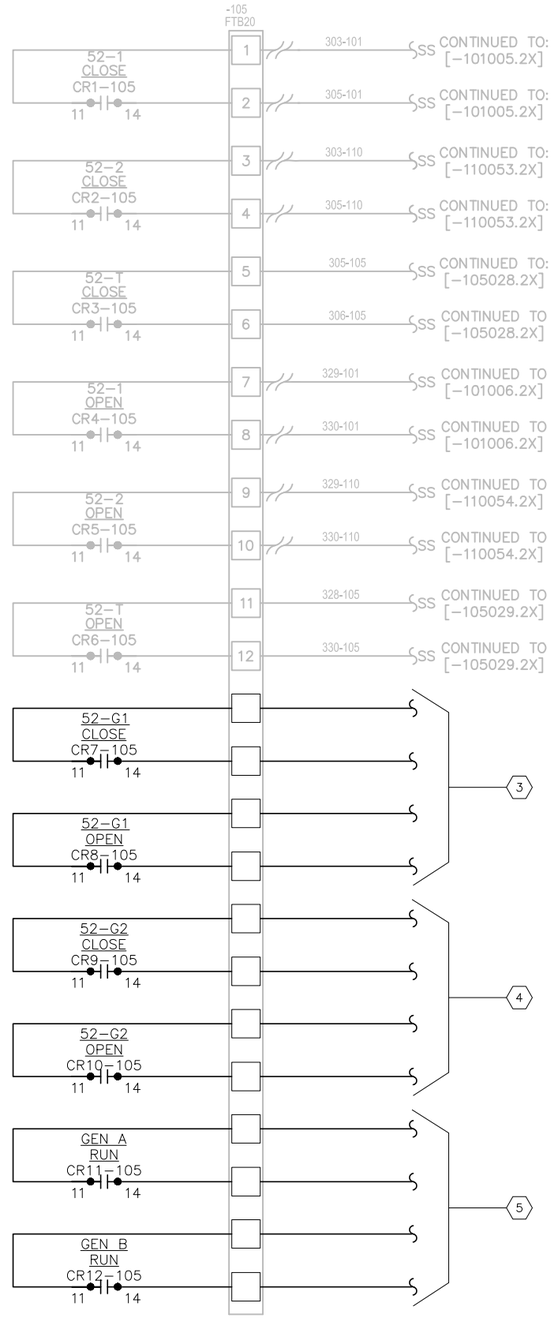
EXISTING SWITCHGEAR 'SES-1' PLC CONTROL MODIFICATIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E-1.4

FILE: 231801142





KEYED NOTES:

1. CONTRACTOR TO PROVIDE AND INSTALL NEW RELAY (TYPICAL OF 6). RELAY TO MATCH EXISTING.
2. CONTINUATION OF PLC OUTPUTS. REFER TO KEYED NOTE #6 ON SHEET E-1.4.
3. RELAY OUTPUTS FOR 52-G1 OPEN AND CLOSE COMMANDS. REFER TO KEYED NOTE #2 ON SHEET E-1.2.
4. RELAY OUTPUTS FOR 52-G2 OPEN AND CLOSE COMMANDS. REFER TO KEYED NOTE #2 ON SHEET E-1.3.
5. RELAY OUTPUTS FOR BUS A GENERATOR AND BUS B GENERATOR RUN COMMANDS.

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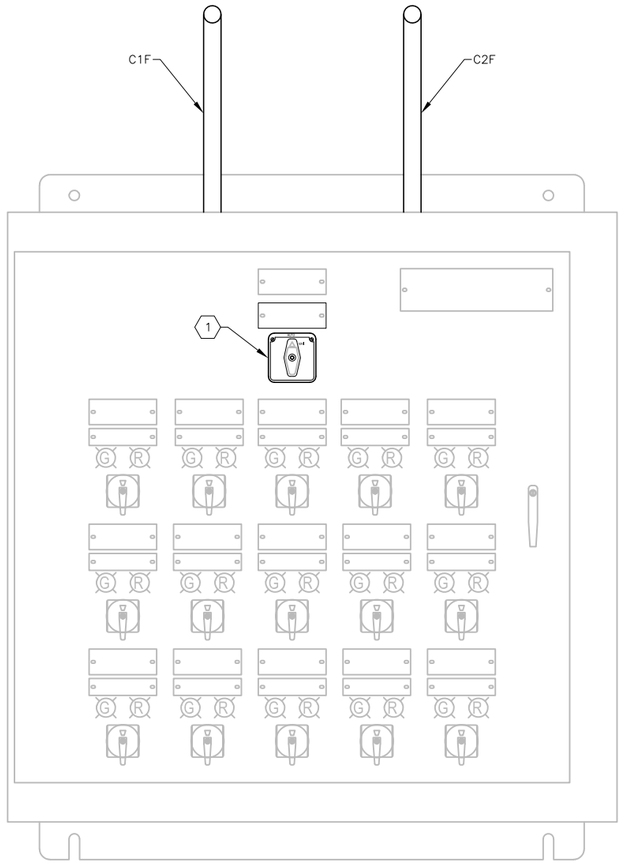
EXISTING SWITCHGEAR 'SES-1' PLC CONTROL MODIFICATIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E-1.5

