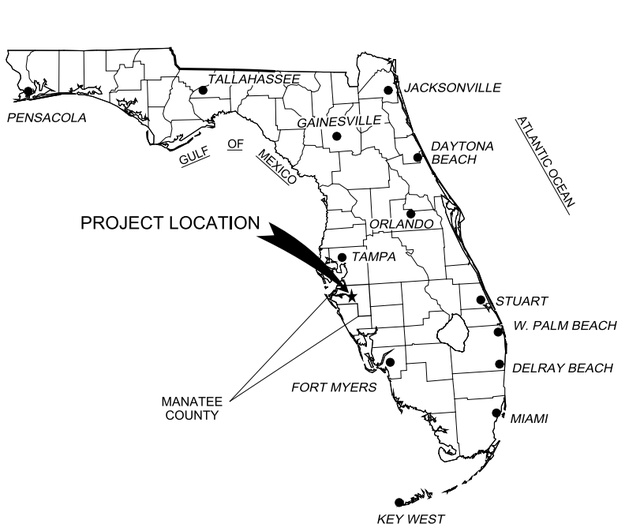
MANATEE COUNTY

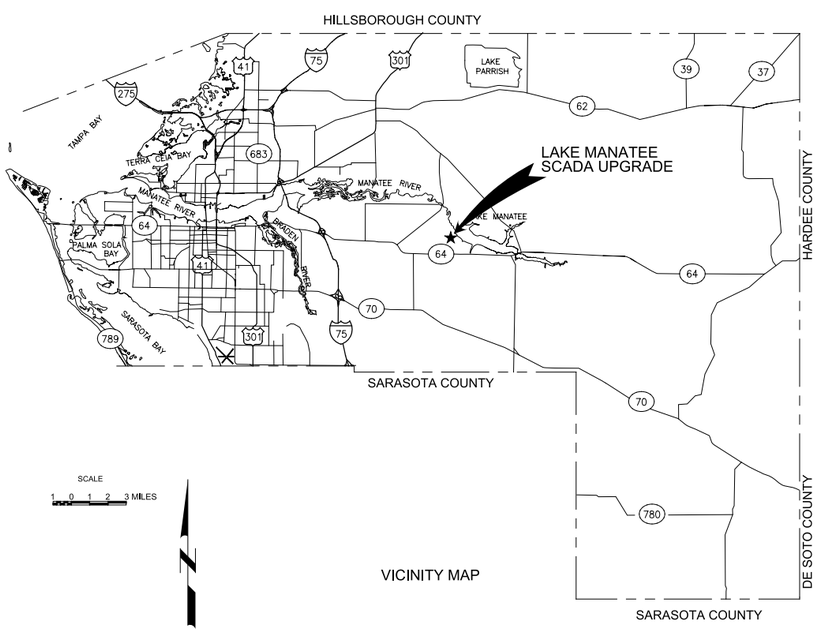
LAKE MANATEE WTP SCADA UPGRADES

DECEMBER 2018

VOLUME 1



LOCATION MAP



VICINITY MAP

ALL DRAWINGS AND TECHNICAL SPECIFICATIONS IN THE PROCUREMENT PACKAGE HAVE BEEN PREPARED TO REFLECT MINIMUM DESIGN REQUIREMENTS FOR THIS PROJECT, WHILE ALSO ATTEMPTING TO ACCOMMODATE THE PREQUALIFIED SUPPLIERS' STANDARD ARRANGEMENTS. SUPPLIER SHOULD PROVIDE ANY ADDITIONAL ITEMS NEEDED TO MAKE THEIR SYSTEMS FUNCTION PROPERLY.

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JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Joseph J. Hanlon
Contact Info: Carollo Engineers Inc
Date: 2018.12.06 14:01:49 -05'00'

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JOB NO. 10716L10
DRAWING NO. 00G01
SHEET NO. 1 OF 84

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
		GENERAL
1	00G01	COVER SHEET
2	00G02	DRAWING INDEX
		ELECTRICAL
3	01E00	ELECTRICAL LEGEND
4	01E01	CONTROL ROOM MODIFICATIONS
5	01E02	FIBER OPTIC BLOCK DIAGRAM
6	01E03	FIBER OPTIC CABLE TO RAW WATER 2
7	01E04	FIBER OPTIC CABLE TO RTU 50 AND 51 DETAILS
8	01E05	FIBER OPTIC CABLE TO RTU 50 AND 51 DETAILS
9	01E06	FIBER OPTIC CABLE TO RTU 50 AND 51 DETAILS
10	01E07	FIBER OPTIC CABLE TO RAW WATER 2 PUMP STATION
11	01E08	FIBER OPTIC CABLE TO RAW WATER 2 PUMP STATION
12	01E09	120 VAC 30 AMP SERVICE TO NEW SERVER RACK
13	01E10	120 VAC 30 AMP SERVICE TO NEW SCADA RADIO
14	01E11	DCU TERMINATION CABINET REPLACEMENT DCU-3 FILTER A/B CHEMICALS
15	01E12	DCU TERMINATION CABINET REPLACEMENT DCU-1 C-LIME
16	01E13	DCU TERMINATION CABINET REPLACEMENTS I
17	01E14	DCU TERMINATION CABINET REPLACEMENTS II
18	01E15	DCU TERMINATION CABINET REPLACEMENTS III
19	01E16	WORKSTATION 1 (LIBRARY AREA) NETWORK INTERFACE PANELS
20	01E17	WORKSTATION 5 (OPERATORS LAB AREA) NETWORK INTERFACE PANELS
21	01E18	WORKSTATION 4 (INSTRUMENTATION SHOP AREA) NETWORK INTERFACE PANELS
22	01E19	INSTRUMENTATION SHOP FIBER OPTIC ROUTING
23	01E20	INSTRUMENTATION SHOP RADIO ANTENNA CABLE ROUTING
24	01E21	GATE HOUSE MODIFICATIONS
25	01E22	FIBER OPTIC COMMUNICATION CONDUIT REPLACEMENT
26	01E30	ELECTRICAL DETAILS I
27	01E31	ELECTRICAL DETAILS II
		INSTRUMENTATION
28	00GN01	SCHEMATIC SYMBOLS
29	00GN02	TYPICAL ANTENNA / TOWER DETAILS
30	01N01	REMOTE RTU COUNTY WIDE MAP SITE PLAN
31	01N02	REMOTE RTU COUNTY WIDE MAP PLAN - I
32	01N03	REMOTE RTU COUNTY WIDE MAP PLAN - II
33	01N04	REMOTE RTU COUNTY WIDE MAP PLAN - III
34	01N05	REMOTE RTU COUNTY WIDE MAP PLAN - IV
35	02DN01	RTU NO. 1 DEMOLITION
36	02DN02	RTU NO. 2 DEMOLITION
37	02DN03	RTU NO. 3 DEMOLITION
38	02DN04	RTU NO. 4 DEMOLITION
39	02DN05	RTU NO. 5 DEMOLITION
40	02DN06	RAIN GAUGE RTUS DEMOLITION
41	02DN07	AQUIFER STORAGE AND RECOVERY WELL RTU DEMOLITION
42	02DN08	RTU NO. 8 CARBON SILO DEMOLITION
43	02DN09	CARBON SILO VENDOR CONTROL PANEL PLC DEMOLITION
44	02DN10	NW GROUND STORAGE AND PUMP STATION DEMOLITION
45	02DN11	CORTEZ GROUND STORAGE AND BOOSTER STATION RTU DEMOLITION
46	02DN12	ELLWOOD PARK NO. 1 RTU DEMOLITION
47	02DN13	ELLWOOD PARK NO. 2 RTU DEMOLITION
48	02DN14	HOSPITAL BOOSTER STATION RTU DEMOLITION
49	02DN15	LONG BOAT KEY PANEL DEMOLITION
50	02DN16	SARASOTA METER STATION PANEL DEMOLITION
51	02DN17	WTP TRAIN A AND TRAIN B RTU DEMOLITION
52	02DN18	RAW WATER NO. 1 RTU DEMOLITION
53	02DN20	NORTH COUNTY ELEVATED TANK RTU DEMOLITION
54	02DN21	59TH STREET ELEVATED TANK RTU DEMOLITION
55	02DN22	NORTH WEST ELEVATED TANK RTU DEMOLITION
56	02DN23	PALMETTO ELEVATED TANK RTU DEMOLITION
57	02DN24	PORT MANATEE ELEVATED TANK RTU DEMOLITION
58	02DN25	EQUALIZATION BACKWASH RTU DEMOLITION
59	02DN26	SR 64 RTU DEMOLITION
60	02N01	RTU NO. 1 ELEVATION
61	02N02	RTU NO. 2 ELEVATION
62	02N03	RTU NO. 3 ELEVATION
63	02N04	RTU NO. 4 ELEVATION
64	02N05	RTU NO. 5 ELEVATION
65	02N06	TYPICAL RTU BACK PANEL ELEVATION
66	02N07	MASTER RADIO PANEL ELEVATION
67	02N08	SERVER RACK ELEVATION
68	02N09	WORKSTATIONS NO. 1 AND NO. 5 PANEL ELEVATION
69	02N10	WORKSTATION NO. 4 PANEL ELEVATION
70	02N11	TYPICAL BOOSTER STATION CONTROL PANEL ELEVATION
71	02N12	TAINTER GATES CONTROL PANEL ELEVATION
72	02N13	RTU DETAILS
73	02N14	CARBON SILO TERMINATION CABINET ELEVATION
74	02N15	LONG BOAT KEY PANEL ELEVATION
75	02N16	SARASOTA METER STATION PANEL ELEVATION
76	02N17	RAW WATER 1 AND FLUORIDE BACK PANEL ELEVATION

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
77	03N01	SCADA ARCHITECTURE - I
78	03N02	SCADA ARCHITECTURE - II
79	06N01	RTU NO. 1-5 CONTROL SCHEMATIC
80	06N02	SERVER RACK CONTROL SCHEMATIC
81	06N03	TYPICAL BOOSTER STATION RTU CONTROL SCHEMATIC
82	06N04	TAINTER GATES CONTROL PANEL CONTROL SCHEMATIC
83	06N05	CONTROL SCHEMATICS
84	06N06	TYPICAL RTU CONTROL SCHEMATIC

REV	DATE	BY	DESCRIPTION

DESIGNED JJH
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
GENERAL
DRAWING LIST

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 00G02
SHEET NO. 2 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1000G002.dgn

Plot Date: 06-DEC-2018 11:51:12 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: AWillyard

SYMBOL / DESCRIPTION

GENERAL WIRING

- 2#12,1#12@-3/4"C — INDICATES CIRCUIT CONDUCTORS AND RACEWAY.
- CONNECTION TO EQUIPMENT AS NOTED
- LP1-1 — HOME RUN—PANEL/CIRCUIT NOTED
- CONDUIT RUNS CONCEALED
- CONDUIT, STUBBED AND CAPPED AS SHOWN
- OHE — OVERHEAD PRIMARY WIRING AS NOTED (EXISTING)
- UGE — UNDERGROUND ELECTRIC
- UGC — UNDERGROUND COMM / DATA
- C — INSTRUMENTATION & CONTROL DUCTBANK/ CONDUIT
- G — GROUNDING CONDUCTORS AS NOTED ON PLAN
- WIRING J—BOX, SUITABLE FOR NUMBER OF WIRES AND ENVIRONMENT PER SPECIFICATIONS
- EQUIPMENT CONNECTION, TYPICALLY FOR PLC DEVICES; COORDINATE WITH DEVICE SUPPLIER AND I&C CONTRACTOR
- DEMOLITION
- [XX] — CIRCUIT WIRING TYPE PER SCHEDULES, SEE E-33x SERIES OF DRAWINGS
- XX — DUCT BANK / CONDUIT I.D. AND DETAILS PER CONDUIT SCHEDULES AND PLANS
- (XX) — FEEDER AND WIRING NOTES, AS SCHEDULED PER PLANS
- YC-XXX — YARD CONDUIT / WIRING PER SCHEDULE
- (XX) — KEY NOTE

DISTRIBUTION AND MOTORS

- DP-R — ELECTRICAL EQUIPMENT / DEVICE AS NOTED
- PANELBOARD
- UTILITY METERING AS NOTED
- TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE
- MH-1 — MANHOLE / HANDHOLE PER SCHEDULE, MH-1 NOTED
- GROUND CONNECTION
- (5) — MOTOR WITH HORSEPOWER SIZE NOTED (VAV = VARIABLE AIR VOLUME BOX)
- 3 60 100 — NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE, NEMA 1 ENCLOSURE U.O.N.
- 3 60/40 — FUSED DISCONNECT SWITCH, SIZE INDICATED (60/40, 60 = SWITCH RATING: 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 1 ENCLOSURE U.O.N.
- STARTER, MAGNETIC, NEMA SIZE FOR DRIVEN LOAD, NEMA 1 ENCLOSURE, UNLESS INDICATED OTHERWISE.
- COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED). MAGNETIC STARTER, NEMA SIZE FOR DRIVEN LOAD, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE.
- V — CONFIGURED VARIABLE SPEED DRIVE, FUSE OR CIRCUIT BREAKER PROTECTED, SIZE AND TYPE FOR DRIVEN LOAD NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE.

