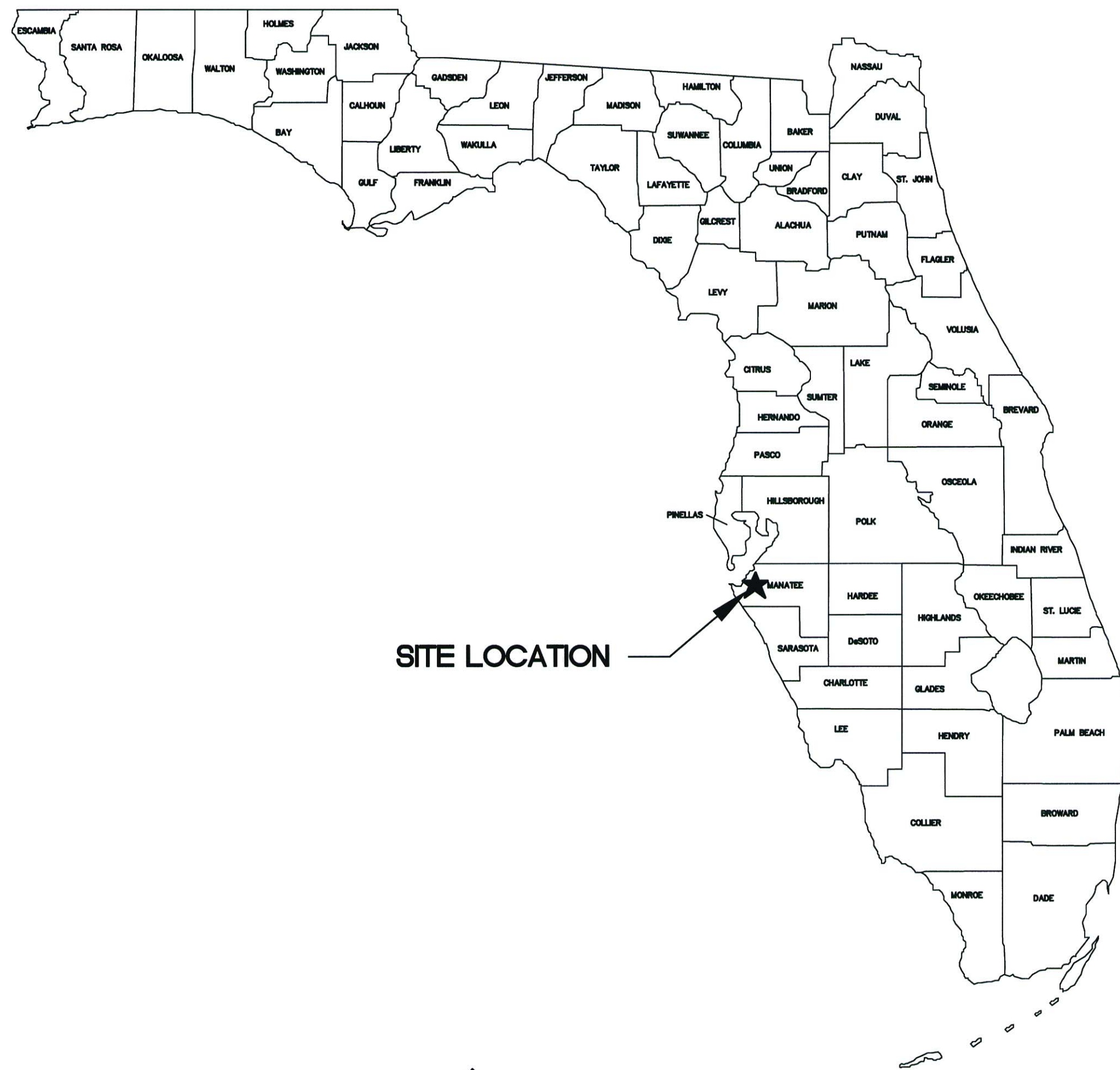
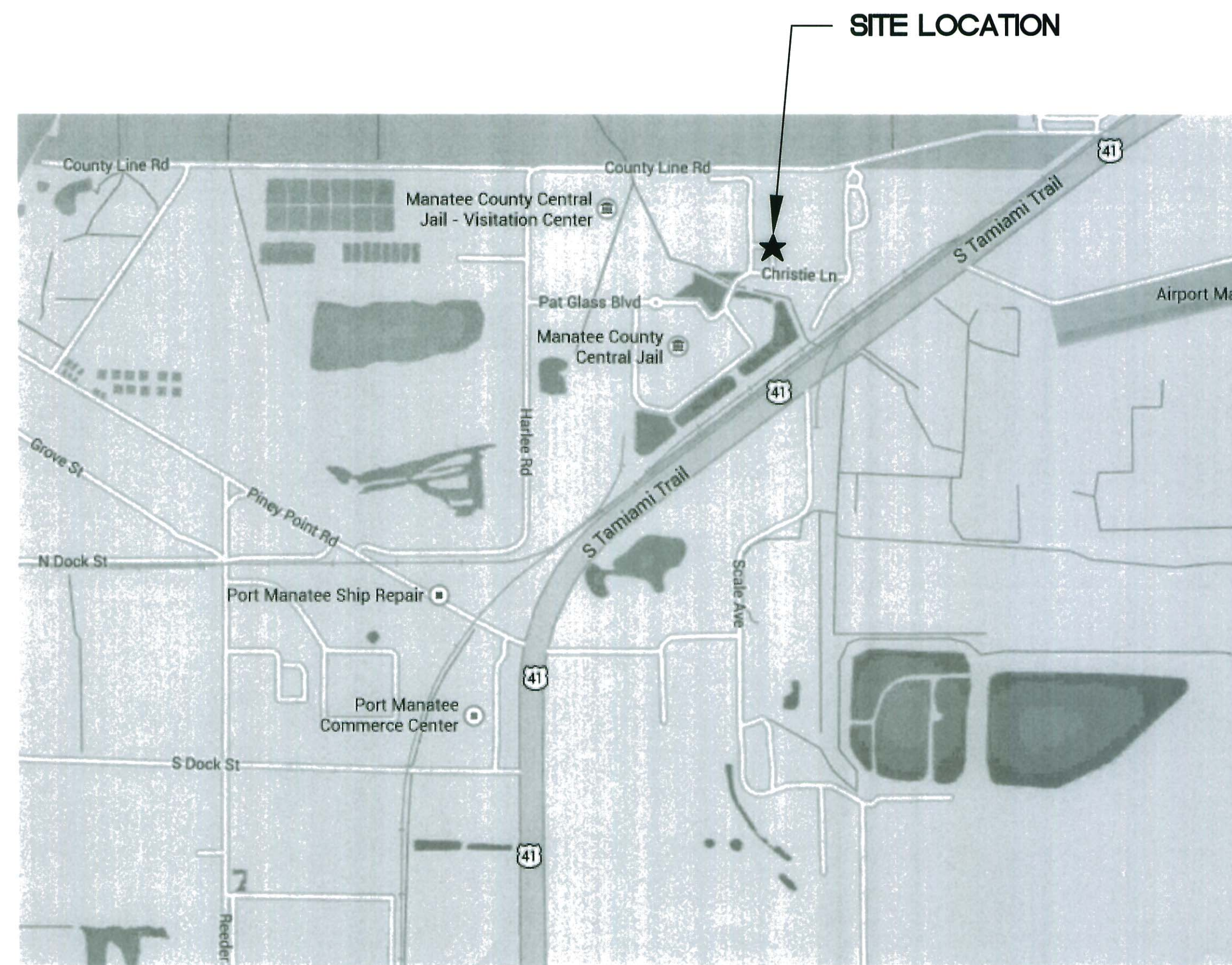


# MANATEE COUNTY DETENTION CENTER AGRICULTURAL CENTER AND FISH HATCHERY ELECTRICAL IMPROVEMENTS 14470 HARLEE RD. PALMETTO, FLORIDA 34221

WORK ASSIGNMENT #32



LOCATION MAP  
FLORIDA

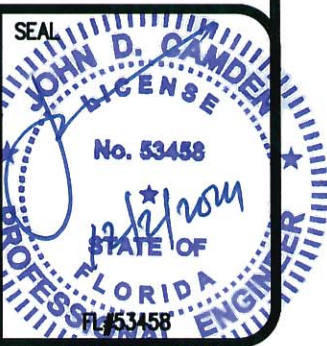


SITE MAP

SHEET SCHEDULE	
SHEET	DESCRIPTION
COVER	PROJECT NAME, LOCATION & SITE MAP
E1.0	ELECTRICAL LEGEND, SYMBOLS, GENERAL NOTES, DETAILS & SPECIFICATIONS
E2.0	ELECTRICAL NEW PLAN
E3.0	ELECTRICAL DEMOLITION PLAN
E5.0	ELECTRICAL FEEDER SCHEDULE, ONE-LINE
E5.1	EXISTING LOAD CALCULATIONS, FAULT CURRENT CALCULATIONS
E7.0	ELECTRICAL SPECIFICATIONS
E7.1	ELECTRICAL SPECIFICATIONS

To the best of the engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

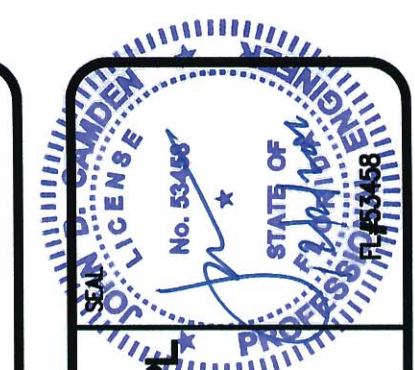
ATP ENGINEERING SOUTH, PLLC  
BRADENTON, FLORIDA  
ENGR. BUSINESS #8908  
941-751-6485



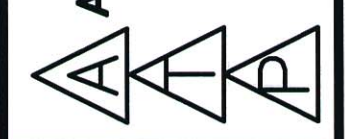








**ATP ENGINEERING SOUTH, INC.**  
 BRADENTON, FLORIDA  
 ENGR. BUSINESS #8808  
 941-751-8485



REV.	DESCRIPTION	DATE

**MANATEE COUNTY DETENTION CENTER  
 AGRICULTURAL CENTER AND FISH HATCHERY  
 ELECTRICAL IMPROVEMENTS**  
 14470 HARLEE RD.  
 PALMETTO, FLORIDA 34221  
 WORK ASSIGNMENT #32

**ELECTRICAL POWER  
 AND SYSTEMS PLAN**

FILE: M.C. Jail Agricultural Center  
 JOB NO.: 2014.26  
 DATE: 7/14/2014  
 PLOT SIZE: 1:1  
 DRAWN BY: CMD/MC  
 CHECKED BY: JDC  
 SHEET No.: **E2.0**

**GENERAL NOTES:**

SHUT DOWN OF EXISTING POWER SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH HATCHERY PERSONNEL. EXTENDED LOSS OF POWER WILL CAUSE MAJOR LOSS OF FISH PRODUCTION.

