



Town of Surfside

ITB 2023-05

Town Stormwater Improvements

Abbott Avenue Pump Station Project

Addendum No. 1

Date Issued: October 11, 2023

To All Proposers:

Proposers for the above-referenced ITB shall take note of the following changes, additions, deletions or clarifications to ITB No. 2023-05, which in accordance with the ITB Documents shall become a part of and have precedence over anything shown or described otherwise in the ITB.

THE FOLLOWING CHANGES/ADDITIONS ARE MADE TO THE ITB:

1. Attached are the electrical plans and related document hereby made part of "Attachment B - Plans and Technical Specifications prepared by KEITH & Associates, Inc.", within ITB 2023-05.

PROPOSER:

NAME: _____

TITLE: _____

DATE: _____



January 31, 2023

Zoila Morales, P.E.
11401 SW 40th ST, Suite 301
Miami, FL 33165

Re: Available Fault Current for Abbott Ave Stormwater Improvements - 91st ST

Dear Zoila Morales, P.E.:

Thank you for contacting FPL about the available fault current at Abbott Ave Stormwater Improvements - 91st ST. Based on the plans you have provided dated July 22 2022, the maximum available fault current at the transformer secondary terminals is estimated to be 10746 symmetrical amperes at 277/480 volts. The protective device on the line side of the transformer currently in place or to be installed and serving your property located at the subject location is a 10 amp type KS fuse. The primary service voltage is 13.2kV L-L. This calculated symmetrical fault current is not intended for use as the basis for motor starting calculations and does not include:

- Consideration for any motor contribution or
- Fault current asymmetry.

The FPL equipment currently serving or planned to serve your facility may change over time as a result of any number of factors, including but not limited to transformer replacements due to load growth, electrical grid changes or emergencies. As a result, although we are providing you with this information for the sole purpose of assisting you in the completion of your study, you and your client should not design, install or operate your system in reliance upon any expectation that the specific size and type of equipment currently in place will remain so. If and when the size and type of the equipment changes, our employees are not always in a position to immediately notify customers.

As the construction project progresses, any questions or information you may need can be communicated through me. I have enclosed my business card for easy reference and look forward to hearing from you in the near future.

Sincerely,

Isabella Arcos

Isabella Arcos
Distribution Engineer
Central Dade Service Center, Florida Power & Light
Phone: [Cell] 786-719-0535 [Office] 305-377-6087
Email: Isabella.Arcos@fpl.com or ima0ati@fpl.com
Office: 122 SW 3rd ST, Miami, FL, 33130

1.0 BASIC ELECTRICAL REQUIREMENTS

- 1.1 SCOPE OF WORK
A. FOR PURPOSE OF LEGIBILITY, DRAWINGS ARE DIAGRAMMATIC AND ALTHOUGH LOCATION OF EQUIPMENT IS SHOWN TO SCALE, THE CONTRACTOR SHALL VERIFY ALL INFORMATION AT THE SITE BEFORE BIDDING THE JOB.

1.2 CODES AND STANDARDS

PERFORM WORK AND FURNISH EQUIPMENT COMPLYING WITH CURRENT EDITIONS OF THE FOLLOWING CODES:

- 1) NATIONAL ELECTRICAL CODE (NEC 2017)
2) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
3) UNDERWRITERS' LABORATORIES (UL)
4) NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
5) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
6) INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
7) FLORIDA BUILDING CODE (FBC 2020)
8) INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

1.4 OPERATION AND MAINTENANCE MANUALS

- O & M MAINTENANCE MANUALS MUST CONTAIN BUT NOT LIMITED TO THE FOLLOWING:
1) SYSTEM DESCRIPTION, AND OPERATING AND MAINTENANCE INSTRUCTIONS.
2) MANUFACTURER'S NAME AND MODEL NUMBER OF ALL COMPONENTS.
3) CONTROL AND WIRING DIAGRAMS WITH SEQUENCE OF OPERATION.
4) LIST OF RECOMMENDED SPARE PARTS.

1.5 AS BUILT DRAWINGS

AFTER FINAL INSPECTION, FURNISH A SET OF REPRODUCIBLE "AS BUILT DRAWINGS" SHOWING DEPTHS AND ROUTING OF CONCEALED ELECTRICAL BELOW GRADE INSTALLATIONS AND ALL VARIATIONS BETWEEN THE ACTUAL WORK AND AS IT WAS SHOWN ON THE CONTRACT DRAWINGS.

1.6 MATERIALS

- A. FURNISH EQUIPMENT AND MATERIALS THAT ARE NEW AND LATEST DESIGN OF STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH EQUIPMENT.
B. ALL MATERIALS SHALL BEAR THE LABEL OF UNDERWRITER'S LABORATORY FOR THE INTENDED USE.
C. EQUIPMENT ENCLOSURES SHALL BE NEMA 12 FOR INDOOR USE, AND NEMA 4X (STAINLESS STEEL) OR AS SHOWN ON DRAWINGS FOR OUTDOOR USE.
D. FURNISH LIGHTING FIXTURES WITH LAMPS AND 10 PERCENT (TWO MINIMUM) SPARE LAMPS OF EACH TYPE.
E. FURNISH FUSIBLE EQUIPMENT WITH FUSES AND 10 PERCENT (THREE MINIMUM) OF SPARE FUSES OF EACH TYPE.

1.7 INSTALLATION

- A. INSTALL EQUIPMENT AT THE LOCATIONS SHOWN ON THE DRAWINGS FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS.
B. COORDINATE INSTALLATION OF UNDERGROUND DUCTS AND CONDUITS WITH EXISTING UNDERGROUND UTILITIES. FIELD VERIFY ROUTING AND BURIAL DEPTH, DRAIN DUCTS AWAY FROM BUILDINGS TOWARD MANHOLES. LOW POINTS IN DUCT BANK RUNS ARE NOT ACCEPTABLE.
C. INSTALL FLOOR MOUNTED SELF SUPPORTED EQUIPMENT ON 4-INCHES HIGH CONCRETE PADS WITH STEEL REINFORCING. USE REQUIRED BOLTS, ANCHORS, INSERTS AND JOINT SLEEVES.
D. MAKE OPENINGS THROUGH WALLS, CEILING, ROADWAYS, FLOOR SLABS, ETC. REQUIRED FOR THE INSTALLATION OF ELECTRICAL EQUIPMENT, BUT CUTTING, WELDING, OR OTHER WEAKENING OF BUILDING STRUCTURE TO SIMPLIFY ELECTRICAL EQUIPMENT AND MATERIALS INSTALLATION ARE NOT PERMITTED, WHERE EXISTING WALLS, CEILING OR FLOOR SLABS HAVE TO BE CUT, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER BEFORE MAKING SUCH CUTS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE DONE WHILE PROVIDING SUCH OPENINGS AND SHALL PATCH THE SURFACE TO MATCH ADJACENT MATERIALS AND FINISHES.
E. NO CONDUITS, SLEEVES, PIPES OR ANY OTHER ITEM SHALL BE EMBEDDED IN CONCRETE ALONG OR THROUGH ANY BEAM, COLUMN, FOOTING, GRADE BEAM, SLAB, WALL OR ANY OTHER STRUCTURAL MEMBER WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
F. COORDINATE SHIPPING LENGTHS OF SWITCH GEARS AND MOTOR CONTROL CENTERS. THOSE ITEMS SHALL BE ABLE TO BE REMOVED AND REPLACED IN THE FUTURE THROUGH THE PERMANENT ACCESS PROVIDED IN THE STRUCTURE.
G. PROVIDE 36-INCHES WIDE, 3/16-INCHES THICK RUBBER MATS IN THE FRONT AND REAR OF SWITCH GEARS, MOTOR CONTROL CENTERS AND SWITCHBOARDS. MATS TO COMPLY WITH FEDERAL SPECS ZZ-F-416A.