LIGHTING

- A — LUMINAIRE—SEE LIGHTING FIXTURE SCHEDULE
- A — LUMINAIRE—SEE LIGHTING FIXTURE SCHEDULE
- (A) — LUMINAIRE—SEE LIGHTING FIXTURE SCHEDULE
- EXIT LIGHT—SEE LIGHTING FIXTURE SCHEDULE; SHADED QUADRANT ARE FACES. ARROWS AS NOTED; WITH BATTERY.
- EMERGENCY LIGHTING FIXTURE—SEE LIGHTING FIXTURE SCHEDULE; WITH BATTERY
- HIGH MAST LIGHTING (EXISTING U.O.N.)
- (CO) — LIGHTING CONTACTOR (COIL)
- P — PHOTOCELL SWITCH

WIRING DEVICES

- WALL SWITCH, 120/277V, 20A@ 48" A.F.F.
  2— DOUBLE POLE P— PILOT LIGHT
  3— THREE WAY K— KEY OPERATED
  4— FOUR WAY D— DIMMER
  WP— WEATHERPROOF OS— OCCUPANCY SENSOR
- $M — MANUAL MOTOR STARTER SWITCH, SIZED FOR LOAD
- DUPLEX RECEPTACLE, NEMA 5-20R @48" A.F.F. U.O.N. CH = COUNTER HEIGHT DEVICE
- DUPLEX RECEPTACLE, NEMA 5-20R SWITCHED DEVICE FOR DEDICATED APPLIANCE. CH = COUNTER HEIGHT DEVICE
- DUPLEX RECEPTACLE, NEMA 5-20R @48" A.F.F. U.O.N. G.F.I. TYPE (CH = COUNTER HEIGHT DEVICE); DO NOT USE GFI BREAKERS OR FEED THRU GFI RECEPTACLES EACH DEVICE TO BE GFI TYPE UNLESS NOTED.
- DUAL DUPLEX RECEPTACLE, NEMA 5-20R @48" A.F.F. U.O.N.
- SPECIAL PURPOSE RECEPTACLE, TYPE AND HEIGHT AS NOTED.
- FLOOR DUPLEX RECEPTACLE, NEMA 5-20R, WITH FLUSH HINGED BRASS COVERPLATE.
- T — THERMOSTAT @ 48" A.F.F.

GROUNDING AND LIGHTNING PROTECTION

- G — GROUND WIRE, 4/0 UNLESS OTHERWISE NOTED
- G — GR — AS ABOVE WITH GROUND ROD EXOTHERMICALLY WELDED
- G — GR-TW — AS ABOVE WITH TEST WELL AT GROUND ROD (8" CONC VALVE BOX WITH TOP OF ROD EXPOSED IN BOX)
- G — EW — AS ABOVE WITH EXOTHERMIC WELDED AT JOINT
- LP — LIGHTNING PROTECTION CONDUCTOR
- LAT — LIGHTNING PROTECTION AIR TERMINAL (ROOF OR ON EQUIPMENT WHERE NOTED)

MISCELLANEOUS EQUIPMENT

- TLI — TANK LEVEL INDICATOR / CONTROL PANEL
- TELEPHONE/DATA RECEPTACLE BOX @ 18" A.F.F. U.O.N. WITH 1" CONDUIT TO TELEPHONE TERMINAL BOARD

SMOKE DETECTION

- R — AHU SHUTDOWN RELAY
- SD — SUPPLY DUCT SMOKE DETECTOR, SINGLE STATION 120V OPERATED
- RTS — DUCT SMOKE DETECTOR REMOTE TEST SWITCH WITH AUDIO VISUAL ALARM, 120V OPERATED

TIME DELAY CONTACTS

- NORMALLY OPEN, TIMED OPEN
- NORMALLY OPEN, TIMED CLOSED
- NORMALLY CLOSED, TIMED OPEN
- NORMALLY CLOSED, TIMED CLOSED

LIQUID LEVEL

- OPENS ON RISING LEVEL, CLOSES ON FALLING LEVEL
- CLOSES ON RISING LEVEL, OPENS ON FALLING LEVEL

PRESSURE

- OPENS ON RISING PRESSURE, CLOSES ON FALLING PRESSURE
- CLOSES ON RISING PRESSURE, OPENS ON FALLING PRESSURE

FLOW

- OPENS ON RISING FLOW, CLOSES ON FALLING FLOW
- CLOSES ON RISING FLOW, OPENS ON FALLING FLOW

TEMPERATURE

- OPENS ON RISING TEMPERATURE, CLOSES ON FALLING TEMPERATURE
- CLOSES ON RISING TEMPERATURE, OPENS ON FALLING TEMPERATURE

LIMIT SWITCH

- HELD OPEN, NORMALLY CLOSED
- NORMALLY CLOSED
- NORMALLY OPEN
- HELD CLOSED, NORMALLY OPEN

SCHEMATIC CONTROLS AND DEVICES

- CONTACT — NORMALLY OPEN
- CONTACT — NORMALLY CLOSED
- OVERLOAD RELAY HEATER
- 1 — MAGNETIC STARTER WITH NEMA SIZE INDICATED
- M — CIRCUIT BREAKER, MAGNETIC, TRIP SHOWN, 3 POLE U.O.N., SIZED FOR MOTOR LOAD PER N.E.C. SECTION 430
- 100 / 40 — CIRCUIT BREAKER, 100A FRAME, 40A TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
- 400 / 400 — CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
- 400 / 225 — FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
- 100 — NON-FUSED SWITCH — CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
- 400 — FUSE, SIZES AS NOTED
- PM — SWITCHBOARD POWER MONITOR
- GROUND
- PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
- PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
- PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
- REMOTE DEVICE (SQUARES INDICATE PANEL TERMINALS FOR FIELD DEVICES.)
- INTERNAL DEVICE (FILLED CIRCLES INDICATE PANEL/ VFD/STARTER ETC., INTERNAL CONNECTION)
- H O A, 1 XOO, 2 OOX — SELECTOR SWITCH: MAINTAINED CONTACT WITH CONTACT POSITION INDICATED, CHART IDENTIFIES OPERATION

POSITION			
CKT.	HAND	OFF	AUTO
1	X	O	O
2	O	O	X

X = CLOSED CONTACT
O = OPEN CONTACT

- 200/5 — CURRENT TRANSFORMER, RATIO INDICATED, ONE PER PHASE UNLESS OTHERWISE NOTED
- (A) — PUSH-TO-TEST AND CONNECT, INDICATING LIGHT LETTER INDICATES COLOR
  A — AMBER
  B — BLUE
  C — CLEAR
  G — GREEN
  R — RED
  W — WHITE
- (CR) — CONTROL RELAY
- (SOV) — SOLENOID VALVE
- (MOV) — MOTOR OPERATED VALVE
- L, (LR) — LATCHING RELAY, MAINTAINED CONTACTS (L = LATCH, U= UNLATCH COILS)

ABBREVIATIONS

A	AMMETER, AMPERE, AMBER	N	NEUTRAL
AC	ALTERNATING CURRENT	N3R	NEMA 3R ENCLOSED
AFF	ABOVE FINISHED FLOOR	N4X	NEMA 4X ENCLOSED
AFG	ABOVE FINISHED GRADE	NC	NORMALLY CLOSED
AHU	AIR HANDLING UNIT	NEC	NATIONAL ELECTRICAL CODE
AIC	AMPERE INTERRRUPTING CAPACITY	NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
AL	ALUMINUM		
ALT	ALTERNATE, ALTERNATOR	NO	NORMALLY OPEN
AS	AMMETER SWITCH,	NP	NAMEPLATE
AST	ABOVE GROUND STORAGE TANK (DIESEL FUEL)	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWITCH	OL	OVERLOAD RELAY
		P	POLE
BRKR	BREAKER	PB	PULL BOX
		PE	PHOTOCELL
C	CONDUIT, CONTACTOR	PH	PHASE
CB	CIRCUIT BREAKER	PLC	PROGRAMMABLE LOGIC CONTROLLER
CCC	CHLORINE CONTACT CHAMBER		
CH	COUNTER HEIGHT DEVICE (APPROX 4' ABOVE COUNTER)	PM	PHASE MONITOR
		PNL	PANELBOARD
CO	CONTACTOR	PR	PAIR
CPT	CONTROL POWER TRANSFORMER	PT	POTENTIAL TRANSFORMER
		PVC	POLYVINYL CHLORIDE CONDUIT
CR	CONTROL RELAY	QTY	QUANTITY
CT	CURRENT TRANSFORMER		
CU	COPPER, CONDENSING UNIT	R	RED
		RCPT	RECEPTACLE
DFS	DATA-FLOW SYSTEMS		
DISC	DISCONNECT	RMS	ROOT MEAN SQUARE
		RS	RIGID STEEL CONDUIT
EF	EXHAUST FAN	RTU	REMOTE TELEMETRY UNIT
EHH	ELECTRICAL HAND HOLE		
EMH	ELECTRICAL MAN HOLE	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
EMT	ELECTRICAL METALLIC TUBING		
ETM	ELAPSED TIME METER	SF	SUPPLY FAN
		SS	STAINLESS STEEL, SELECTOR SWITCH
FACP	FIRE ALARM CONTROL PANEL		
FBC	FLORIDA BUILDING CODE	SPD	SURGE PROTECTIVE DEVICE
FM	FLOW METER	SSRV	SOLID STATE REDUCED VOLTAGE STARTER
FS	FLOAT SWITCH		
FT	FLOW TRANSMITTER	S	SWITCH
FUT	FUTURE	ST	SHUNT TRIP
FVNR	FULL VOLTAGE NON-REVERSING STARTER	SYM	SYMMETRICAL
G	GREEN, GROUND		
GALV	GALVANIZED		
GFI	GROUND FAULT INTERRUPTER	TC	TIMED CLOSE
GEN	GENERATOR	TDR	TIME DELAY RELAY
GFR	GROUND FAULT RELAY	TJB	TERMINAL JUNCTION BOX
GND	GROUND	TR	TIMING RELAY
GRS	GALVANIZED RIGID STEEL	TS	THERMAL SWITCH
		TSPR	TWISTED SHIELDED PAIR
HH	HANDHOLE	TSS	TOTAL SUSPENDED SOLIDS
HID	HIGH INTENSITY DISCHARGE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
HOA	HAND-OFF-AUTO	TYP	TYPICAL
I & C	INSTRUMENTATION AND CONTROL	UGC	UNDER GROUND CONDUIT
IMC	INTERMEDIATE METAL CONDUIT	UON	UNLESS OTHERWISE NOTED
		UST	UNDERGROUND STORAGE TANK
JB	JUNCTION BOX		
		UVR	UNDER VOLTAGE RELAY
K	KEY INTERLOCK	V	VOLTMETER, VOLT
KW	KILOWATT	VFD	VARIABLE FREQUENCY DRIVE
KVA	KILO VOLT-AMPERE	VS	VOLTMETER SWITCH
LA	LIGHTNING ARRESTER	WP	WEATHERPROOF
LC	LIGHTING CONTACTOR	XFMR	TRANSFORMER
LE	LEVEL ELEMENT		
LED	LIGHT EMITTING DIODE		
LIT	LEVEL INDICATOR/TRANSMITTER		
LLS	LIQUID LEVEL SWITCH		
LS	LIMIT SWITCH		
LTG	LIGHTING		
LP	LIGHTING PANEL		
M	MAGNETIC CONTACTOR COIL		
MANUF	MANUFACTURER		
MCC	MOTOR CONTROL CENTER		
MCP	MOTOR CIRCUIT PROTECTOR		
MDP	MAIN DISTRIBUTION PANEL		
MH	MANHOLE		
MS	MOTOR STARTER		
MIN	MINIMUM		