THE INTENT OF THE PROJECT IS TO REPLACE THE INCOMING SERVICE TO PANEL "2", RE-FEED PANELS "A", "B", "C" & "D", REPLACE PANELS "B" AND "C", AND RE-FEED TURBINE MOTOR AT PANEL "B". DEMOLITION/REMOVAL OF EXISTING GEAR, CONDUITS AND CONDUCTORS ARE INSTALLED AND FINAL CONNECTIONS TO EQUIPMENT ARE MADE. THE EXISTING ELECTRICAL SYSTEM SHALL BE UTILIZED AS "TEMPORARY" POWER UNTIL CHANGE OUT IS COMPLETE.

VERIFY ALL LOCATIONS AND EXISTING CONDITIONS PRIOR TO WORK. COORDINATE LOCATIONS OF NEW GEAR WITH EXISTING.

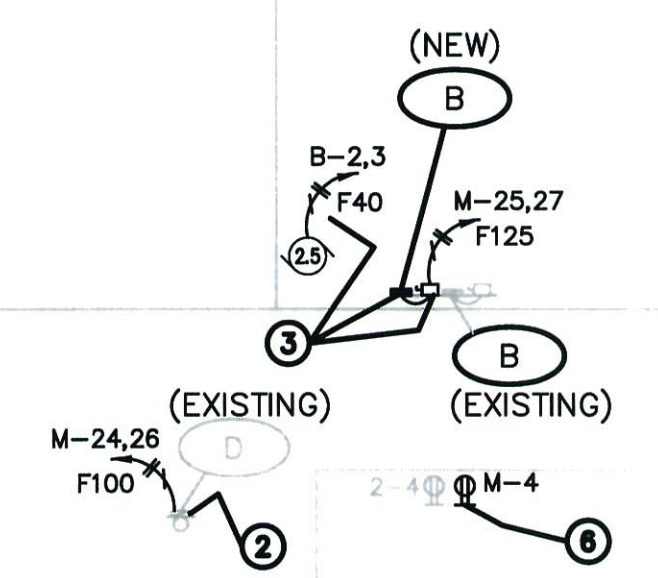
EXISTING PANELS ARE NOT LABELED, ALL DESIGNATIONS GIVEN ON THIS PLAN ARE FOR REFERENCE ONLY. PROVIDE LABELING ON NEW PANELS AND ALL EXISTING PANELS REMAINING.

COORDINATE LOCATIONS OF EXTERIOR POLE LIGHTING FIXTURES FED FROM PANEL "2" (2 POLE LIGHTS ARE SHOWN ON EXISTING PANEL SCHEDULE). RE-FEED FROM NEW PANEL "M" AND PROVIDE THIS ENGINEER WITH LOCATION OF POLES. INSURE FIXTURE AND PHOTOCELLS ARE OPERATIONAL, REPLACE IN KIND AS REQUIRED.

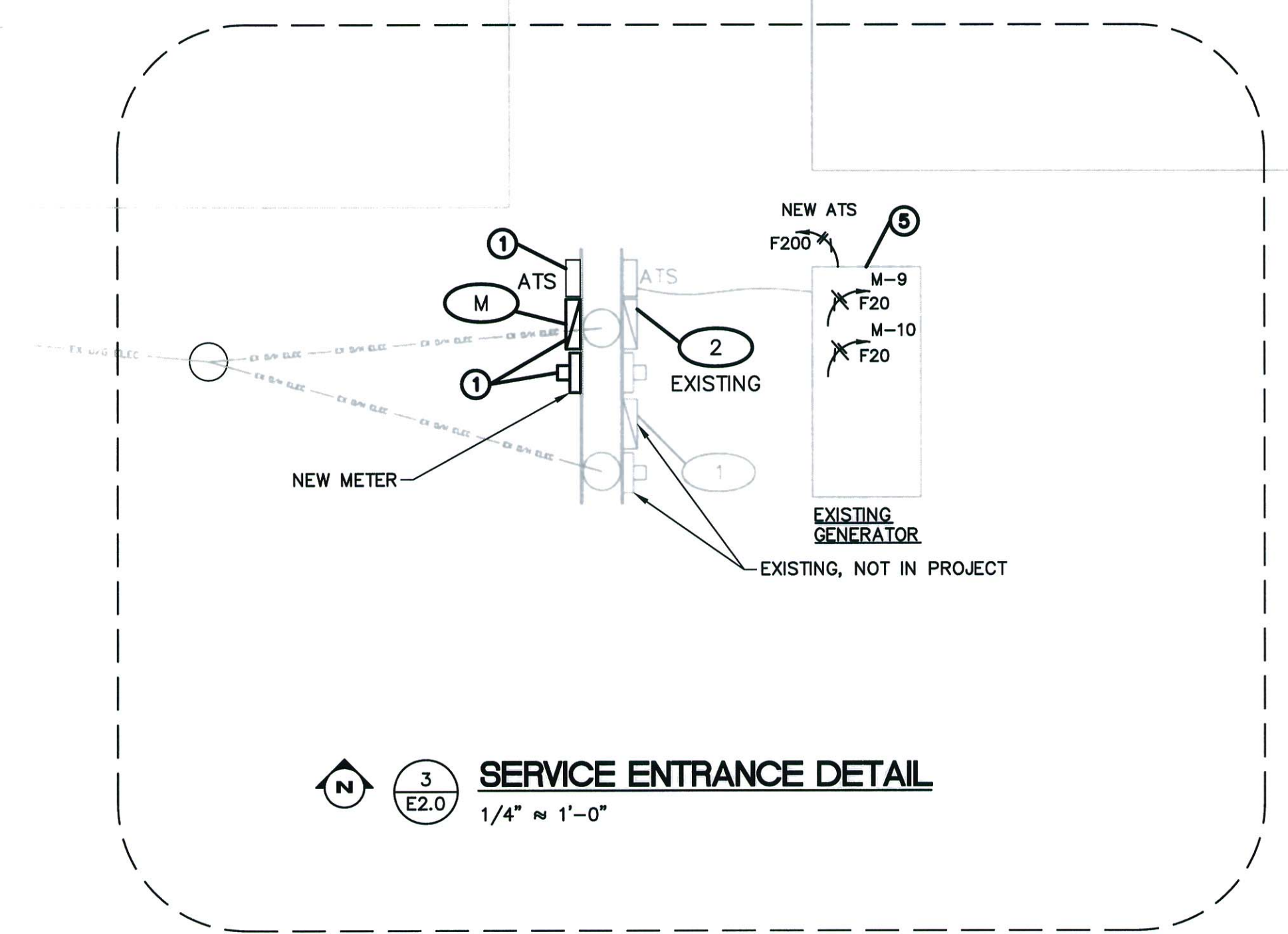
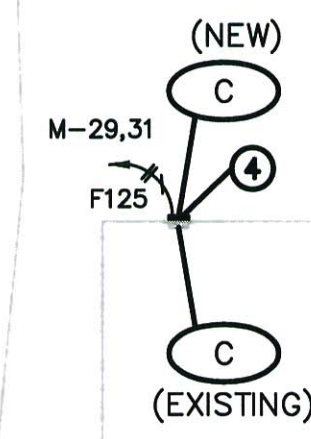
COORDINATE LOCATIONS OF INTERIOR LIGHTING FED FROM PANEL "2" (2 OVERHEAD LIGHT CIRCUITS ARE SHOWN ON EXISTING PANEL SCHEDULE). RE-FEED FROM NEW PANEL "M" AND PROVIDE THIS ENGINEER WITH LOCATION OF FIXTURES. INSURE FIXTURES ARE OPERATIONAL, REPLACE IN KIND AS REQUIRED.