1.8 TESTING

UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL ENERGIZE, START-UP AND TEST OPERATE ALL THE SYSTEMS AND EQUIPMENT IN THE PRESENCE OF THE ENGINEER. INSULATION RESISTANCE TESTS SHALL BE MADE ON 240 VOLT FEEDER WITH A 500 VOLT DC MEGGER. DEFECTS FOUND SHALL BE CORRECTED.

2.0 RACEWAYS

- 2.1 RIGID CONDUIT
A. STEEL: HOT DIPPED ZINC COATED, GALVANIZED, THREADED RIGID STEEL CONFORMING TO ANSI C80, AND FED. SPEC WW-C-581. USE THREADED GALVANIZED STEEL FITTINGS.
B. ALUMINUM: CONTAINING LESS THAN 0.1 PERCENT COPPER AND CONFORMING TO FEDERAL SPECIFICATION WW-C-540C. USE THREADED ALUMINUM FITTINGS.
C. PLASTIC: RIGID, SCHEDULE 40, 90 DEGREES C, UL RATED, PVC PLASTIC CONFORMING TO UL 651, FED. SPEC. W-C-1094 AND NEMA TC-2. FITTINGS TO CONFORM WITH UL3 514 AND NEMA TC-3.
2.2 FLEXIBLE METAL CONDUIT
LIQUID-TIGHT: FLEXIBLE ZINC COATED CONFORMING TO UL 1 TYPE WITH LIQUID-TIGHT FLEXIBLE PLASTIC SHEATH, CONFORMING TO UL 360 STANDARD. FITTINGS, PER FED. SPEC. W-R-406B AND UL 514.

- 2.3 LOCATION AND USE OF EACH TYPE OF CONDUIT
A. USE RIGID ALUMINUM CONDUIT FOR ABOVE GROUND EXPOSED INSTALLATIONS EXCEPT IN CORROSIVE AREAS WHERE PVC COATED RIGID GALVANIZED STEEL SHALL BE USED.
B. USE GALVANIZED THREADED RIGID STEEL CONDUIT AS FOLLOWS:
1) WHEREVER SPECIFICALLY CALLED FOR ON DRAWINGS.
2) WHERE RACEWAY ELBOWS FROM DUCT BANKS STUB-UP.
3) FOR UNDERGROUND WORK BEYOND BUILDINGS WHERE CONCRETE ENCASED PLASTIC CONDUITS HAVE NOT BEEN SPECIFIED, COAT BURIED GALVANIZED STEEL CONDUITS AND FITTINGS WITH TWO COATS OF CARBOLINE'S BITUMASTIC NO. 50 OR EQUAL.
C. USE PLASTIC CONDUIT AS FOLLOWS:
1) WHEN INSTALLED IN POURED CONCRETE SLABS OR WALLS.
2) FOR UNDERGROUND WORK UNDER SLABS.
3) IN DUCT BANKS OR, IF SPECIFICALLY CALLED FOR, IN TRENCHES, BACK-FILL TRENCHES WITH STRUCTURAL FILL 90 % COMPACTED (PROCTOR DENSITY) AND RESOD TO ORIGINAL CONDITION.
D. USE FLEXIBLE METAL CONDUIT (24 TO 60 INCHES LONG) FOR CONNECTIONS TO ROTATING OR VIBRATING EQUIPMENT.

2.4 INSTALLATION

- A. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL BENDS, FITTINGS, BOXES, AND SPECIALTIES WHICH MAY BE REQUIRED OR THE EXACT LOCATION OF CONDUITS. EXAMINE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF THE WORK AND PLAN IT ACCORDINGLY, FURNISHING SUCH FITTINGS AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. ARRANGE CONDUIT RUNS TO CLEAR BEAMS, PIPES AND OTHER OBSTRUCTIONS AND AVOID INTERFERENCES WITH OTHER TRADES WORK. ANY CHANGES FROM LOCATIONS SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE ENGINEER.
B. INSTALL RACEWAYS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES AND CEILING. INSTALL HORIZONTAL RACEWAYS CLOSE TO CEILING OR CEILING BEAMS, AND ABOVE PIPES AND DUCTS.
C. USE RACEWAY ACCORDING TO NEC, BUT IN NO CASE SHALL BE LESS THAN INDICATED ON DRAWINGS. MINIMUM SIZE SHALL BE 3/4-INCH, EXCEPT FLEXIBLE CONDUITS TO LIGHT FIXTURES CAN BE 3/8" BUT NOT EXCEEDING SIX FEET LONG.
D. INSTALL CONDUITS PASSING THROUGH WALLS AND SLABS IN PVC SLEEVES. EXTEND SLEEVES THROUGH FULL CONCRETE THICKNESS AND PROVIDE 1/2- INCH CLEARANCE AROUND CONDUITS TO FACILITATE SEALING.
E. SEAL ANY OPENING MADE IN SLABS OR WALLS TO PREVENT SMOKE OR FIRE SPREAD AND THE PASSAGE OF WATER. USE SEALING COMPOUND APPROVED FOR THE PURPOSE.
F. USE EXPANSION FITTINGS WHEN CONDUITS CROSS STRUCTURAL EXPANSION JOINTS.
G. EXCEPT WHERE BOXES, PANELS AND OTHER EQUIPMENT HAVE THREADED OPENINGS, MAKE CONDUIT CONNECTIONS AS FOLLOWS:
1) DOUBLE LOCKNUTS, ONE INSIDE AND ONE OUTSIDE.
2) PROVIDE MALLEABLE, IRON OR STEEL BUSHING WITH BAKELITE LINER MOLDED AND BONDED INTO THE BUSHING.
3) PLACE GROUNDING BUSHING ON END OF CONDUIT IN ADDITION TO LOCKNUTS.
2.5 SUPPORT OF RACEWAY
A. INSTALL WALL MOUNTED ELECTRICAL EQUIPMENT, WIRING TROUGHS, JUNCTION BOXES AND GROUPS OF TWO OR MORE CONDUITS ON A SYSTEM OF EXTRUDED, GAUGE 12, 1-5/8 INCHES WIDE, ALUMINUM CHANNELS. ATTACH CHANNELS TO WALL WITH STAINLESS STEEL MACHINE BOLTS AND EXPANSION SHIELDS. CHANNELS TO BE SERIES P-1000 WITH COMPATIBLE HARDWARE AND FITTINGS AS MANUFACTURED BY UNISTRUT MFG. CO. OR EQUAL.
B. FASTEN VERTICAL AND HORIZONTAL RUNS OF RACEWAYS AT INTERVALS OF NOT MORE THAN 8 FEET AND WITHIN 3 FEET OF BENDS, OUTLETS AND JUNCTION BOXES.
C. SUPPORT SINGLE CONDUITS NOT LARGER THAN 1-1/2 INCHES IN DIAMETER BY MEANS OF TWO-HOLE PIPE STRAPS OR INDIVIDUAL PIPE HANGERS. FOR CONDUITS LARGER THAN 1-1/2 INCHES IN DIAMETER USE INDIVIDUAL PIPE HANGERS.
D. SPACE CONDUITS INSTALLED AGAINST CONCRETE SURFACES NOT LESS THAN 1/4 INCH AWAY FROM THE SURFACES BY CLAMP BACKS OR OTHER APPROVED MEANS. FURNISH HANGER RODS MADE OF GALVANIZED STEEL OF NOT LESS THAN 1/4 INCH IN DIAMETER. WHEN CONCEALED ABOVE A SUSPENDED CEILING, GALVANIZED PERFORATED STEEL STRAPPING IS ACCEPTABLE.
F. SUPPORT BRANCH CIRCUIT RACEWAYS INSTALLED ABOVE SUSPENDED CEILING INDEPENDENTLY OF THE CEILING SUPPORT SYSTEM. WHEREVER POSSIBLE, THEY SHALL BE FASTENED TO THE UNDERSIDE OF THE SLAB ABOVE.

