

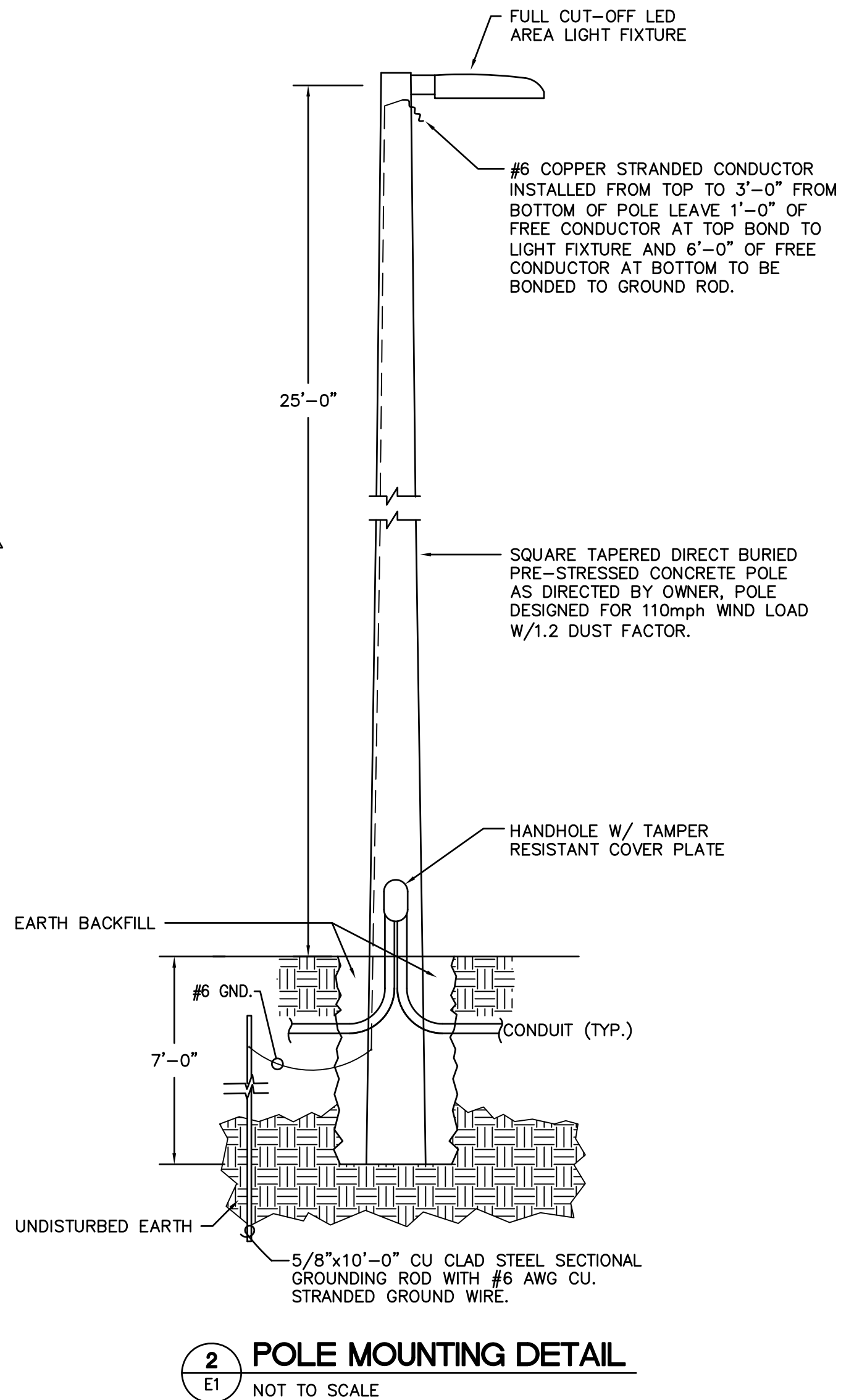
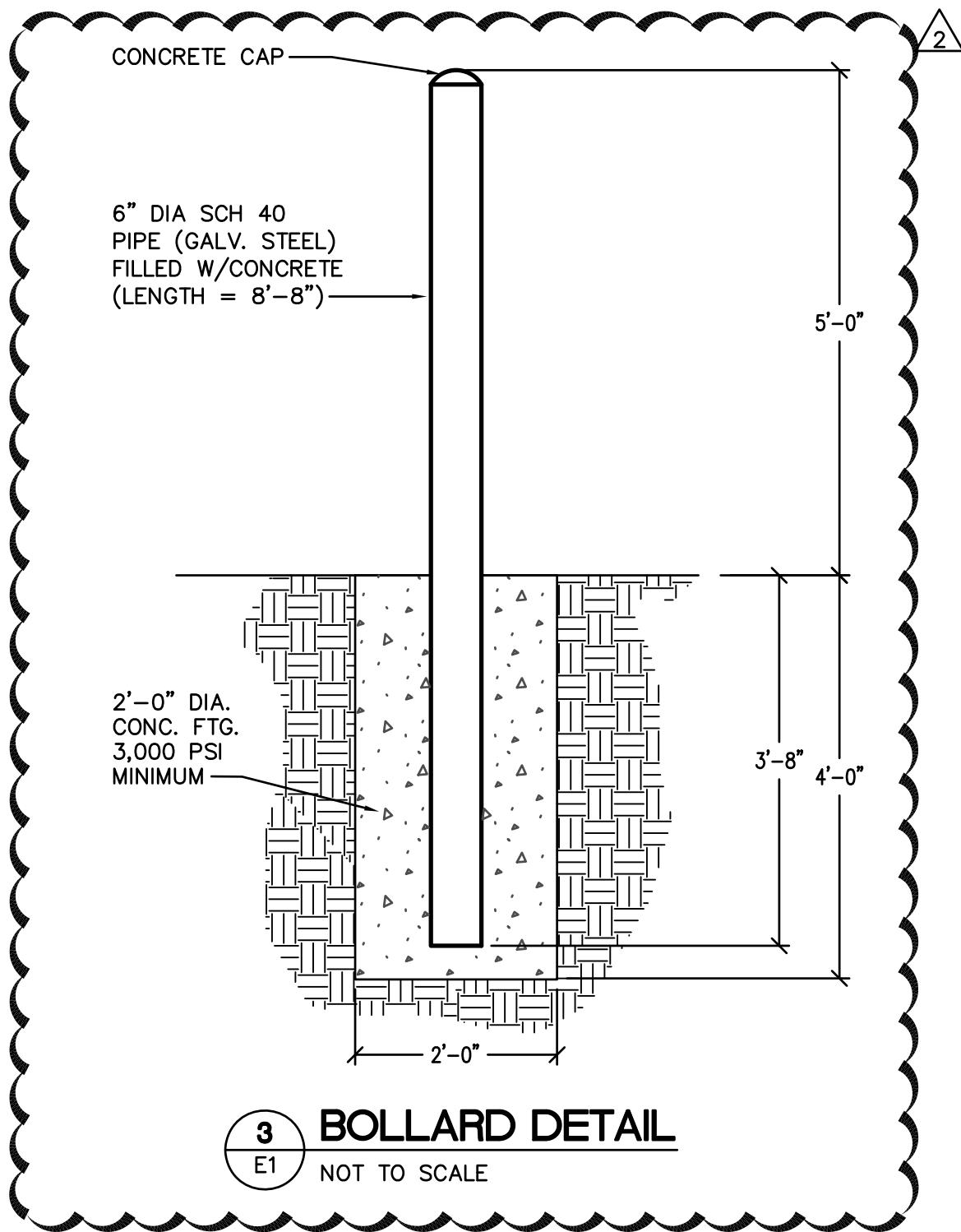
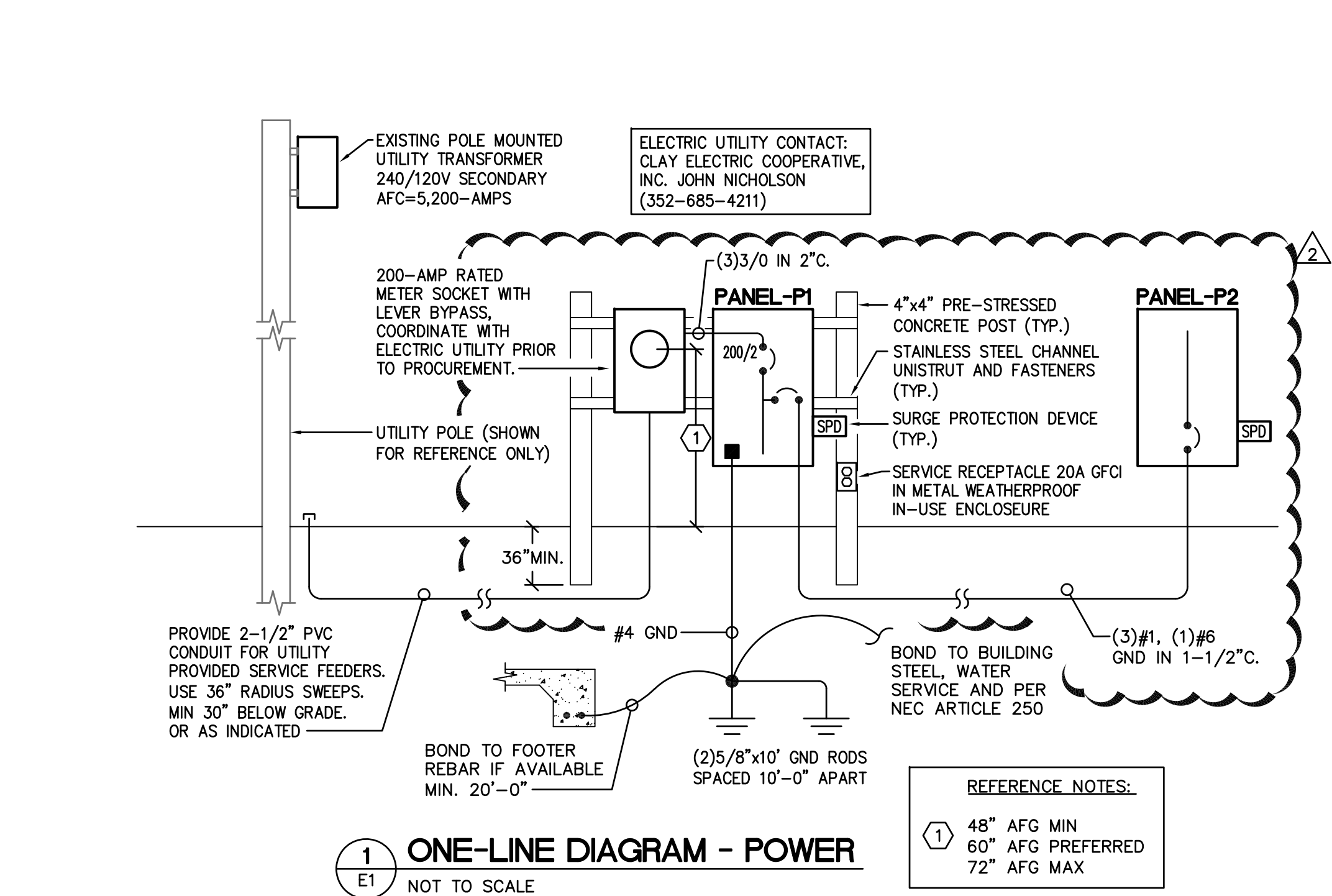
LIGHT FIXTURE SCHEDULE									
Mark	Lamp Data		Fixture Description	Fixture Data			Voltage	Notes	
	No.	Type		Manufacturer	Catalog Number	Mount			
S1	1	LED (102W)	POLE MOUNTED LED AREA LIGHT FIXTURE 25'-0" AFG WITH TYPE-4 DISTRIBUTION AND BIRD SPIKES	LITHONIA	DSX1-LED-P4-40K-T4M-MVOLT-SPA BS-DDBXD	POLE	120	1	
S2	1	LED (102W)	POLE MOUNTED LED AREA LIGHT FIXTURE 25'-0" AFG TYPE-4 DISTRIBUTION WITH HOUSE SIDE SHIELD AND BIRD SPIKES	LITHONIA	DSX1-LED-P4-40K-T4M-MVOLT-SPA HS-BS-DDBXD	POLE	120	1	
S3	1	LED (102W)	POLE MOUNTED LED AREA LIGHT FIXTURE 25'-0" AFG WITH TYPE-5 DISTRIBUTION AND BIRD SPIKES	LITHONIA	DSX1-LED-P4-40K-T5W-MVOLT-SPA BS-DDBXD	POLE	120	1	
LIGHTING FIXTURE GENERAL NOTES:									
A. PROJECT MUST BE BID AS SPECIFIED. ANY ALTERNATE TO THE BASE (AS SPECIFIED) BID MUST BE ACCOMPANIED BY A CREDIT TO THE OWNER WHICH WILL BE EVALUATED BY THE SPECIFIER.									
B. CONTRACTOR SHALL PROVIDE ALL REQUIRED FIXTURE MOUNTING HARDWARE.									
LIGHTING FIXTURE REFERENCE NOTE:									
1. UL LISTED, WET LOCATION RATED FIXTURE.									