GARY A. YOCUM LICENSE No. 61598 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61598 STATE OF FLORIDA PROFESSIONAL ENGINEER

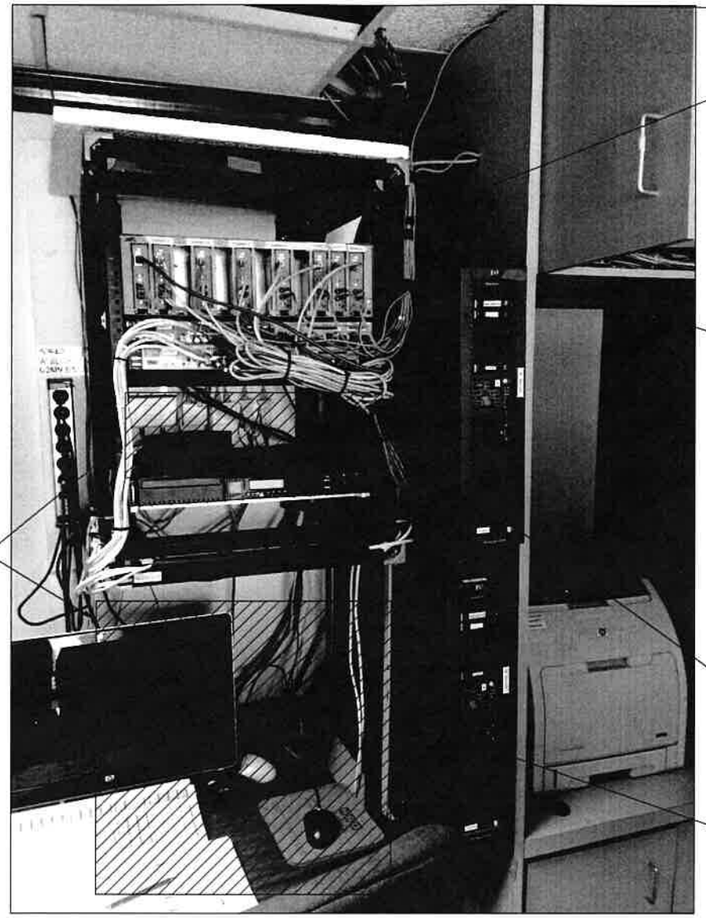
carollo

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
ELECTRICAL LEGEND

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

JOB NO. 10718I.10
DRAWING NO. 01E00
SHEET NO. 3 OF 84

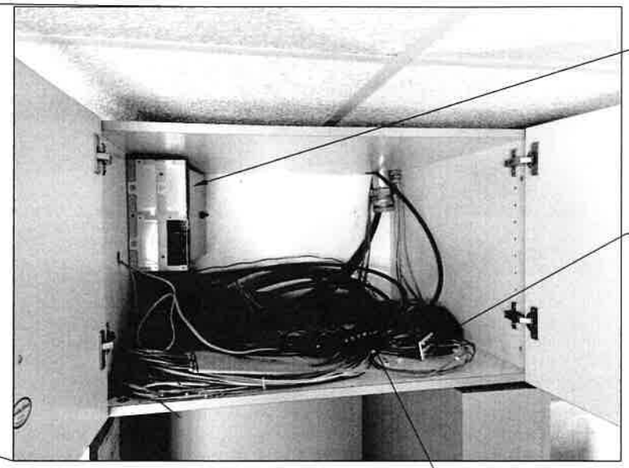


RELOCATE SECURITY CAMERA NETWORK EQUIPMENT TO SHELF ON NEW 19" MINI RACK BELOW.

EXISTING FIBER OPTIC MEDIA CONVERTERS

PROVIDE AND INSTALL A 19" 4U FIBER OPTIC CABLE PATCH PANEL WITHIN THIS AREA IF REQUIRED (I.E. IF EXISTING FIBER OPTIC CABLES ARE TOO SHORT TO REACH NEW SERVER RACK AREA.)

PROVIDE AND INSTALL A MINI 19" RACK (6 OR 8U) AND SHELF FOR SECURITY CAMERA NETWORKING EQUIPMENT.

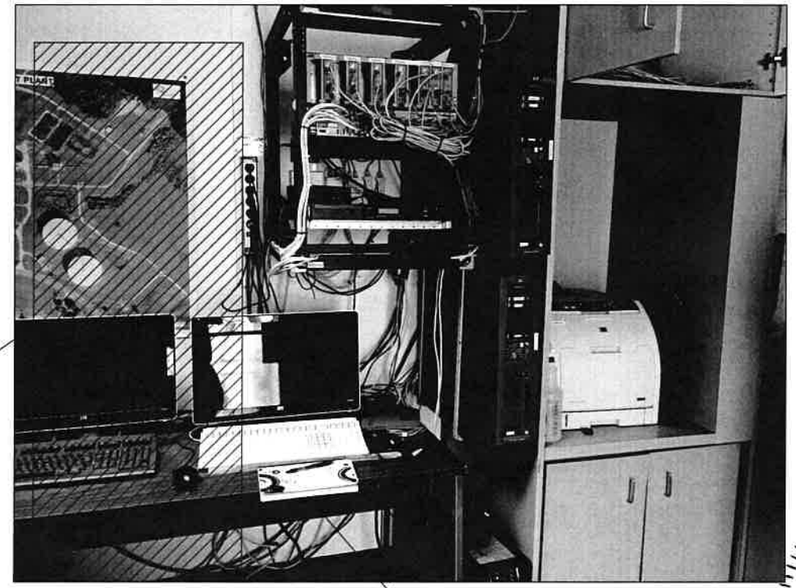


REMOVE EXISTING FIBER OPTIC PATCH PANEL (THERE DOES NOT APPEAR TO BE ANY FO CABLES LOCATED IN THIS PATCH PANEL)

REMOVE ALL EXISTING PATCH PLATES AND PATCH CORDS FROM EXISTING FIBER OPTIC CABLES

ROUTE 9 EXISTING FIBER OPTIC CABLES AND 3 NEW FIBER OPTIC CABLES FROM UPPER CABINET TO NEW FIBER OPTIC PATCH PANEL IN SERVER RACK IF POSSIBLE. IF NOT POSSIBLE, ROUTE FIBER OPTIC CABLES TO NEW FIBER OPTIC PATCH PANEL IN EXISTING RACK.

PROPOSED LOCATION OF NEW 19" RACK FOR SCADA SERVERS



EXISTING TABLE AND TERMINALS SHALL BE REMOVED AND RELOCATED BY OWNER.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER 12-18-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

carollo

Manatee County FLORIDA

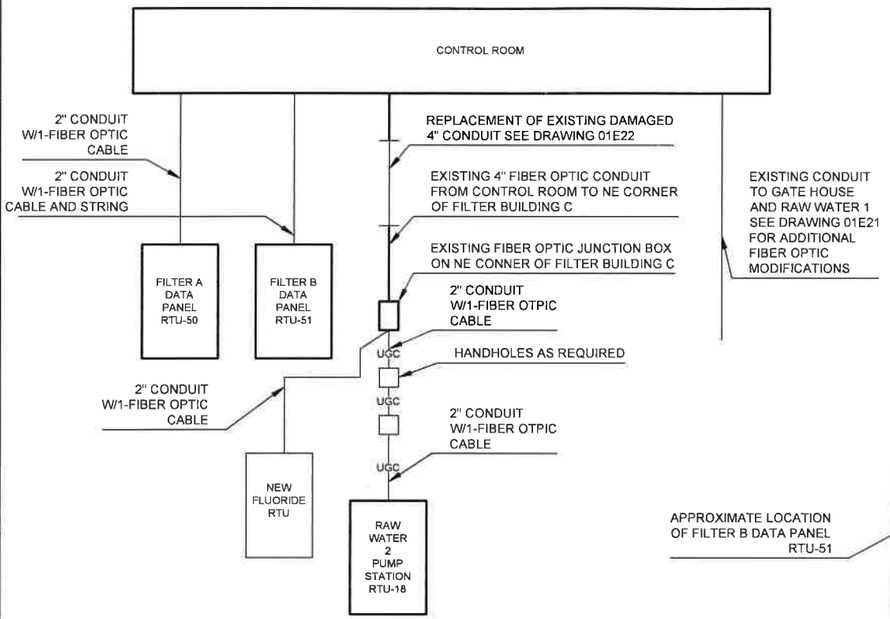
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

CONTROL ROOM MODIFICATIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

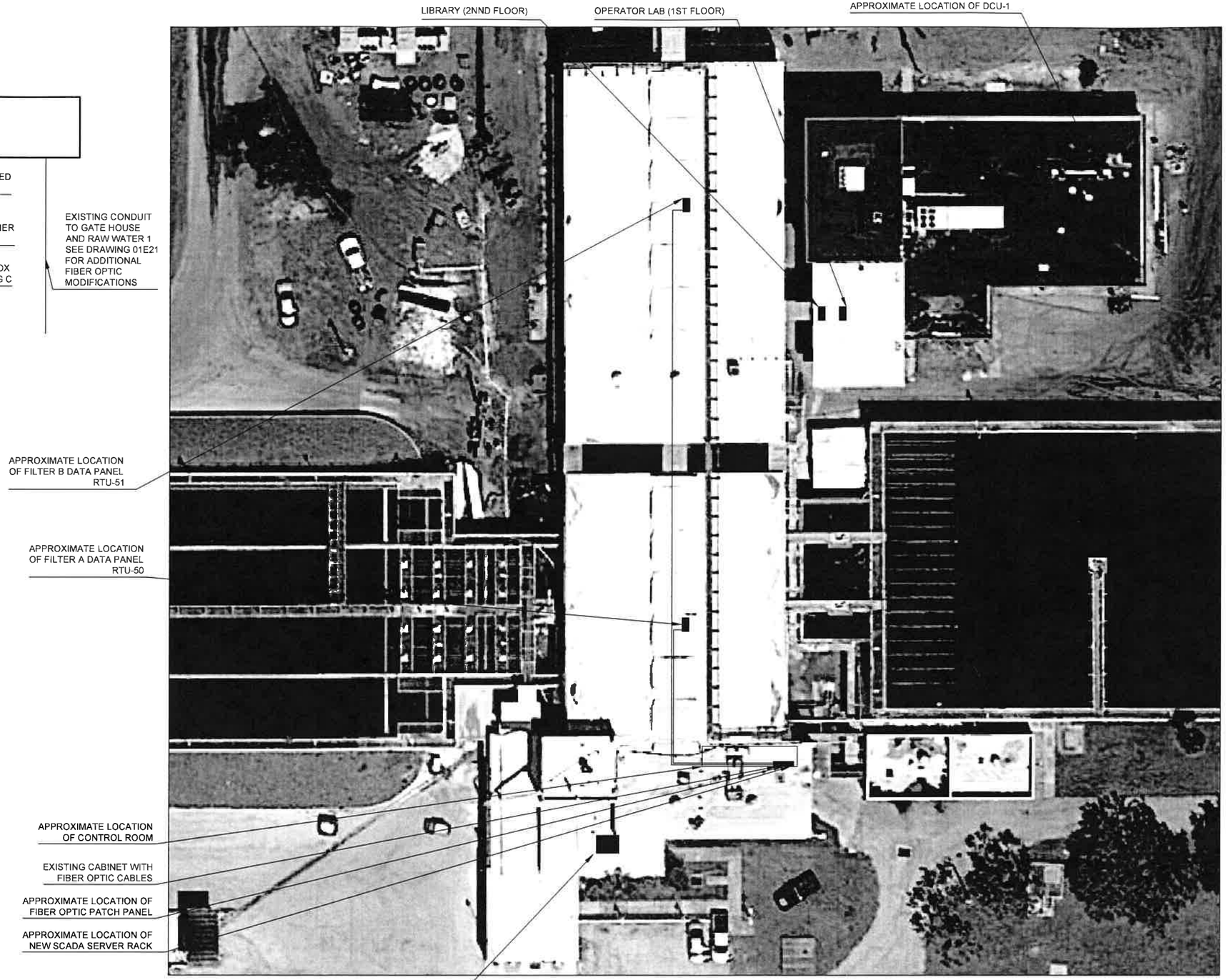
JOB NO. 10716I.10
DRAWING NO 01E01
SHEET NO. 4 OF 84



