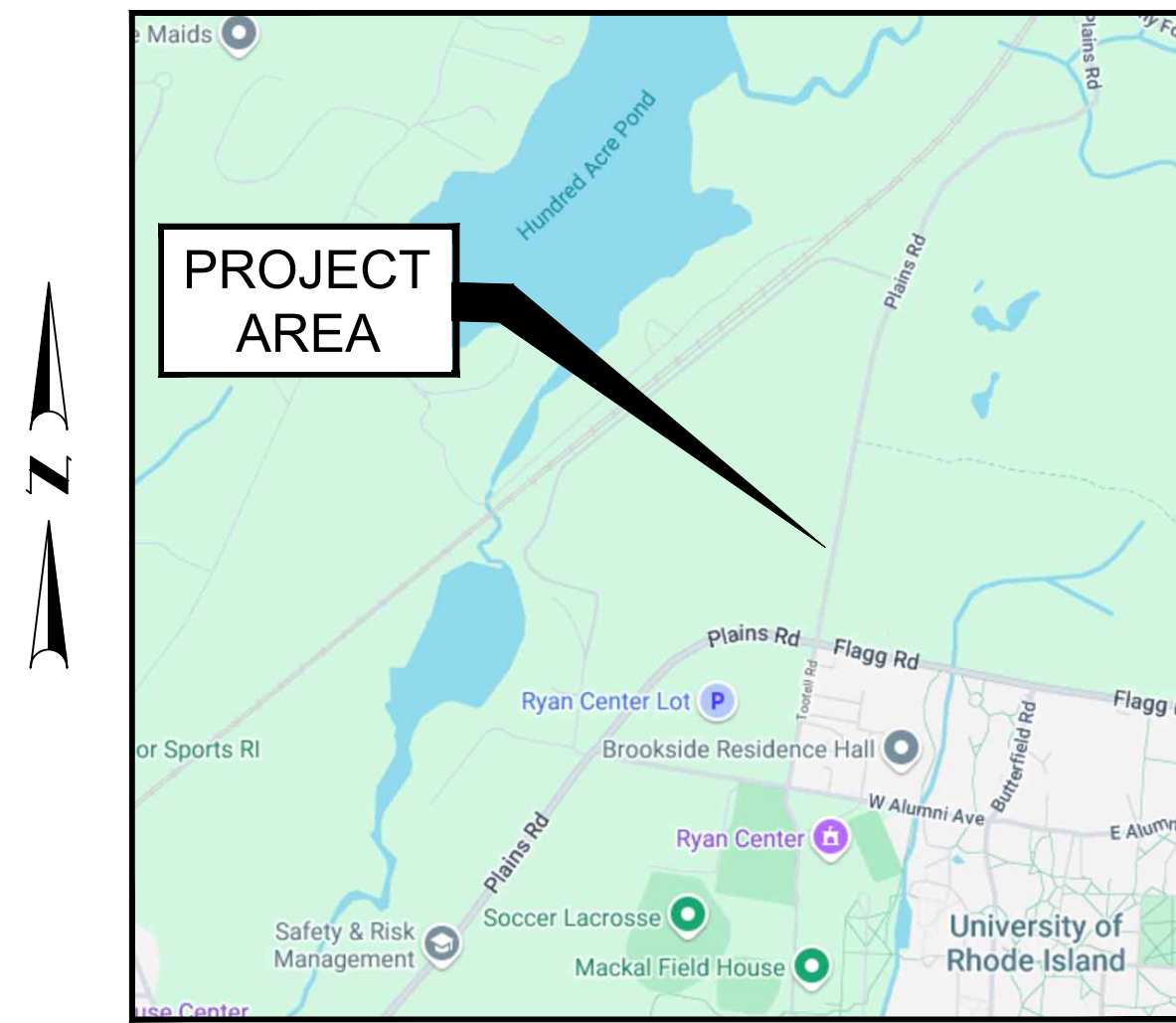


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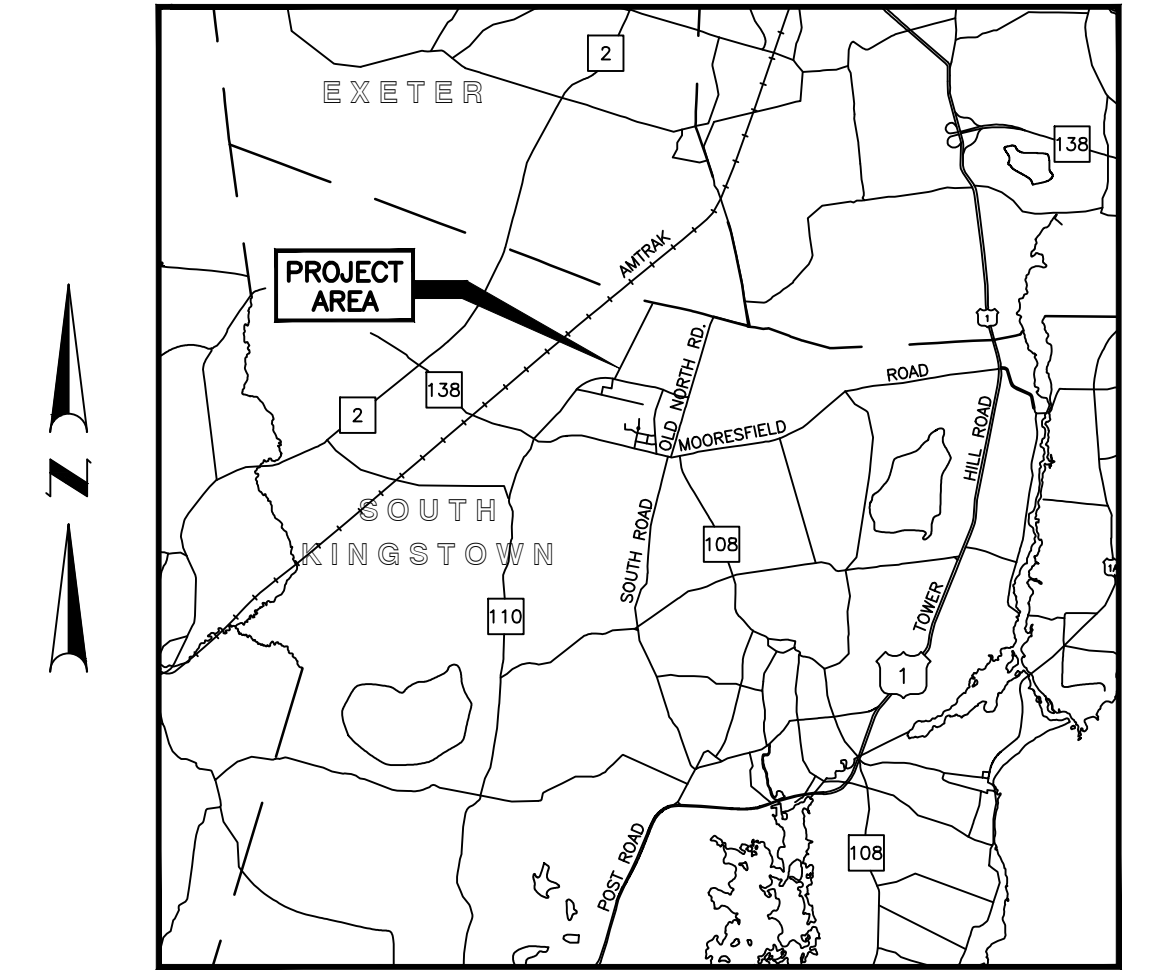
Office of Capital Projects