DRAWING INDEX	
E1	LEGEND, SCHEDULES AND DETAILS - ELECTRICAL
E2	DEMOLITION/EXISTING SITE PLAN - ELECTRICAL
E3	RENOVATION/NEW SITE PLAN - ELECTRICAL
E4	SITE PLAN - LIGHTING PHOTOMETRICS
E5	SPECIFICATIONS - ELECTRICAL

PANEL DESIGNATION: P1				VOLTAGE: 240/120				MAIN: 200A MCB				AIC RATING: 10.0K				AMPS		BASIS OF DESIGN: SQUARE-D LOAD CTR.				
LOCATION: EAST SIDE OF BUTLER ST.				ENCLOSURE: NEMA-3R				WIRING: 1-PHASE, 3W				AFC AT PANEL 4.36K				AMPS						
FED FROM: UTILITY XFMR				MOUNTING: SURFACE				OPTIONS:				BUS RATING: 200				AMPS						
REF. NOTES	LOAD DESCRIPTION			KE LOAD	EQ LOAD	REC LOAD	LTG LOAD	CKT BKR	CKT No.	KVA PER PHASE A B		CKT No.	CKT BKR	LTG LOAD	REC LOAD	EQ LOAD	KE LOAD	LOAD DESCRIPTION		REF. NOTES		
	PANEL-P2 (BATHROOM BLDG)				9.20			100/2	1	9.38		2	20/1		0.18			SERVICE RECEPTACLE				
	-----				9.20				3	-----		4	20/1					SPARE				
	SPARE							20/1	5	0.00		6	20/1					SPARE				
	LIGHTING - BOAT RAMP						0.31	20/1	7	-----		8						SPACE				
	SPACE								9	0.00		10						SPACE				
	SPACE								11	-----		12						SPACE				
	SPACE								13	0.00		14						SPACE				
	SPACE								15	-----		16						SPACE				
	SPACE								17	0.00		18	30/2					SURGE PROTECTION DEVICE				
	SPACE								19	-----		20	--					-----				
SUB TOTAL DEMAND KVA						sf	VA/sf	SUB TOTALS, CONN KVA PER PHASE														
LTG	Actual x 125%	0.39	220.3(A)			2	0	PHASE-A 9.38												L-L VOLTAGE		240.00
REC	NEC 220.13	0.18						PHASE-B 9.51												TOTAL CONN. KVA		18.89
KE	NEC 220.20	0.00	QTY. OF KE	0													TOTAL DEMAND KVA		18.97			
EQ	100%	18.40													DEMAND AMPS		79.03					

PANEL DESIGNATION: P2				VOLTAGE: 240/120				MAIN: 100A MCB				AIC RATING: 10.0K AMPS				BASIS OF DESIGN: SQUARE-D LOAD CTR.					
LOCATION: EXTERIOR OF BATHROOM				ENCLOSURE: NEMA-3R				WIRING: 1-PHASE, 3W				AFC AT PANEL 1.95K AMPS									
FED FROM: UTILITY XFMR				MOUNTING: SURFACE				OPTIONS:				BUS RATING: 125 AMPS									
REF. NOTES	LOAD DESCRIPTION			KE LOAD	EQ LOAD	REC LOAD	LTG LOAD	CKT BKR	CKT No.	KVA PER PHASE A B		CKT No.	CKT BKR	LTG LOAD	REC LOAD	EQ LOAD	KE LOAD	LOAD DESCRIPTION	REF. NOTES		
	BATHROOM BUILDING				5.76			60/2	1	8.64		2	30/2			2.88		GRINDER PUMP			
					5.76				3		8.64	4				2.88					
	LIGHTING - PARKING LOT					0.61		20/1	5	0.79		6	20/1		0.18			SERVICE RECEPTACLE			
	SPARE							20/1	7		0.00	8	20/1					SPARE			
	SPACE								9	0.00		10						SPACE			
	SPACE								11		0.00	12						SPACE			
	SPACE								13	0.00		14						SPACE			
	SPACE								15		0.00	16						SPACE			
	SPACE								17	0.00		18	30/2					SURGE PROTECTION DEVICE			
	SPACE								19		0.00	20	--								
SUB TOTAL DEMAND KVA						sf	VA/sf	SUB TOTALS, CONN KVA PER PHASE													
LTG	Actual x 125%	0.76	220.3(A)				2	0	PHASE-A		9.43	L-L VOLTAGE							240.00		
REC	NEC 220.13	0.18							PHASE-B		8.64	TOTAL CONN. KVA							18.07		
KE	NEC 220.20	0.00	QTY. OF KE	0												TOTAL DEMAND KVA	18.22				
EQ	100%	17.28												DEMAND AMPS	75.93						