NEW FIBER OPTIC RISER DIAGRAM

GENERAL NOTES

1. SEE DRAWINGS 01E04, 01E05 AND 01E06 FOR ADDITIONAL DETAILS ON THE CONDUIT RUNS TO RTU-50 AND RTU-51.
2. SEE DRAWINGS 01E03, 01E07 AND 01E08 FOR ADDITIONAL DETAILS ON THE CONDUIT RUNS TO RAW WATER 2 PUMP STATION
3. FIBER OPTIC CABLE SHALL BE CONTINUOUS FROM RTU-50 TO THE CONTROL ROOM, FROM RTU-51 TO THE CONTROL ROOM AND FROM RTU-18 TO THE CONTROL ROOM.
4. FOR WORK REQUIRED AT DCU-3 SEE DRAWING 01E11
5. FOR WORK REQUIRED AT DCU-1 SEE DRAWING 01E12



CONTROL ROOM AND FILTER DATA PANEL LOCATIONS

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

carollo

Manatee County FLORIDA

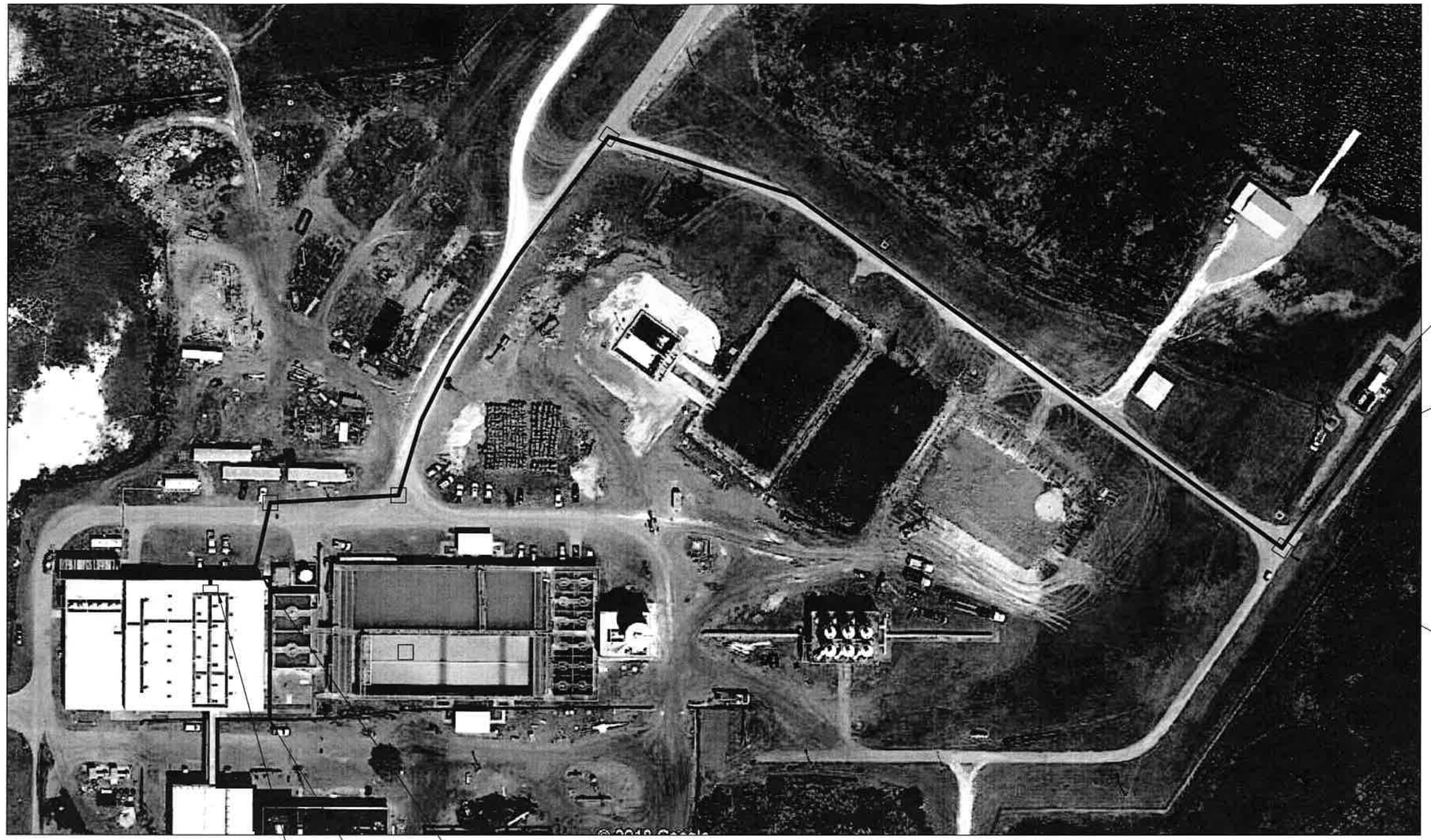
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

FIBER OPTIC BLOCK DIAGRAM

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E02
SHEET NO. 5 OF 84



RAW WATER 2 PUMP STATION
CONDUIT ROUTE

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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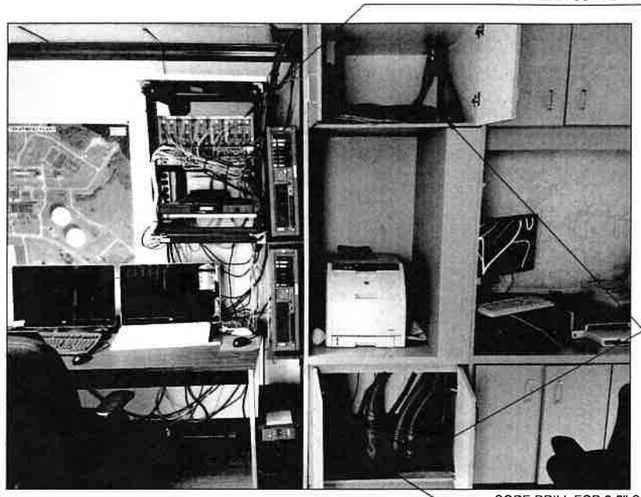
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
FIBER OPTIC CABLE TO RAW WATER 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10718I.10
DRAWING NO. 01E03
SHEET NO. 6 OF 84



EXISTING FIBER OPTIC MEDIA CONVERTERS

EXISTING FIBER OPTIC CONDUIT CORED DRILLED THROUGH CONTROL ROOM FLOOR AND FLEXED IN TO UPPER CABINET

CORE DRILL FOR 2-2" CONDUITS AND FLEX UP INTO UPPER CABINET SECTION

CONTROL ROOM FIBER OPTIC CABINET

CORE DRILL THROUGH CONTROL ROOM FLOOR FOR 2-2" CONDUITS

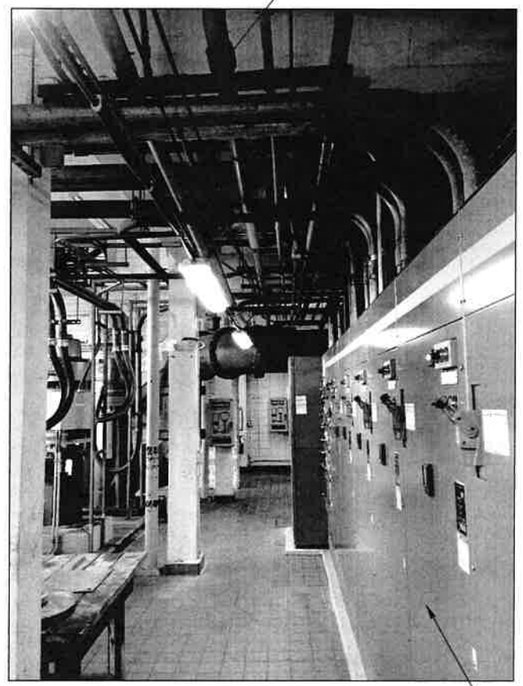
CONTROL ROOM FLOOR FROM GROUND LEVEL

RUN 2-2" CONDUITS ALONG CEILING TOWARDS FILTER GALLERY

MCC-1A

GROUND FLOOR LEVEL VIEWING WEST TOWARDS FILTER GALLERY

RUN 2-2" CONDUITS ALONG CEILING TOWARDS FILTER GALLERY



MCC-1A

GROUND FLOOR LEVEL VIEWING WEST TOWARDS FILTER GALLERY

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY

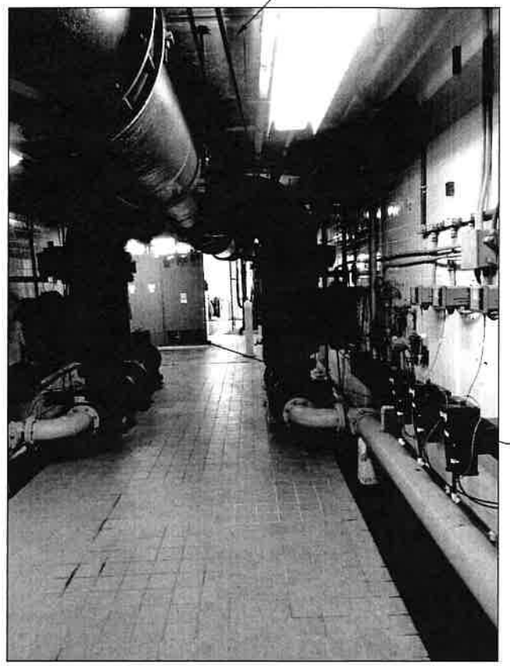
LAKE MANATEE WTP SCADA UPGRADE

FIBER OPTIC CABLE TO RTU 50 AND 51 DETAILS

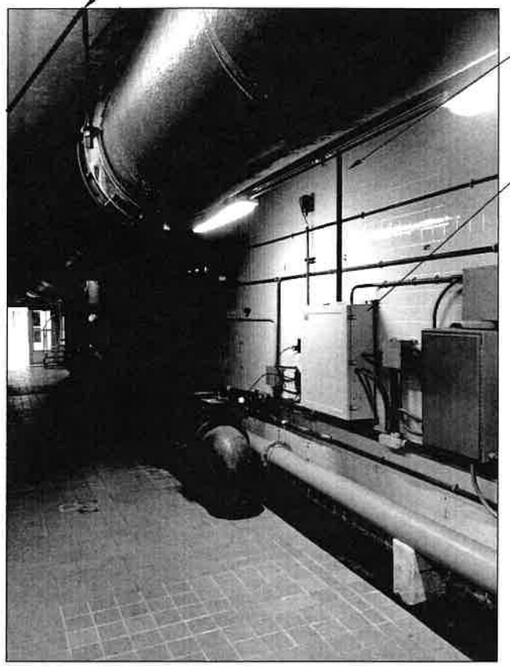
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E04
SHEET NO. 7 OF 84