**PLAN NOTES:**

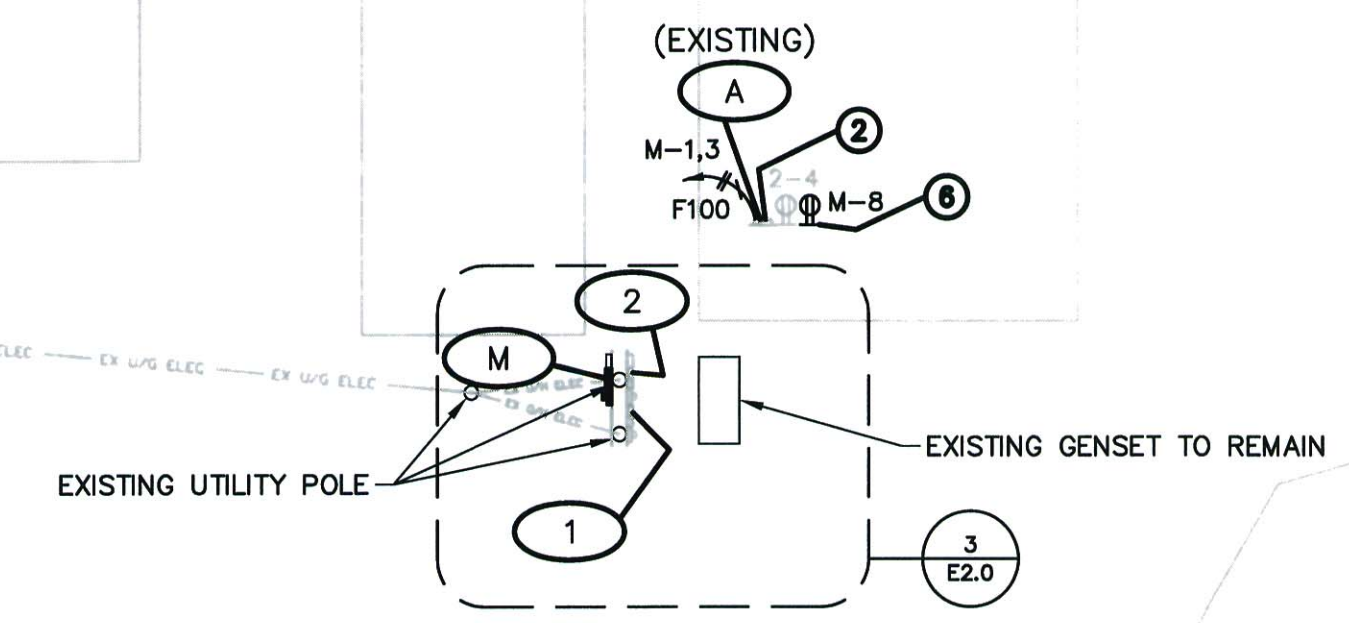
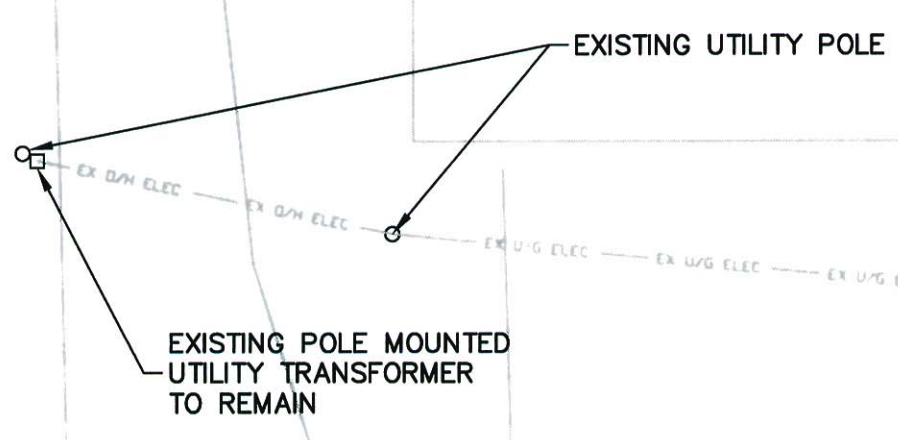
- 1 PROVIDE AND INSTALL NEW METER CAN, PANEL "M" AND ATS. COORDINATE CONDUIT/CONDUCTOR SIZES WITH ONE-LINE RISER, SHEET E5.0. COORDINATE NEW SERVICE WITH FPL.
- 2 PROVIDE AND INSTALL NEW CONDUITS AND CONDUCTORS TO EXISTING PANEL. ALL BRANCH CIRCUITS IN EXISTING PANEL TO REMAIN AS IS.
- 3 PROVIDE AND INSTALL NEW CONDUITS, CONDUCTORS, DISCONNECT SWITCH AND PANEL "B". CONNECT EXISTING BRANCH CIRCUITS IN EXISTING PANEL "B" TO NEW PANEL "B". REPLACE CONDUITS AND CONDUCTORS TO TURBINE MOTOR WITH NEW, SIZED AS SHOWN.
- 4 PROVIDE AND INSTALL NEW CONDUITS, CONDUCTORS AND PANEL "C" (NEMA 3R). EXTEND AND CONNECT EXISTING BRANCH CIRCUITS IN EXISTING PANEL "C" TO NEW PANEL "C".
- 5 PROVIDE AND INSTALL NEW CONDUITS, CONDUCTORS AND ATS. CONNECT TO EXISTING GENERATOR.
- 6 PROVIDE AND INSTALL NEW RECEPTACLE ON CIRCUIT SHOWN, GFI, WITH WATERPROOF COVER. LOCATE BESIDE EXISTING RECEPTACLE.



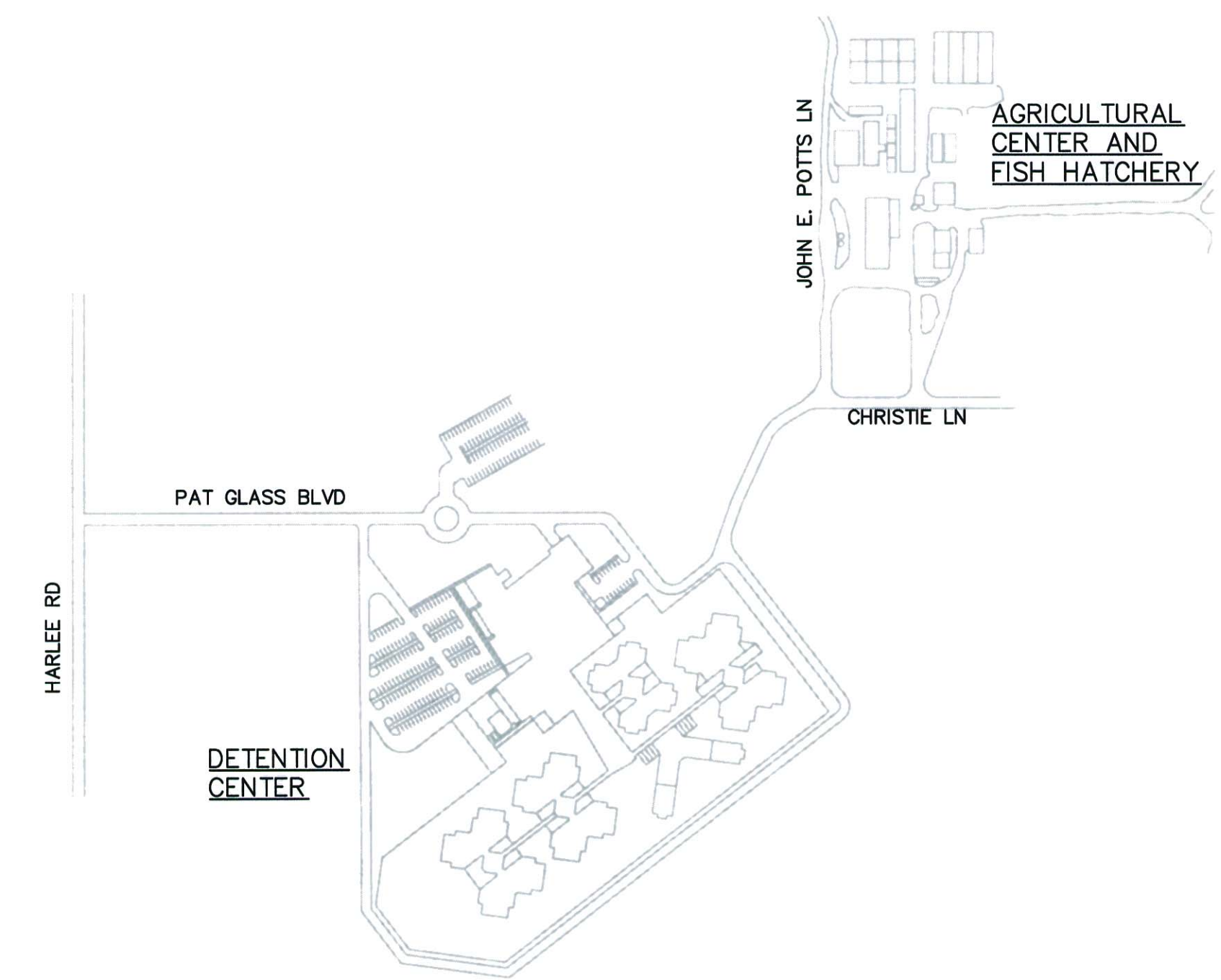
AGRICULTURAL CENTER AND FISH HATCHERY



JOHN E. POTTS LN



**POWER AND SYSTEMS PLAN**  
 1/16" = 1'-0"

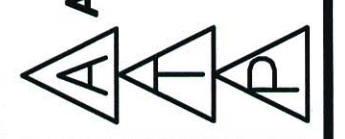


**KEY PLAN**  
 1" = 300'-0"





**ATP ENGINEERING SOUTH, FL**  
 BRADENTON, FLORIDA  
 ENGR. BUSINESS #8908  
 941-751-6485



REV.	DESCRIPTION	DATE

**MANATEE COUNTY DETENTION CENTER**  
**AGRICULTURAL CENTER AND FISH HATCHERY**  
**ELECTRICAL IMPROVEMENTS**  
 14470 HARLEE RD.  
 PALMETTO, FLORIDA 34221  
 WORK ASSIGNMENT #52

DRAWING TITLE:  
**ELECTRICAL DEMOLITION PLAN**  
 FILE: M.C.001 Agricultural Center  
 JOB NO.: 2014.26  
 DATE: 7/14/2014  
 PLOT SIZE: 1:1  
 DRAWN BY: CMD/MC  
 CHECKED BY: JDC  
 SHEET No.:  
**E3.0**

**GENERAL NOTES:**

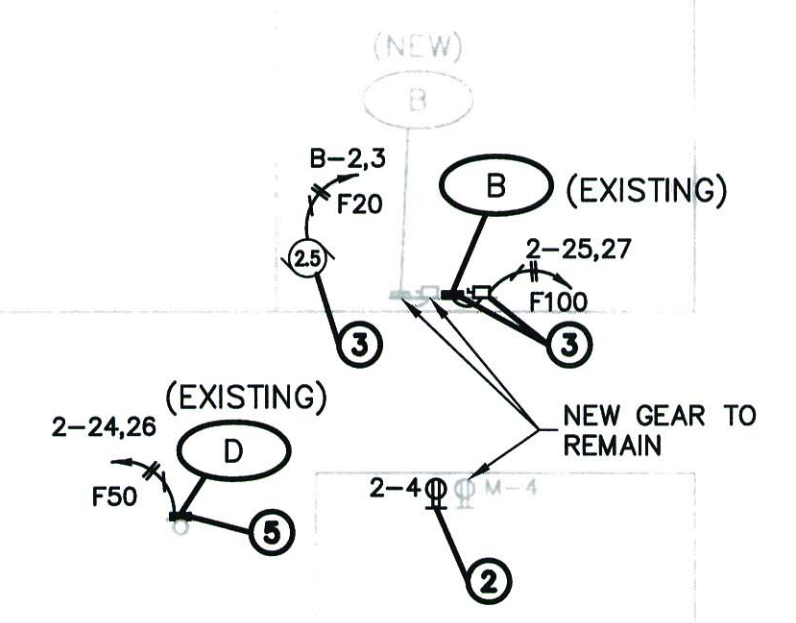
SHUT DOWN OF EXISTING POWER SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH HATCHERY PERSONNEL. EXTENDED LOSS OF POWER WILL CAUSE MAJOR LOSS OF FISH PRODUCTION.

THE INTENT OF THE PROJECT IS TO REPLACE THE INCOMING SERVICE TO PANEL "2", RE-FEED PANELS "A", "B", "C" & "D", REPLACE PANELS "B" AND "C", AND RE-FEED TURBINE MOTOR AT PANEL "B". DEMOLITION/REMOVAL OF EXISTING GEAR SHALL NOT PROCEED UNTIL AFTER ALL NEW POWER, GEAR, CONDUITS AND CONDUCTORS ARE INSTALLED AND FINAL CONNECTIONS TO EQUIPMENT ARE MADE. THE EXISTING ELECTRICAL SYSTEM SHALL BE UTILIZED AS "TEMPORARY" POWER UNTIL CHANGE OUT IS COMPLETE.