SYMBOL LEGEND	
□-□	POLE MOUNT LIGHT FIXTURE
⏏	TIME SWITCH. 7-DAY 24-HOUR WITH BATTERY BACK-UP.
⊕x	DUPLEX RECEPTACLE, FLUSH MOUNT (18" AFF) WP = WEATHERPROOF x = GFI = GROUND FAULT INTERRUPTER
■	PANELBOARD - 240/120-VOLT
→	HOMERUN TO PANEL, ONE ARROW PER CIRCUIT
⏏	BRANCH CIRCUIT CONDUCTORS IN CONDUIT, CROSSMARKS INDICATE NUMBER OF CONDUCTORS. EQUIPMENT GROUND REQUIRED BUT NOT SHOWN. TWO CONDUCTORS PLUS GROUND UNLESS OTHERWISE SHOWN.



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DATE	10/03/2022	12/02/2022								
OWNER CHANGES										

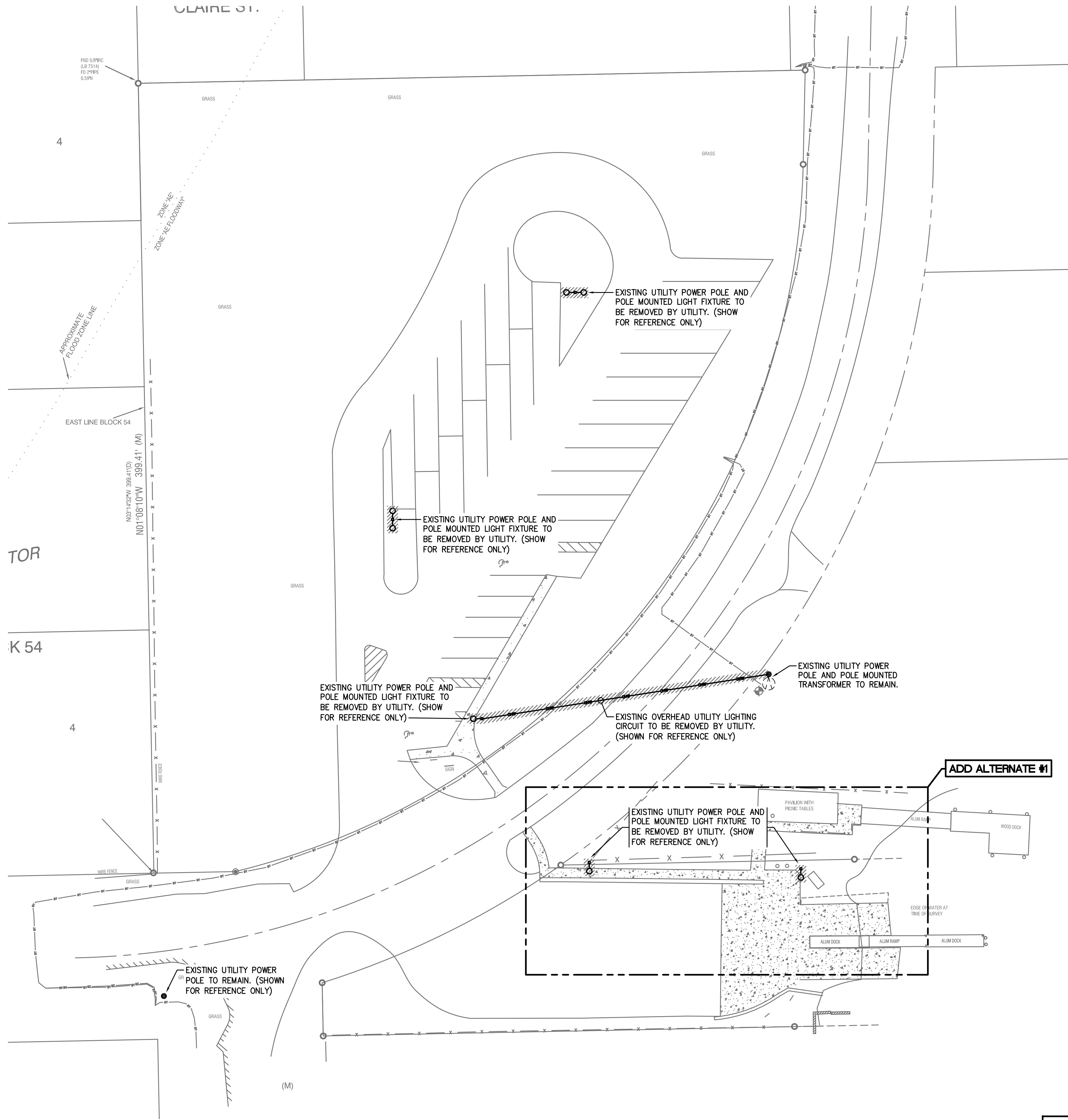
LAKE COUNTY, FLORIDA
BUTLER ST. BOAT RAMP PARKING LOT IMPROVEMENT PLANS
LEGEND, SCHEDULES AND DETAILS - ELECTRICAL

Electric Services, Inc.
1746 US Highway 441 Leesburg, FL 34748
P:352-787-1322 F:352-787-7871
CA #9435 : EC #1415
ESI Job #E2207.01

HALEFF
902 North Sinclair Ave.
Tavares, Florida 32776
Office: 352.343.8481
Fax: 352.343.8495
Certificate of Authorization Number: 33980

DATE: MAY 2022
DESIGNED BY: WTB
DRAWN BY: JEN
CHECKED BY: WTB
JOB NO.: 043862.059
FILE NAME: E2207.01_E1
Sheet E1

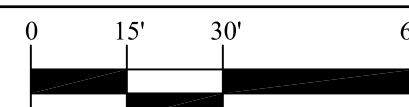
WOOD T. BRAZILL
P.E.
No 58563
STATE OF FLORIDA
Professional Engineer
Registration No. 58563



1
E2

DEMOLITION/EXISTING SITE PLAN - ELECTRICAL

SCALE: 1"=30'-0"



DEMOLITION LEGEND

- EXISTING TO REMAIN
- //// REMOVE AND/OR RELOCATE

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LAKE COUNTY, FLORIDA
BUTLER ST. BOAT
RAMP PARKING LOT
IMPROVEMENT PLANS
DEMOLITION/EXISTING SITE
PLAN - ELECTRICAL