2.6 METAL FRAMING (CONTINUOUS SLOT METAL CHANNEL SYSTEM)

- A. CONFIGURATION. SINGLE CHANNEL OR TWO SINGLE CHANNELS WELDED TOGETHER, WITH CONTINUOUS 7/8-INCH SLOT AND TO ACCEPT SPRING-HELD STEEL NUTS.
B. DIMENSIONS: FOR SINGLE CHANNEL, 1-5/8 INCHES BY 1-5/8 INCHES. FOR DOUBLE CHANNEL, 1-5/8 INCHES BY 3-1/4 INCHES BOTH 12-GAUGE. FITTINGS TO BE 1-5/8 INCHES WIDE BY 1/4 INCH-THICK MINIMUM.
C. FINISHING OF CHANNELS, PIPE CLAMPS AND FITTINGS TO BE HOT DIP GALVANIZED AFTER FABRICATION CONFORMING TO ASTM A123 OR A153, AS APPLICABLE MINIMUM WEIGHT OF COATING, 2.0 OUNCES PER SQUARE FOOT. NUTS, BOLTS AND SCREW TO BE ELECTRO GALVANIZED.

3.0 CONDUCTORS (600 VOLTS)

- 3.1 MATERIAL
A. FURNISH CONDUCTORS OF 98 % ANNEALED COPPER, 600 VOLT CLASS B, HEAT AND MOISTURE RESISTANT, THERMOPLASTIC TYPE THHN/THHW (SIZED BY THW RATING), WITH A POLYVINYL CHLORIDE INSULATION RESISTANT TO OIL, GASOLINE AND WEATHER. INSULATION SHALL MEET STANDARD 83.
B. CONDUCTORS TO BE STRANDED; #8 THROUGH #2 SHALL BE 7 STRAND; #1 THROUGH 4/0, 19 STRAND AND 250 MCM THROUGH 500 MCM, 37 STRAND.
3.2 IDENTIFICATION
A. COLOR CODE POWER CONDUCTORS AS FOLLOWS:
1) 120/240 VOLT SYSTEM: WHITE-NEUTRAL, BLACK-PHASE A, BLUE-PHASE B, RED-PHASE C.
2) 277/480 VOLT SYSTEM: GRAY-NEUTRAL, YELLOW-PHASE A, BROWN-PHASE B, BONDING-PHASE C.
B. GROUNDING CONDUCTOR GREEN.
C. IDENTIFY FEEDERS, BRANCH CIRCUITS AND INSTRUMENTATION AND CONTROL WIRES AT TERMINATIONS, JUNCTION AND PULL BOXES.
3.3 INSTALLATION
A. DO NOT USE CONDUCTORS SMALLER THAN AWG #12 FOR POWER AND #14 FOR CONTROL UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
B. DO NOT PULL CONDUCTORS INTO CONDUITS UNTIL THE MECHANICAL WORK HAS BEEN COMPLETED.
C. GROUP AND THE CONDUCTORS IN PANEL BOARDS, JUNCTION BOXES, PULL BOXES, ETC. FOR A NEAT AND ORDERLY APPEARANCE.
D. USE CONNECTORS, TERMINALS AND SPLICES THAT ARE DESIGNED AND APPROVED FOR THE SPECIFIC TYPE AND SIZE OF THE CONDUCTORS BEING CONNECTED.
E. FIREPROOF FEEDERS WHERE NOT PROTECTED BY CONDUITS LIKE IN MANHOLES, SWITCH GEARS, ETC.

4.0 OUTLET, PULL AND JUNCTION BOXES

- A. OUTLET BOXES IN INDOOR FINISHED WALLS TO BE GALVANIZED STEEL, 4" X 4" X 1-1/2" CONFORMING TO FEDERAL SPECIFICATIONS WC-583 AND ANSI-C33.65.
B. EXTERIOR OUTLET BOXES, BOXES AND FITTINGS EMBEDDED IN CONCRETE, AND BOXES FOR EXPOSED CONDUIT RUNS SHALL BE CAST OF RUST RESISTING METAL, WITH FULL THREADED HUBS, AND SCREW TYPE RUBBER GASKET COVERS.
C. INSTALL BOXES FOR LIGHT SWITCHES LOCATED NEAR DOORS ON THE LOCK SIDE, EVEN WHERE THE SYMBOLS ARE INDICATED ON THE HINGE SIDES.
D. PULL AND JUNCTION BOXES SHALL BE OF 12 GAUGE WELDED ALUMINUM WITH HINGED COVER, NEMA 12 FOR INDOOR USE AND NEMA 4X FOR OUTDOOR USE. MINIMUM DIMENSIONS SHALL BE 12" X 12" X 6".
E. IN CORROSIVE AREAS OR WHERE CALLED FOR ON DRAWINGS, FURNISH PULL AND JUNCTION BOXES OF 14 GAUGE STAINLESS STEEL.
F. WHEN SPLICING CONTROL CONDUCTORS IN BOXES USE SCREW TYPE TERMINAL STRIP BLOCKS CLASS 9080 (C) AS MANUFACTURED BY SQUARE D OR EQUAL, IDENTIFY EVERY WIRE AT BOTH SIDES AND PROVIDE SPADE TYPE LUGS FOR TERMINATION.
G. PROVIDE PULL AND JUNCTION BOXES WHERE REQUIRED TO REDUCE LENGTH OF CABLE PULL OR REDUCE NUMBER OF ELBOWS BETWEEN OUTLETS.