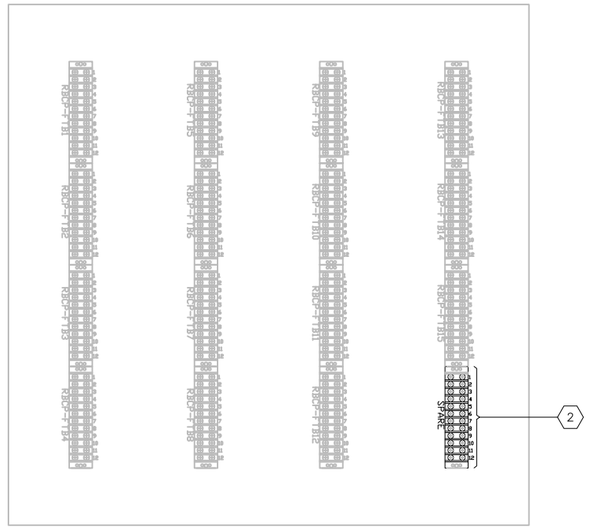
FILE: 231801142



EXISTING RCBP FRONT EXTERIOR ELEVATION

SCALE: NOT TO SCALE

A
E-0.2 | E-2.0



EXISTING RCBP INTERIOR ELEVATION

SCALE: NOT TO SCALE

KEYED NOTES:

1. EXISTING MANUAL TRANSFER CONTROL SWITCH 43CS. CONTRACTOR TO UTILIZE EXISTING AUTO SELECT AND MANUAL SELECT CONTACTS FOR CIRCUIT BREAKER 52-G1 AND 52-G2 CONTROL CIRCUIT MODIFICATIONS. EXISTING SWITCH IS ELECTROSWITCH 24204B. CONTRACTOR TO PROVIDE ADDITIONAL DECKS FOR SWITCH IF REQUIRED. REFER ALSO TO SHEETS E-1.1 AND E-1.2.
2. EXISTING TERMINAL BLOCKS WHICH MAY BE USED FOR THE ADDITIONAL CONDUCTORS REQUIRED FOR THE MODIFICATIONS (IF NEEDED).

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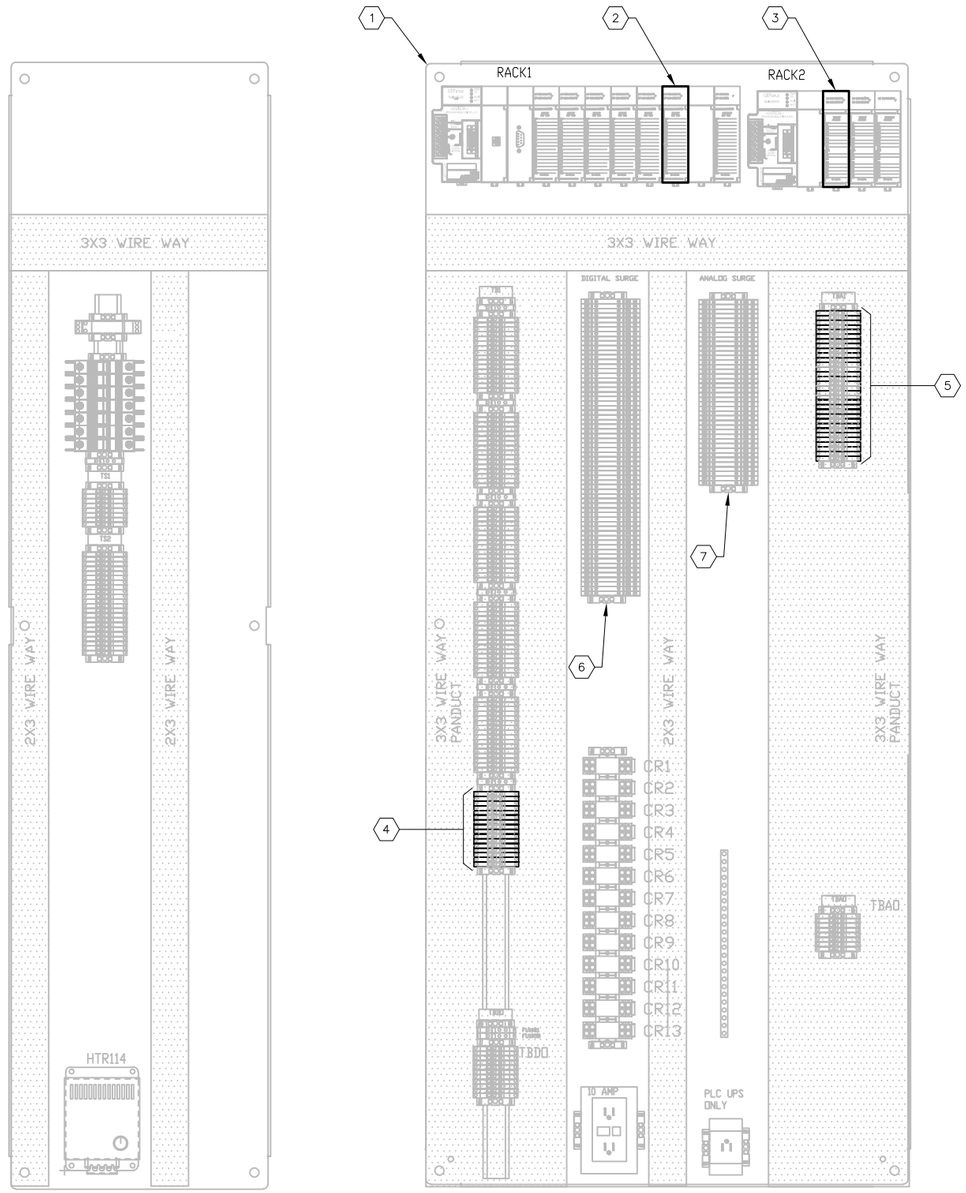
EXISTING REMOTE CIRCUIT BREAKER PANEL (RCBP) ELEVATIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER
E-2.0
FILE: 231801142