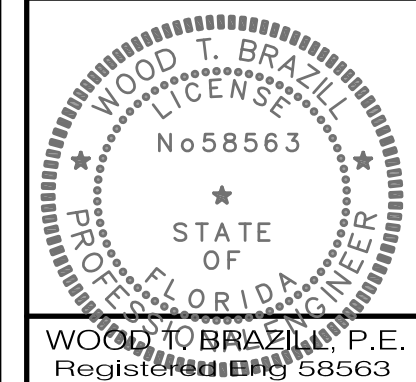


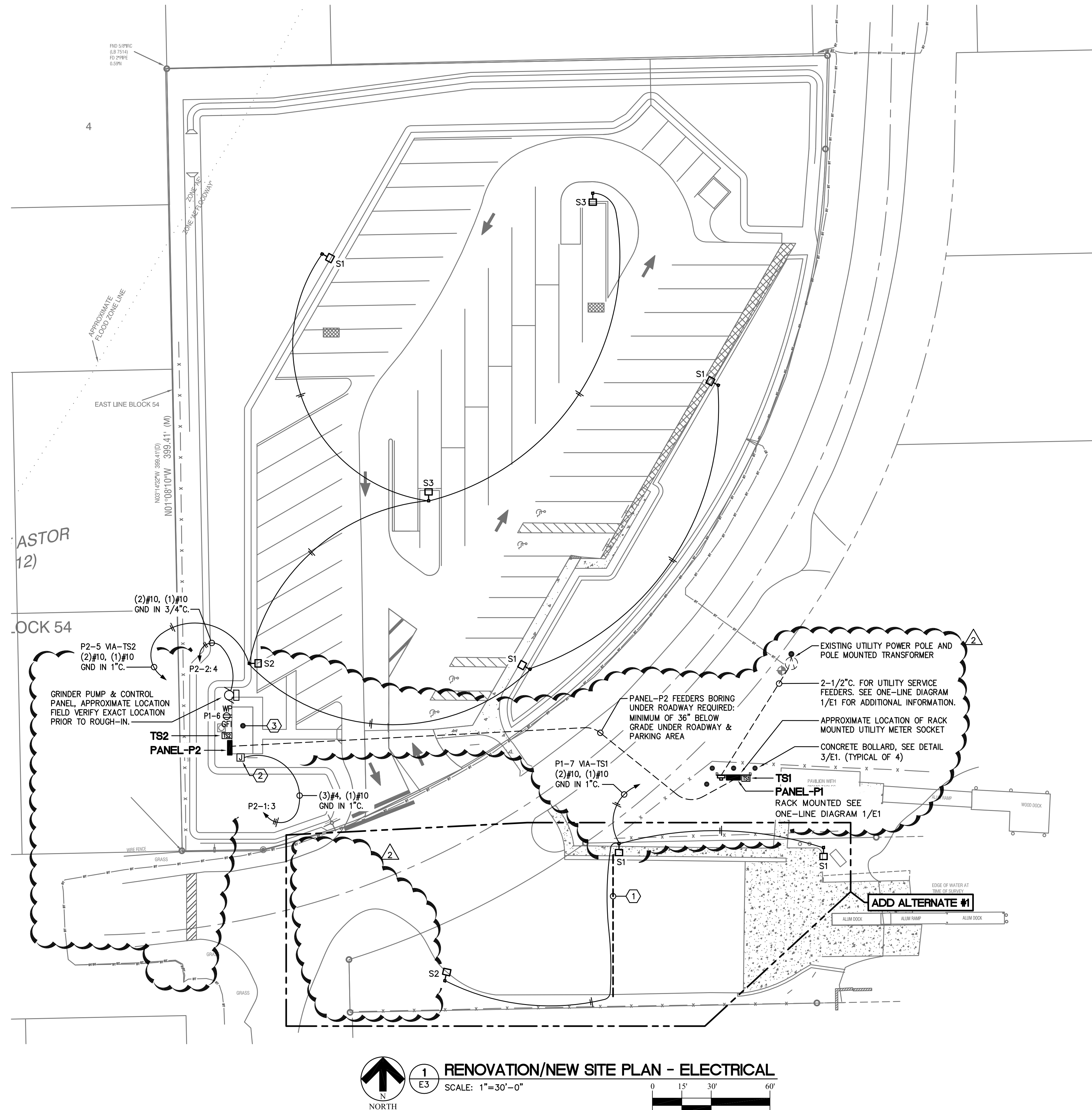
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CA #9435 : EC #1415
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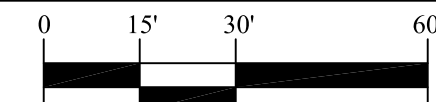
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Sheet E2





1
E3 RENOVATION/NEW SITE PLAN - ELECTRICAL
SCALE: 1"=30'-0"



REFERENCE NOTES:

- 1 APPROXIMATE BORING LOCATION FOR LIGHTING CIRCUITS, W/(1) SPARE 1" C. FOR FUTURE USE. (ADD ALTERNATE #1)
- 2 SINGLE POINT POWER CONNECTION TO BATHROOM BUILDING. COORDINATE POINT OF CONNECTION LOCATION AND REQUIREMENTS WITH BUILDING MANUFACTURE PRIOR TO ROUGH-IN.
- 3 PRE-FABRICATED BATHROOM BUILDING/STRUCTURE (BY GENERAL CONTRACTOR). MOUNT ELECTRICAL EQUIPMENT TO BACK SIDE OF STRUCTURE, COORDINATE WITH OWNER PRIOR TO ROUGH-IN.



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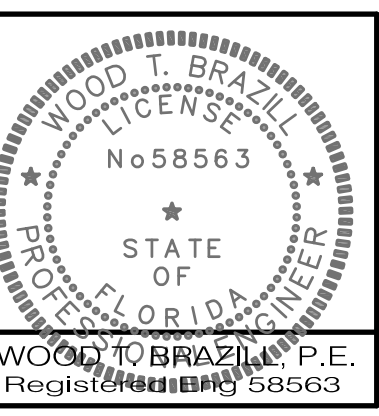
LAKE COUNTY, FLORIDA
BUTLER ST. BOAT
RAMP PARKING LOT
IMPROVEMENT PLANS
RENOVATION/NEW
SITE PLAN - ELECTRICAL

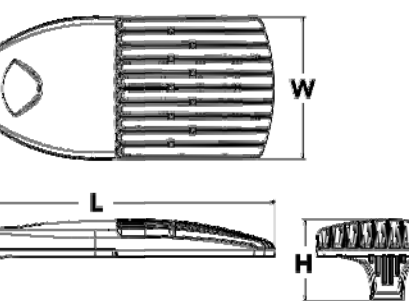


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JOB NO.: 043862.059
FILE NAME: E2207.01_E1
Sheet E3





CSA+ Capable Luminaires

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance at the system-level interoperability.

- A+ configuration of this luminaire meets the Acuity Brands' specification for chromatic consistency

This luminaire is A+ Certified when ordered with DTL³ controls marked by a **shaded background**. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocenter interoperability!

This luminaire is part of an A+ Certified solution for ROAM[®] or XPoint[™] Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a **shaded background**.

2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL-DLL](#)

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA DDBXD

S1, S2	TF TM	Forward throw medium	ACC
	TSVS	True V/s very short	

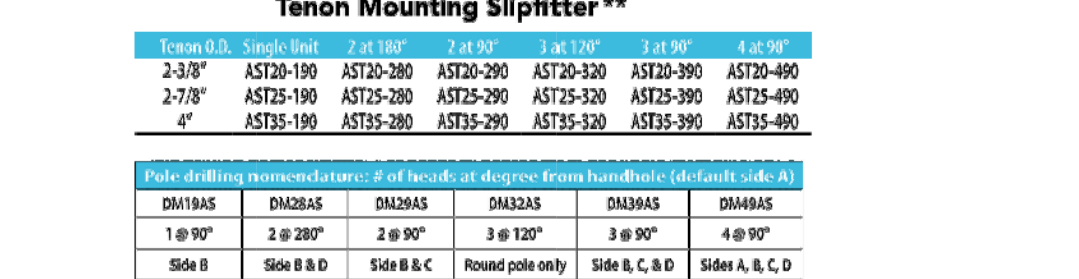
separate) ¹	PIRH1FC3V	BI-level mount enables
TI ²	BL30	BI-level
TI ^{3,2}	BL50	BI-level
ate) ^{1,3,2}	PNMTD03	Plant rig
ernal control (leads exit fixture)	PNMTS03	Plant rig
ight, ambient sensor enabled at 5f: ^{1,3,4,5}	PNMT603	Plant rig
lighting, ambient sensor enabled at 5f: ^{1,3,4,5}	PNMT703	Plant rig
ight, ambient sensor enabled at 1f: ^{1,3,4,5}	FAO	Field as



Accessories

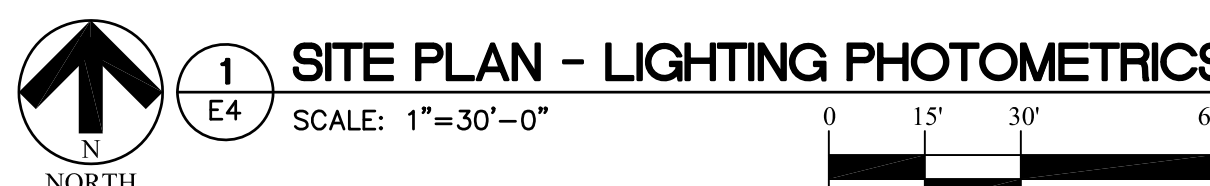
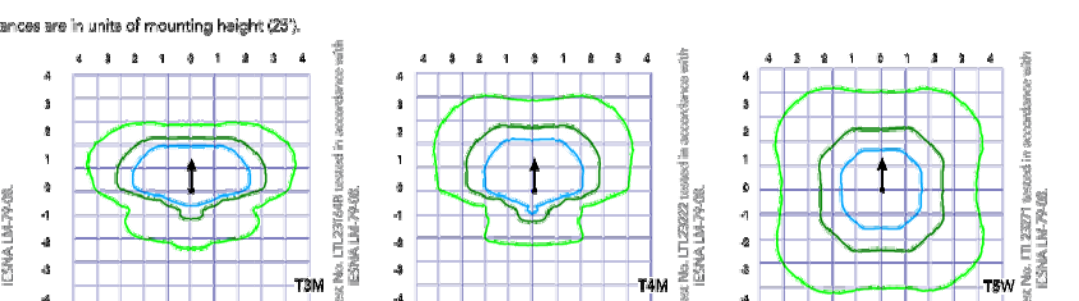
[illegible]