LANDS & GROUNDS LAYDOWN AREA
KINGSTON, RHODE ISLAND

PROJECT NO. KC.M.RECY.2023.001



LOCATION MAP
NOT TO SCALE



LOCATION MAP
SCALE: 1" = 2 Miles

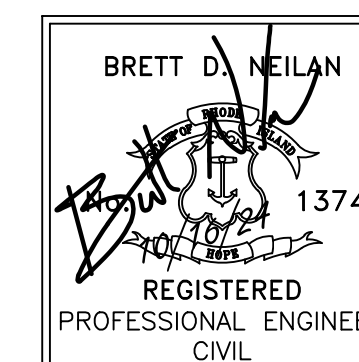
THE UNIVERSITY OF RHODE ISLAND

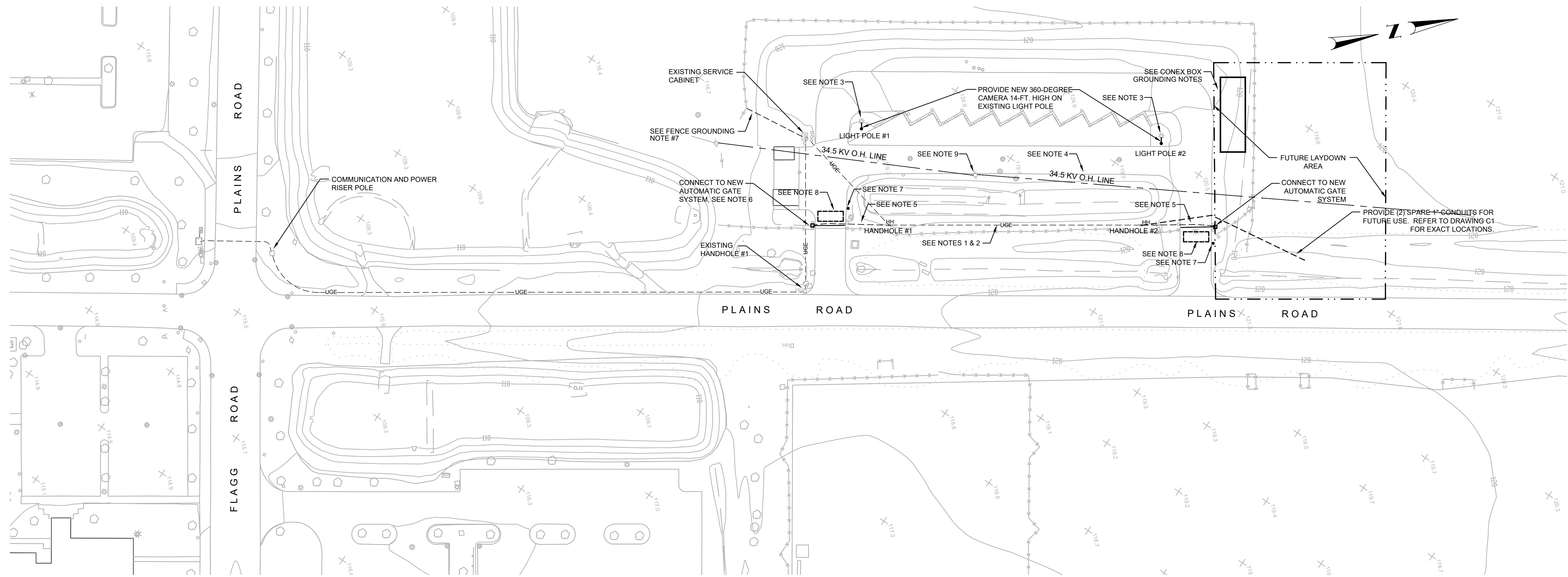
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C2	SITE PLAN
C3	NOTES AND DETAILS
E1	ELECTRICAL PLAN
E2	ELECTRICAL DETAIL SHEET #1
E3	ELECTRICAL DETAIL SHEET #2

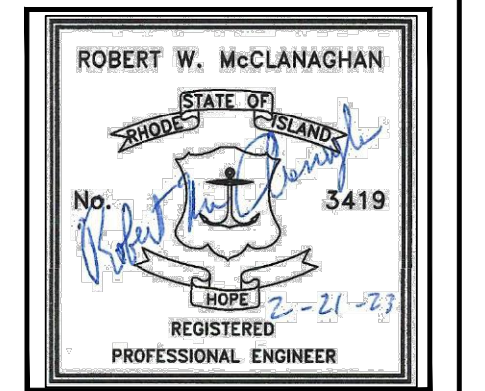


OCTOBER 2024





PROJECT
SECURITY UPGRADE PROJECT
URI LAYDOWN & RECYCLE CENTER
KINGSTON, RHODE ISLAND



CLIENT
UNIVERSITY OF RHODE ISLAND

mc2
 ELECTRICAL
 ASSOCIATES, INC. ENGINEERS

DRAWING TITLE ELECTRICAL PLAN	BY	
	REVISIONS	
	NO.	DATE

PROJECT NO.: 40764

DATE: OCTOBER 2024

SCALE: 1" = 40'