KEYED NOTES:

1. INTERIOR OF EXISTING PUMP CONTROL PANEL 'CP-Y01'.
2. EXISTING 24V DC INPUT MODULE (GE IC693MDL241) IN RACK 1, SLOT 8. REFER TO SHEET E-3.1 FOR NEW DISCRETE INPUTS TO MODULE.
3. EXISTING ANALOG INPUT MODULE (GE IC693ALG223) IN RACK 2, SLOT 2. REFER TO SHEET E-3.2 FOR NEW ANALOG INPUTS TO MODULE.
4. EXISTING TERMINAL BLOCKS 'TB801' FOR RACK 1, SLOT 8 INPUTS. REFER TO SHEET E-3.1 FOR FIELD WIRING TO TERMINATE ON ASSOCIATED TERMINAL BLOCKS.
5. EXISTING TERMINAL BLOCKS 'TBA1' FOR RACK 2, SLOT 2 MODULE. REFER TO SHEET E-3.2 FOR FIELD WIRING TO TERMINATE ON ASSOCIATED TERMINAL BLOCKS.
6. EXISTING DISCRETE SURGE PROTECTION DEVICES (SPD'S). CONTRACTOR TO UTILIZE EXISTING SPD'S TO TERMINATE FIELD CONDUCTORS FOR DISCRETE INPUT SIGNALS. REFER ALSO TO SHEET E-3.1.
7. EXISTING ANALOG SURGE PROTECTION DEVICES (SPD'S). CONTRACTOR TO UTILIZE EXISTING SPD'S TO TERMINATE FIELD CONDUCTORS FOR GENERATOR DIESEL TANK LEVEL SIGNALS. REFER ALSO TO SHEET E-3.2.

EXISTING PUMP CONTROL PANEL/PLC INTERIOR ELEVATION

SCALE: NOT TO SCALE

A
E-0.2 | E-3.0

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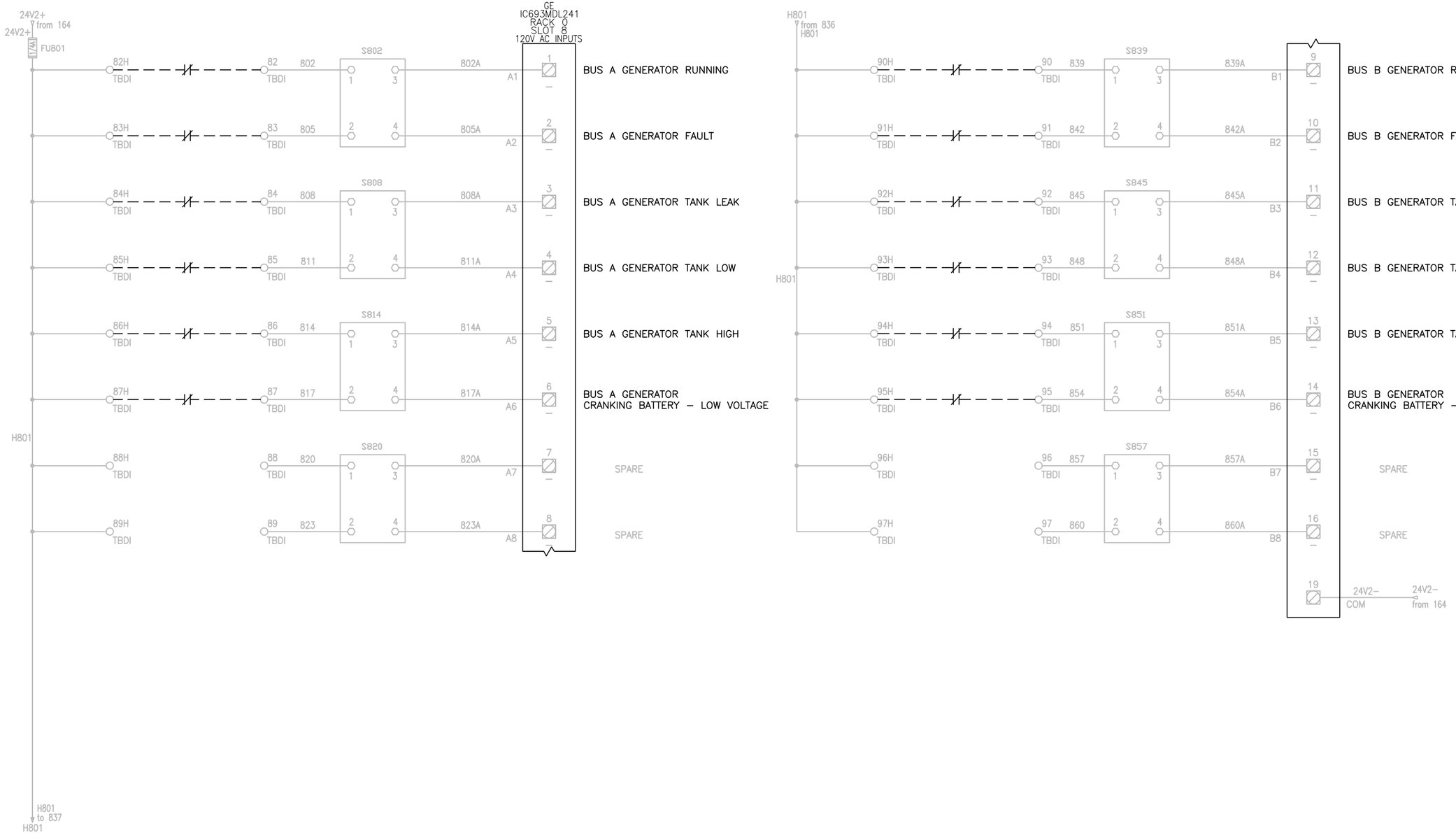
YBOR PUMPING STATION
STANDBY GENERATORS