5.0 SWITCHES AND RECEPTACLES

- A. FURNISH WALL SWITCHES OF THE QUIET AND TOTALLY ENCLOSED TUMBLER TYPE, WITH BODIES OF PHENOLIC COMPOUND. WIRING TERMINALS SHALL BE OF THE SCREW TYPE, NO MORE THAN ONE SWITCH SHALL BE INSTALLED IN A SINGLE-GANG POSITION. SWITCHES SHALL CONFORM TO FEDERAL SPECIFICATIONS WS-5896E, HUBBEL 1221 AND 1223, OR APPROVED EQUAL.
B. USE 20A, 125 V, DUPLEX, U-SLOTTED, GROUNDING TYPE RECEPTACLES THAT CONFORM TO FEDERAL SPECIFICATIONS WS-5960, HUBBEL 5362, OR EQUAL.
C. AMOUNT DUPLEX RECEPTACLES VERTICALLY. BOXES MOUNTED BACK TO BACK ARE NOT PERMITTED. GANGED RECEPTACLES AND SWITCHES SHALL HAVE SINGLE MULTI-GANG COVER PLATE.
D. FURNISH HOSPITAL GRADE GROUND FUL INTERRUPTER WITH DIFFERENTIAL CURRENT TRANSFORMER, SLOD STATE SENSING CIRCUITRY AND CIRCUIT INTERRUPTER, SENSITIVITY TO BE 5 MA, TRIPPING TIME 1/30TH OF A SECOND.
E. WHEN INSTALLING RECEPTACLES IN OUTDOOR LOCATIONS USE CAST-METAL OUTLET BOXES WITH GASKET WEATHERPROOF CAST-METAL COVER PLATES AND SPRING-FLAP CAP OVER EACH RECEPTACLE.
F. USE STAINLESS STEEL COVER PLATES FOR SWITCHES AND RECEPTACLES EXCEPT IN NON-INDUSTRIAL AREAS SUCH AS OFFICES, REST ROOMS, LABORATORIES, ETC.

6.0 MOTOR DISCONNECT SWITCHES & STARTERS

- A. PROVIDE EACH MOTOR WITH A DISCONNECTING MEANS MEETING THE REQUIREMENTS OF N.E.C. ARTICLE 430. SWITCHES SHALL BE HEAVY DUTY, HORSEPOWER RATED, SUITABLE TO BE PADLOCKED IN "OFF" POSITION AND CONFORM TO FEDERAL SPECS W-5-865, NEMA K51 AND ANSI C33.64. IF FUSES ARE REQUIRED, THEY SHALL BE CURRENT LIMITING TYPE.
B. SIZE DISCONNECTS AND STARTERS FOR THE FULL LOAD OF THE CONTROLLED MOTOR. THE HORSEPOWER RATINGS INDICATED ON THE DRAWINGS ARE SHOWN FOR THE BENEFIT OF THE CONTRACTOR AND DO NOT LIMIT EQUIPMENT SIZE.
C. FOR SINGLE-PHASE FRACTIONAL HORSEPOWER MOTORS, A SINGLE OR DOUBLE-POLE TOGGLE SWITCH WILL BE ACCEPTABLE PROVIDED THE AMPERE RATING OF THE SWITCH IS AT LEAST 125 PERCENT OF MOTOR RATING.
D. SWITCHES SHALL BE THE QUICK-BREAK TYPE AND DISCONNECT ALL UNGROUNDED CONDUCTORS.
E. FOR MOTORS LARGER THAN 1/4 HORSEPOWER, FURNISH STARTERS SPECIFICALLY DESIGNED FOR THE PURPOSE AND HAVING A HORSEPOWER RATING EQUAL TO THE MOTOR CONTROLLED.
F. PROVIDE MOTORS OF 1/8 HORSEPOWER OR LARGER WITH THERMAL-OVERLOAD PROTECTION. THE OVERLOAD PROTECTION DEVICE, OF THE MANUAL RESET TYPE AND WITH CONTACTS ON EACH PHASE, SHALL BE PART OF THE STARTER. SIZE THE OVERLOAD HEATER ELEMENTS ACCORDING TO THE MOTOR MANUFACTURER'S RECOMMENDATIONS AND BASED ON THE ACTUAL MOTOR NAMEPLATE FULL-LOAD CURRENT.
G. PROVIDE EACH MOTOR WITH A SUITABLE CONTROLLER OR DEVICE TO MAKE IT PERFORM AS REQUIRED. AUTOMATIC CONTROL DEVICES SUCH AS THERMOSTATS, FLOAT OR PRESSURE SWITCHES MAY DIRECTLY CONTROL THE START-STOP OF MOTORS UP TO 1/4 HORSEPOWER, PROVIDED THE DEVICES USED ARE DESIGNED FOR THE PURPOSE AND HAVE AN ADEQUATE HORSEPOWER RATING. WHEN THE AUTOMATIC-CONTROL DEVICE DOES NOT HAVE SUCH A RATING, A MAGNETIC STARTER SHALL BE USED WITH THE AUTOMATIC CONTROL DEVICE ACTIVATING THE COIL OF THE CONTACTOR.
H. PROVIDE 3 POSITION MANUAL-OFF-AUTO SWITCH WHEN MANUAL AND AUTOMATIC CONTROL IS REQUIRED. CONNECT THE SELECTOR SWITCH SO THAT ONLY THE AUTOMATIC DEVICES ARE BY-PASSED WHEN THE SWITCH IS IN THE "MANUAL" POSITION. ALL SAFETY DEVICES SUCH AS PRESSURE AND TEMPERATURE SWITCHES, MOTOR OVERLOAD AND SAFETY SWITCHES SHALL BE ACTIVE IN "MANUAL" AND "AUTOMATIC" POSITIONS.
I. MOTOR CONTROL CIRCUITS SHALL OPERATE AT 120V GROUND, OBTAINED FROM THE LOAD SIDE OF THE MOTOR-DISCONNECT MEANS. IF THE MOTOR CIRCUIT IS MORE THAN 120V TO GROUND, FURNISH A CONTROL TRANSFORMER WITH FUSED PRIMARY AND SECONDARY CIRCUITS. STARTERS FOR MOTORS WITH SPACE HEATERS SHALL HAVE CONTROL TRANSFORMERS SIZED FOR THE ADDITIONAL LOAD.
J. FURNISH COMBINATION MOTOR STARTERS OF THE MOLDED CASE, MOTOR CIRCUIT PROTECTOR, CIRCUIT BREAKER TYPE, THREE PHASE, OF THE VOLTAGE AND SIZE AS SHOWN ON THE DRAWINGS BUT NOT SMALLER THAN THE SIZE REQUIRED BY THE CONTROLLED MOTOR, 120 VOLT CONTROL CIRCUIT, 3 THERMAL INTERCHANGEABLE OVERLOAD RELAYS, "HAND-OFF-AUTO" OR "ON-OFF" SWITCH AS REQUIRED BY THE APPLICATION, RED AND GREEN PLOT LIGHTS AND FOUR NORMALLY CLOSED AND NORMALLY OPEN INTERLOCK CONTACTS.
K. THE STARTER DISCONNECT SHALL BE OPERABLE BY AN EXTERNAL "ON-OFF" LABELED HANDLE, INTERLOCKED TO PREVENT OPENING THE ENCLOSURE DOOR WHILE THE DISCONNECT IS IN THE "ON" POSITION EXCEPT WHEN CONSCIOUSLY OPERATING A PERMISSIVE RELEASE DEVICE.
L. FURNISH STARTERS MANUFACTURED BY SQUARE D, CLASS 8536, ALLEN BRADLEY BULLETIN NO. 509, OR EQUAL.