DRAWN BY: RWM

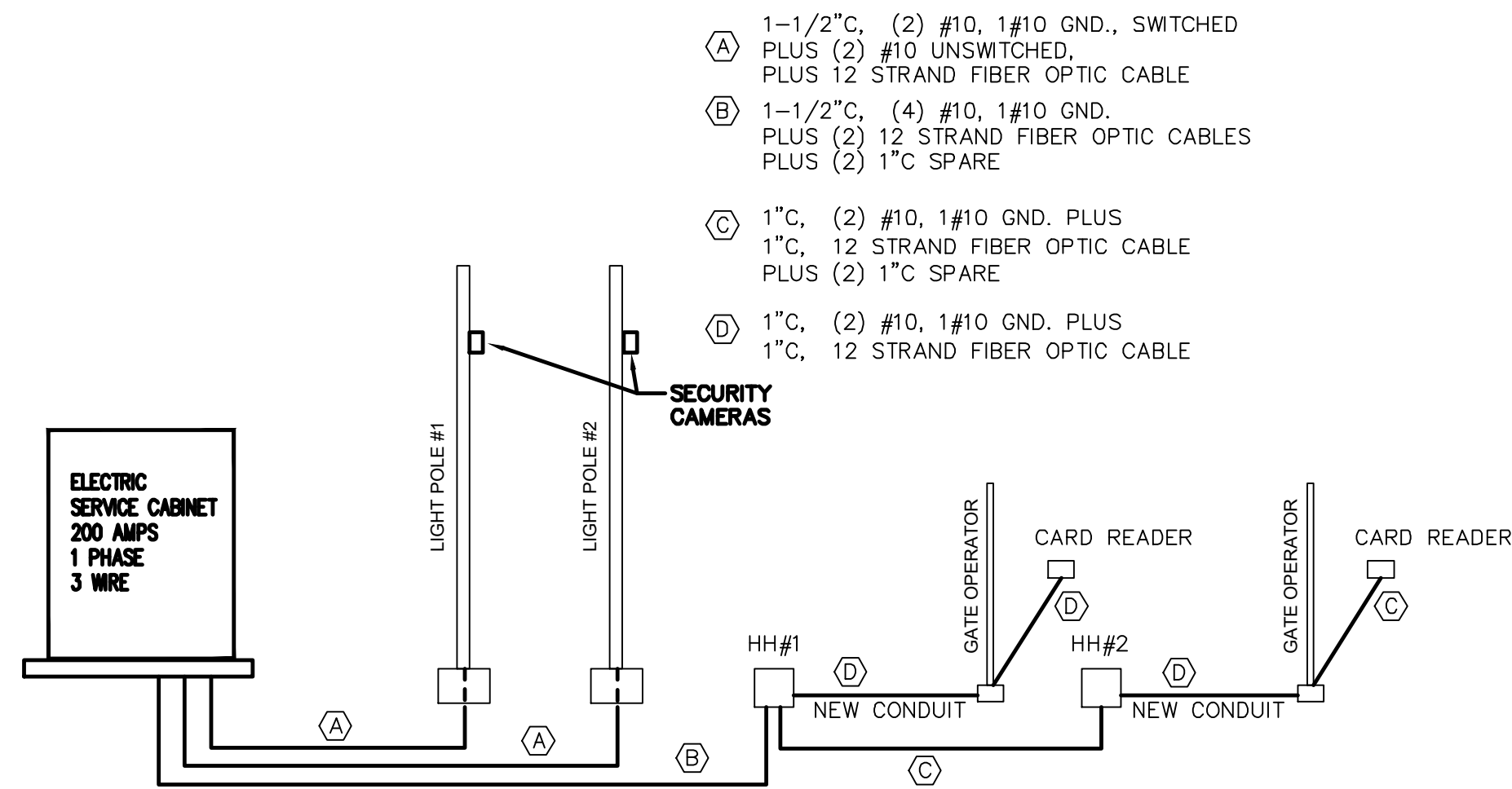
CHECKED BY: RWM

DRAWING NUMBER
E1
 SHEET 1 OF 4

- NOTES:
- EXISTING 12"x12" ELECTRIC HANDHOLES FOR GATE OPERATORS. 24-INCH SLACK CONDUCTORS PROVIDED IN EACH HANDHOLE. ALL CABLE SPLICES SHALL BE WATERPROOF USING SPLICE KITS.
 - TWO (2) EXISTING 1/2" CONDUITS BETWEEN HANDHOLES. 1 SPARE CONDUIT.
 - EXISTING LIGHT POLE HAS A 1-1/2" CONDUIT ROUTED TO IT FROM THE EXISTING SERVICE CABINET. REFER TO COMMUNICATIONS ONE LINE DIAGRAM.
 - EXISTING 34.5 KV OVERHEAD LINE CROSSES THE SITE. ALTHOUGH THIS IS NOT A SUBSTATION, THE PRESENCE OF THIS MEDIUM VOLTAGE LINE APPEARS TO PRESENT THE SAME DANGER AS A FENCE SURROUNDING A SUBSTATION. THEREFORE, PROVIDE FENCE GROUNDING AS NOTED.
 - PROVIDE NEW CONDUITS. REFER TO REVISED WIRING DIAGRAM, SHEET E2.
 - PROVIDE (2) NEW SLIDING GATE OPERATORS, LIFTMASTER MODEL #INSL24UL, OR APPROVED EQUAL.
 - NEW CARD READERS, TWO REQUIRED. PROVIDE CONDUIT ONLY, GATE OPERATORS WILL BE PROVIDED LATER.
 - PROVIDE VEHICLE LOOP BELOW GRADE. INSTALL PER MANUFACTURER'S REQUIREMENTS.
 - EXISTING 34.5 KV UTILITY POLE HAS AN EXISTING 2" CONDUIT ROUTED TO IT FROM THE EXISTING SERVICE CABINET. PROVIDE A 4/0 CU COVERED GROUND CABLE AND CONNECT TO 34.5 KV AERIAL GROUND CONDUCTOR. CONNECT GROUND WIRE TO SERVICE GROUND.