EXISTING PUMP CONTROL PANEL 'CP-Y01' INTERIOR ELEVATION

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER E-3.0

FILE: 231901542



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SCALE: AS SHOWN

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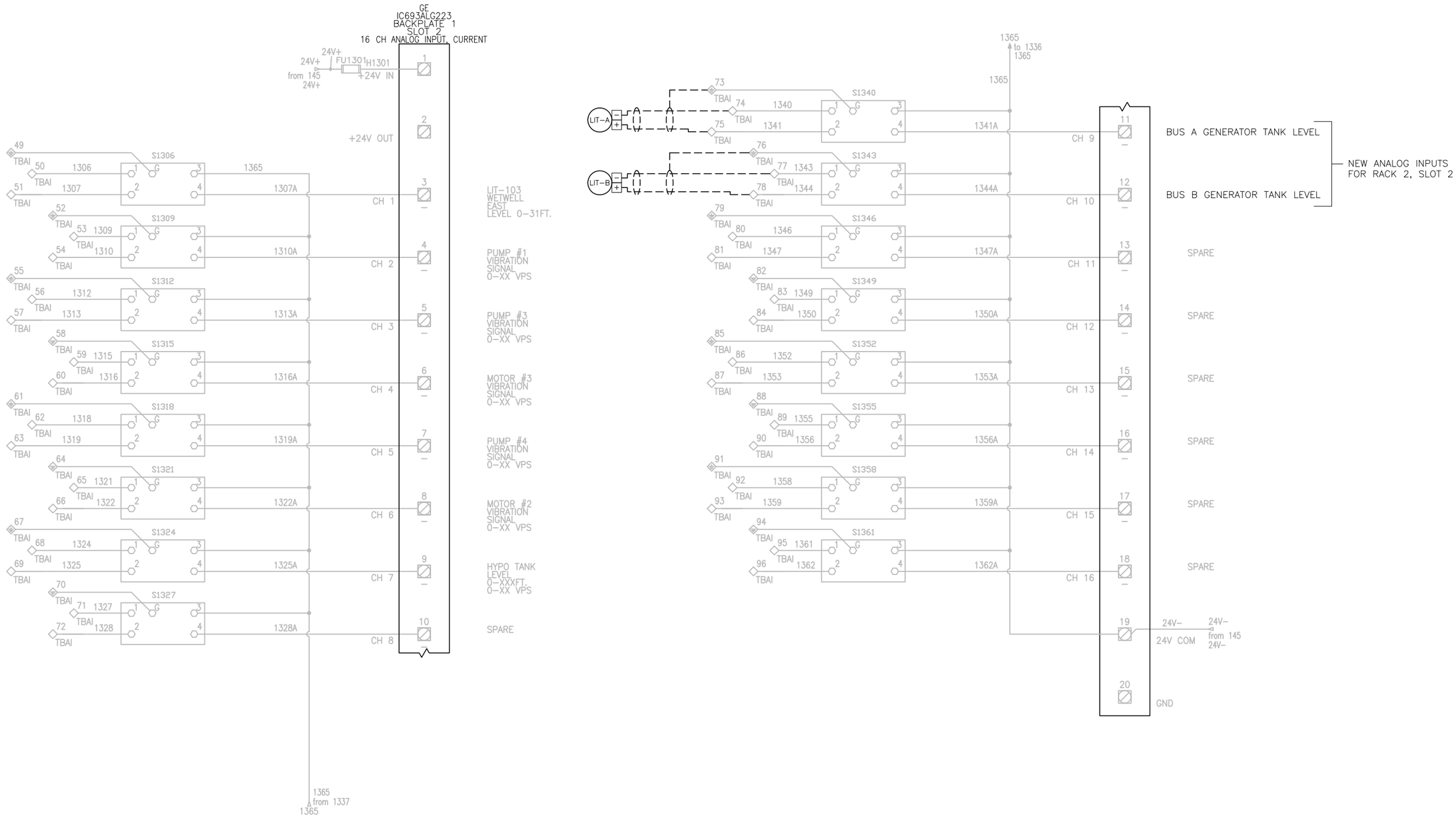
YBOR PUMPING STATION
STANDBY GENERATORS