FILTER GALLERY A
VIEWING NORTH
TOWARDS FILTER GALLERY B



FILTER GALLERY A
VIEWING SOUTH
TOWARDS CONTROL ROOM



FILTER GALLERY A
VIEWING NORTH
TOWARDS FILTER GALLERY B

GARY A. YOCUM
LICENSE
No. 61594
STATE OF FLORIDA
PROFESSIONAL ENGINEER
12-10-12

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY

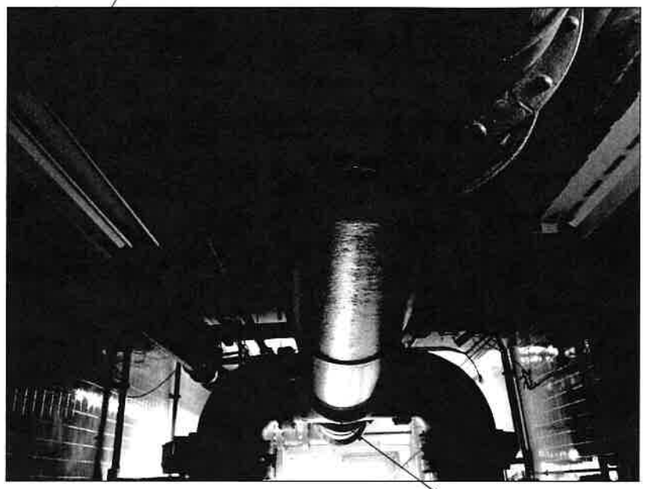
LAKE MANATEE WTP SCADA UPGRADE

FIBER OPTIC CABLE TO
RTU 50 AND 51 DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E05
SHEET NO. 8 OF 84

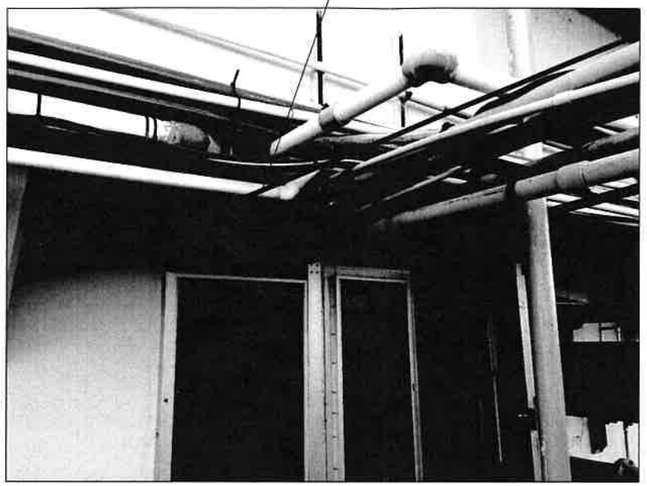
1-2" CONDUIT ALONG CEILING WITHIN FILTER GALLERY A TOWARDS FILTER B DATA PANEL RTU-51



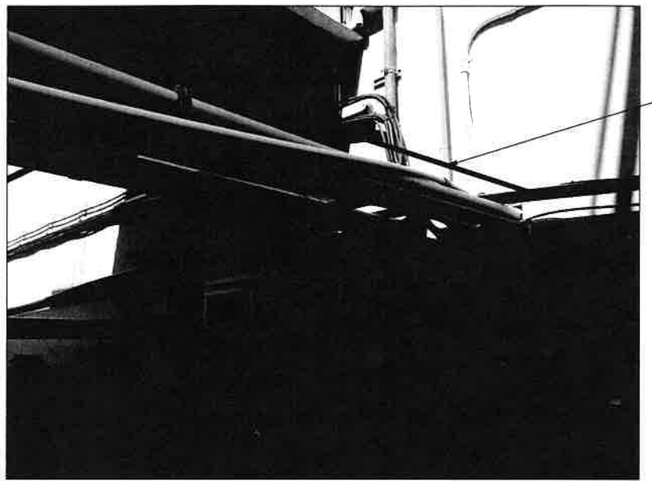
FILTER GALLERY A
VIEWING NORTH
TOWARDS FILTER GALLERY B

TOWARDS END OF FILTER GALLERY A CONDUIT NEEDS TO CROSS OVER GALLERY AND LOWER IN ORDER TO LAND ON EXISTING CONDUIT RACK

PENETRATE FILTER GALLERY A WALL AND EXTEND 1" CONDUIT ON EXISTING RACK INTO FILTER GALLERY B - PROVIDE EXPANSION COUPLING AS REQUIRED



FILTER GALLERY A
VIEWING SOUTH
FROM OUTSIDE FILTER GALLERY A

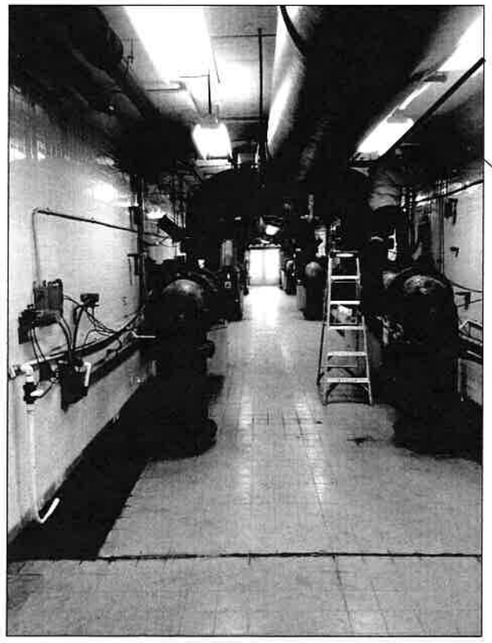


PENETRATE FILTER GALLERY B WALL WITH 1-2" CONDUIT - PROVIDE EXPANSION COUPLING AS REQUIRED

FILTER GALLERY B
VIEWING NORTH
FROM OUTSIDE FILTER GALLEY B

EXTEND 2" CONDUIT ALONG CEILING OF FILTER GALLERY B TOWARDS FILTER B DATA PANEL RTU-51

FILTER GALLERY B
VIEWING NORTH



CONTINUE 2" CONDUIT ALONG CEILING OF FILTER GALLERY B TOWARDS FILTER B DATA PANEL RTU-51

FILTER GALLERY B
VIEWING NORTH

2" CONDUIT W/1 FIBER OPTIC CABLE AND PULL STRING

FILTER B DATA PANEL RTU-51

FILTER GALLERY B
VIEWING SOUTHWEST

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

carollo

Manatee County FLORIDA

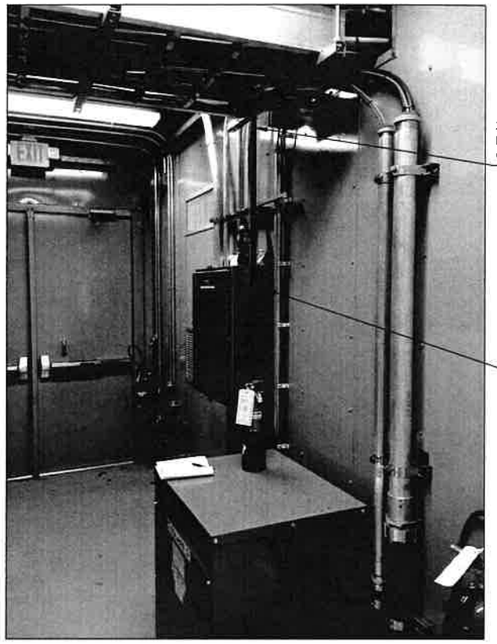
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

FIBER OPTIC CABLE TO RTU 50 AND 51 DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

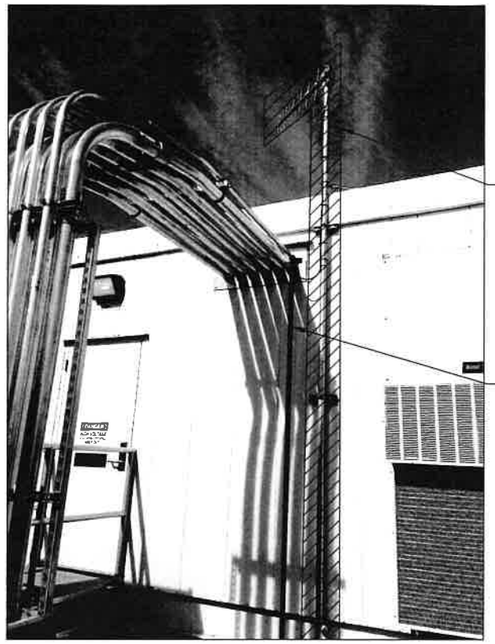
JOB NO. 10716I.10
DRAWING NO. 01E06
SHEET NO. 9 OF 84