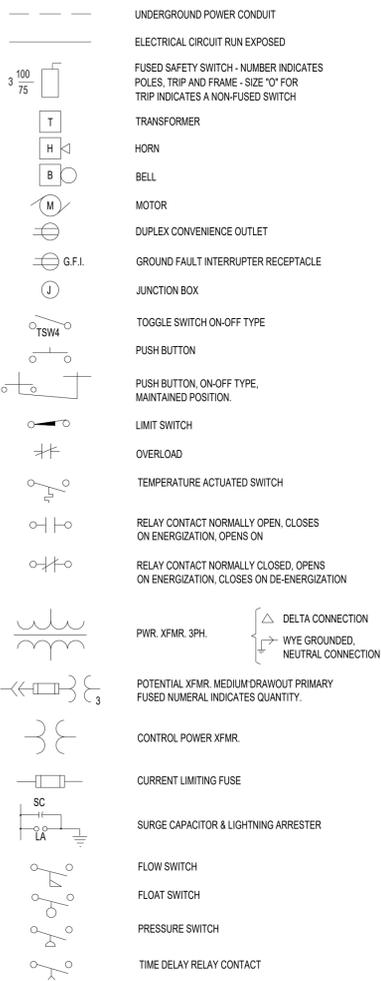
7.0 PANEL BOARDS

- A. PROVIDE DEAD FRONT CIRCUIT BREAKER TYPE PANEL BOARDS WITH COPPER BUS AND AS SCHEDULED ON DRAWINGS. EACH PANEL BOARD SHALL BE PROVIDED WITH A SEPARATE GROUND BUS IN ADDITION TO THE NEUTRAL BUS. CIRCUIT BREAKERS SHALL BE BOLT-ON AND HAVE A MINIMUM INTERRUPTING RATING OF 10,000 AMPERES AT 120 VOLTS, AND 14,000 AMPERES AT 277 VOLTS. A TYPED WRITTEN DIRECTORY SHALL CLEARLY IDENTIFY THE LOAD SERVED BY EACH CIRCUIT AND SHALL BE MOUNTED INSIDE THE DOOR IN A METAL FRAME WITH PLASTIC COVER. CIRCUIT NUMBERS SHALL BE PERMANENTLY INDICATED ADJACENT TO EACH CIRCUIT BREAKER.

8.0 GROUNDING

- A. INSTALL GROUNDING AS SHOWN ON DRAWINGS, WHERE NOT INDICATED, INSTALL IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. DO NOT USE CONDUCTORS SMALLER THAN SIZE AWG #12.
B. INACCESSIBLE CONNECTIONS SHALL BE MADE WITH THE EXOTHERMIC WELDING PROCESS USING EQUIPMENT MANUFACTURED BY BURUNDY OR ERICO PRODUCTS OR EQUAL.
C. ACCESSIBLE CONNECTIONS SHALL BE MADE WITH BURUNDY, MULTIPLE BOLT CONNECTORS SPECIFICALLY APPROVED FOR THE APPLICATION.
D. TO ASSURE ELECTRICAL CONTINUITY, INSTALL JUMPERS ACROSS METAL PARTS SEPARATED BY NON-CONDUCTING MATERIALS OR ATTACHED TOGETHER BY HIGH RESISTANCE JOINTS.
E. DO NOT EMBED GROUNDING CABLES DIRECTLY IN CONCRETE. USE SLEEVES WHEN PASSING CABLES THROUGH CONCRETE. BARE COPPER CABLES BURIED IN EARTH SHALL BE TINNED.

SYMBOL-LEGEND:



NOTES (CONTINUED):

- 18- ALL ELECTRICAL EQUIPMENT AND APPURTENANCES SHALL COMPLY WITH NEC 110.
19- MINIMUM CONDUIT SIZE TO BE 3/4" AND WIRE TO BE #12 CU.
20- LIGHTNING ARRESTER AND SURGE CAPACITOR SHALL BE INSTALLED IN PANEL AND CONNECTED TO A MULTI-WIRE LUG IN MAIN CIRCUIT BREAKER BY CONTROL PANEL MANUFACTURER.
21- GROUNDING AND NEUTRAL CONDUCTORS SHALL BE BONDED AT ENTRANCE POINT ONLY.
22- PROVIDE PANEL MANUFACTURER'S RECOMMENDED SPARE PARTS FOR TWO YEARS.
23- A. THE CONTRACTOR SHALL FURNISH SHORT-CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDIES AS PREPARED BY THE ELECTRICAL EQUIPMENT MANUFACTURER OR AN APPROVED ENGINEERING FIRM.
B. THE CONTRACTOR SHALL FURNISH AN ARC FLASH HAZARD ANALYSIS STUDY PER THE REQUIREMENTS SET FORTH IN NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE, AND NEC 110. THE ARC FLASH ANALYSIS SHALL BE PERFORMED ACCORDING TO THE IEEE 1584 EQUATIONS THAT ARE PRESENTED IN THE LATEST CURRENT EDITION OF THE NFPA-70E.
C. THE CONTRACTOR OF THE ARC FLASH HAZARD ANALYSIS SHALL PROVIDE WARNING LABEL INDICATING SEVERITY OF POTENTIAL EXPOSURE AND LEVEL OF PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED. LABEL TO BE AS PER DETAIL IN SHEET E-3.
24- RTU ANTENNA FOUNDATION, POLE SUPPORT AND CONDUIT TO RTU PANEL, PROVIDED AND INSTALLED BY CONTRACTOR.
25- AS PER NEC ARTICLE 409.110 REQUIREMENTS, THE CONTROL PANEL SHALL BE MARKED WITH A SHORT CIRCUIT RATING THAT IS DETERMINED BY BEING A LISTED AND LABELED ASSEMBLY OR BY ANOTHER APPROVED METHOD.
26- SCADA RTU AND COMMUNICATION EQUIPMENT WILL BE BY MISSION.
27- FINISHED FLOOR ELEVATIONS (FFE) AND TOP OF SLABS MUST BE TWO (2) FEET ABOVE BASE FLOOR ELEVATION AS ESTABLISHED BY THE AREA'S FEMA FIRM MAP/PANEL.
28- AN ADDITIONAL 6" MAY BE REQUIRED IN AREAS WHERE SEA LEVEL RISE IMPACTS MAY BE EXPECTED.
29- PROVIDE NEMA 6 J. BOX AND HARD WIRE TO THE VALVE PIT SUMP PUMP. FLOAT SWITCH TO BE INSTALLED INSIDE THE VALVE VAULT TO SEND SIGNAL TO RTU AND TO CONTROL PANEL FOR LOCAL SIGNAL AS IT IS SHOWN ON CONTROL WIRING DIAGRAM AND RTU TERMINAL BLOCK ON SHEET E-600.