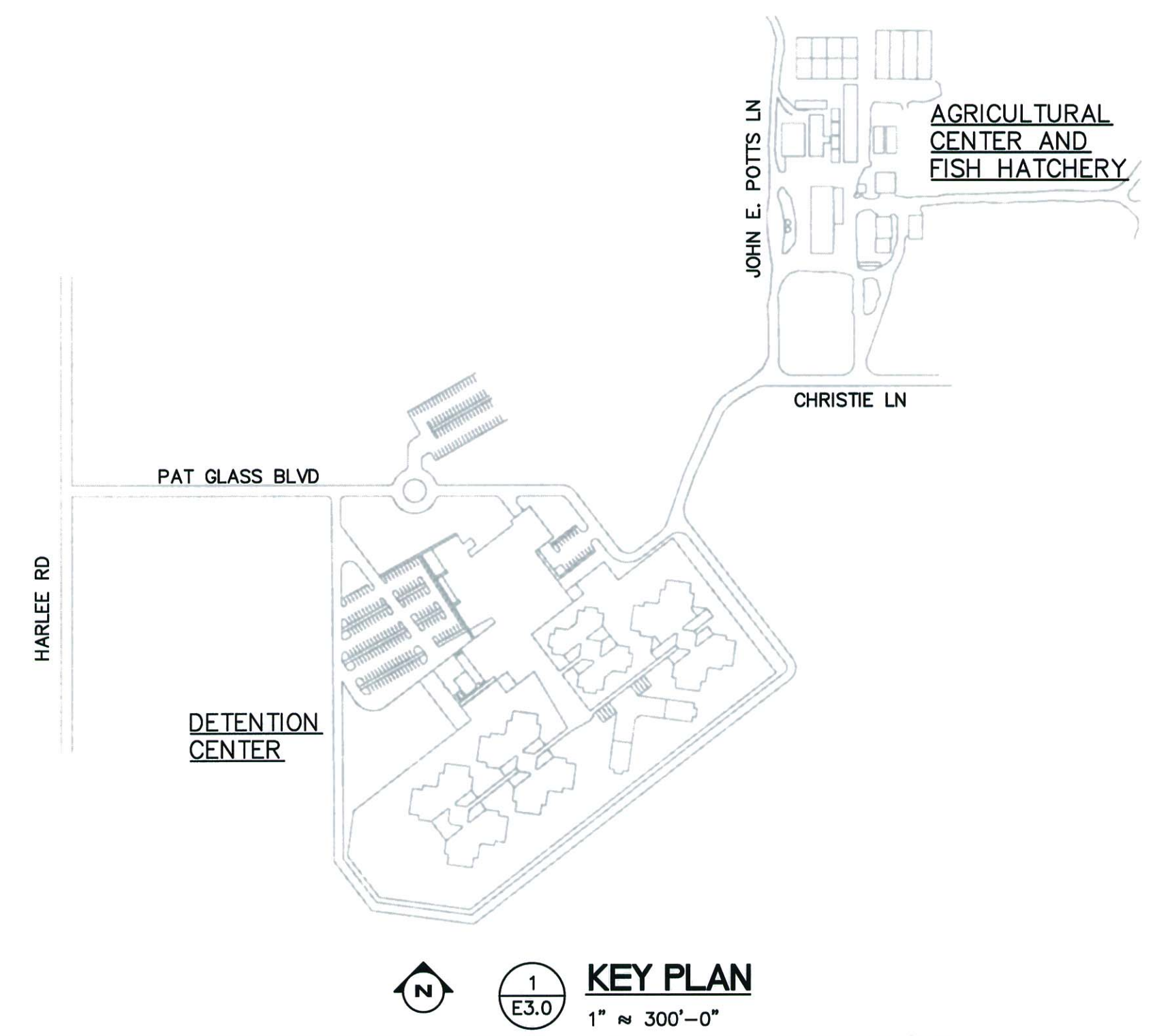
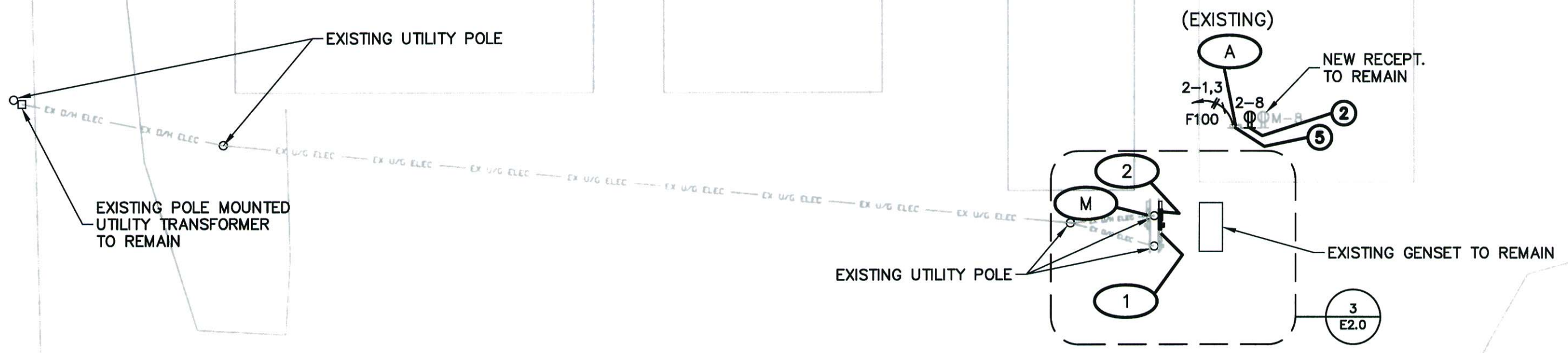
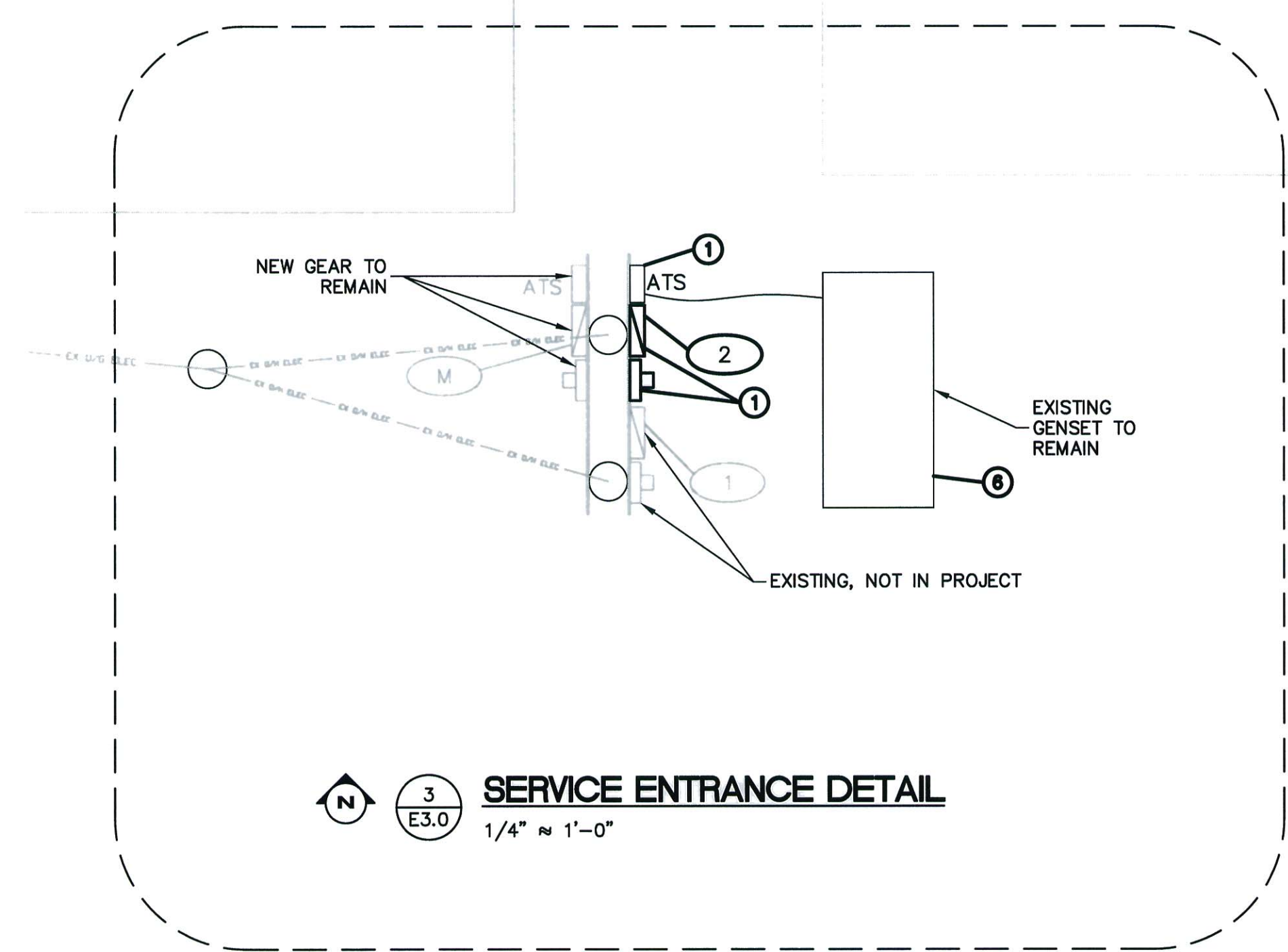
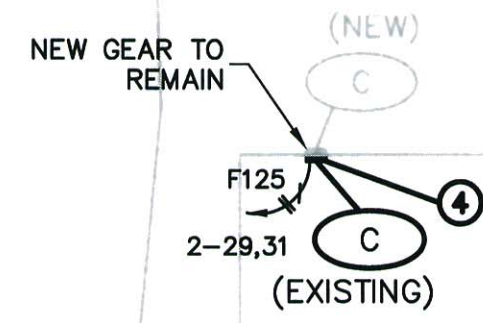
VERIFY ALL LOCATIONS AND EXISTING CONDITIONS PRIOR TO WORK. EXISTING PANELS ARE NOT LABELED, ALL DESIGNATIONS GIVEN ON THIS PLAN ARE FOR REFERENCE ONLY.