Tenon Mounting Slipfitter **



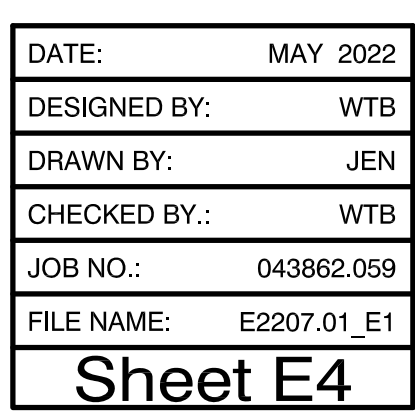
Pole tipo de Sistema 0,5	4,5" @ 9"	4" @ 9"	3,5" @ 9"	3" @ 9"	4,5" @ 12"	4" @ 12"	3,5" @ 12"	3" @ 12"
DSI SPA	Y	Y	Y	N	-	-	-	-
DSI PPA	Y	Y	N	N	Y	Y	Y	Y
DSI SPUMBA	Y	N	N	N	-	-	-	-
DSI PPUMBA	N	N	N	N	Y	Y	Y	N

To see complete photometric reports or download .dat files for this equipment, visit LibertyLinkTrade.com. Series Axx-Sm-1-xxxxxxx



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DIVISION 16
ELECTRICAL SPECIFICATIONS

SECTION 16028 – CODES, FEES, AND STANDARDS

CODES AND FEES

UNLESS SPECIFICALLY NOTED TO THE CONTRARY, FURNISH ALL EQUIPMENT, MATERIALS LABOR, AND INSTALL AND TEST IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE FOLLOWING CODES AND STANDARDS:

- NFPA–70 (2017) NATIONAL ELECTRICAL CODE
- ACCESSIBILITY REQUIREMENTS MANUAL, DEPARTMENT OF COMMUNITY AFFAIRS
- SEVENTH EDITION (2020) FLORIDA BUILDING CODE
- 2020 FLORIDA FIRE PREVENTION CODE
- ANSI: AMERICAN STANDARDS INSTITUTE, INC.
- ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS
- NEMA: NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
- NESC: NATIONAL ELECTRIC SAFETY CODE
- NFPA: NATIONAL FIRE PROTECTION ASSOCIATION
- UL: UNDERWRITERS' LABORATORIES, INC.
- APPLICABLE LOCAL CODES

OBTAIN PERMITS AND INSPECTIONS FROM AUTHORITIES HAVING JURISDICTION. DELIVER CERTIFICATES OF INSPECTION TO THE OWNER AT TIME OF ACCEPTANCE INSPECTION.

STANDARDS

ALL MATERIALS SHALL BE NEW, FREE OF DEFECTS, AND SHALL BE UL LISTED, BEAR THE UL LABEL OR BE LABELED OR LISTED WITH AN APPROVED, NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY. WHERE NO LABELING OR LISTING SERVICE IS AVAILABLE FOR CERTAIN TYPE OF EQUIPMENT, TEST DATA SHALL BE SUBMITTED TO PROVE TO THE OWNER THAT EQUIPMENT MEETS OR EXCEEDS AVAILABLE STANDARDS.

MATERIALS AND/OR EQUIPMENT FURNISHED, OR WORK PERFORMED BY THE CONTRACTORS SHALL FULLY CONFORM TO ALL REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS AND IS FREE OF ANY DEFECT IN EQUIPMENT, MATERIAL OR WORKMANSHIP PERFORMED AND PROVIDED BY THE CONTRACTOR. THIS WARRANTY PERIOD SHALL CONTINUE FOR A MINIMUM OF ONE YEAR COMMENCING ON THE SUBSTANTIAL COMPLETION DATE OF THE PROJECT.

SECTION 16050 – BASIC REQUIREMENTS

1.1 RELATED DOCUMENTS

THE OTHER CONTRACT DOCUMENTS COMPLEMENT THE REQUIREMENTS OF THIS SECTION.

1.2 SCOPE

THE WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, FURNISHING A COMPLETE ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS.

DRAWINGS FOR THE WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF THE WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS CONDUIT FITTINGS, ACCESS PANELS, SLEEVES, PULL AND JUNCTION BOXES MAY NOT BE SHOWN. WHERE SUCH ITEMS ARE REQUIRED BY CODE OR BY OTHER SECTIONS, SUCH ITEMS SHALL BE INCLUDED.

EQUIPMENT SPECIFICATION MAY NOT DEAL INDIVIDUALLY WITH MINUTE ITEMS SUCH AS COMPONENTS, PARTS, CONTROLS AND DEVICES WHICH MAY BE REQUIRED TO PRODUCE THE EQUIPMENT PERFORMANCE SPECIFIED OR AS REQUIRED TO MEET THE EQUIPMENT WARRANTIES. WHERE SUCH ITEMS ARE REQUIRED, THEY SHALL BE INCLUDED BY THE SUPPLIER OF THE EQUIPMENT, WHETHER OR NOT SPECIFICALLY INDICATED.

COORDINATE WITH ALL TRADES IN SUBMITTAL OF SHOP DRAWINGS. SHOP DRAWINGS SHALL DETAIL SPACE CONDITIONS TO THE SATISFACTION OF ALL CONCERNED TRADES, SUBJECT TO REVIEW AND FINAL ACCEPTANCE BY THE ARCHITECT. IN THE EVENT THAT THE CONTRACTOR INSTALLS HIS WORK BEFORE COORDINATING WITH OTHER TRADES OR SO AS TO CAUSE ANY INTERFERENCE WITH WORK OF OTHER TRADES, THE NECESSARY CHANGES SHALL BE MADE IN THE WORK TO CORRECT THE CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

1.3 TEMPORARY LIGHTING AND POWER

FURNISH, INSTALL AND MAINTAIN TEMPORARY LIGHTING AND POWER TO BE USED BY ALL TRADES DURING CONSTRUCTION. THE ENTIRE SYSTEM SHALL BE GROUNDED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY COSTS FOR TEMPORARY SERVICE.

1.4 SUPERVISION OF THE WORK

PROVIDE FIELD SUPERINTENDENT WHO HAS HAD A MINIMUM OF FOUR (4) YEARS PREVIOUS SUCCESSFUL EXPERIENCE ON PROJECTS OF COMPARABLE SIZES AND COMPLEXITY. SUPERINTENDENT SHALL BE PRESENT AT ALL TIMES THAT WORK UNDER THIS DIVISION IS BEING INSTALLED OR AFFECTED.

1.5 DELIVERY AND STORAGE

HANDLE, STORE AND PROTECT EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND WITH THE REQUIREMENTS OF NAPA 70B, APPENDIX J, TITLED "EQUIPMENT STORAGE AND MAINTENANCE DURING CONSTRUCTION". REPLACE DAMAGED OR DEFECTIVE ITEMS WITH NEW ITEMS.

1.6 ELECTRICAL CONNECTIONS

CONNECTIONS SHALL BE TIGHTENED TO THE TORQUE VALUES RECOMMENDED BY THAT DEVICE MANUFACTURERS INSTRUCTIONS. IF THESE VALUES ARE NOT LISTED, TIGHTEN TO POUND-INCH OR POUND-FOOT VALUES RECOMMENDED IN UL STANDARD 486B, A SUMMARY OF WHICH MAY BE FOUND IN SECTION 110–14 OF THE NATIONAL ELECTRIC CODE HANDBOOK.

1.7 INTERRUPTIONS OF SERVICE

POWER INTERRUPTIONS SHALL BE HELD TO AN ABSOLUTE MINIMUM. ALL INTERRUPTIONS TO EXISTING BUILDINGS REQUIRED SHALL BE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE IN WRITING 14 DAYS PRIOR TO THE TIME THE INTERRUPTION IS REQUESTED TO PERMIT SCHEDULING WITH THE OWNER'S STAFF.

ANY POWER INTERRUPTION SHALL NOT EXCEED TWO (2) HOURS IN THE DURATION APPROVED BY THE OWNER.

1.8 TESTS

SYSTEMS SHALL BE TESTED BY THE CONTRACTOR AND PLACED IN PROPER WORKING ORDER PRIOR TO DEMONSTRATING SYSTEMS TO OWNER.

AFTER WORK IS COMPLETED, A LOAD BALANCE TEST SHALL BE MADE FOR EACH PANELBOARD TO DEMONSTRATE THAT WITH FULL LIGHTING AND MECHANICAL LOAD, THE BALANCE BETWEEN PHASES IS WITHIN 15% UNBALANCED BEYOND THIS LIMIT SHALL BE CORRECTED, MAINTAINING PROPER PHASE RELATION TO NEUTRAL AT ALL TIMES.