Florida Engineering Business License: CA7928
Florida Surveyor and Mapper Business License: LB6880
Florida Landscape Architecture Business License: LC26000457

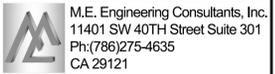


Table with 3 columns: NO., DESCRIPTION, DATE. Contains revision information.

PRELIMINARY PLAN NOT FOR CONSTRUCTION
THESE PLANS ARE NOT FULLY PERMITTED AND ARE SUBJECT TO REVISIONS MADE DURING THE PERMITTING PROCESS.
RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.

ISSUE DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
BID-CONTRACT:

Zoila Morales, P.E.
P.E. NO. 64981



PROJECT

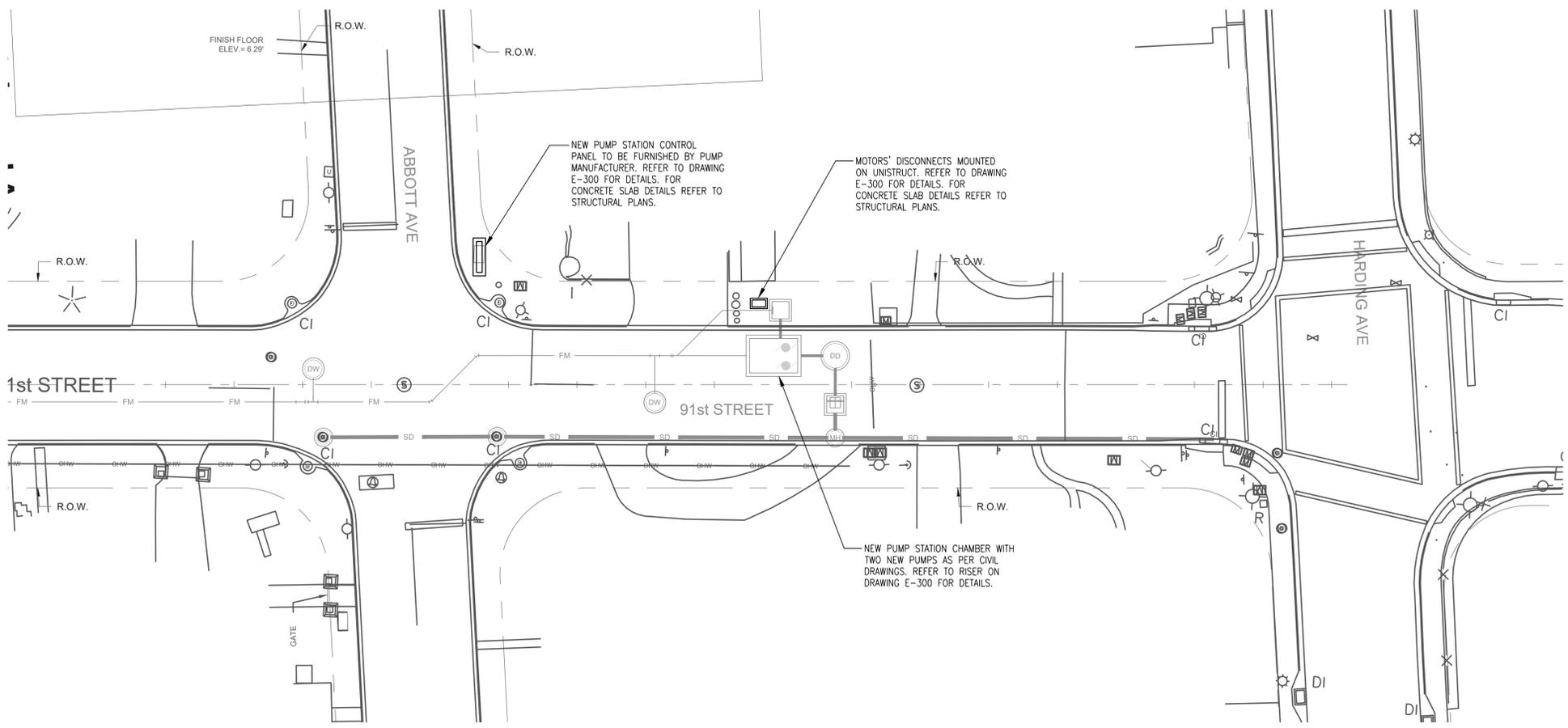
ABBOTT AVENUE DRAINAGE IMPROVEMENTS

SHEET TITLE

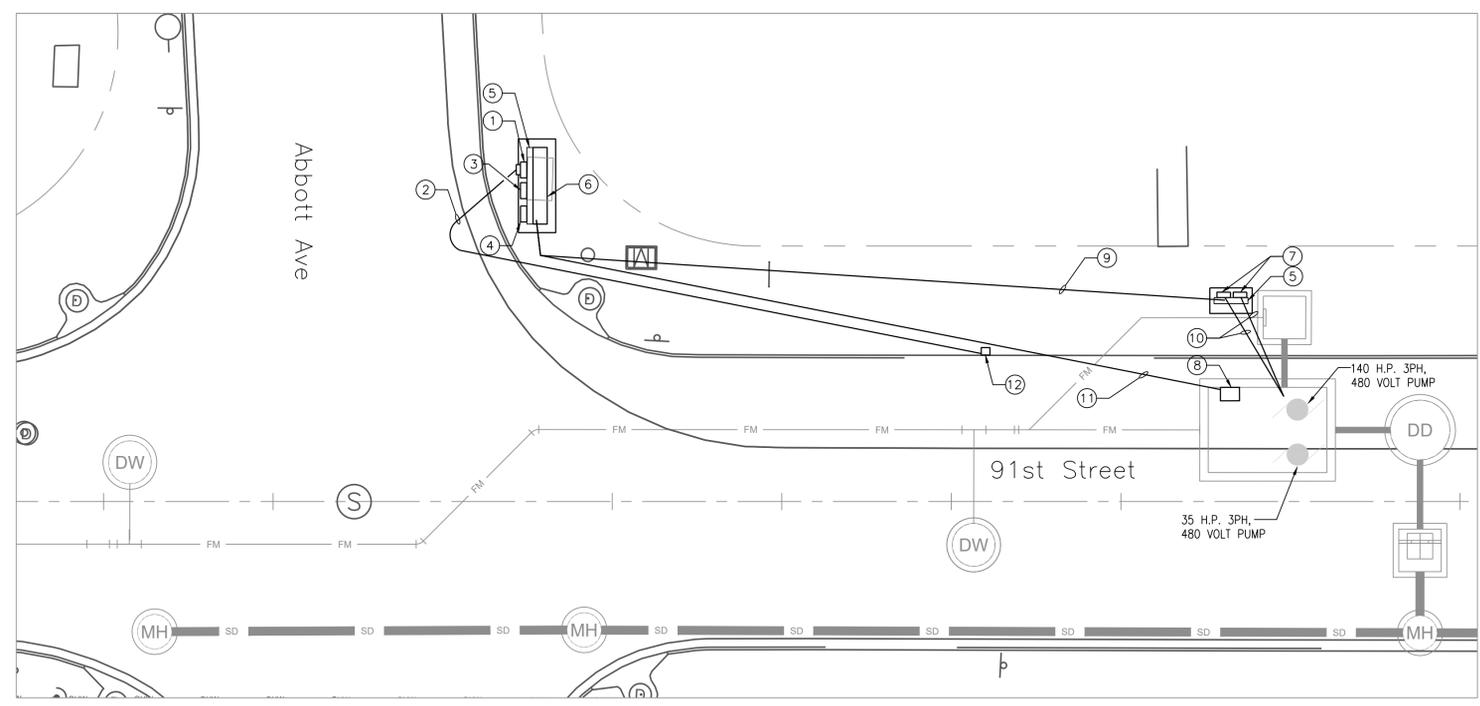
ELECTRICAL GENERAL NOTES-91ST STREET

SHEET NUMBER E-100
PROJECT NUMBER 11494.01

Plotted by: me engineering cons On: 2/17/2023 5:30 PM
Drawing name: D:\Projects\2022\220286-Abbott Avenue Stormwater Improvements\MEP11494.01 GP-1XX-91st-MEP.dwg
STATUS: PERMIT SET



ELECTRICAL SITE PLAN
SCALE: 1"=20'-0"



ELECTRICAL PLAN
SCALE: 1"=10'-0"

- ① PROPOSED LOCATION OF 400 AMP METER. COORDINATE WITH F.P.L. SEE RISER ON DRAWING E-300.
- ② NEW ELECTRICAL SERVICE. SEE DETAILS ON RISER ON DRAWING E-300. COORDINATE WITH FPL.
- ③ NEW 400 AMP 480 V 3 PHASE, NEMA 4X (PAD LOCKABLE) 14K AIC SERVICE ENTRANCE RATED, FUSED DISCONNECT SWITCH. FUSE 400 A, 600 V BUSSMAN TYPE LPS-RK OR APPROVED EQUAL.
- ④ MANUAL TRANSFER SWITCH 400 AMP, 600 V IN NEMA 4X ENCLOSURE FOR CONNECTION TO A PORTABLE GENERATOR.
- ⑤ GALVANIZED UNISTRUCT. SEE DETAIL ON DRAWING E-300. FOR EXACT PAD LOCATION SEE CIVIL DRAWING.
- ⑥ CONTROL PANEL IN NEMA 4X ENCLOSURE INCLUDING MOUNTINH HARDWARE TO BE PROVIDED BY PUMP MANUFACTURER, REFER TO DETAILS ON DRAWING E-500.
- ⑦ 300 AND 100 AMP 480 V, 3 PHASE NEMA 4X (PAD LOCKABLE) NON FUSIBLE DISCONNECT SWITCH.