**PLAN NOTES:**

- ① REMOVE METER CAN, PANEL "2" AND ATS.
- ② REMOVE ORIGINAL RECEPTACLE, CONDUIT AND CONDUCTORS BACK TO SOURCE.
- ③ REMOVE EXISTING CONDUITS, CONDUCTORS, DISCONNECT SWITCH AND EXISTING PANEL "B". INSURE ALL LINE SIDE CIRCUITS HAVE BEEN RECONNECTED TO NEW PANEL "B" AND TURBINE MOTOR HAS BEEN REFEED WITH NEW CIRCUIT, SEE E2.0.
- ④ REMOVE EXISTING CONDUITS, CONDUCTORS AND PANEL "C". INSURE ALL LINE SIDE CIRCUITS HAVE BEEN RECONNECTED TO NEW PANEL "C".
- ⑤ REMOVE EXISTING CONDUITS, CONDUCTORS TO EXISTING PANEL FROM PANEL "2".
- ⑥ REMOVE EXISTING CONDUITS, CONDUCTORS TO EXISTING GENERATOR.



AGRICULTURAL CENTER AND FISH HATCHERY



JOHN E. POTTS LN

JOHN E. POTTS LN

AGRICULTURAL CENTER AND FISH HATCHERY

CHRISTIE LN

PAT GLASS BLVD

HARLEE RD

DETENTION CENTER







FLORIDA POWER AND LIGHT EXISTING DEMAND LOAD				
DATE	KWH USED	SERVICE DAYS	DEMAND KW	DEMAND AMPS
7/22/2014	28700	32	40	166.7
6/20/2014	27029	30	40	166.7
5/21/2014	27699	30	42	175.0
4/21/2014	24813	31	39	162.5
3/21/2014	22422	29	38	158.3
2/20/2014	20003	28	38	158.3
1/23/2014	26396	34	41	170.8
12/20/2013	24798	30	41	170.8
11/20/2013	23868	29	41	170.8
10/22/2013	25488	29	40	166.7
9/23/2013	29587	33	43	179.2
8/21/2013	26477	30	41	170.8

**ELECTRIC UTILITY DEMAND LOAD**

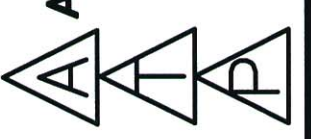
EXISTING ELECTRIC SERVICE RATING – 200 AMPS AT 240 VOLTS  
 MAXIMUM DEMAND AS PER UTILITY COMPANY METERING AND BILLING:  
 9/23/2013 – MAXIMUM DEMAND KW – 43kw  
 MAXIMUM DEMAND AMPS – 179.2A  
 AS PER NEC 220-87.

240V Single Phase Utility Fault Current	31939 AIC
<b>Point to Point Method Calculation</b>	
Length of Run	80 feet
Utility Fault Current	31939 AIC
# of Conductors/phase	1
Phase Conductor Constant	16483
Volt line to line (E (l-l))	240
f	2 x L x I
	1.291796
	N x C x E(l-l)
Volt line to Ground (E (l-n))	120
f	2 x L x I
	2.583591
	N x C x E(l-n)
Multiplier (M - E(l-l)) = 1/(1+f)	0.436339
(M - E(l-n)) = 1/(1+f)	0.27905
Short Circuit Line = I x M (E (l-l))	13936 AIC
Short Circuit Ground= I x M (E (l-n))	8913 AIC
<b>Service Entrance to Main Panel</b>	
Length of Run	5 feet
Service Entrance Fault Current	13936 AIC
# of Conductors/phase	1
Phase Conductor Constant	16483
Volt line to line (E (l-l))	240
f	2 x L x I
	0.035228
	N x C x E(l-l)
Volt line to Ground (E (l-n))	120
f	2 x L x I
	0.045062
	N x C x E(l-n)
Multiplier (M - E(l-l)) = 1/(1+f)	0.965971
(M - E(l-n)) = 1/(1+f)	0.956881
Short Circuit Line = I x M (E (l-l))	13462 AIC
Short Circuit Ground= I x M (E (l-n))	8529 AIC
<b>Main Panel to a Distribution Panel</b>	
Length of Run	50 feet
Service Entrance Fault Current	13462 AIC
# of Conductors/phase	1
Phase Conductor Constant	7293
Volt line to line (E (l-l))	240
f	2 x L x I
	0.769117
	N x C x E(l-l)
Volt line to Ground (E (l-n))	120
f	2 x L x I
	0.974565
	N x C x E(l-n)
Multiplier (M - E(l-l)) = 1/(1+f)	0.565254
(M - E(l-n)) = 1/(1+f)	0.506441
Short Circuit Line = I x M (E (l-l))	7609 AIC
Short Circuit Ground= I x M (E (l-n))	4319 AIC

**FAULT CURRENT CALCULATIONS**



ATP ENGINEERING SOUTH, P.C.  
 BRADENTON, FLORIDA  
 ENGR. BUSINESS #6908  
 941-751-6485



REV#	DESCRIPTION	DATE

MANATEE COUNTY DETENTION CENTER  
 AGRICULTURAL CENTER AND FISH HATCHERY  
 ELECTRICAL IMPROVEMENTS  
 14470 HARLEE RD.  
 PALMETTO, FLORIDA 34221  
 WORK ASSIGNMENT #32

DRAWING TITLE:  
**EXISTING LOAD  
 CALCULATIONS AND  
 FAULT CURRENT  
 CALCULATIONS**

FILE: M.C. Jail Agricultural Center  
 JOB NO.: 2014.26  
 DATE: 7/14/2014  
 PLOT SIZE: 1:1  
 DRAWN BY: CMD/MC  
 CHECKED BY: JDC  
 SHEET No.:  
**E5.1**



**GENERAL NOTES:**

(APPLY TO ALL ELECTRICAL SHEETS)

- 1. PROVIDE COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM.
2. ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE CURRENT ANSI/NFPA 70 WITH STATE OF FLORIDA AMENDMENTS, ANSI/IEEE C2 AND ALL FEDERAL, STATE, LOCAL, AND MUNICIPAL CODES AND ORDINANCES. THE ELECTRICAL SUBCONTRACTOR SHALL COMPLY WITH THE DIRECTIONS OF ALL AUTHORITIES HAVING JURISDICTION.
3. INSTALL WORK USING PROCEDURES DEFINED IN NECA STANDARDS OF INSTALLATION. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
4. REFER TO THE ARCHITECTURAL DRAWINGS FOR CEILING AND MILLWORK WORK BY THE SEPARATE GENERAL CONTRACT. COORDINATE ALL ELECTRICAL WORK.
5. THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE ALL FLOOR, WALL, AND CEILING PENETRATIONS TO COMPLETE HIS WORK. PROVIDE PROPER FIRE SAFING FOR ALL PENETRATIONS MADE.
6. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES TO ENSURE EFFECTIVE AND EFFICIENT OVERALL INSTALLATION.
7. COORDINATE ALL ELECTRICAL SYSTEM DOWNTIME WITH THE OWNER, PERFORMANCE SERVICES, AND OTHER TRADES. DOWNTIME OF THE SYSTEM SHALL BE MINIMIZED. WEEKEND AND AFTER HOUR WORK SHALL BE REQUIRED TO PREVENT OR MINIMIZE INTERFERENCE WITH THE OWNER'S OPERATION.
8. THE LOCATIONS OF NEW RECEPTACLES, PHONE/DATA JACKS, AND ROOM EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED DURING THE CONSTRUCTION PHASE.
9. ALL EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING.
10. PHYSICAL SIZES AND LOCATIONS OF ALL MECHANICAL EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. COORDINATE ELECTRICAL WORK FOR THIS EQUIPMENT WITH THE OTHER TRADES.
11. PROVIDE APPROPRIATE SEALANT (I.E. FIRESAFING) TO MAINTAIN CONSTRUCTION INTEGRITY FOR ANY PENETRATIONS THROUGH FLOORS, STRUCTURAL CEILINGS, AND FIRE WALLS.
12. ALL BRANCH CIRCUITS SHALL UTILIZE SEPARATE INDEPENDENT NEUTRAL CONDUCTOR, AND INSULATED GROUNDING CONDUCTOR. DO NOT COMBINE NEUTRAL CONDUCTORS.
13. ALL FEEDER NEUTRAL/GROUNDED CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. DERATE MULTIPLE CONDUCTORS IN A RACEWAY ACCORDINGLY WITH NEC TABLES.
14. INSTALL ALL CONDUITS, RACEWAYS, AND CABLE TRAY FOR MAXIMUM HEAD CLEARANCE IN MECHANICAL AREAS, AND ATTIC. COORDINATE CLEARANCES WITH PERFORMANCE SERVICES AND THE OWNER.
15. ALL ELECTRICAL SERVICE WORK SHALL COMPLY WITH THE LOCAL UTILITY. COORDINATE ALL REQUIREMENTS AND MAXIMUM AVAILABLE FAULT CURRENT PRIOR TO BID AND INCLUDE ALL NECESSARY MATERIAL AND LABOR REQUIRED FOR THE ADDITION TO THE ELECTRICAL SERVICE. ADD UTILITY FEES TEXT.
16. CONTRACTOR SHALL DEMOLISH ANY REMAINING EXISTING ELECTRICAL EQUIPMENT, DEVICES, CONDUIT, FIXTURES, WIRE, UTILITY TRANSFORMER, ETC. COMPLETE. FIELD VERIFY EXACT REQUIREMENTS PRIOR TO BID. ALL REMOVED EQUIPMENT/FIXTURES SHALL BE TURNED OVER TO THE OWNER.
17. CAP AND FIRE STOP ALL EXISTING UNUSED CONDUITS AND CONDUIT PENETRATIONS THROUGH THE FLOOR AND TO THE FLOOR ABOVE.
18. IF A NEW CONDUIT IS REQUIRED FOR A RECEPTACLE, THERMOSTAT, OR WALL SWITCH, THE ELECTRICAL CONTRACTOR SHALL PATCH THE DRYWALL.
19. TEST GROUNDING SYSTEM AFTER COMPLETION OF JOB TO INSURE PROPER GROUND CONDUCTIVITY.
20. RECORD DRAWINGS: PROVIDE AMPERE READINGS ON ALL PANELBOARDS THAT ARE TOUCHED TO PROVE PANELS ARE BALANCED. PROVIDE PHASE ROTATION READINGS ON ALL SYSTEMS THAT ARE TOUCHED.