GENERATOR DISCRETE INPUT ADDITIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E–3.1

FILE: 231901542



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SCALE

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City of Tampa Wastewater Department

YBOR PUMPING STATION
STANDBY GENERATORS

DIESEL TANK ANALOG INPUT ADDITIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER

E-3.2

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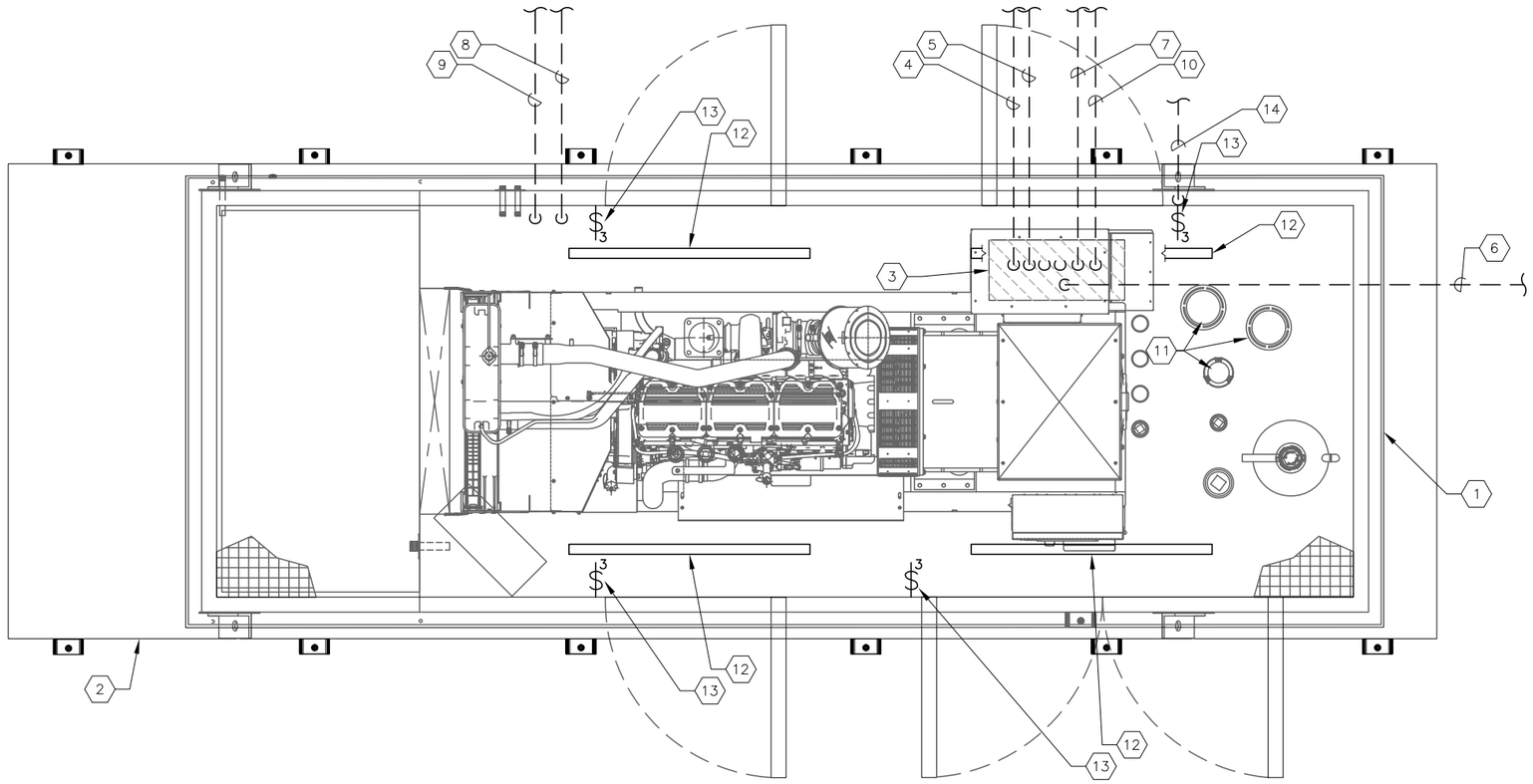