- FENCE GROUNDING:
- PROVIDE FENCE GROUNDING IN ACCORDANCE WITH NEC 250.194.
 - BONDING JUMPERS ARE REQUIRED AT EACH FENCE CORNER AND AT MAXIMUM 160 FT. INTERVALS ALONG THE FENCE.
 - BONDING JUMPERS ARE REQUIRED ON EACH SIDE OF THE CROSSING WHERE BARE OVERHEAD CONDUCTORS CROSS THE FENCE.
 - GATES MUST BE BONDED TO THE GATE SUPPORT POST, AND EACH GATE SUPPORT POST MUST BE BONDED TO THE GROUNDING ELECTRODE SYSTEM.
 - ANY GATE OR OTHER OPENING IN THE FENCE MUST BE BONDED ACROSS THE OPENING BY A BURIED BONDING JUMPER. NOTE THAT THERE IS A PERSONNEL GATE THAT WILL BE ADDED. REFER TO CIVIL ENGINEERING PLANS FOR LOCATION OF PERSONNEL GATE.
 - THE GROUNDING GRID OR GROUNDING ELECTRODE SYSTEMS SHALL BE EXTENDED TO COVER THE SWING OF ALL GATES.
 - PROVIDE A 4/0 COPPER GROUND WIRE AND BOND THE FENCE TO THE SERVICE GROUND VIA THIS GROUND WIRE.
 - REFER TO CIVIL ENGINEERING PLANS FOR EXACT LAYOUT OF FENCE. NOTE THAT THE AREA ENCLOSED BY THE FENCE WILL BE INCREASED.

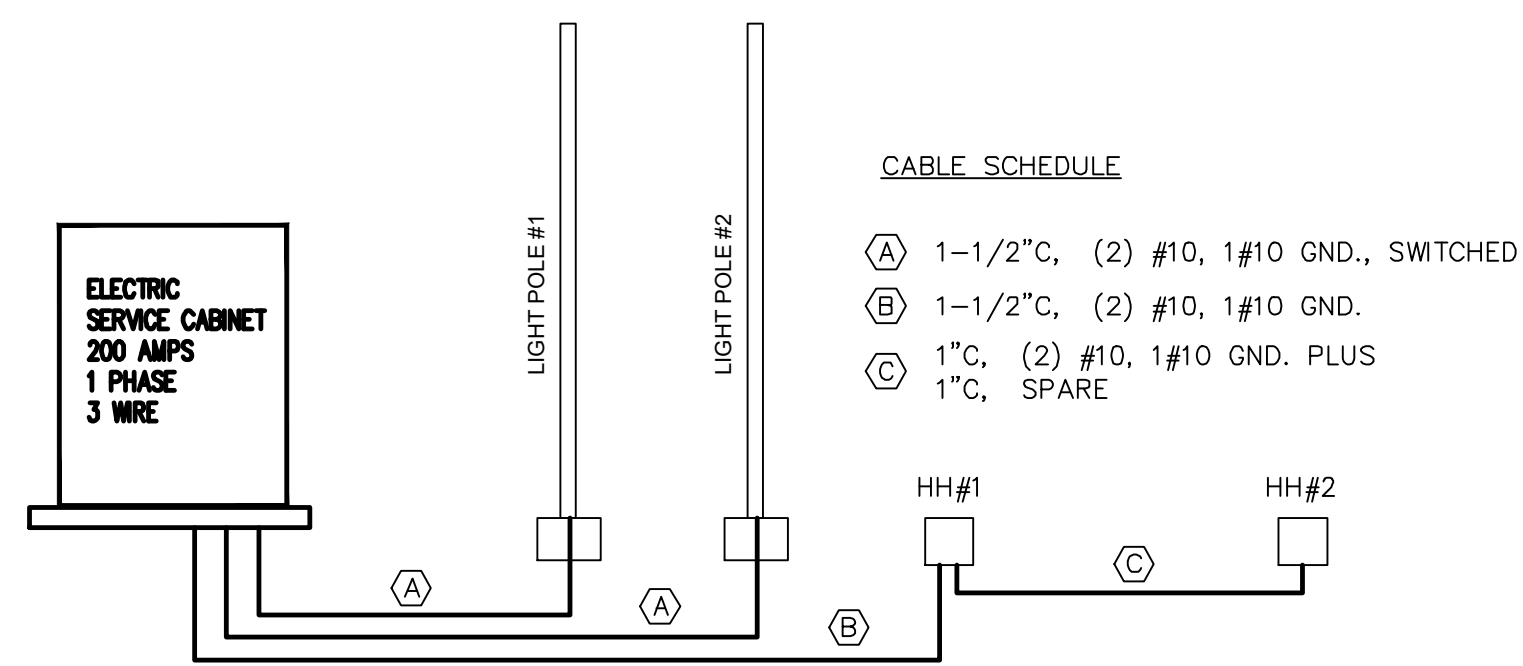
- CONEX BOX GROUNDING:
- PROVIDE GROUNDING IN ACCORDANCE WITH NEC 250.194.
 - BOND CONEX BOX TO FENCE GROUND.
 - REFER TO DRAWING C1 FOR EXACT LOCATION OF CONEX BOX.



- CABLE SCHEDULE**
- (A) 1-1/2" C, (2) #10, 1#10 GND., SWITCHED PLUS (2) #10 UNSWITCHED, PLUS 12 STRAND FIBER OPTIC CABLE
 - (B) 1-1/2" C, (4) #10, 1#10 GND, PLUS (2) 12 STRAND FIBER OPTIC CABLES PLUS (2) 1" C SPARE
 - (C) 1" C, (2) #10, 1#10 GND, PLUS 1" C, 12 STRAND FIBER OPTIC CABLE PLUS (2) 1" C SPARE
 - (D) 1" C, (2) #10, 1#10 GND, PLUS 1" C, 12 STRAND FIBER OPTIC CABLE