2" CONDUIT W/1 FIBER OPTIC CABLE

RAW WATER 2 PUMP STATION RTU-18

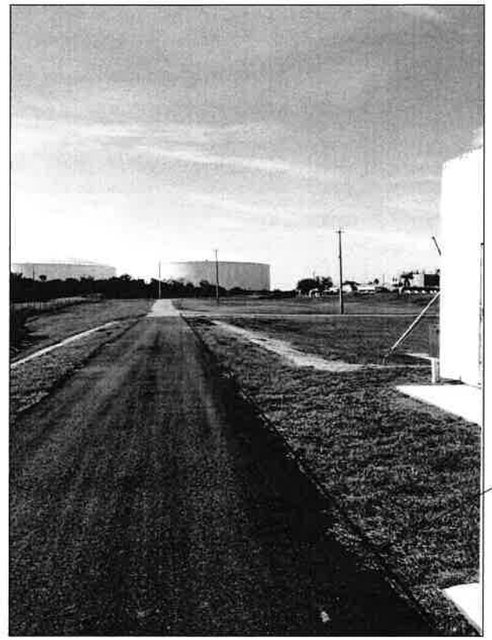
INSIDE RAW WATER 2 PUMP STATION VIEW OF SOUTHEAST WALL



REMOVE EXISTING ANTENNA AND ANTENNA CABLE

2" CONDUIT W/1 FIBER OPTIC CABLE

OUTSIDE RAW WATER 2 PUMP STATION VIEW OF SOUTHEAST WALL



2" UG CONDUIT W/ 1 FIBER OPTIC CABLE

OUTSIDE RAW WATER 2 PUMP STATION VIEWING SOUTH

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-10-18

RAW WATER 2 PUMP STATION

2" UG CONDUIT W/ 1 FIBER OPTIC CABLE

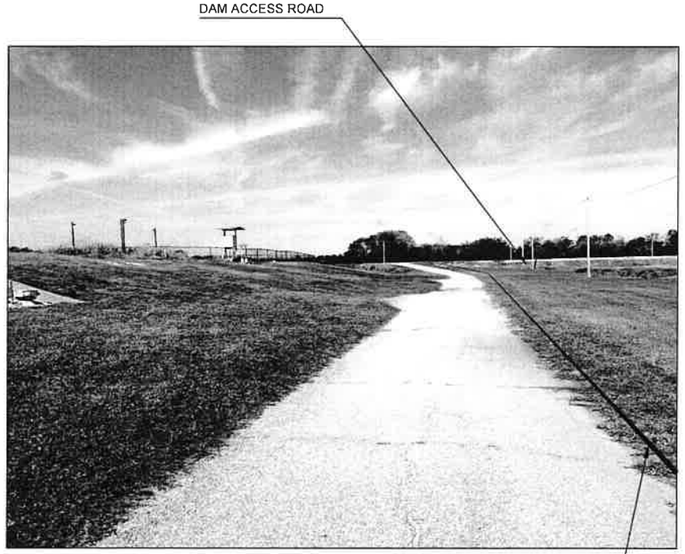
RAW WATER 2 PUMP STATION VIEWING NORTH

DAM ACCESS ROAD

CARBON SILO

2" UG CONDUIT W/ 1 FIBER OPTIC CABLE

RAW WATER 2 PUMP STATION VIEWING WEST



DAM ACCESS ROAD

2" UG CONDUIT W/ 1 FIBER OPTIC CABLE

RAW WATER 2 PUMP STATION VIEWING WEST

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

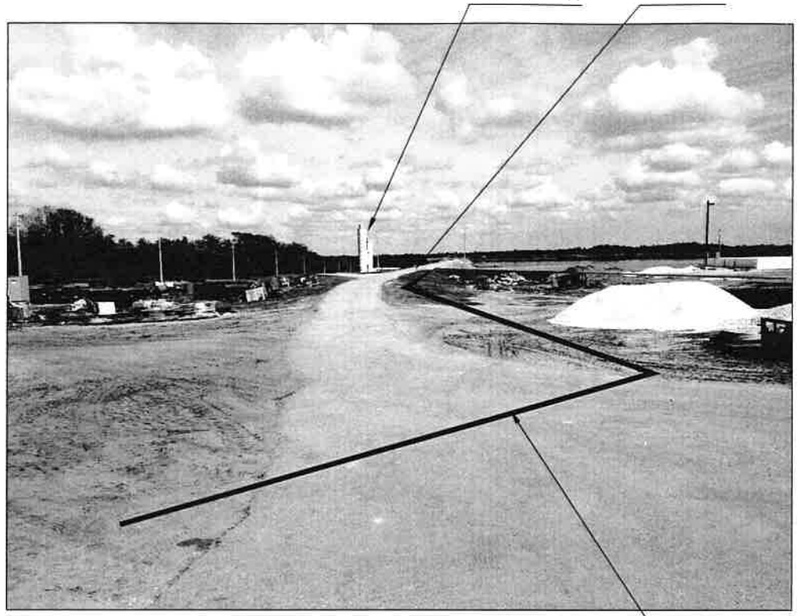
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

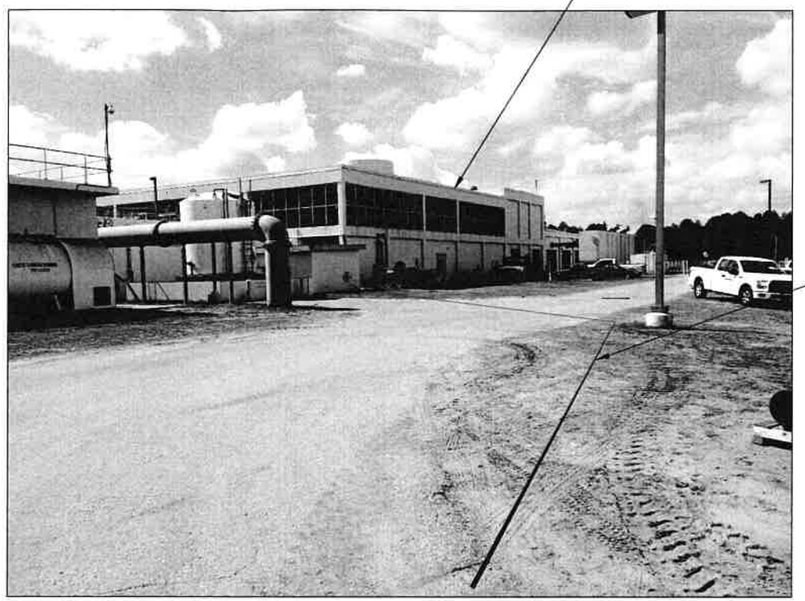
FIBER OPTIC CABLE TO RAW WATER 2 PUMP STATION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

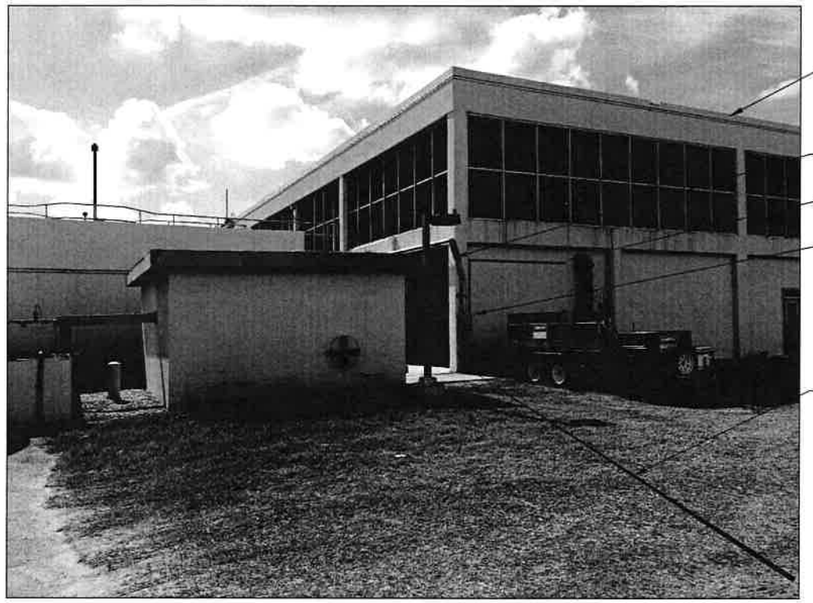
JOB NO. 10716I.10
DRAWING NO. 01E07
SHEET NO. 10 OF 84



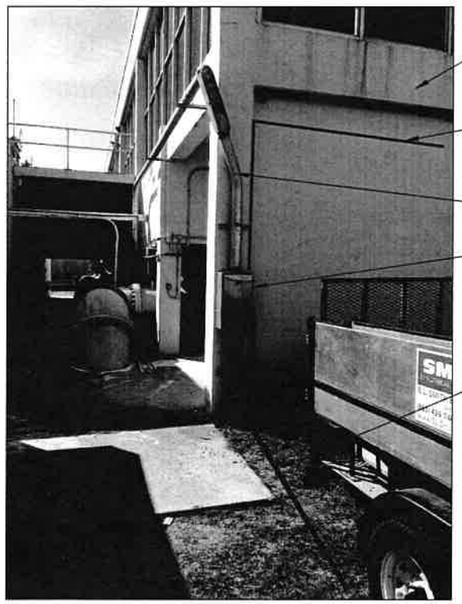
VIEW FROM TOP OF THE DAM ACCESS ROAD VIEWING NORTH



VIEW FROM TOP OF THE DAM ACCESS ROAD VIEWING EAST



NORTHWEST CORNER OF FILTER BUILDING C



NORTHWEST CORNER OF FILTER BUILDING C

GARY A. YOCUM LICENSE No. 61584 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61584 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

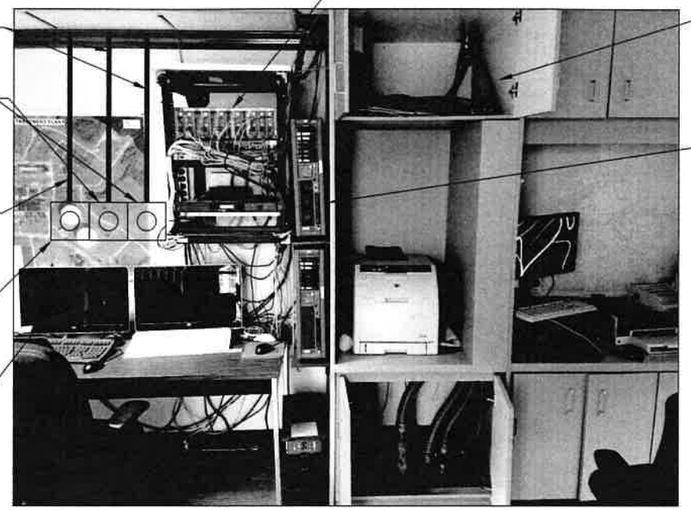
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

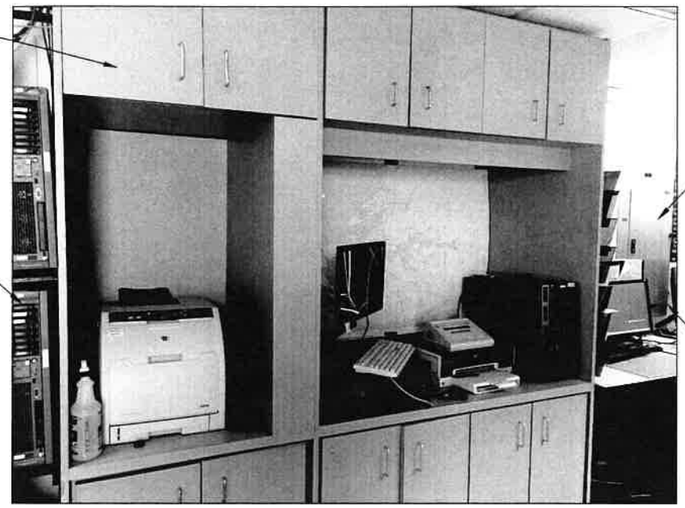
FIBER OPTIC CABLE TO RAW WATER 2 PUMP STATION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E08
SHEET NO. 11 OF 84

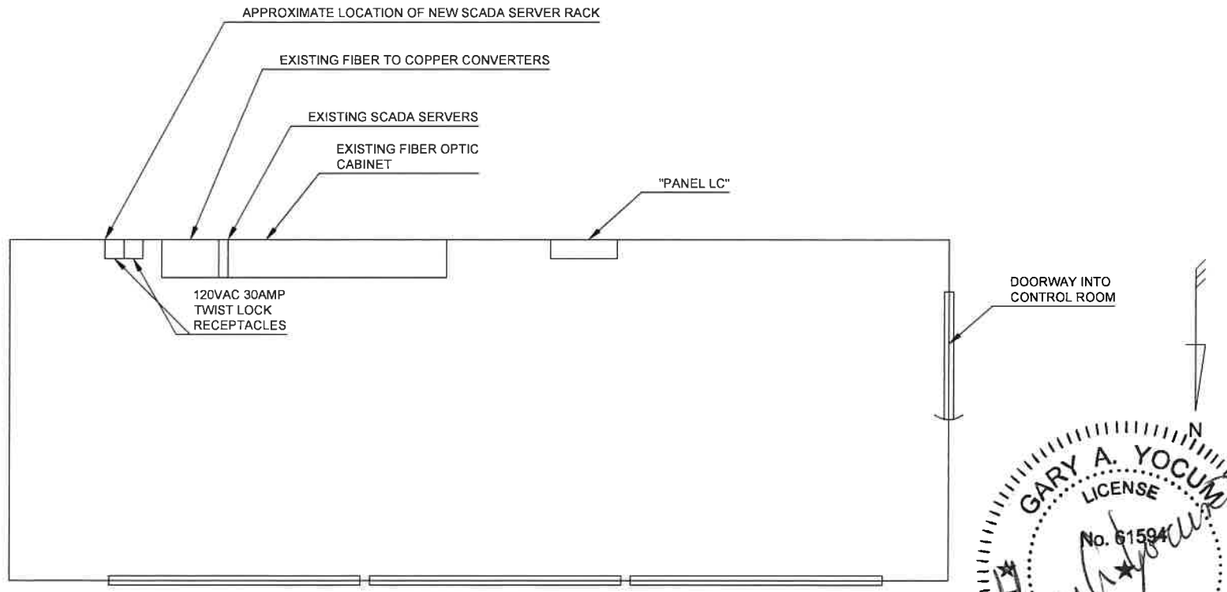


CONTROL ROOM SCADA SERVERS



GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL TWO WALL MOUNTED 208VAC 30AMP TWIST LOCK RECEPTACLES SUITABLE FOR THIS LOCATION.
2. CONTRACTOR SHALL PROVIDE AND INSTALL ONE WALL MOUNTED 120VAC 50AMP TWIST LOCK RECEPTACLE SUITABLE FOR THIS LOCATION.
3. CONDUIT SHALL EXTEND UP WALL ABOVE DROP CEILING AND TOWARDS "PANEL LC"
4. CONDUIT SHALL ENTER "PANEL LC" AS REQUIRED.
5. "PANEL LC" CONTAINS SEVERAL SPARE CIRCUIT BREAKERS. CONTRACTOR SHALL REPLACE FIVE SPARE CIRCUIT BREAKERS WITH 2-2 POLE 30AMP BREAKERS AND 1-1 POLE 50AMP BREAKER COMPATIBLE WITH THE PANEL.