TYPICAL 500 KW GENERATOR LAYOUT DETAIL (1)

SCALE: NOT TO SCALE

E-0.1 | E-4.0

KEYED NOTES:

1. NEW 480V, 500 KW GENERATOR IN WEATHER–PROOF, SOUND ATTENUATED ENCLOSURE. REFER ALSO TO SPECIFICATIONS.
2. NEW 3,000 GALLON SUB–BASE DIESEL STORAGE TANK TO BE PROVIDED WITH 500 KW GENERATOR. REFER ALSO TO SPECIFICATIONS.
3. STUBUP LOCATION FOR 480V FEEDER CIRCUIT, GENERATOR STARTER CIRCUIT, GENERATOR SHUT DOWN AND PUMP CONTROL PANEL/PLC I/O. COORDINATE/VERIFY EXACT LOCATION WITH ENCLOSURE MANUFACTURER.
4. PROVIDE AND INSTALL 1S9A OR 1S11A AS REQUIRED.
5. PROVIDE AND INSTALL 1S9B OR 1S11B AS REQUIRED.
6. PROVIDE AND INSTALL C1G OR C2G AS REQUIRED.
7. PROVIDE AND INSTALL C1D OR C2D AS REQUIRED.
8. PROVIDE AND INSTALL C1E OR C2E AS REQUIRED. COORDINATE EXACT LOCATION WITH 3,000 DIESEL SUB–BASE TANK MANUFACTURER.
9. PROVIDE AND INSTALL N10 OR N11 AS REQUIRED. COORDINATE EXACT LOCATION WITH 3,000 DIESEL SUB–BASE TANK MANUFACTURER.
10. PROVIDE AND INSTALL LP1A OR LP1B AS REQUIRED.
11. DIESEL TANK FUELING COMPONENTS.
12. 4' LED LIGHT FIXTURE PROVIDED AND INSTALLED AS PART OF THE ENCLOSURE PACKAGE.
13. 3–WAY SWITCHES PROVIDED AND INSTALLED AS PART OF THE ENCLOSURE PACKAGE.
14. GAL1 OR GBL1 AS REQUIRED. FIELD ROUTE AS REQUIRED.

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SCALE: NOT TO SCALE

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STANDBY GENERATORS

TYPICAL GENERATOR ELEVATION AND DETAILS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER: E–4.0

FILE: 231801142

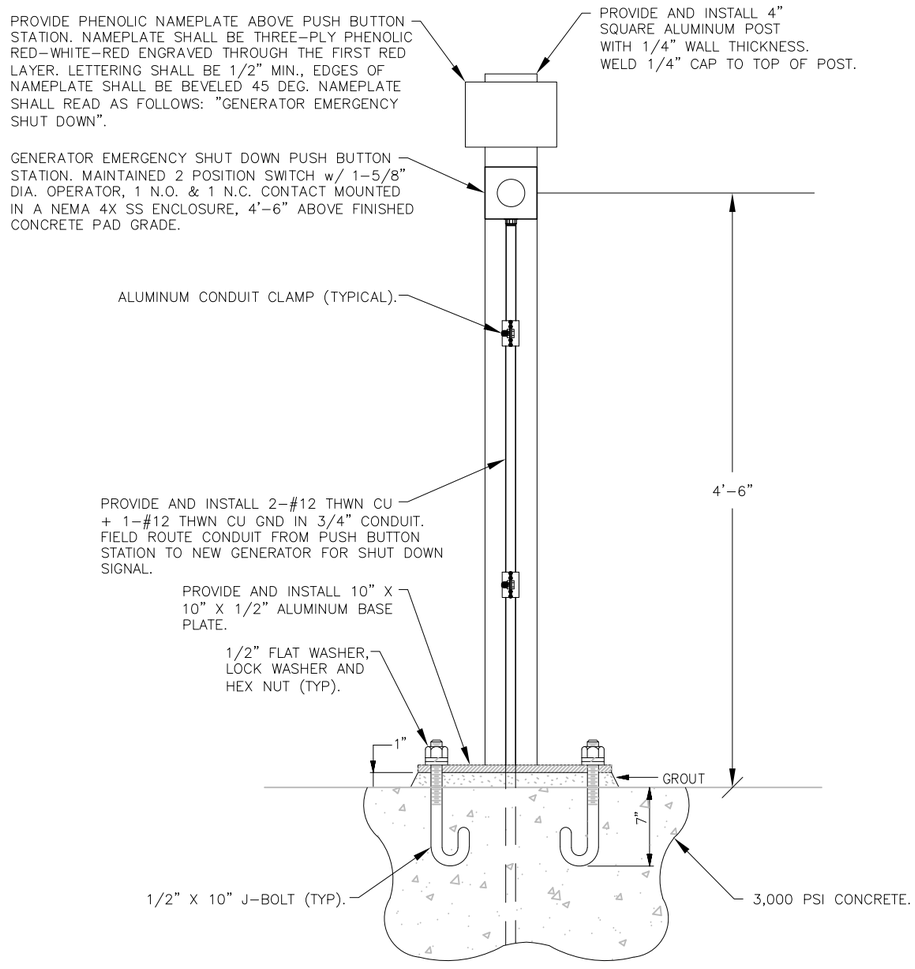
EX PANEL SCHEDULE

PANEL 'LP1' ; SQUARE D CO. TYPE NF ; 120/208 VOLTS, 3ø, 4W ; 150 AMP MAIN CIRCUIT BREAKER ; 35K AIC RATING ; SURFACE ENCLOSURE TOP AT 5'–6" AFF