PARTIAL WIRING DIAGRAM—REVISED

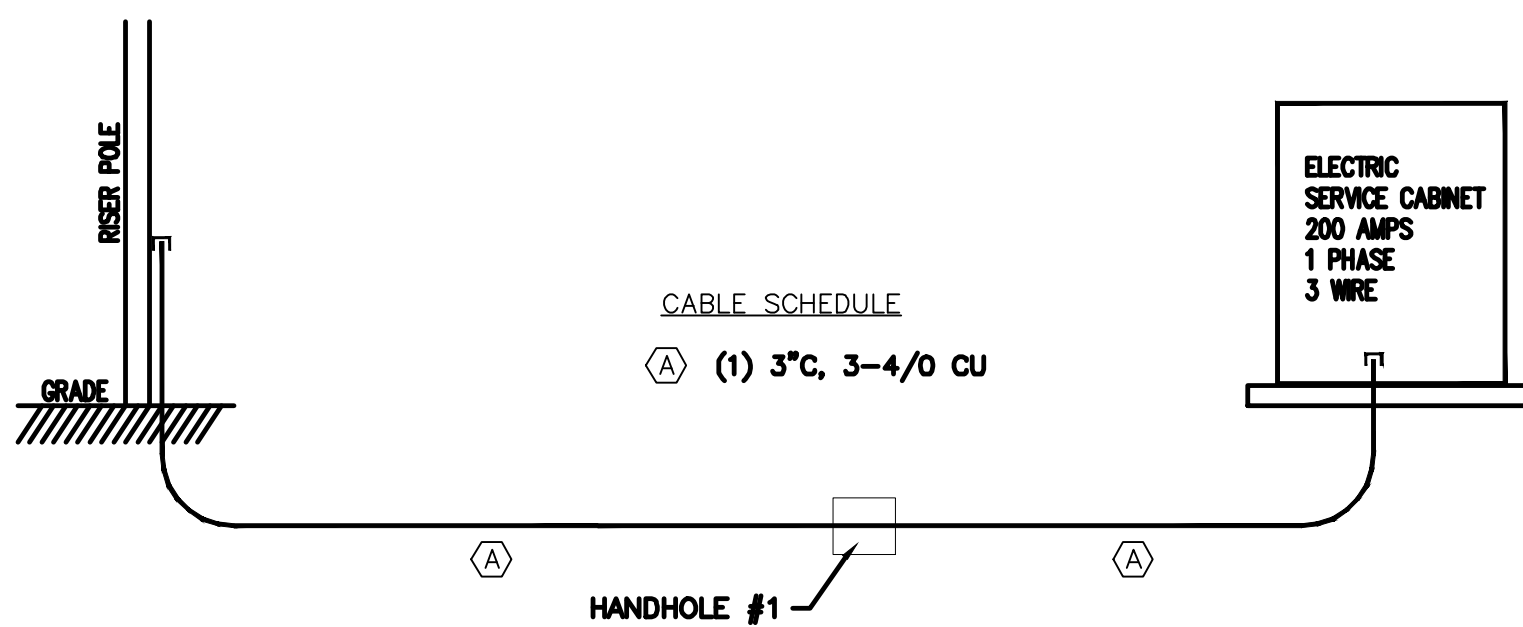
3
E2
NOT TO SCALE



- CABLE SCHEDULE**
- (A) 1-1/2" C, (2) #10, 1#10 GND., SWITCHED
 - (B) 1-1/2" C, (2) #10, 1#10 GND.
 - (C) 1" C, (2) #10, 1#10 GND, PLUS 1" C, SPARE