**SURGE PROTECTION DEVICE (TVSS OR SPD):**

PROVIDE AND INSTALL AT ALL SWITCHBOARD, DISTRIBUTION PANELBOARDS AND PANELBOARD LOCATION'S, TRANSIENT VOLTAGE SURGE SUPPRESSER'S (TVSS), FOR EACH SHOWN WITH THE FOLLOWING REQUIREMENTS: RATED AND TESTED FOR CATEGORY B & C3 (8 BY 20 MICROSECOND WAVE FORM) AS DEFINED BY ANSI/IEEE C62.41 AND C62.45. WITH SYSTEM VOLTAGE RATING: 120/240 (VERIFY VOLTAGES) 1 PHASE, 3 WIRE GROUNDED, 60HZ; PROTECTION MODES: EACH LINE TO NEUTRAL, EACH LINE TO GROUND, NEUTRAL TO GROUND,

MAXIMUM SURGE CURRENT CAPACITY (8 X 20 MICROSECONDS) FOR MULTIPLE OCCURRENCES: MINIMUM CAPACITY ALLOWED IS 160,000 AMPS PER PHASE FOR BRANCH PANELBOARDS AND 240,000 AMPS FOR SWITCHBOARDS AND DISTRIBUTION PANELBOARDS. UL-1449 VOLTAGE SUPPRESSION RATING: L-N, 400, L-G = 400 AND N-G = 400 FOR 120/240 VOLT SYSTEMS.

PROVIDE WITH INTEGRAL SURGE RATED FUSE THERMAL CUTOFF DEVICE; MODULE STATUS INDICATOR LIGHTS, UNIT STATUS INDICATOR LIGHTS, AUDIBLE ALARM AND SILENCE SWITCH, AND TRANSIENT COUNTER, AND SHALL BE UL 1283 LISTED, AND COMPLY WITH UL 1449 2ND EDITION. ACCEPTABLE MANUFACTURES: GE TRANQUELL LEA, JOSLYN, INNOVATIVE TECHNOLOGY, AND SQUARE D SURGEOLOGIC. INTEGRATED OR EXTERNAL MOUNTED.

**SPECIFICATIONS:**

(APPLY TO ALL ELECTRICAL SHEETS)

- 1. PROVIDE AND INSTALL NEW GREEN INSULATED COPPER GROUNDING CONDUCTORS AS THE EQUIPMENT GROUNDING MEANS FOR ALL ELECTRICAL DEVICES AND EQUIPMENT.
2. ALL PANELBOARDS AND SWITCHBOARDS SHALL HAVE COPPER BUS, COPPER GROUND BAR, AND RATINGS AS SPECIFIED. REFERENCE STANDARDS SHALL BE GENERAL ELECTRIC "A" SERIES "PRO-STOCK" BRANCH PANELS AND SPECTRA SERIES DISTRIBUTION PANELS WITH BOLT IN TYPE CIRCUIT BREAKERS.
3. ALL CIRCUIT BREAKERS SHALL BE COORDINATED BY THE FACTORY/MANUFACTURER AND ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.
4. PROVIDE LABELING FOR ALL PANELBOARDS, SWITCHBOARDS, AND DISCONNECT SWITCHES TO INCLUDE AN ENGRAVED PLASTIC LABEL IDENTIFYING THE EQUIPMENT AND WHERE IT IS FED FROM.
4.1. ALL BRANCH DEVICES IN THE MAIN SWITCHBOARD SHALL HAVE AN ENGRAVED PLASTIC LABEL.
4.2. ALL PANELBOARDS SHALL INCLUDE A TYPEWRITTEN DIRECTORY. ALL RECEPTACLES SHALL HAVE CIRCUIT NUMBERS WRITTEN ON THE INSIDE OF THE COVERPLATE.
4.3. PROVIDE (1) 3/4" SPARE CONDUIT FOR EACH 3 SPACES OR SPARES IN EACH FLUSH MOUNTED PANEL FROM PANEL TO ABOVE ACCESSIBLE CEILING FOR FUTURE USE.
4.4. ALL RECEPTACLES SHALL HAVE CIRCUIT NUMBERS WRITTEN ON THE INSIDE OF THE COVERPLATE.
4.5. ALL JUNCTION BOX COVERS SHALL BE IDENTIFIED TO INDICATE CIRCUITS CONTAINED.
4.6. WHERE MULTIPLE SWITCHES ARE GANGED TOGETHER THE SWITCHES SHALL BE IDENTIFIED.
4.7. ALL JUNCTION BOXES ON EMERGENCY POWER SHALL BE RED IN COLOR.
4.8. ALL DISCONNECTS SHALL HAVE CIRCUIT NUMBER, VOLTAGE, AMPERAGE, AND PHASE IDENTIFIED ON AN IDENTIFICATION LABEL.
5. ALL CONDUIT INSIDE THE BUILDING SHALL BE A ELECTRICAL METALLIC TUBING (EMT) AND SHALL BE A MINIMUM 1/2" UNLESS OTHERWISE NOTED. ALL CONDUIT INSTALLED UNDERGROUND SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE NOTED. ALL CONDUIT INSTALLED ABOVE GRADE OUTSIDE THE BUILDING SHALL BE GALVANIZED RIGID STEEL. NO PVC CONDUIT SHALL BE USED ABOVE THE FLOOR SLAB.
6. ALL ELECTRICAL CONNECTORS, LUGS, BREAKERS, EQUIPMENT, ETC. SHALL BE RATED AT A MINIMUM OF 75 DEG. C.
7. WIRING METHODS:
ALL WIRING SHALL BE COPPER. NO ALUMINUM WIRING WILL BE ALLOWED.
MC TYPE CABLE SHALL NOT BE USED.
8. SWITCHES SHALL BE 20 AMPERE RATED, 120/277 VOLT, LEVITON 1221-21 SERIES OR APPROVED EQUIVALENT, UNLESS OTHERWISE NOTED.
8.1 SWITCHES CONTROLLING LIGHTING SHALL HAVE NEUTRAL CONDUCTOR.
9. RECEPTACLES SHALL BE 20A, 120V GROUNDING TYPE LIKE LEVITON T5820 SERIES, UNLESS OTHERWISE NOTED.
9.1 WHITE IN COLOR
9.2 PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER (GFI) TYPE RECEPTACLE IF SHOWN OR AS REQUIRED BY NEC.
10. ALL COVERPLATES FOR INTERIOR WIRING DEVICES SHALL BE INDUSTRIAL GRADE TYPE STAINLESS STEEL. COLOR SHALL BE SELECTED BY OWNER. EMERGENCY POWER CIRCUITS SHALL BE INDICATED BY A NYLON COVER PLATE, COLOR SHALL BE RED.
11. ALL EXTERIOR RECEPTACLES SHALL BE GFCI (GFI) TYPE AND HAVE IN-USE TYPE WEATHERPROOF COVERPLATES.
12. ALL ACCESSORIES THAT REQUIRE ELECTRICAL CONNECTIONS SHALL BE NOTED BY THE CONTRACTOR PRIOR TO BID THAT CIRCUITS AND A TRANSFORMER MAY BE REQUIRED.
13. THE ACCESSORIES SHALL BE POWERED OUT OF THE INSTALLED PANEL IN THE GENERATOR ENCLOSURE.
14. ALL CONDUITS, BREAKERS, PANELS, AND PULLBOXES SHALL BE LABELED.
15. ALL UNDERGROUND CONDUIT SHALL HAVE A DIG STRIP INSTALLED ABOVE IT'S LOCATION.
16. PAINT ALL EQUIPMENT COLORS IN ACCORDANCE WITH OWNER'S STANDARDS AND SELECTION.
17. WARRANTY: AT A MINIMUM ALL PARTS, LABOR, AND TRAVEL SHALL HAVE A WARRANTY OF AT LEAST 3 YEARS.

**AUTOMATIC TRANSFER SWITCH SPECIFICATIONS:**

1.01 SCOPE

A. FURNISH AND INSTALL AUTOMATIC TRANSFER SWITCHES (ATS) WITH NUMBER OF POLES, AMPERAGE, VOLTAGE, AND WITHSTAND CURRENT RATINGS AS SHOWN ON THE PLANS. EACH AUTOMATIC TRANSFER SHALL CONSIST OF AN INHERENTLY DOUBLE THROW POWER TRANSFER SWITCH UNIT AND A MICROPROCESSOR CONTROLLER, INTERCONNECTED TO PROVIDE COMPLETE AUTOMATIC OPERATION.

B. FURNISH AN ENCLOSURE FOR THE ATS THAT IS FOR SERVICE ENTRY. IT SHALL PROVIDE ALL OF THE PROPER DISCONNECTING, PROTECTION, GROUNDING AND BONDING REQUIRED FOR SERVICE ENTRANCE EQUIPMENT. BREAKERS ON BOTH THE INCOMING SERVICES AT THE ATS.

1.02 ACCEPTABLE MANUFACTURERS

SERVICE ENTRANCE AUTOMATIC TRANSFER SWITCHES SHALL BE ASCO SERIES 300SE OR EQUIVALENT SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH. ANY ALTERNATE SHALL BE SUBMITTED TO THE ENGINEER IN WRITING AT LEAST 10 DAYS PRIOR TO BID. EACH ALTERNATE BID MUST LIST ANY DEVIATIONS FROM THIS SPECIFICATION.

1.03 CODES AND STANDARDS

THE AUTOMATIC TRANSFER SWITCHES AND ACCESSORIES SHALL CONFORM TO THE REQUIREMENTS OF:

- A. UL 1008 - STANDARD FOR AUTOMATIC TRANSFER SWITCHES
B. NFPA 70 - NATIONAL ELECTRICAL CODE
C. NFPA 110 - EMERGENCY AND STANDBY POWER SYSTEMS
D. IEEE STANDARD 446 - IEEE RECOMMENDED PRACTICE FOR EMERGENCY AND STANDBY POWER SYSTEMS FOR COMMERCIAL AND INDUSTRIAL APPLICATIONS
E. NEMA STANDARD ICS10-1993 (FORMERLY ICS2-447) - AC AUTOMATIC TRANSFER SWITCHES
F. NEC ARTICLES 700, 701, 702
G. INTERNATIONAL STANDARDS ORGANIZATION ISO 9001
H. UL 891 ACCORDING TO THIS UL STANDARD THE EQUIPMENT SHALL BE LABELED: "SUITABLE FOR USE ONLY AS SERVICE EQUIPMENT."
I. UL 508 INDUSTRIAL CONTROL EQUIPMENT

PART 2 PRODUCTS

2.01 MECHANICALLY HELD TRANSFER SWITCH

A. THE TRANSFER SWITCH UNIT SHALL BE ELECTRICALLY OPERATED AND MECHANICALLY HELD. THE ELECTRICAL OPERATOR SHALL BE A SINGLE-SOLENOID MECHANISM, MOMENTARILY ENERGIZED. MAIN OPERATORS WHICH INCLUDE OVERCURRENT DISCONNECT DEVICES WILL NOT BE ACCEPTED. THE SWITCH SHALL BE MECHANICALLY INTERLOCKED TO ENSURE ONLY ONE OF TWO POSSIBLE POSITIONS, NORMAL OR EMERGENCY.