EQUIPMENT SERVED	CIRCUIT BREAKER			AMPS/PHASE			CIRC. NO.	CIRC. NO.	AMPS/PHASE			CIRCUIT BREAKER			EQUIPMENT SERVED
	POLE	AMPS	FRAME	A	B	C			A	B	C	POLE	AMPS	FRAME	
EX LIGHTING	1	20	QOB	5.0			1	2	11.3			1	20	QOB	EX LIGHTING
EX LIGHTING	1	20	QOB		7.0		3	4		15.0		1	20	QOB	EX LIGHTING
EX LIGHTING	1	20	QOB			6.4	5	6			11.3	1	20	QOB	EX LIGHTING
EX RECEPTACLES	1	20	QOB	6.7			7	8	11.3			1	20	QOB	EX LIGHTING
EX RECEPTACLES	1	20	QOB		6.7		9	10		13.2		1	20	QOB	EX LIGHTING
EX RECEPTACLES	1	20	QOB			6.7	11	12			2.5	1	20	QOB	EX EXIT SIGNS
EX CP–Y01	1	20	QOB	8.3			13	14	4.2			1	20	QOB	EX LTG CONTACTOR CONTROLS
EX CP–Y01	1	20	QOB		8.3		15	16		4.2		1	20	QOB	EX FIT–100
EX CP–Y02	1	20	QOB			8.3	17	18			4.2	1	20	QOB	EX BP–Y01
EX CP–Y02	1	20	QOB	8.3			19	20	8.3			1	20	QOB	EX AFD–P1
SPARE	1	20	QOB				21	22		8.3		1	20	QOB	EX AFD–P2
EX AFD–P3	1	20	QOB			8.3	23	24			8.3	2	30	QOB	EX AFD–P4
SPARE	1	20	QOB				25	26				1	20	QOB	SPARE
SPARE	1	20	QOB				27	28				1	20	QOB	SPARE
SPACE	––	––	––				29	30				––	––	––	SPACE
SPACE	––	––	––				31	32	10.0			1	20	QOB	GENERATOR 'B' BATT CHARGER
GENERATOR 'A' BATT CHARGER	1	20	QOB		10.0		33	34		6.0		1	20	QOB	GENERATOR 'B' ALT HEATER
GENERATOR 'A' ALT HEATER	1	20	QOB			6.00	35	36			12.0	2	30	QOB	GENERATOR 'B' BLOCK HEATER
GENERATOR 'A' BLOCK HEATER	2	30	QOB	12.0			37	38	12.0			–	–	–	" "
" "	–	–	–		12.0		39	40		0.4		1	20	QOB	GENERATOR 'A' LIGHTS
SPACE	––	––	––				41	42			0.4	1	20	QOB	GENERATOR 'B' LIGHTS
SUB–TOTAL KVA				40.3	44.0	35.7			57.1	47.1	38.7				

TOTAL CONNECTED LOAD = 40.0 KVA

TOTAL DEMAND LOAD = 33.5 KVA



TYPICAL EMERGENCY SHUTOFF PUSH BUTTON ELEVATION

SCALE: NOT TO SCALE

A
E-0.1 | E-5.0

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, Suite 350
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Certificate of Authorization No. 8363

JOB No.	231901542					
DESIGNED	TDT					
DRAWN	JLH					
CHECKED	TDT					
DATE	3/2021	No.	DATE	BY	APP	REVISION DESCRIPTION