PARTIAL WIRING DIAGRAM—EXISTING

2
E2
NOT TO SCALE



- CABLE SCHEDULE**
- (A) (1) 3" C, 3-4/0 CU

POWER ONE LINE DIAGRAM—EXISTING

1
E2
NOT TO SCALE

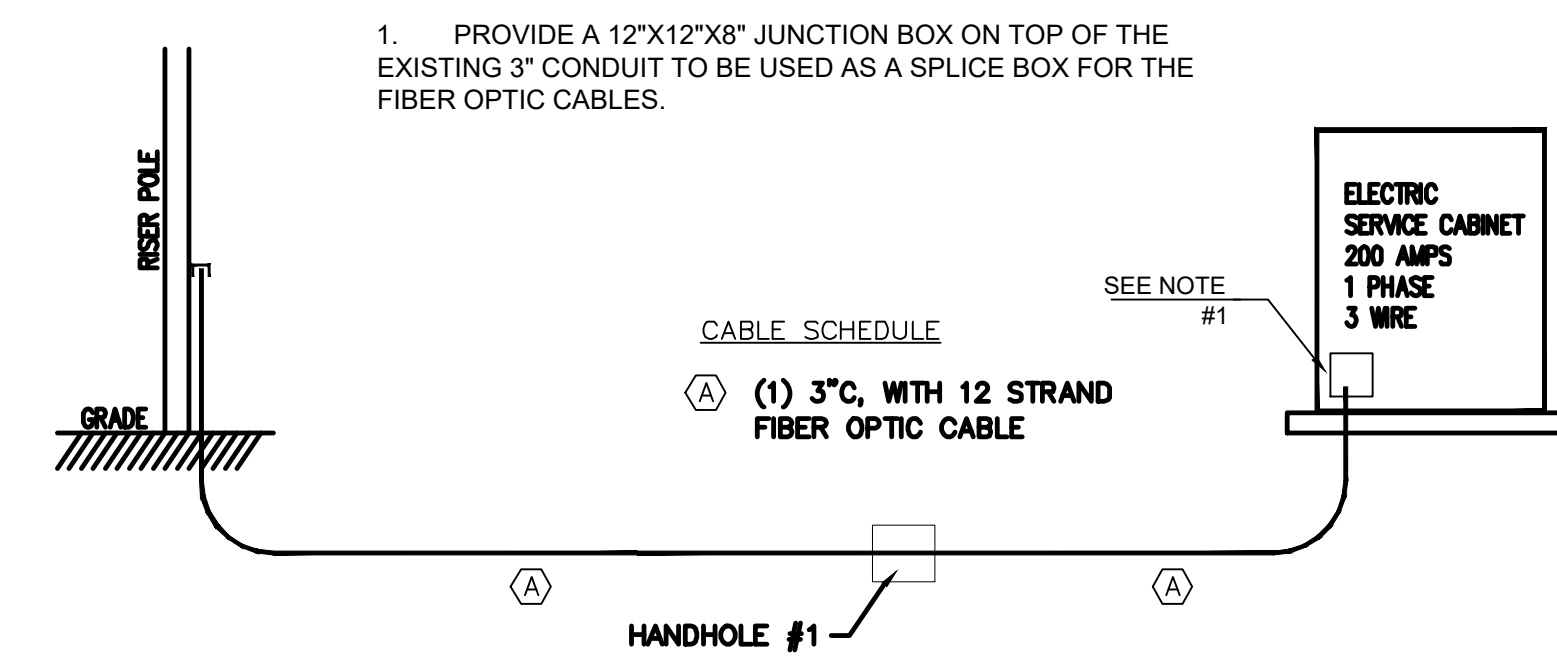
ELECTRICAL SCOPE OF WORK

1. EXISTING ELECTRIC SERVICE IS NOT ENERGIZED. CONTRACTOR SHALL BE RESPONSIBLE TO HAVE THE EXISTING ELECTRIC SERVICE INSPECTED AND TO ENERGIZE THE SERVICE. SERVICE CONDUCTORS ARE IN PLACE ON RISER POLE AND CONDUCTORS NEED TO BE CONNECTED TO THE EXISTING OVERHEAD WIRES ON THE POLE.
2. CONTRACTOR SHALL PROVIDE A NEW COMMUNICATIONS SERVICE FROM THE RISER POLE TO THE EXISTING SERVICE CABINET AS INDICATED. TERMINATE COMM SERVICE IN A NEW JB WITHIN THE SERVICE CABINET.
3. NEW SECURITY CAMERAS ARE TO BE PROVIDED ON THE EXISTING (2) LIGHT POLES. ROUTE NEW NON SWITCHED 120 VOLT CIRCUITS WITHIN THE EXISTING CONDUITS. ROUTE NEW FIBER OPTIC CABLES WITHIN EXISTING CONDUITS.
4. PROVIDE POWER AND COMMUNICATIONS TO (2) NEW GATE OPERATORS AS INDICATED. UTILIZING EXISTING AND NEW CONDUITS AS INDICATED. UNSWITCHED POWER IS REQUIRED FOR THE GATE OPERATOR AND CARD READER. CARD READERS REQUIRE FIBER OPTIC CABLE FOR COMMUNICATIONS. PROVIDE SEPARATE 20 AMP, 120 VOLT CIRCUITS FOR EACH GATE OPERATOR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING TO THE GATE OPERATORS AND CARD READERS. OWNER WILL SELECT EQUIPMENT AT A LATER DATE. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC.
6. COORDINATE ALL COMMUNICATIONS WORK WITH THE URI COMMUNICATIONS DEPARTMENT.
7. INSTALL ALL EQUIPMENT AND FIBER OPTIC CABLE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ABBREV.	DESCRIPTION
A	AMPERES
A.F.F.	ABOVE FINISH FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPS INTERRUPTING CAPACITY
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
C.B.	CIRCUIT BREAKER
CEF	CEILING EXHAUST FAN
CKT	CIRCUIT
CTR	COUNTER
CUH	CABINET UNIT HEATER
E.C.	ELECTRICAL CONTRACTOR
EMT	ELECTRICAL METALLIC TUBING
ETR	EXISTING TO REMAIN
G.C.	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTING
GND	GROUND
KCMIL	THOUSAND CIRCULAR MIL
M.C.C.	MECHANICAL CONTRACTOR
M/C	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MIL
MLO	MAIN LUGS ONLY
J	JUNCTION BOX
P	POLE
REF	ROOF EXHAUST FAN
REM	REMOVE
REP	REPLACE
RGS	RIGID GALVANIZED STEEL
RN	RELOCATED IN NEW POSITION
RR	REMOVE AND RELOCATE
RTU	ROOF TOP UNIT
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
WP	WEATHERPROOF
PH	PHASE

COMMUNICATIONS NOTES

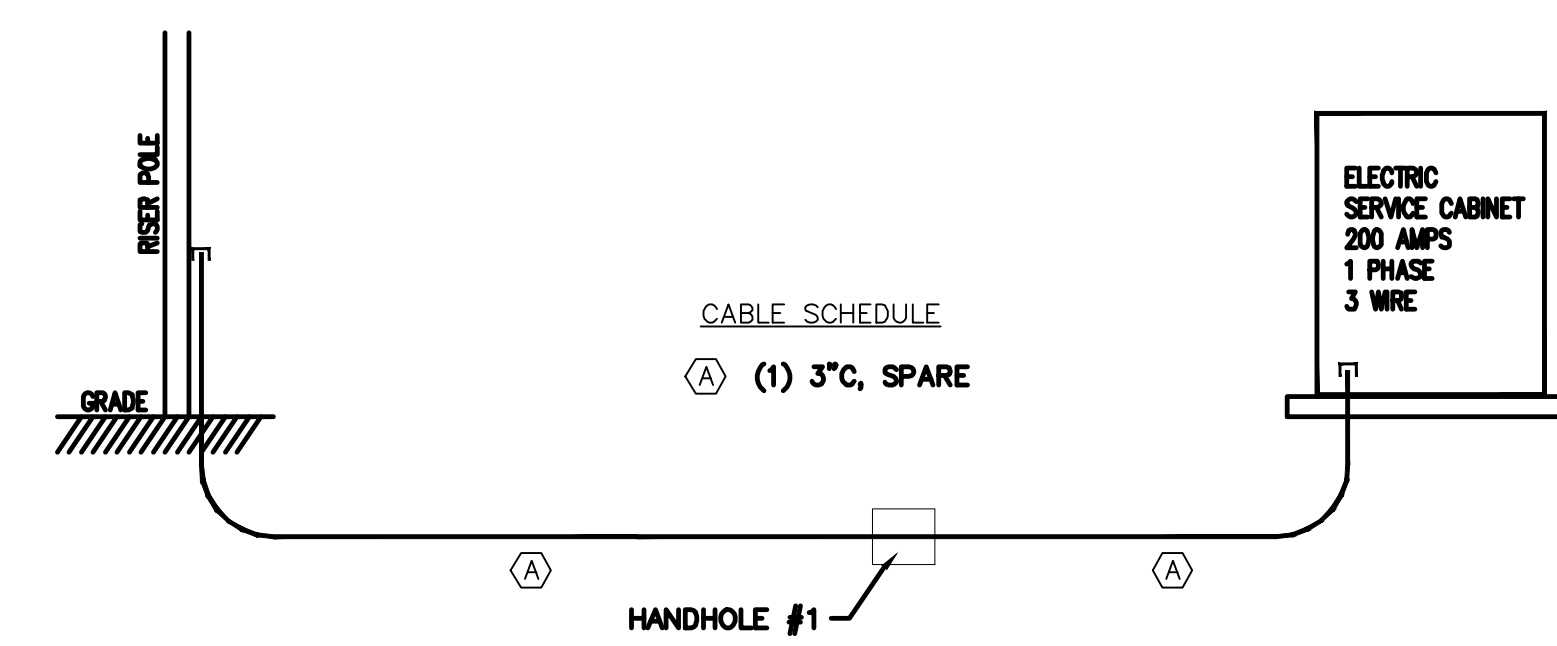
1. PROVIDE A 12"X12"X8" JUNCTION BOX ON TOP OF THE EXISTING 3" CONDUIT TO BE USED AS A SPLICE BOX FOR THE FIBER OPTIC CABLES.