CONTROL ROOM LAYOUT (NOT TO SCALE)

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

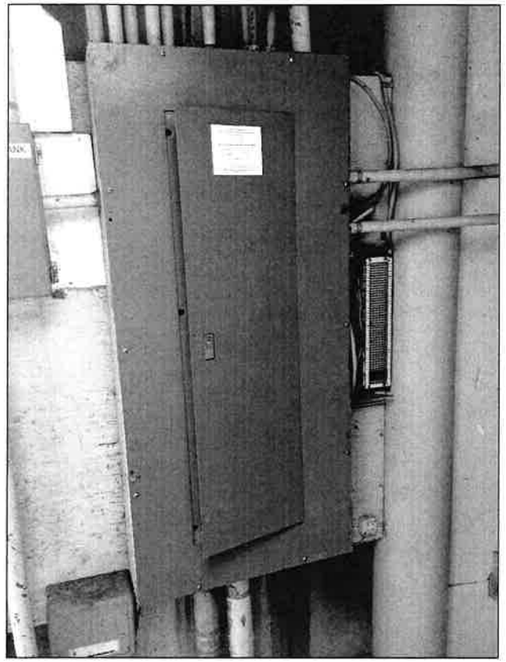
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

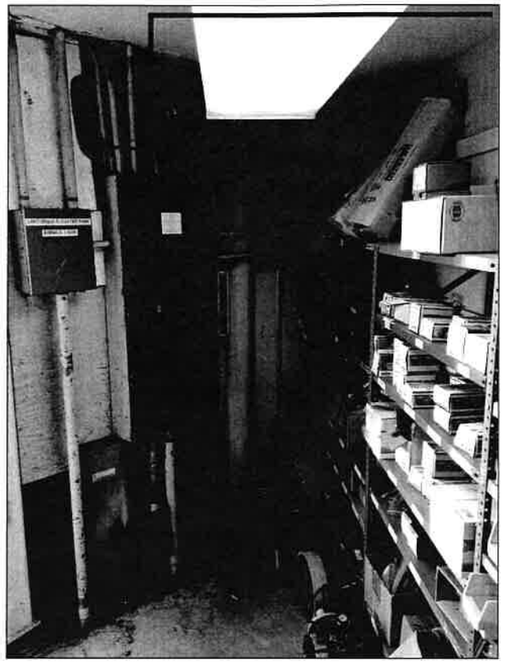
120 VAC 30 AMP SERVICE TO NEW SERVER RACK

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

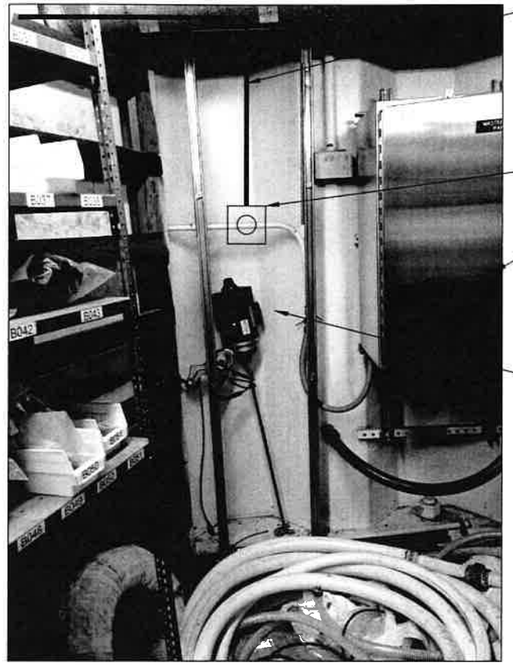
JOB NO. 10716I.10
DRAWING NO 01E09
SHEET NO 12 OF 84



ELEVATED TANK
120/208VAC POWER
DISTRIBUTION PANEL

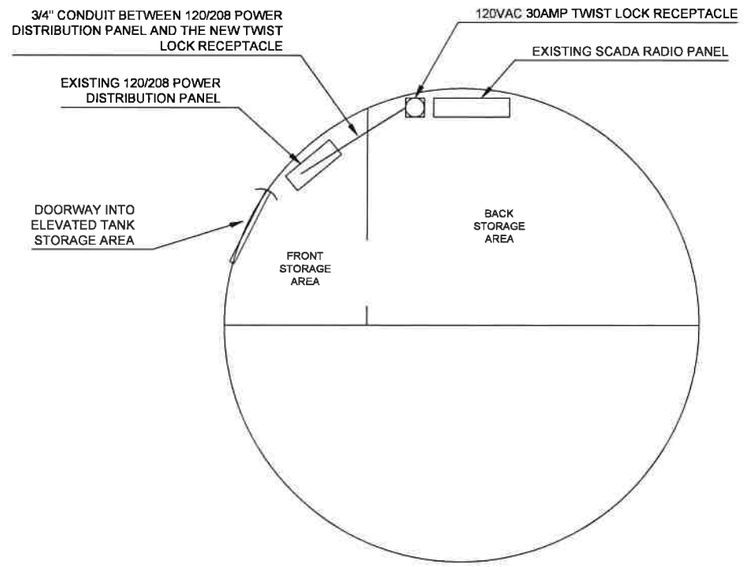


FRONT STORAGE AREA OF
ELEVATED TANK



BACK STORAGE AREA OF
ELEVATED TANK

GENERAL NOTES
1. CONTRACTOR SHALL PROVIDE AND INSTALL A WALL MOUNTED 120VAC 30AMP TWIST LOCK RECEPTACLE SUITABLE FOR THIS LOCATION.
2. CONDUIT SHALL EXTEND UP WALL ABOVE CEILING AND TOWARDS THE EXISTING 120/208 POWER DISTRIBUTION PANEL
3. CONDUIT SHALL ENTER THE EXISTING 120/208 POWER DISTRIBUTION PANEL AS REQUIRED,
4. THIS EXISTING 120/208 POWER DISTRIBUTION PANEL CONTAINS SPARE CIRCUIT BREAKERS. CONTRACTOR SHALL REPLACE A SPARE CIRCUIT BREAKER WITH A 1 POLE 30AMP BREAKER COMPATIBLE WITH THE PANEL.



ELEVATE TANK LAYOUT
NOT TO SCALE

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-16-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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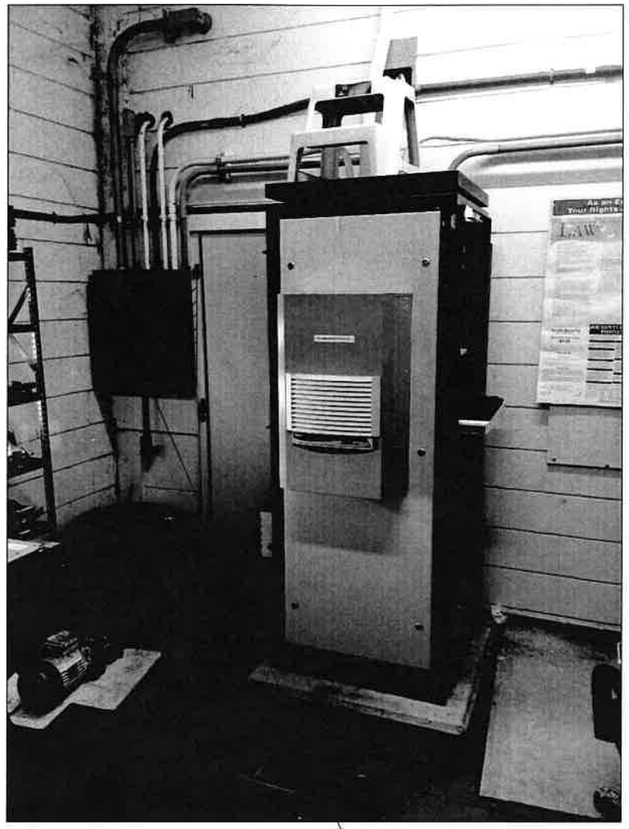
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
120 VAC 30 AMP SERVICE
TO NEW SCADA RADIO

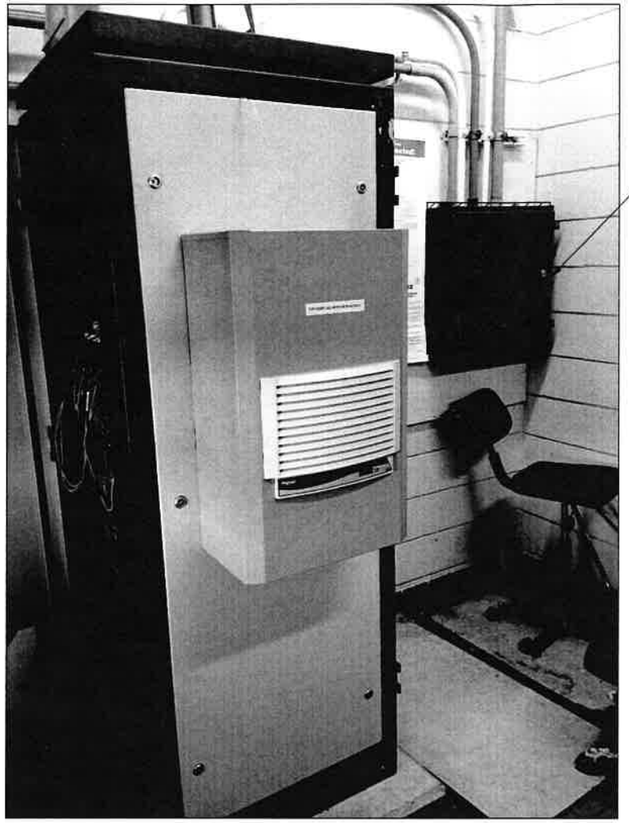
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E10
SHEET NO. 13 OF 84



REPLACE EXISTING ANALOG
TERMINATION CABINET FOR DCU-3

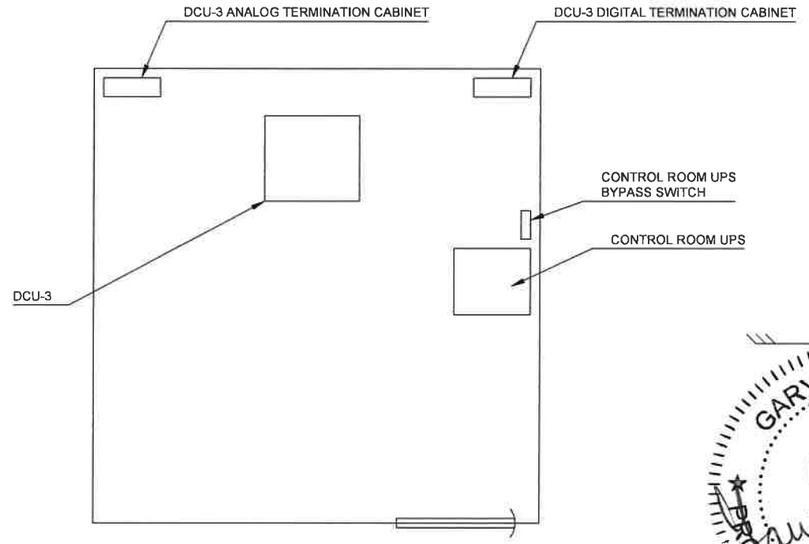
DCU-3 FILTER A/B CHEMICALS



REPLACE EXISTING DIGITAL
TERMINATION CABINET FOR DCU-3

DCU-3 FILTER A/B CHEMICALS

GENERAL NOTES
1. THE EXISTING TERMINATION CABINETS FOR DCU-3 ARE 24"H X 24"W X 6"D.
2. NEW TERMINATE CABINETS SHALL BE NEMA-4X 316SS.
3. SEE DRAWING 01E13 FOR ADDITIONAL DETAILS ON THESE TERMINATION CABINETS
4. SEE DRAWING 01E02 FOR APPROXIMATE LOCATION OF DCU-3