B. THE SWITCH SHALL BE POSITIVELY LOCKED AND UNAFFECTED BY MOMENTARY OUTAGES SO THAT CONTACT PRESSURE IS MAINTAINED AT A CONSTANT VALUE AND TEMPERATURE RISE AT THE CONTACTS IS MINIMIZED FOR MAXIMUM RELIABILITY AND OPERATING LIFE.

C. ALL MAIN CONTACTS SHALL BE SILVER COMPOSITION. SWITCHES RATED 600 AMPERES AND ABOVE SHALL HAVE SEGMENTED, BLOW-ON CONSTRUCTION FOR HIGH WITHSTAND CURRENT CAPABILITY AND BE PROTECTED BY SEPARATE ARCING CONTACTS.

D. INSPECTION OF ALL CONTACTS SHALL BE POSSIBLE FROM THE FRONT OF THE SWITCH WITHOUT DISASSEMBLY OF OPERATING LINKAGES AND WITHOUT DISCONNECTION OF POWER CONDUCTORS. A MANUAL OPERATING HANDLE SHALL BE PROVIDED FOR MAINTENANCE PURPOSES. THE HANDLE SHALL PERMIT THE OPERATOR TO MANUALLY STOP THE CONTACTS AT ANY POINT THROUGHOUT THEIR ENTIRE TRAVEL TO INSPECT AND SERVICE THE CONTACTS WHEN REQUIRED.

E. DESIGNS UTILIZING COMPONENTS OF MOLDED-CASE CIRCUIT BREAKERS, CONTACTORS, OR PARTS THEREOF WHICH ARE NOT INTENDED FOR CONTINUOUS DUTY, REPETITIVE SWITCHING OR TRANSFER BETWEEN TWO ACTIVE POWER SOURCES ARE NOT ACCEPTABLE.

F. WHERE NEUTRAL CONDUCTORS MUST BE SWITCHED, THE ATS SHALL BE PROVIDED WITH FULLY-RATED NEUTRAL TRANSFER CONTACTS. REFER TO GENERATOR MANUFACTURER'S REQUIREMENTS.

G. WHERE NEUTRAL CONDUCTORS ARE TO BE SOLIDLY CONNECTED, A NEUTRAL TERMINAL PLATE WITH FULLY-RATED AL-CU PRESSURE CONNECTORS SHALL BE PROVIDED.

2.02 MICROPROCESSOR CONTROLLER WITH MEMBRANE INTERFACE PANEL

A. THE CONTROLLER SHALL DIRECT THE OPERATION OF THE TRANSFER SWITCH. THE CONTROLLER'S SENSING AND LOGIC SHALL BE CONTROLLED BY A BUILT-IN MICROPROCESSOR FOR MAXIMUM RELIABILITY, MINIMUM MAINTENANCE, AND INHERENT SERIAL COMMUNICATIONS CAPABILITY. THE CONTROLLER SHALL BE CONNECTED TO THE TRANSFER SWITCH BY AN INTERCONNECTING WIRING HARNESS. THE HARNESS SHALL INCLUDE A KEYPAD DISCONNECT PLUG TO ENABLE THE CONTROLLER TO BE DISCONNECTED FROM THE TRANSFER SWITCH FOR ROUTINE MAINTENANCE.

B. THE CONTROLLER SHALL BE ENCLOSED WITH A PROTECTIVE COVER AND BE MOUNTED SEPARATE FROM THE TRANSFER SWITCH UNIT FOR SAFETY AND EASE OF MAINTENANCE. SENSING AND CONTROL LOGIC SHALL BE PROVIDED ON PRINTED CIRCUIT BOARDS. INTERFACING RELAYS SHALL BE INDUSTRIAL GRADE PLUG-IN TYPE WITH DUST COVERS.

C. THE CONTROLLER SHALL MEET OR EXCEED THE REQUIREMENTS FOR ELECTROMAGNETIC COMPATIBILITY (EMC) AS FOLLOWS:

- 1. ANSI C37.90A/IEEE 472 VOLTAGE SURGE TEST
2. NEMA ICS - 109.21 IMPULSE WITHSTAND TEST
3. IEC801-2 ELECTROSTATIC DISCHARGE (ESD) IMMUNITY
4. ENV50140 AND IEC 801 - 3 RADIATED ELECTROMAGNETIC FIELD IMMUNITY
5. IEC 801 - 4 ELECTRICAL FAST TRANSIENT (EFT) IMMUNITY
6. ENV50142 SURGE TRANSIENT IMMUNITY
7. ENV50141: CONDUCTED RADIO-FREQUENCY FIELD IMMUNITY
8. EN55011: GROUP 1, CLASS A CONDUCTED AND RADIATED EMISSIONS
9. EN61000 - 4 - 11 VOLTAGE DIPS AND INTERRUPTIONS IMMUNITY

2.03 ENCLOSURE

- A. THE ATS SHALL BE FURNISHED IN A NEMA TYPE 3R ENCLOSURE UNLESS OTHERWISE SHOWN ON THE PLANS.
B. PROVIDE STRIP HEATER WITH THERMOSTAT FOR TYPE 3R ENCLOSURE REQUIREMENTS.
C. CONTROLLER SHALL BE FLUSH-MOUNTED DISPLAY WITH LED INDICATORS FOR SWITCH POSITION AND SOURCE AVAILABILITY. IT SHALL ALSO INCLUDE TEST AND TIME DELAY BYPASS SWITCHES.
D. THE COMPLETE ASSEMBLY SHALL BE DEGREASED, AND THOROUGHLY CLEANED THROUGH A FIVE-STAGE AQUEOUS PROCESS. THE FINISH SHALL BE ANSI-61, LIGHT GRAY, ELECTROSTATICALLY-CHARGED POLYESTER POWDER PAINT OVER A PHOSPHATE COATING, AT A MINIMUM OF 2.0 MILS IN DENSITY. FINISH SHALL BE SUITABLE FOR INDOOR AND OUTDOOR ENVIRONMENTS.
E. FOR THOSE AUTOMATIC TRANSFER SWITCHES THAT ARE LESS THAN 1000 AMPERES, THE CONNECTION BETWEEN THE NORMAL DISCONNECTING DEVICE AND THE ATS SHALL BE MADE WITH THE APPROPRIATE SIZE CABLE. FOR THOSE AUTOMATIC TRANSFER SWITCHES THAT ARE GREATER THAN 1000 AMPERES, THE CONNECTION BETWEEN THE NORMAL DISCONNECTING DEVICE AND THE ATS SHALL BE MADE WITH THE APPROPRIATE SIZE BUS. BUS SHALL BE SILVER PLATED COPPER RATED NO LESS THAN 1000 AMPS PER SQUARE INCH.
F. A PRESSURE DISCONNECT LINK SHALL BE PROVIDED TO DISCONNECT THE NORMAL SOURCE NEUTRAL CONNECTION FROM THE EMERGENCY AND LOAD NEUTRAL CONNECTIONS FOR 4-WIRE APPLICATIONS. A GROUND BUS SHALL BE PROVIDED FOR CONNECTION OF THE GROUNDING CONDUCTOR TO THE GROUNDING ELECTRODE. A PRESSURE DISCONNECT LINK FOR THE NEUTRAL TO GROUND BONDING JUMPER SHALL BE PROVIDED TO CONNECT THE NORMAL NEUTRAL CONNECTION TO THE GROUND BUS.
G. CONTROL WIRING SHALL BE RATED FOR 600 VOLT, UL 1015. WIRES SHALL BE PLACED IN WIRE DUCT OR HARNESS, AND SHALL BE SUPPORTED TO PREVENT SAGGING OR BREAKAGE FROM WEIGHT OR VIBRATION. ALL WIRING TO HINGED DOORS SHALL BE RUN THROUGH DOOR TERMINAL BLOCKS OR CONNECTION PLUGS.

2.04 DISCONNECTING AND OVERCURRENT PROTECTION DEVICE

A. FOR THOSE AUTOMATIC TRANSFER SWITCHES GREATER THAN 100 AMPERES, THE NORMAL CONNECTION SHALL BE PROVIDED WITH AN INSULATED CASE BREAKER WITH TRIP PROTECTION WITH CURRENT RATINGS AS SHOWN ON THE PLANS. TWO BREAKER SHALL BE INSTALLED IN THE ATS ON THE UTILITY SOURCE SIDE AND THE GENERATOR SOURCE SIDE.

PART 3 OPERATION

3.01 VOLTAGE AND FREQUENCY SENSING

A. THE VOLTAGE OF EACH PHASE OF THE NORMAL SOURCE SHALL BE MONITORED, WITH PICKUP ADJUSTABLE TO 95% OF NOMINAL AND DROPOUT ADJUSTABLE FROM 70% TO 90% OF PICKUP SETTING.

B. SINGLE-PHASE VOLTAGE AND FREQUENCY SENSING OF THE EMERGENCY SOURCE SHALL BE PROVIDED.

3.02 TIME DELAYS

A. AN ADJUSTABLE TIME DELAY SHALL BE PROVIDED TO OVERRIDE MOMENTARY NORMAL SOURCE OUTAGES AND DELAY ALL TRANSFER AND ENGINE STARTING SIGNALS.

B. AN ADJUSTABLE TIME DELAY SHALL BE PROVIDED ON TRANSFER TO EMERGENCY, ADJUSTABLE FROM 0 TO 5 MINUTES FOR CONTROLLED TIMING OF TRANSFER OF LOADS TO EMERGENCY.

C. AN ADJUSTABLE TIME DELAY SHALL BE PROVIDED ON RETRANSFER TO NORMAL, ADJUSTABLE TO 30 MINUTES. TIME DELAY SHALL BE AUTOMATICALLY BYPASSED IF EMERGENCY SOURCE FAILS AND NORMAL SOURCE IS ACCEPTABLE.

D. A 5-MINUTE COOLDOWN TIME DELAY SHALL BE PROVIDED ON SHUTDOWN OF ENGINE GENERATOR.

E. ALL ADJUSTABLE TIME DELAYS SHALL BE FIELD ADJUSTABLE WITHOUT THE USE OF TOOLS.

3.03 ADDITIONAL FEATURES

A. A SET OF GOLD-FLASHED CONTACTS RATED 10 AMPS, 32 VDC SHALL BE PROVIDED FOR A LOW-VOLTAGE ENGINE START SIGNAL. THE START SIGNAL SHALL PREVENT DRY CRANKING OF THE ENGINE BY REQUIRING THE GENERATOR SET TO REACH PROPER OUTPUT, AND RUN FOR THE DURATION OF THE COOL DOWN SETTING, REGARDLESS OF WHETHER THE NORMAL SOURCE RESTORES BEFORE THE LOAD IS TRANSFERRED.