PERFORM SUCH TESTS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER THE SITE.

1.9 DEMONSTRATIONS

PRIOR TO ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL DEMONSTRATE TO THE OWNER, OR HIS DESIGNATED REPRESENTATIVE, ALL FEATURES AND FUNCTIONS OF ALL SYSTEMS AND SHALL INSTRUCT THE OWNER IN THE PROPER OPERATION OF THE SYSTEMS. EACH SYSTEM SHALL BE DEMONSTRATED ONCE.

THE DEMONSTRATIONS SHALL CONSIST OF NOT LESS THAN THE FOLLOWING:

- POINT OUT THE ACTUAL LOCATION OF EACH COMPONENT OF A SYSTEM AND DEMONSTRATE ITS FUNCTION AND ITS RELATIONSHIP TO OTHER COMPONENTS WITHIN THE SYSTEM.
- DEMONSTRATE THE ELECTRICAL SYSTEMS BY ACTUAL "START–STOP" OPERATION SHOWING HOW TO WORK CONTROLS, HOW TO RESET PROTECTIVE DEVICES, AND WHAT TO DO IN AN EMERGENCY.
- DEMONSTRATE COMMUNICATION, SIGNAL, ALARM AND DETECTION SYSTEMS BY ACTUAL OPERATION OF THE SYSTEMS AND SHOW HOW TO RESET SIGNAL, ALARM AND DETECTION DEVICES.

SYSTEMS TO BE DEMONSTRATED SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

- POWER DISTRIBUTION SYSTEMS
- LIGHTING AND LIGHTING CONTROL SYSTEMS
- MOTOR AND EQUIPMENT CONTROL
- TELEPHONE SYSTEM

CONTRACTOR SHALL FURNISH THE NECESSARY TRAINED PERSONNEL TO PERFORM THE DEMONSTRATIONS AND INSTRUCTIONS, AND SHALL ARRANGE TO HAVE THE MANUFACTURER'S REPRESENTATIVES PRESENT TO ASSIST WITH THE DEMONSTRATIONS.

CONTRACTOR SHALL ARRANGE WITH THE OWNER, THE ARCHITECT AND THE ENGINEER, THE DATES AND TIMES FOR PERFORMING EACH DEMONSTRATION.

1.10 IDENTIFICATION

CONTRACTOR SHALL PROVIDE IDENTIFICATION FOR WIRING SYSTEMS AND EQUIPMENT.

LETTERING FOR IDENTIFICATION SHALL BE OF SIGN PAINTERS QUALITY OR STENCIL LETTERING. PAINT SHALL BE FAST DRYING SIGN ENAMEL. ALL PULL AND JUNCTION BOXES FOR THESE SYSTEMS IN SERVICE AREAS, ABOVE ACCESSIBLE CEILINGS AND IN ACCESSIBLE CHASES SHALL HAVE ONE–HALF INCH HIGH BLACK LETTERING IDENTIFYING THE SYSTEM. LETTERING PRINTED NEATLY AND LEGIBLY WITH PERMANENT "MAGIC MARKER" IS ACCEPTABLE FOR LETTERING OF BOXES ABOVE CEILINGS.

POWER AND LIGHTING CIRCUITS SHALL HAVE CONDUCTORS COLOR CODED OR BANDED, PER 16120 "WIRE AND CABLE" IN EACH JUNCTION AND PULL BOX.

NAMEPLATES:

- THE FOLLOWING ITEMS SHALL BE EQUIPPED WITH NAME–PLATES: ALL MOTOR STARTERS, PUSHBUTTON STATIONS, CONTROL PANELS, TIME SWITCHES, DISCONNECT SWITCHES, PANELBOARDS, TRANSFORMERS, CONTACTORS OR RELAYS IN SEPARATE ENCLOSURES, POWER RECEPTACLES WHERE THE NOMINAL VOLTAGE BETWEEN ANY PAIR OR CONTACTS IS GREATER THAN 150V. ALL SWITCHES CONTROLLING OUTLETS OR EQUIPMENT WHERE THE OUTLETS ARE NOT LOCATED WITHIN SIGHT OF THE CONTROLLING SWITCH, AND CABINETS. SPECIAL ELECTRICAL SYSTEMS SHALL BE IDENTIFIED AT TERMINAL CABINETS AND EQUIPMENT RACKS.

- NAMEPLATES SHALL ADEQUATELY DESCRIBE THE FUNCTION OF THE PARTICULAR EQUIPMENT INVOLVED. WHERE NAMEPLATES ARE DETAILED ON THE DRAWINGS, INSCRIPTION AND SIZE OF LETTERS SHALL BE AS SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR APPROVAL. NAMEPLATES FOR PANELBOARD SHALL INCLUDE THE PANEL DESIGNATION, VOLTAGE, PHASE, AND SOURCE. FOR EXAMPLE, "PANEL 3PA, 120/208V, 3–PHASE, 4–WIRE, FED FROM XFMR T–3A. THE NAME OF THE MACHINE ON THE NAMEPLATES FOR A PARTICULAR MACHINE SHALL BE THE SAME AS THE ONE USED ON ALL MOTOR STARTERS, DISCONNECT AND P.B. STATION NAMEPLATES FOR THAT MACHINE.

- NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT WITH WHITE CORE, SELF ADHESIVE BACK WITH LETTERING ETCHED THROUGH THE OUTER COVERING. WITH PLATED OR STAINLESS STEEL SCREWS. NAMEPLATES TO IDENTIFY EMERGENCY AND FIRE ALARM DEVICES SHALL BE RED LAMINATE.

PANELBOARDS SHALL HAVE TYPE–WRITTEN CIRCUIT DIRECTORIES INSTALLED INSIDE THE DOORS UNDER TRANSPARENT PLASTIC COVERS.

1.11 SUBMITTALS

PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

- WITHIN THIRTY (30) DAYS AFTER AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT, FOR APPROVAL, A LIST OF MANUFACTURERS' NAMES OF MATERIAL AND EQUIPMENT HE PROPOSES TO PROVIDE. IN THE EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED THEREIN FAIL TO COMPLY WITH THE CONTRACT DOCUMENTS, SUCH ITEMS WILL BE REJECTED.

- ALL SUBMITTALS SHALL BE A MINIMUM OF SIX (6) COPIES AND SHALL BE BOUND IN A THREE RING BINDER. SUBMITTALS SHALL BE DIVIDED WITH TABBED SEPARATORS INDICATING SPECIFICATION SECTION NUMBERS. ALL PRODUCT DATA SHALL BE CLEARLY MARKED IN INK WITH THE CORRESPONDING EQUIPMENT IDENTIFICATION NUMBERS AS INDICATED IN THE CONTRACT DOCUMENTS.

- MARK–OUT ITEMS ON PRODUCT DATA SHEETS WHICH CONSTITUTE INFORMATION NOT PERTAINING TO THE EQUIPMENT SPECIFIED.

SUBMITTAL DATA FOR ELECTRICAL EQUIPMENT SHALL CONSIST OF SHOP DRAWINGS AND/OR CATALOG CUTS SHOWING TECHNICAL DATA NECESSARY TO EVALUATE THE MATERIAL OR EQUIPMENT, TO INCLUDE DIMENSIONS, WIRING DIAGRAMS, PERFORMANCE CURVES, RATINGS, CONTROL SEQUENCE AND OTHER DESCRIPTIVE DATA NECESSARY TO DESCRIBE FULLY THE ITEM PROPOSED AND ITS OPERATING CHARACTERISTICS. ANY SUBMITTAL DATA IN THE FOLLOWING ELECTRICAL SECTIONS, SPECIFIC TO THAT SECTION, IS IN ADDITION TO SUBMITTAL REQUIREMENTS OF THIS SECTION.

1.12 FIRE STOPPING

PENETRATIONS OF RATED WALLS AND FLOORS SHALL BE SEALED TO PREVENT PASSAGE OF FIRE, SMOKE, TOXIC GASES AND WATER. MAINTAIN THE FIRE/OR SMOKE RATING OF ALL RATED WALL AND FLOORS.

SEALING MATERIAL SHALL BE PERFORMED WITH THE USE OF MATERIAL SPECIFICALLY INTENDED FOR THE PURPOSE AND APPLICATION. METHOD OF INSTALLATION SHALL CONFORM TO THE MANUFACTURERS INSTRUCTIONS AND TO APPLICABLE CODES AND STANDARDS.