- ⑧ NEMA 6P WATERTIGHT JUNCTION BOX 6"x6"x6" WITH CONDUIT NUT TO RUN SENSOR CABLES. RUN FLOAT SWITCH SIGNAL CABLES AS PER MANUFACTURER RECOMMENDATIONS FROM FLOAT SWITCHES AT MANHOLE TO RTU AT CONTROL PANEL. TYPICAL OF 2.
- ⑨ POWER WIRES IN RIGID STEEL CONDUITS FROM CONTROL PANEL TO EACH PUMP DISCONNECT. REFER TO RISER ON DRAWING E-300.
- ⑩ PUMP POWER CABLES IN RIGID STEEL CONDUITS FROM EACH PUMP DISCONNECT TO EACH PUMP. CABLES PROVIDED BY MANUFACTURER. REFER TO RISER ON DRAWING E-300 FOR DETAILS.
- ⑪ TWO 2" AND TWO 1" RIGID STEEL CONDUITS. REFER TO RISER ON DRAWING E-300 FOR DETAILS.
- ⑫ PROPOSED FPL POINT OF SERVICE. PROVIDE PULL BOX AT BASE OF POLE AS PER FPL STANDARDS. COORDINATE WITH FPL REPRESENTATIVE FOR EXACT LOCATION AND

KEITH
301 East Atlantic Blvd.
Pompano Beach, FL 33060
PH: (954) 788-3400

Florida Engineering Business License: CA7928
Florida Surveyor and Mapper Business License: LB6860
Florida Landscape Architecture Business License: LC26000457

M.E. Engineering Consultants, Inc.
11401 SW 40TH Street Suite 301
Ph:(786)275-4635
CA 29121

REVISIONS		
NO.	DESCRIPTION	DATE

**PRELIMINARY PLAN
NOT FOR CONSTRUCTION**
THESE PLANS ARE NOT FULLY PERMITTED AND ARE SUBJECT TO REVISIONS MADE DURING THE PERMITTING PROCESS.
RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.

ISSUE DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
BID-CONTRACT:

Zoila Morales, P.E.
P.E. NO. 64981



CLIENT

**ABBOTT AVENUE
DRAINAGE
IMPROVEMENTS**

SHEET TITLE

**ELECTRICAL SITE AND
DETAIL PLAN-91ST
STREET**

SHEET NUMBER **E-200**
PROJECT NUMBER 11494.01

Plotted by: me engineering cons On: 2/17/2023 5:30 PM

Drawing name: D:\Projects\2022\2026-Abbott Avenue Stormwater Improvements\MEP\11494.01-CP-1XX-91st-MEP.dwg

STATUS: PERMIT SET

REVISIONS		
NO.	DESCRIPTION	DATE

**PRELIMINARY PLAN
 NOT FOR CONSTRUCTION**

THESE PLANS ARE NOT FULLY PERMITTED AND ARE SUBJECT TO REVISIONS MADE DURING THE PERMITTING PROCESS.

RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.