- CABLE SCHEDULE**
- (A) (1) 3" C, WITH 12 STRAND FIBER OPTIC CABLE

COMMUNICATIONS ONE LINE DIAGRAM—REVISED

5
E2
NOT TO SCALE



- CABLE SCHEDULE**
- (A) (1) 3" C, SPARE

COMMUNICATIONS ONE LINE DIAGRAM—EXISTING

4
E2
NOT TO SCALE

PROJECT

**SECURITY UPGRADE PROJECT
URI LAYDOWN & RECYCLE CENTER
KINGSTON, RHODE ISLAND**

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DRAWING TITLE

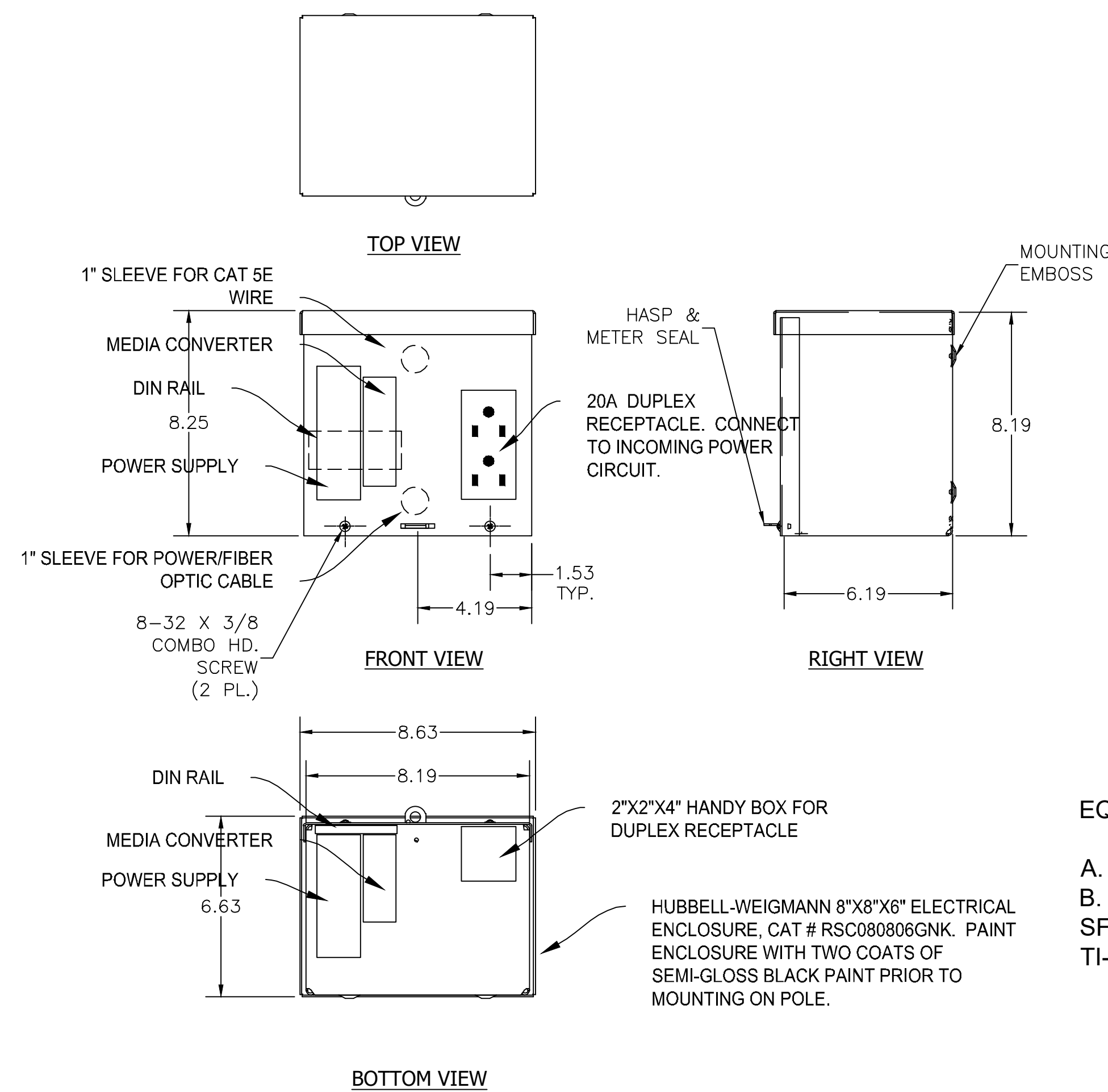
ELECTRICAL DETAIL SHEET #1

NO.	DATE	BY	REVISIONS

PROJECT NO.:	40764
DATE:	OCTOBER 2024
SCALE:	1" = 40'
DRAWN BY:	RWM
CHECKED BY:	RWM
DRAWING NUMBER	E2
SHEET 2 OF 4	

FIBER OPTIC CABLE SPECIFICATIONS

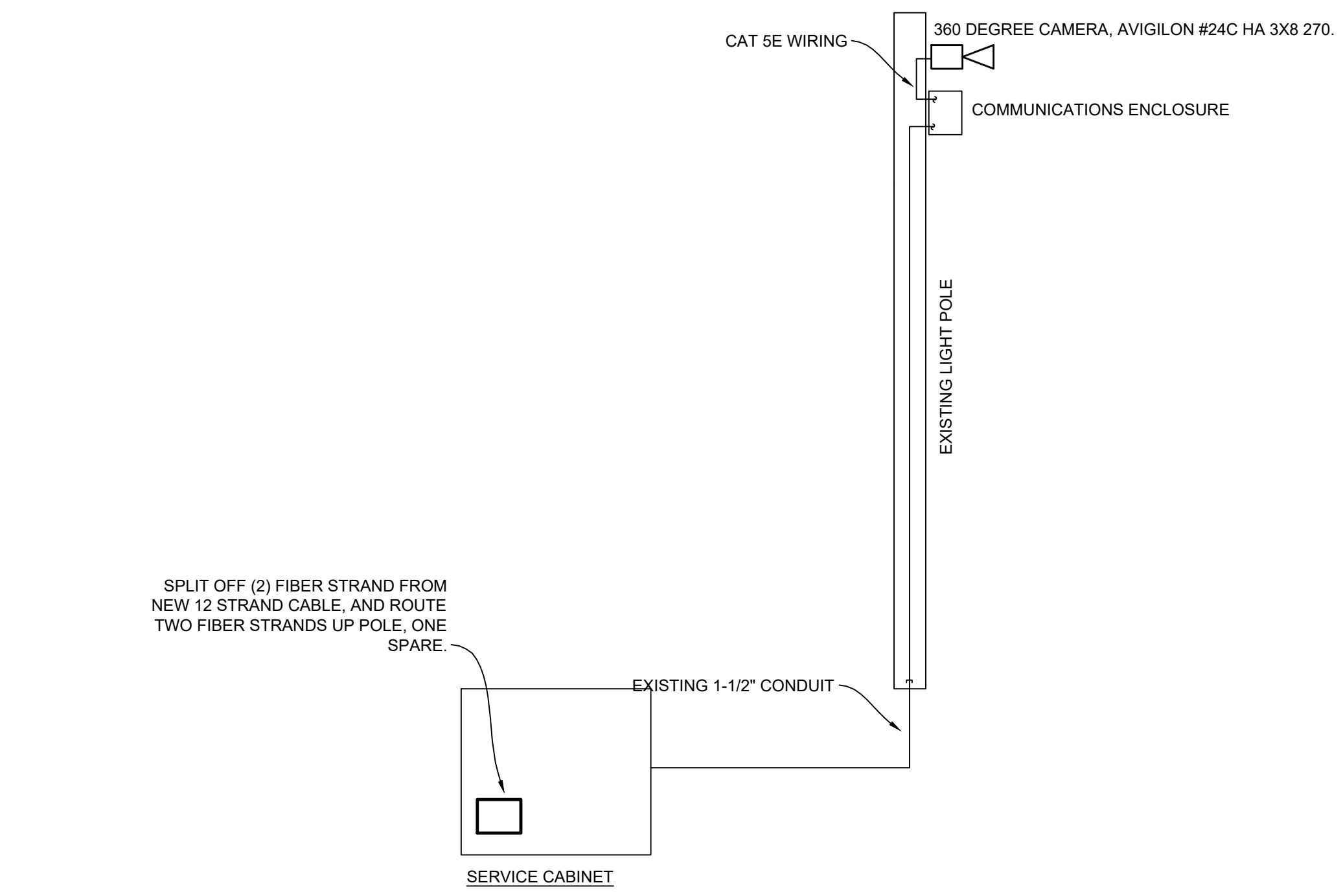
A. 12 STRAND FIBER OPTIC CABLE: CORNING ALTOS LOOSE TUBE, GEL-FREE, ALL-DIELECTRIC CABLE WITH FASTACCESS TECHNOLOGY, 12F, SINGLE MODE (OS2). PART #012EU4-T4701D20, OR EQUAL.



1 COMMUNICATIONS ENCLOSURE DETAIL
Scale: N.T.S.

EQUIPMENT LIST

- A. POWER SUPPLY, TRENDNET #TI-S12048.
- B. MEDIA CONVERTER, TRENDNET INDUSTRIAL SFP TO GIGABIT UPoE MEDIA CONVERTOR, CAT. # TI-UF11SFP



3 WIRING DIAGRAM - TYPICAL
Scale: N.T.S.

ELECTRICAL CODE ARTICLES APPROPRIATE TO THIS INSTALLATION:

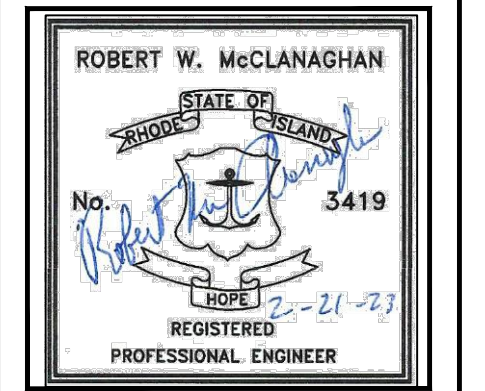
1. NEC ARTICLE 770.133 (A) "NONCONDUCTIVE OPTICAL FIBER CABLES SHALL BE PERMITTED TO OCCUPY THE SAME CABLE TRAY OR RACEWAY WITH CONDUCTORS FOR ELECTRIC LIGHT, POWER, CLASS 1, NON-POWER-LIMITED FIRE ALARM, TYPE ITC, OR MEDIUM-POWER NETWORK-POWERED BROADBAND COMMUNICATIONS CIRCUITS OPERATING AT 1000 VOLTS OR LESS."