1.13 RECORD DRAWINGS

AT THE JOB SITE, MAINTAIN A SET OF PRINTS ON WHICH ARE RECORDED ALL FORMAL FIELD CHANGES AND OTHER PORTIONS OF THE WORK THAT VARY SIGNIFICANTLY FROM THE CONTRACT DOCUMENTS. INDICATE ACTUAL ROUTING OF ELECTRICAL FEEDERS.

DELIVER RECORD DRAWINGS TO THE ARCHITECT IN THE QUANTITY AND MANNER SPECIFIED IN DIVISION 1 – GENERAL REQUIREMENTS.

1.14 MAINTENANCE MANUALS

PROVIDE THREE (3) MAINTENANCE MANUALS CONTAINING PRODUCT DATA, SHOP DRAWINGS, WIRING DIAGRAMS, INSTRUCTIONS AND PART LISTS FOR MAINTAINING AND OPERATION ELECTRICAL SYSTEMS AND EQUIPMENT. INCLUDE A DESCRIPTION OF NORMAL ADJUSTMENTS AND A LIST OF ITEMS REQUIRING PERIODIC MAINTENANCE AND THE FREQUENCY REQUIRED. PROVIDE OWNER WITH ANY SPECIAL TOOLS REQUIRED.

DELIVER MAINTENANCE MANUALS TO THE OWNER AT THE TIME OF THE DEMONSTRATION OF SYSTEMS AND EQUIPMENT.

1.15 CONCRETE WORK

FURNISH AND INSTALL REINFORCED CONCRETE PADS FOR TRANSFORMERS OF SIZE REQUIRED. PADS SHALL BE THREE INCHES HIGH AND SHALL EXCEED DIMENSIONS OF EQUIPMENT BEING SET ON THEM BY SIX INCHES ON ALL SIDES. CHAMFER TOP EDGES TO ONE–HALF INCH. TROWEL ALL SURFACES SMOOTH. REINFORCE PADS WITH 6"x6" X 9/9 WELDED WIRE FABRIC.

THIS CONTRACTOR SHALL FURNISH ALL EQUIPMENT ANCHOR BOLTS AND SHALL BE RESPONSIBLE FOR THEIR PROPER INSTALLATION AND ACCURATE LOCATION.

EXPOSED CONDUIT BUNDLES THROUGH FLOORS UP INTO SURFACE MOUNTED PANELBOARDS SHALL HAVE 3" HIGH HOUSEKEEPING PAD POURED AROUND THEM.

SECTION 16111 – RACEWAYS

APPROVED RACEWAY MATERIALS INCLUDE GRS, IMC, EMT AND MC–CABLE AS LIMITED BELOW. SCHEDULE–40 PVC RACEWAYS ARE PERMITTED FOR UNDERGROUND ONLY. NO OTHER RACEWAY MATERIALS ARE PERMITTED WITH OUT PRIOR AUTHORIZATION.

HOT–DIPPED GALVANIZED (GRS), THREADED TYPE CONFORMING TO ANSI C80.1 AND UL 6. USE WHERE EXPOSED TO THE EXTERIOR AND AT ALL CONCRETE PENETRATIONS. BITUMASTIC COATING REQUIRED AT CONCRETE PENETRATIONS.

ELECTRICAL METALLIC TUBING (EMT) AND INTERMEDIATE METAL CONDUIT (IMC)

MC–CABLE IS ACCEPTABLE WITH THE EXCEPTION OF HOMERUM CIRCUITS AND EXAMINATION ROOMS. EXAMINATION ROOMS RACEWAYS SHALL BE EMT OR AC TYPE CABLE (HOSPITAL GRADE).

HOMERUNS SHALL BE DEFINED AS ORIGINATING AT THE BRANCH OVER CURRENT DEVICE AND CONTINUE TO THE FIRST BRANCH EQUIPMENT, DEVICE OR FIXTURE. MC–CABLE SHALL NOT ORIGINATE AT THE PANEL LOCATION.

ALL RACEWAYS SHALL BE RUN PARALLEL AND PLUMB TO BUILDING STRUCTURE.

SECTION 16120 – WIRES AND CABLES (600 VOLTS AND LESS)

WIRE AND CABLE

ALL CONDUCTORS SHALL BE COPPER.

TYPE THHN/THWN, SINGLE CONDUCTOR, NO. 12 MINIMUM FOR GENERAL USE WIRING.

ALL SPECIFIED CONDUCTOR SIZES HAVE BEEN SIZED TO ACCOMMODATE FOR VOLTAGE DROP AS REQUIRED BY FBC 13–413 AND NEC 210.19(A)(1) FPN #4.

CONDUCTOR SIZES FOR LIGHTING, RECEPTACLES AND SMALL MOTOR BRANCH CIRCUITS, WITH LESS THAN 30 AMPERE CONNECTED LOAD, MAY NOT BE SHOWN ON DRAWING. CONDUCTORS FOR SUCH CIRCUITS SHALL BE SIZED AS FOLLOWS:

120 VOLT CIRCUITS: CONDUCTOR SIZE FOR BRANCH CIRCUITS 75 FEET IN LENGTH FOR BRANCH CIRCUIT PANEL TO CENTER OF LOAD SHALL NOT BE SMALLER THAN No. 12; UP TO 125 FEET NOT SMALLER THAN No. 10, UP TO 175 FEET NOT SMALLER THAN No. 8.

277 VOLT CIRCUITS: CONDUCTOR SIZE FOR BRANCH CIRCUITS 150 FEET IN LENGTH FOR BRANCH CIRCUIT PANEL TO CENTER OF LOAD SHALL NOT BE SMALLER THAN No. 12; UP TO 200 FEET NOT SMALLER THAN No. 10, UP TO 350 FEET NOT SMALLER THAN No. 8.

EACH MULTIWIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES.

SECTION 16130 – BOXES

OUTLET BOXES – FLUSH MOUNTED

WALL OUTLETS: 4 INCH SQUARE WITH PLASTER RING AS REQUIRED.

CEILING LIGHTING FIXTURE OUTLET BOXES: 4 INCH OCTAGON GALVANIZED BOX WITH RAISED COVER SET FLUSH WITH FINISHED SURFACE, COMPLETE WITH 3/8 INCH FIXTURE STUD.

OUTLET BOXES – SURFACE MOUNTED

GENERAL USE OUTLET BOXES: SINGLE OR MULTIPLE GANGED CADMIUM PLATED MALLEABLE IRON OR FERRALLOY TYPE FS OR FD CAST BOXES WITH THREADED HUBS, OR 4 INCH SQUARE PRESSED STEEL BOXES.

OUTLET BOX LOCATIONS

SWITCHES: 48 INCHES ABOVE FLOOR TO CENTER. LOCATE ON LATCH SIDE OF DOOR.

RECEPTACLES AND TELEPHONE OUTLETS: 18 INCHES ABOVE FLOOR TO CENTER OR 6 INCHES ABOVE COUNTERS.

MOTOR STARTERS AND DISCONNECT SWITCHES: 60 INCHES ABOVE FLOOR.

SECTION 16140 – WIRING DEVICES

RECEPTACLES

HEAVY DUTY DUPLEX: SPECIFICATION GRADE DUPLEX RECEPTACLES, 2 POLE, 3 WIRE, GROUNDING, 20 AMPERES, 125 VOLTS, WITH NEMA CONFIGURATION 5–20R UNLESS OTHERWISE INDICATED.

GROUND–FAULT CIRCUIT INTERRUPTERS: PROVIDE GROUND FAULT CIRCUIT INTERRUPTER, WITH HEAVY DUTY DUPLEX RECEPTACLES. SHALL BE GROUNDING TYPE, RATED 20 AMPERES, 120 VOLTS, 60 HZ; WITH SOLID–STATE GROUND FAULT SENSING.

SWITCHES

SINGLE POLE SNAP: GENERAL DUTY FLUSH SINGLE POLE QUIET TOGGLE SWITCHES, 20 AMPERES 120/277 VOLTS AC, WITH MOUNTING YOKE INSULATED FROM MECHANISM, EQUIP WITH PLASTER EARS, SWITCH HANDLE, AND SIDE–WIRED SCREW TERMINALS.

WALL PLATES

MATERIAL AND FINISH: PLASTIC, SMOOTH, COLOR: IVORY.

SECTION 16155 – MOTOR STARTERS

MAGNETIC COMBINATION NON–REVERSING STARTERS WITH H–O–A SWITCH AND RED AND GREEN INDICATOR LIGHTS, FOR 3 PHASE MOTORS.

AC FRACTIONAL HORSEPOWER MANUAL STARTERS FOR SINGLE PHASE MOTORS.

SECTION 16160 – PANELBOARDS

PANELBOARDS AND DISTRIBUTION PANELS

PROVIDE DEAD FRONT PANELBOARDS WITH SWITCHING AND PROTECTIVE DEVICES IN QUANTITIES, RATING, TYPES, AND ARRANGEMENTS SHOWN; WITH LUG CONNECTORS APPROVED FOR COPPER CONDUCTORS.