SCALE: AS SHOWN

City of Tampa Wastewater Department

YBOR PUMPING STATION
STANDBY GENERATORS

EXISTING PANELBOARD 'LP1' CIRCUIT ADDITIONS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER
E–5.0

FILE: 231901542

CONDUIT AND CABLE SCHEDULE

CONDUIT No.	SIZE	NUMBER OF CONDUCTORS/SIZE	FROM	TO	REMARKS
1S1A	4"	3–#600 + 1–#2/0 GND	NEW BUS A GENERATOR	GENERATOR BUS A DOCKING STATION	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS.
1S1B	4"	3–#600 + 1–#2/0 GND	NEW BUS A GENERATOR	GENERATOR BUS A DOCKING STATION	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS.
1S10A	4"	3–#600 + 1–#2/0 GND	GEN BUS A DOCK STATION	BUS A GEN CIRCUIT BREAKER	MODIFY EXISTING CONDUITS AS NECESSARY, CLEAN WITH MANDREL AND INSTALL NEW CONDUCTORS.
1S10B	4"	3–#600 + 1–#2/0 GND	GEN BUS A DOCK STATION	BUS A GEN CIRCUIT BREAKER	MODIFY EXISTING CONDUITS AS NECESSARY, CLEAN WITH MANDREL AND INSTALL NEW CONDUCTORS.
C1D	3/4"	6–#12 + 1–#12 GND	NEW BUS A GENERATOR	PUMP CONTROL PANEL 'CP–Y01'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 2–#12 FOR GEN RUNNING, 2–#12 FOR GEN FAIL & 2–#12 FOR CRANKING BATTERY – LOW VOLTAGE.
C1E	3/4"	8–#12 + 1–#12 GND	NEW BUS A GENERATOR	PUMP CONTROL PANEL 'CP–Y01'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 2–#12 TANK LEAK, 2–#12 TANK LOW LEVEL, 2–#12 TANK HIGH AND 2–#12 SPARE.
C1F	3/4"	4–#12 + 1–#12 GND	SWITCHGEAR 'SES–1' PLC	GENERATOR BUS A	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS FOR GENERATOR BUS A START COMMAND AND GENERATOR RUNNING INDICATION SIGNAL.
LP1A	1"	6–#12 + 1–#12 GND	NEW BUS A GENERATOR	PANELBOARD 'LP1'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS, 2–#12 BATTERY CHARGER, 2–#10 BLOCK HEATER, AND 2–#12 ALTERNATOR HEATER.
N10	1"	2/C–#16 TW SHD (BELDEN 8719)	NEW BUS A GENERATOR	PUMP CONTROL PANEL 'CP–Y01'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS, 2/C–#16 FOR GENERATOR A FUEL TANK LEVEL.
GAL1	3/4"	2–#12 + 1–#12 GND	NEW BUS A GENERATOR	PANELBOARD 'LP1'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS FOR GENERATOR LIGHTING CIRCUIT.
1S5A	4"	3–#600 + 1–#2/0 GND	NEW BUS B GENERATOR	GENERATOR BUS B DOCKING STATION	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS.
1S5B	4"	3–#600 + 1–#2/0 GND	NEW BUS B GENERATOR	GENERATOR BUS A DOCKING STATION	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS.
1S12A	4"	3–#600 + 1–#2/0 GND	GEN BUS B DOCK STATION	BUS B GEN CIRCUIT BREAKER	MODIFY EXISTING CONDUITS AS NECESSARY, CLEAN WITH MANDREL AND INSTALL NEW CONDUCTORS.
1S12B	4"	3–#600 + 1–#2/0 GND	GEN BUS B DOCK STATION	BUS B GEN CIRCUIT BREAKER	MODIFY EXISTING CONDUITS AS NECESSARY, CLEAN WITH MANDREL AND INSTALL NEW CONDUCTORS.
C2D	3/4"	6–#12 + 1–#12 GND	NEW BUS B GENERATOR	PUMP CONTROL PANEL 'CP–Y01'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 2–#12 FOR GEN RUNNING, 2–#12 FOR GEN FAIL & 2–#12 FOR CRANKING BATTERY – LOW VOLTAGE.
C2E	3/4"	8–#12 + 1–#12 GND	NEW BUS B GENERATOR	PUMP CONTROL PANEL 'CP–Y01'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 2–#12 TANK LEAK, 2–#12 TANK LOW LEVEL, 2–#12 TANK HIGH AND 2–#12 SPARE.
C2F	3/4"	4–#12 + 1–#12 GND	SWITCHGEAR 'SES–1' PLC	GENERATOR BUS B	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS FOR GENERATOR BUS B START COMMAND AND GENERATOR RUNNING INDICATION SIGNAL.
LP1B	1"	6–#12 + 1–#12 GND	NEW BUS B GENERATOR	PANELBOARD 'LP1'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS, 2–#12 BATTERY CHARGER, 2–#10 BLOCK HEATER AND 2–#12 ALTERNATOR HEATER.
N11	1"	2/C–#16 TW SHD (BELDEN 8719)	NEW BUS B GENERATOR	PUMP CONTROL PANEL 'CP–Y01'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS, 2/C–#16 FOR GENERATOR B FUEL TANK LEVEL.
GBL1	3/4"	2–#12 + 1–#12 GND	NEW BUS B GENERATOR	PANELBOARD 'LP1'	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS FOR GENERATOR LIGHTING CIRCUIT.
C1G	3/4"	2–#12 + 1–#12 GND	GENERATOR A E–STOP PB	GENERATOR A	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 2–#12 FOR GENERATOR EMERGENCY STOP COMMAND.
C2G	3/4"	2–#12 + 1–#12 GND	GENERATOR B E–STOP PB	GENERATOR B	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 2–#12 FOR GENERATOR EMERGENCY STOP COMMAND.
C1H	1"	6–#12 + 1–#12 GND	GEN CIR BREAKER 52–G1	RCBP	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 4–#12 FOR 43CS(M) & 43CS(A) CLOSE AND 2–#12 FOR 43CS(A) TRIP.
C2H	1"	6–#12 + 1–#12 GND	GEN CIR BREAKER 52–G2	RCBP	PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS. 4–#12 FOR 43CS(M) & 43CS(A) CLOSE AND 2–#12 FOR 43CS(A) TRIP.

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