2. NEC ARTICLE 800.133 (A) (1) (c) EXCEPTION NO. 2: POWER CONDUCTORS IN OUTLET BOXES, JUNCTION BOXES, OR SIMILAR FITTINGS OR COMPARTMENTS WHERE SUCH CONDUCTORS ARE INTRODUCED SOLELY FOR POWER SUPPLY TO COMMUNICATIONS EQUIPMENT. THE POWER CIRCUIT CONDUCTORS SHALL BE ROUTED WITHIN THE ENCLOSURE TO MAINTAIN A MINIMUM OF 6 MM (1/4 IN.) SEPARATION FROM THE COMMUNICATIONS CIRCUIT CONDUCTORS.

ELECTRICAL NOTES

1. PER NEC 770.133 (A), NONCONDUCTIVE FIBER OPTIC CABLE IS PERMITTED IN THE SAME RACEWAY FOR ELECTRIC POWER CONDUCTORS. THE FIBER OPTIC CABLE USED IS NONCONDUCTIVE (ALL-DIELECTRIC). ROUTE FIBER OPTIC CABLE AND POWER CABLES UP THE INSIDE OF THE POLE.
2. COMMUNICATIONS CABLE (CAT 5E) UP TO THE CAMERA MUST BE SEPARATED FROM POWER CIRCUITS BY A MINIMUM OF 1/4" WITHIN THE CABINET.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE.
4. DETAILS ARE CONCEPTUAL. CONTRACTOR SHALL MAKE A COMPLETE AND OPERATIONAL SYSTEM. CONTRACTOR SHALL FABRICATE ONE UNIT PRIOR TO SITE INSTALLATION, TO ASCERTAIN THAT EQUIPMENT WILL FIT INTO ENCLOSURE.

2 SECURITY CAMERA POLE ELECTRICAL DETAIL
Scale: N.T.S.

PROJECT
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MCCLANAGHAN ELECTRICAL ASSOCIATES, INC. ENGINEERS

DRAWING TITLE
ELECTRICAL DETAIL SHEET #2

NO.	DATE	REVISIONS	BY

PROJECT NO.: 40764

DATE: OCTOBER 2024

SCALE: 1" = 40'

DRAWN BY: RWM

CHECKED BY: RWM

DRAWING NUMBER
E3
SHEET 3 OF 4