PANELBOARDS SHALL BE SQUARE D, SIEMENS, CUTLER HAMMER, OR GENERAL ELECTRIC COMPANY.

AIC RATINGS MUST BE OBTAINED BY FULLY RATING OR SERIES RATING OF CIRCUIT BREAKERS INDICATED.

SECTION 16170 – MOTOR AND CIRCUIT DISCONNECTS

GENERAL DUTY DISCONNECT SWITCHES

PROVIDE SURFACE MOUNTED, GENERAL DUTY TYPE, SHEET STEEL ENCLOSED SWITCHES, THAT ARE FUSIBLE OR NON–FUSIBLE, WITH VOLTAGE RATING FOR CIRCUIT, AMPERAGE, NUMBER OF POLES AND INDICATED ON DRAWINGS AND INCORPORATING SPRING ASSISTED, QUICK MAKE, QUICK BREAK SWITCHES WHICH ARE SO CONSTRUCTED THAT SWITCH BLADES ARE VISIBLE IN "OFF" POSITION WITH DOOR OPEN. UNLESS OTHERWISE INDICATED, PROVIDE NEMA TYPE 1 ENCLOSURE WITH STAMPED ENCLOSURE KNOCKOUTS. OUTDOOR ENCLOSURES SHALL BE NEMA 3R.

ALL SAFETY SWITCHES 30–600 AMPS, SHALL BE PROVIDED WITH CLASS R REJECTION STYLE FUSE CLIPS. THE COMBINATION RATING OF THE SAFETY SWITCH AND R FUSE SHALL BE 100,000 SYM AMPS AND LABELED AS SUCH.

SECTION 16450 – GROUNDING

CONDUCTORS

PROVIDE ELECTRICAL GROUNDING CONDUCTORS FOR GROUNDING CONNECTIONS MATCHING POWER SUPPLY WIRING MATERIALS AND SIZED ACCORDING TO NEC. CONDUCTORS SHALL BE COPPER.

SECTION 16500 – LIGHTING FIXTURES

FABRICATE OF SHEET STEEL, DIE–FORMED TO PROVIDE STRUCTURAL

TREAT FIXTURES FOR ACCEPTANCE OF BAKED WHITE HIGH REFLECTANCE ENAMEL OR PORCELAIN ENAMEL FINISH COAT.

LENS PANELS FOR SURFACE BOX TYPE FIXTURES AND FOR RECESSED TROFFERS SHALL BE FRAMED AND BE EQUIPPED WITH HINGE AND LATCH, EQUIP FRAMES AND LOUVERS WITH RETAINING MEANS TO SUPPORT FRAME DURING RELAMPING.

PROVIDE FIXTURES AS SCHEDULED ON THE DRAWINGS.

SECTION 16040 – ELECTRICAL DEMOLITION AND ALTERATIONS

RELATED DOCUMENTS

- THE OTHER CONTRACT DOCUMENTS COMPLEMENT THE REQUIREMENTS OF THIS SECTION. THE GENERAL REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.

JOB CONDITIONS

- THIS CONTRACTOR IS RESPONSIBLE FOR ALL CHARGES, FEES, ETC. INCURRED AS A RESULT OF THE ELECTRICAL PORTION OF THE DEMOLITION.

- PRIOR TO DEMOLITION OR ALTERATION OF STRUCTURES, THE FOLLOWING SHALL BE ACCOMPLISHED:

- COORDINATE SEQUENCING WITH OWNER AND OTHER CONTRACTORS.

- SURVEY AND RECORD CONDITION OF EXISTING FACILITIES TO REMAIN IN PLACE THAT MAY BE AFFECTED BY DEMOLITION SURVEY OPERATIONS. AFTER DEMOLITION OPERATIONS ARE COMPLETED, CONDITIONS AGAIN AND RESTORE EXISTING FACILITIES TO THEIR PRE–DEMOLITION CONDITION, AT NO ADDITIONAL COST TO OWNER.

- SALVAGE EQUIPMENT SCHEDULED FOR REUSE IN NEW WORK OR SCHEDULED TO BE DELIVERED TO OWNER'S STORAGE FACILITY.

DEMOLITION

ELECTRICAL EQUIPMENT IN CONFLICT WITH CONSTRUCTION SHALL BE REMOVED AND/OR RELOCATED AS INDICATED ON THE ARCHITECTURAL DRAWINGS, AS DIRECTED OR REQUIRED. THIS CONTRACTOR SHALL REMOVE ALL ELECTRICAL EQUIPMENT RELEASED FROM SERVICE AS A RESULT OF CONSTRUCTION, AND NO EQUIPMENT REMOVED SHALL BE REUSED, EXCEPT AS SPECIFICALLY DIRECTED ON THE DRAWINGS OR ELSEWHERE HEREIN. EXCEPT FOR CONDUIT, CONDUCTORS AND MISCELLANEOUS HARDWARE, ALL ELECTRICAL EQUIPMENT SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STORED ON THE SITE, AS PER DIRECTION FROM THE OWNER, FOR REMOVAL BY THE OWNER.

ANY EXISTING CIRCUITS OR EQUIPMENT NOT SHOWN ON THE DRAWINGS AND WHICH ARE LOGICALLY EXPECTED TO BE CONTINUED IN SERVICE AND WHICH MAY BE INTERRUPTED OR DISTURBED DURING CONSTRUCTION, SHALL BE RECONNECTED IN AN APPROVED MANNER. IN ADDITION, ANY EXISTING CIRCUIT OR EQUIPMENT WHICH MAY REQUIRE RELOCATION OR REROUTING AS A RESULT OF CONSTRUCTION, SHALL BE CONSIDERED IN THE CONTRACT WITH NO ADDITIONAL COMPENSATION.

REMOVE ALL WIRING TO EXISTING EQUIPMENT, LIGHTING AND RECEPTACLES BEING DISCONTINUED OR REMOVED DUE TO CONSTRUCTION. ABANDONED OR REMOVED CIRCUITS SHALL BE DISCONNECTED AT THEIR OVER CURRENT DEVICE, THE CONDUCTORS REMOVED AND THE CIRCUIT SPACE MARKED "SPARE" ON THE APPLICABLE DIRECTORY USING ADHESIVE BACKED CORRECTION TAPE.

OUTLET BOXES BEING ABANDONED IN EXISTING WALLS IN REMODELED AREAS SHALL HAVE OPENING PATCHED TO MATCH EXISTING WALL FINISH. BLANK COVERS ARE NOT ACCEPTABLE UNLESS NOTED OTHERWISE.

THE EXISTING BUILDING IS TO REMAIN IN OPERATION DURING CONSTRUCTION. THIS CONTRACTOR SHALL COORDINATE ALL WORK THAT WILL INTERFERE WITH THE PRESENT OPERATION OF THE FACILITY WITH THE OWNER.

DURING THE DEMOLITION AND ALTERATIONS, EXISTING LIGHTING SHALL REMAIN ACTIVE.

PROVIDE REQUIRED ADDITIONAL SUPPORT FOR EXISTING CONDUIT IN REMODELED AREA THAT IS NOT BEING REMOVED AND IS NOT PROPERLY SUPPORTED IN ACCORDANCE WITH N.E.C. REQUIREMENTS.

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY WOOD T. BRAZILL, P.E. ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

REVISION	1	2	3	4	5	6	7	8
OWNER CHANGES								
OWNER CHANGES								
DATE	10/03/2022	12/02/2022						

LAKE COUNTY, FLORIDA

BUTLER ST. BOAT RAMP PARKING LOT IMPROVEMENT PLANS

SPECIFICATIONS ELECTRICAL



Electric Services, Inc.
1746 US Highway 441 Leesburg, FL 34748
P:352-787-1321 F:352-787-7871
CA #9435 : EC #1415
ESI Job #E2207.01

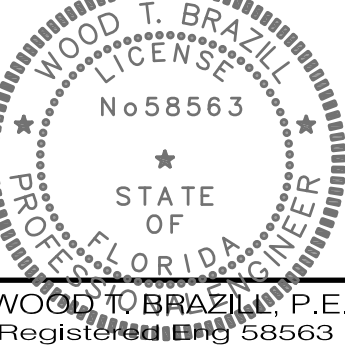


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Certificate of Authorization Number: 33980

DATE:	MAY 2022
DESIGNED BY:	WTB
DRAWN BY:	JEN
CHECKED BY.:	WTB
JOB NO.:	043862.059
FILE NAME:	E2207.01_E1
Sheet E5	



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Registered Professional Engineer
No. 58563