ISSUE DATE:
 DESIGNED BY:
 DRAWN BY:
 CHECKED BY:
 BID-CONTRACT:

Soila Morales, P.E.
 P.E. NO. 64981



PROJECT

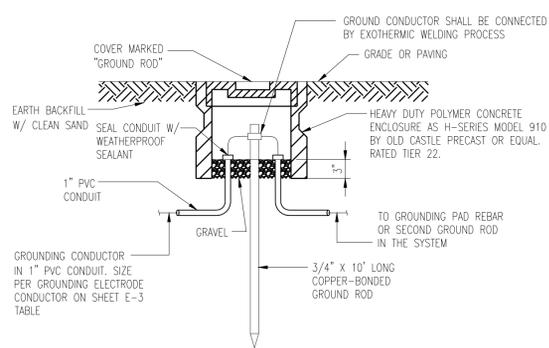
**ABBOTT AVENUE
 DRAINAGE
 IMPROVEMENTS**

SHEET TITLE

**ELECTRICAL DETAILS
 -91ST STREET**

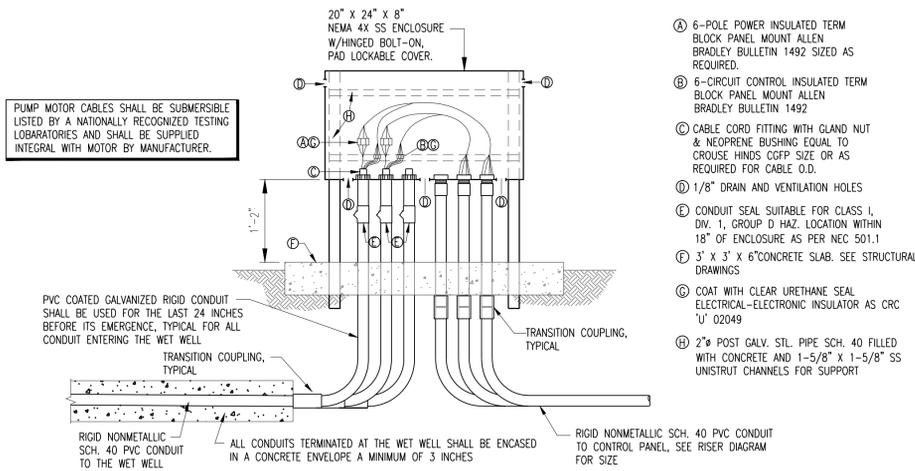
SHEET NUMBER **E-600**

PROJECT NUMBER **11494.01**

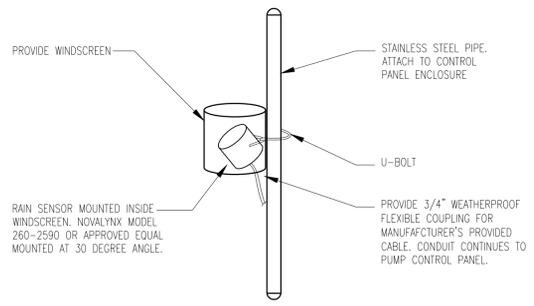


NOTE:
 SEE GROUNDING NOTES ON SHEET E-5.

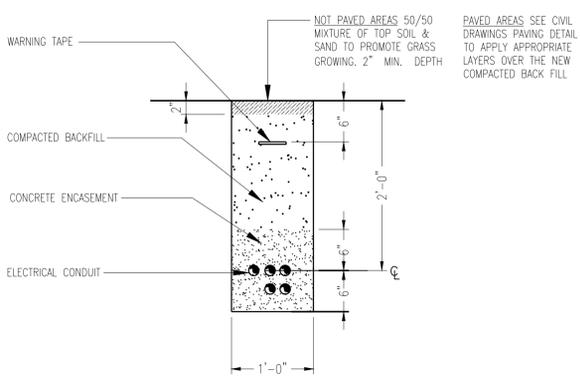
TYPICAL GROUND ROD INSTALLATION DETAIL
 N.T.S.



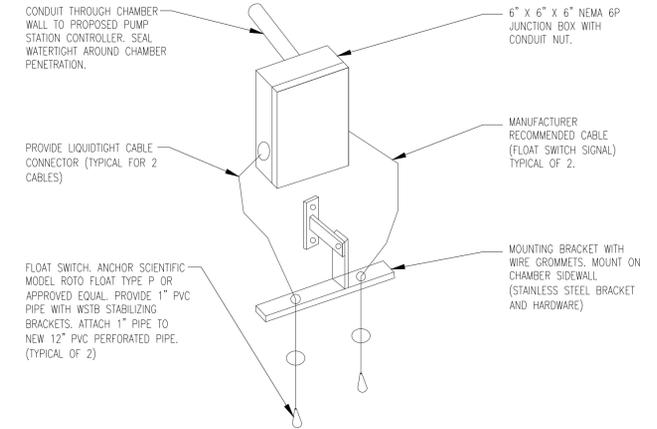
TYPICAL MOTOR CONNECTION BOX DETAIL
 N.T.S.



RAIN SENSOR
 N.T.S.



TRENCH DETAIL
 N.T.S.



FLOAT SWITCH INSTALLATION DETAIL
 N.T.S.

NOVALYNX Precipitation

260-2590 Precipitation Detector **260-2591 Leaf Wetness Sensor**

The Model 260-2590 Precipitation Detector is used to detect the onset of rainfall. A gold plated grid sensor activates the circuit when water is deposited onto the grid. The presence of water activates an internal relay that may be used to operate larger capacity external relays, alarms, doors, or may be used as an input to a data acquisition system.

An internal heater constantly dries the grid to prevent relay activation during times of dew, fog, or light moisture that is not actual precipitation. During periods of normal precipitation the heater is unable to dry the grid and the relay is activated. The heater power may be disconnected allowing the detector to be operated as a leaf wetness sensor.

The solid state electronics are mounted in a sealed weatherproof enclosure. The precipitation detector may be tilted to allow water to drain off. A mounting bracket is provided with the sensor to allow mounting onto a 1" pipe by a U-bolt. The wind screen may be used to prevent premature drying of the grid during precipitation events accompanied by high winds.

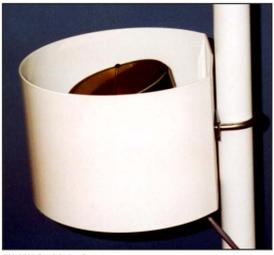
The unit requires +12 Vdc power for operation. A 100-240 Vac power adapter is provided with each unit.

Specifications

Sensor: Gold plated grid 4" dia
 Output: Relay (0.5 amps)
 Heater: Resistive element
 Power: 12 Vdc (235 mA max.) 100-240 Vac 50-60 Hz adapter supplied
 Size: Overall 4" dia x 2" high
 Weight/shipping: 4 lbs/5 lbs (1.8 Kg/2.3 Kg)

Ordering Information

260-2590	Precipitation Detector, 100-240 Vac, 25' cable
260-2591	Leaf Wetness Sensor, 100-240 Vac, 25' cable
260-2592	Leaf Wetness Sensor with heater control, 100-240 Vac, 25' cable
330-0524	Additional Cable, per foot




260-2590 Precipitation Detector

260-2590 Precipitation Detector shown without wind screen

NovaLynx Corporation PO Box 240 Grass Valley CA 95945
 Phone: (530) 823-7185 Fax: (530) 823-8997 USA Toll Free: 1-800-321-3577 www.novalynx.com 137