B. A PUSH-BUTTON TYPE TEST SWITCH SHALL BE PROVIDED TO SIMULATE A NORMAL SOURCE FAILURE.

C. A PUSH-BUTTON TYPE SWITCH TO BYPASS THE TIME DELAY ON TRANSFER TO EMERGENCY, THE ENGINE EXERCISER PERIOD ON THE RETRANSFER TO NORMAL TIME DELAY WHICHEVER DELAY IS ACTIVE AT THE TIME THE PUSH-BUTTON IS ACTIVATED.

D. AUXILIARY CONTACTS, RATED 10 AMPS, 250 VAC SHALL BE PROVIDED CONSISTING OF ONE CONTACT, CLOSED WHEN THE ATS IS CONNECTED TO THE NORMAL SOURCE AND ONE CONTACT, CLOSED, WHEN THE ATS IS CONNECTED TO THE EMERGENCY SOURCE.

E. INDICATING LIGHTS SHALL BE PROVIDED, ONE TO INDICATE WHEN THE ATS IS CONNECTED TO THE NORMAL SOURCE (GREEN) AND ONE TO INDICATE WHEN THE ATS IS CONNECTED TO THE EMERGENCY SOURCE (RED). ALSO PROVIDE INDICATING LIGHTS FOR BOTH NORMAL AND EMERGENCY SOURCE AVAILABILITY.

F. TERMINALS SHALL BE PROVIDED TO INDICATE ACTUAL AVAILABILITY OF THE NORMAL AND EMERGENCY SOURCES, AS DETERMINED BY THE VOLTAGE SENSING PICKUP AND DROPOUT SETTINGS FOR EACH SOURCE.

G. ENGINE EXERCISER - AN ENGINE GENERATOR EXERCISING TIMER SHALL BE PROVIDED, INCLUDING A SELECTOR SWITCH TO SELECT EXERCISE WITH OR WITHOUT LOAD TRANSFER.

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MANATEE COUNTY DETENTION CENTER AGRICULTURAL CENTER AND FISH HATCHERY ELECTRICAL IMPROVEMENTS 14470 HARLEE RD. PALMETTO, FLORIDA 34221 WORK ASSIGNMENT #32

ELECTRICAL SPECIFICATIONS DRAWING TITLE: ELECTRICAL SPECIFICATIONS FILE: M.C. Jell Agricultural Center JOB NO.: 2014.26 DATE: 7/14/2014 PLOT SIZE: 1:1 DRAWN BY: CMD/MC CHECKED BY: JDC SHEET No.: E7.0



H. INPHASE MONITOR – AN INPHASE MONITOR SHALL BE INHERENTLY BUILT INTO THE CONTROLS. THE MONITOR SHALL CONTROL TRANSFER SO THAT MOTOR LOAD INRUSH CURRENTS DO NOT EXCEED NORMAL STARTING CURRENTS, AND SHALL NOT REQUIRE EXTERNAL CONTROL OF POWER SOURCES. THE INPHASE MONITOR SHALL BE SPECIFICALLY DESIGNED FOR AND BE THE PRODUCT OF THE ATS MANUFACTURER.

I. SELECTIVE LOAD DISCONNECT – A DOUBLE THROW CONTACT SHALL BE PROVIDED TO OPERATE AFTER A TIME DELAY, ADJUSTABLE TO 20 SECONDS PRIOR TO TRANSFER AND RESET 0 TO 20 SECONDS AFTER TRANSFER. THIS CONTACT CAN BE USED TO SELECTIVELY DISCONNECT SPECIFIC LOAD(S) WHEN THE TRANSFER SWITCH IS TRANSFERRED. OUTPUT CONTACTS SHALL BE RATED 6 AMPS AT 24 VDC OR 120 VAC.

**OPTIONAL ACCESSORIES (PROVIDE OWNER'S REP WITH THE FOLLOWING OPTIONS)**

A. COMMUNICATIONS INTERFACE – SERIAL MODULE (5110) TO ALLOW LOCAL OR REMOTE COMMUNICATIONS WITH ASCO POWERQUEST OR SITEWEB COMMUNICATION PRODUCTS. TO CONNECT SERIES 300 SERVICE ENTRANCE AUTOMATIC TRANSFER SWITCHES AND ASCO ATS ANNUNCIATORS TO THE SERIAL NETWORK VIA AN RS485 INTERFACE (ACCESSORY 72A).

B. PROGRAMMABLE ENGINE EXERCISER – A SEVEN OR FOURTEEN DAY PROGRAMMABLE ENGINE EXERCISER WITH DIGITAL READOUT DISPLAY. SHALL INCLUDE ONE FORM C CONTACT FOR AVAILABILITY OF NORMAL AND EMERGENCY. INCLUDE WITH OR WITHOUT LOAD CONTROL SWITCH FOR EXERCISER PERIOD. THE EXERCISER SHALL BE BACKED UP BY A PERMANENT BATTERY. (ACCESSORY 11BG).

C. ENCLOSURE HEATER – A 125 WATT ENCLOSURE HEATER WITH TRANSFORMER AND THERMOSTAT (ADJUSTABLE FROM 30 TO 140 F) (ACCESSORY 44 G).

D. MONITORING SYSTEM  
A PC BASED AUTOMATIC TRANSFER SWITCH (ATS) MONITORING SYSTEM DESIGNED TO COMMUNICATE WITH OTHER ATSS LOCATED IN REMOTE LOCATIONS SHALL BE PROVIDED. SYSTEM SHALL UTILIZE SERIAL COMMUNICATIONS CAPABILITY INHERENT WITH THE ATS MICROPROCESSOR-BASED CONTROL PANEL PRODUCT OFFERING. REFER TO SEPARATE SUGGESTED SPECIFICATION.

**PART 4 ADDITIONAL REQUIREMENTS**

**4.01 WITHSTAND AND CLOSING RATINGS**

A. THE ATS SHALL BE RATED TO CLOSE ON AND WITHSTAND THE AVAILABLE RMS SYMMETRICAL SHORT CIRCUIT CURRENT AT THE ATS TERMINALS WITH THE TYPE OF OVERCURRENT PROTECTION SHOWN ON THE PLANS. WCR ATS RATINGS AS BE AS FOLLOWS WHEN USED WITH SPECIFIC CIRCUIT BREAKERS:

ATS SIZE	WITHSTAND & CLOSING RATING	MCCBW/CLF
400	22,000A (OR GREATER)	100,000

**4.02 TESTS AND CERTIFICATION**

A. THE COMPLETE ATS SHALL BE FACTORY TESTED TO ENSURE PROPER OPERATION OF THE INDIVIDUAL COMPONENTS AND CORRECT OVERALL SEQUENCE OF OPERATION AND TO ENSURE THAT THE OPERATING TRANSFER TIME, VOLTAGE, FREQUENCY AND TIME DELAY SETTINGS ARE IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS.

B. UPON REQUEST, THE MANUFACTURER SHALL PROVIDE A NOTARIZED LETTER CERTIFYING COMPLIANCE WITH ALL OF THE REQUIREMENTS OF THIS SPECIFICATION INCLUDING COMPLIANCE WITH THE ABOVE CODES AND STANDARDS, AND WITHSTAND AND CLOSING RATINGS. THE CERTIFICATION SHALL IDENTIFY, BY SERIAL NUMBER(S), THE EQUIPMENT INVOLVED. NO EXCEPTIONS TO THE SPECIFICATIONS, OTHER THAN THOSE STIPULATED AT THE TIME OF THE SUBMITTAL, SHALL BE INCLUDED IN THE CERTIFICATION.

C. THE ATS MANUFACTURER SHALL BE CERTIFIED TO ISO 9001 INTERNATIONAL QUALITY STANDARD AND THE MANUFACTURER SHALL HAVE THIRD PARTY CERTIFICATION VERIFYING QUALITY ASSURANCE IN DESIGN/DEVELOPMENT, PRODUCTION, INSTALLATION AND SERVICING IN ACCORDANCE WITH ISO 9001.

**4.03 SERVICE REPRESENTATION**

A. THE ATS MANUFACTURER SHALL MAINTAIN A NATIONAL SERVICE ORGANIZATION OF COMPANY-EMPLOYED PERSONNEL LOCATED THROUGHOUT THE CONTIGUOUS UNITED STATES. THE SERVICE CENTER'S PERSONNEL MUST BE FACTORY TRAINED AND MUST BE ON CALL 24 HOURS A DAY, 365 DAYS A YEAR.

B. EMERGENCY RESPONSE TIME TO THE SITE MUST BE WITHIN 24 HOURS.

C. THE MANUFACTURER SHALL MAINTAIN RECORDS OF EACH SWITCH, BY SERIAL NUMBER, FOR A MINIMUM OF 20 YEARS.

D. FOR EASE OF MAINTENANCE AND PARTS REPLACEMENT, THE SWITCH NAMEPLATE SHALL INCLUDE DRAWING NUMBERS, PART NUMBERS FOR MAIN COIL AND CONTROL.

**UTILITY METERING SPECIFICATIONS:**

**1.01 SCOPE**

A. FURNISH AND INSTALL ALL REQUIRED EQUIPMENT FOR UTILITY METERING TO MEET ALL CURRENT UTILITY AND NEC STANDARDS.

B. PAY FOR ALL UTILITY CHANGE OUT/OUTAGE AND METER INSTALLATION FEES FOR THE FACILITY.

C. CHECK METER STANDARDS AND COORDINATE WORK WITH THE UTILITY COMPANY: FLORIDA POWER AND LIGHT, ASSOCIATE ENGINEER, MR. ANTHONY NOVAK, (941)-723-4424.

D. COORDINATE METER TYPE WITH UTILITY: 320A CAN METER OR 400A BOLT IN METER.

E. THE UTILITY MAY REQUIRE AN ELECTRICAL PULL FROM THE TRANSFORMER TO THE NEW PANEL. VERIFY ALL EXISTING CONDITIONS AT THE FACILITY PRIOR TO BIDDING AND START OF CONSTRUCTION.

**2.01 EQUIPMENT**

A. EQUIPMENT AND WORK MAY INCLUDE: A CT METERING BOX, METER CAN, METER, EXTRA CONDUITS, WIRING, TRENCHING, TERMINATING, LUGS, CURRENT TRANSFORMERS, AND TRANSFORMERS.

B. PROVIDE AND INSTALL ALL NECESSARY EQUIPMENT TO PROPERLY METER THE FACILITY.

**3.00 WARRANTY**

A. PROVIDE AN ALL INCLUSIVE 3 YEAR WARRANTY ON ALL WORK PERFORMED.



**ATA ENGINEERING SOUTH, FL**  
BRADENTON, FLORIDA  
ENGR. BUSINESS #8908  
941-751-6485

REV#	DESCRIPTION	DATE

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