DCU-3 ROOM
FILTER A/B CHEMICALS LAYOUT
(NOT TO SCALE)

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

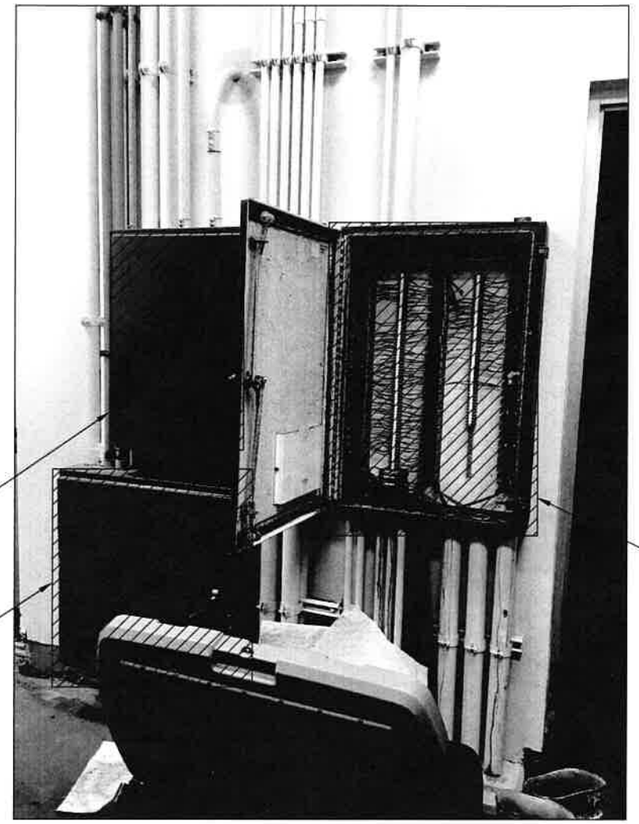
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

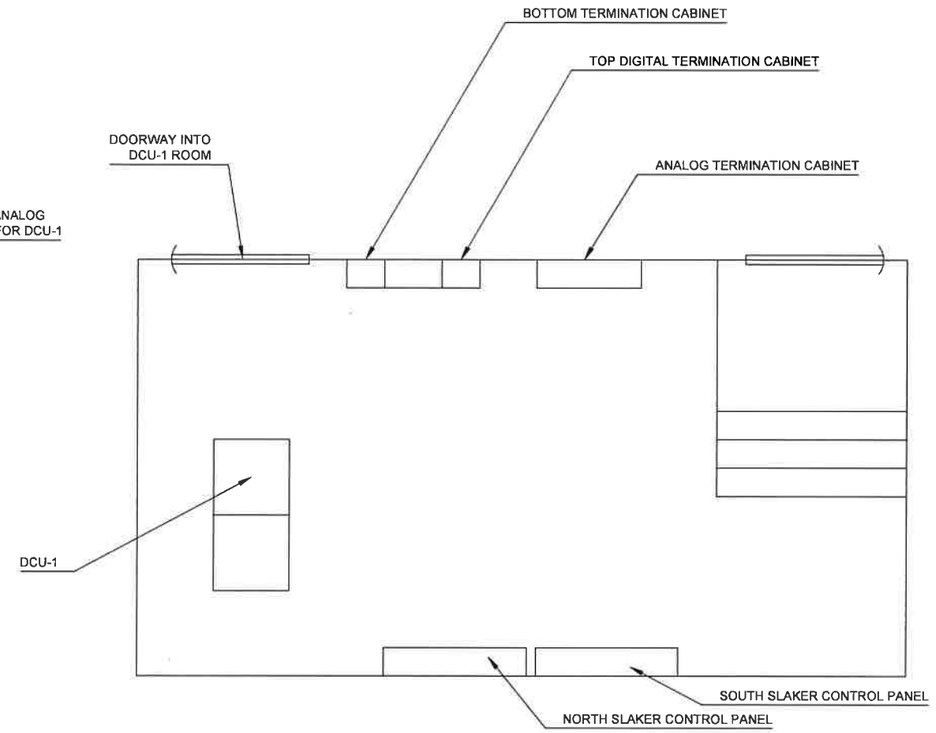
DCU TERMINATION CABINET REPLACEMENT
DCU-3 FILTER A/B CHEMICALS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E11
SHEET NO. 14 OF 84



DCU-1 C-LIME



DCU-1 C-LIME
ROOM LAYOUT
(NOT TO SCALE)

GENERAL NOTES
1. THE EXISTING ANALOG TERMINATION CABINET FOR DCU-1 IS 36"H X 24"W X 6"D.
2. THE EXISTING DIGITAL TERMINATION CABINETS FOR DCU-1 ARE 30"H X 30"W X 8"D.
3. NEW TERMINATE CABINETS SHALL BE NEMA-4X 316SS.
4. SEE DRAWINGS 01E14 AND 01E15 FOR ADDITIONAL DETAILS ON THESE TERMINATION CABINETS.
5. SEE DRAWING 01E02 FOR APPROXIMATE LOCATION OF DCU-1.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

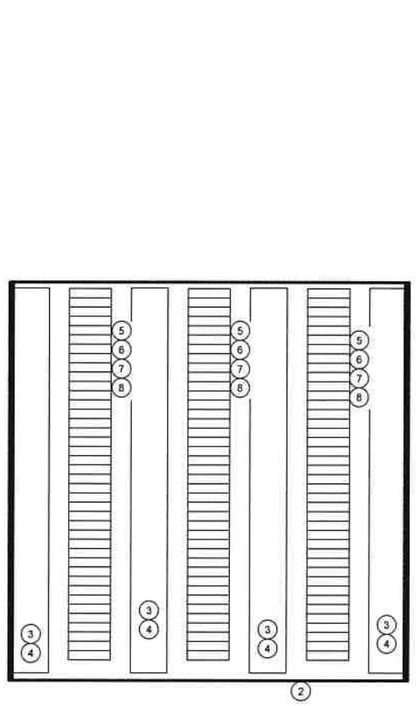
carollo

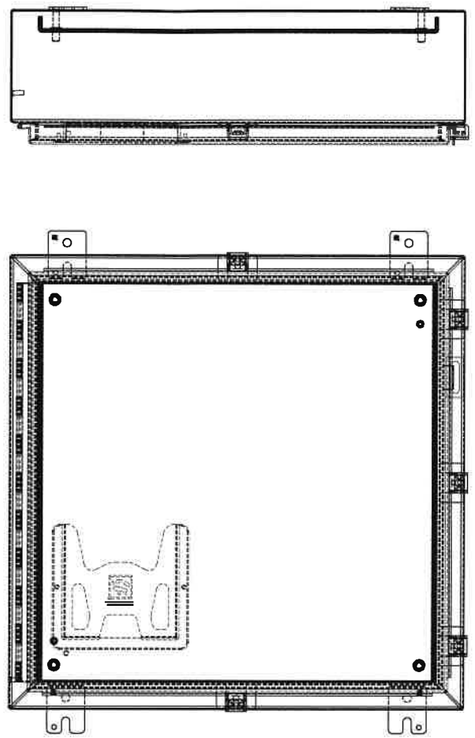
Manatee County FLORIDA

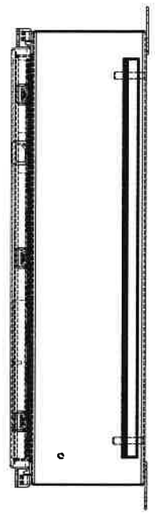
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
DCU TERMINATION CABINET REPLACEMENT
DCU-1 C-LIME

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10718I.10
DRAWING NO. 01E12
SHEET NO. 15 OF 84







DCU-3
TERMINATION CABINETS

DCU-3
Analog Termination Cabinets
Bill of Material

Item	Qty	Unit	Description	Manufacture	Part Number
1	2	ea	24"x24"x6" Continuous Hinge with Clamps, NEMA 4X 316SS	Pentair Hoffman	A24H2406SS6LP
2	2	ea	24"x24" Sub-Panel	Pentair Hoffman	A24P24
3	8	ft	2"x3" Type G Wide Slot Wireway	Panduit	G2x3WH6
4	8	ft	2" Type G Wireway Cover	Panduit	C2WH6
5	100	ea	1492-J IEC Terminal Block Feed Through White	Allen-Bradley	1492-J10-W
6	20	ea	1492-J IEC Terminal Block Feed Through Ground	Allen-Bradley	1492-JG10
7	6	ft	Breakaway Mounting Din Rail	Allen-Bradley	1492-N1
8	6	ea	End Anchors	Allen-Bradley	1492-EAJ35
9					
10					

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-16-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

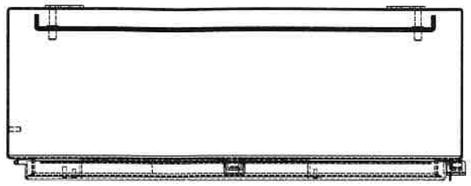
carollo

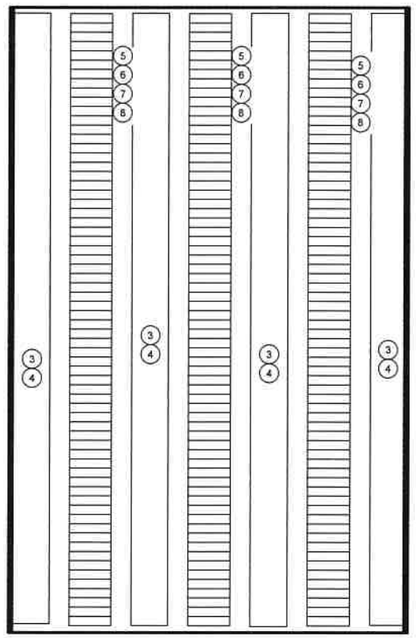
Manatee County FLORIDA

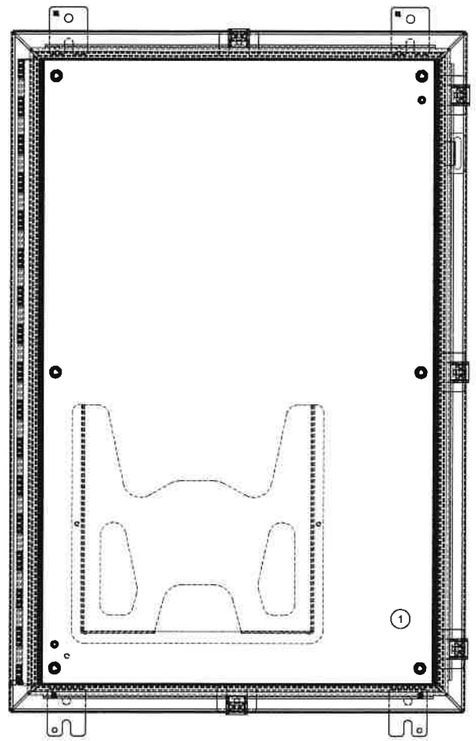
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
DCU TERMINATION CABINET REPLACEMENTS I

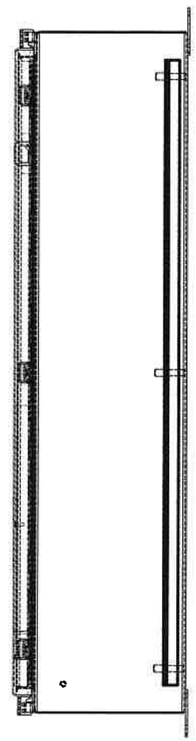
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E13
SHEET NO. 16 OF 84









DCU-1
Analog Termination Cabinets
Bill of Material

Item	Qty	Unit	Description	Manufacture	Part Number
1	1	ea	36"x24"x8" Continuous Hinge with Clamps, NEMA 4X 316SS	Pentair Hoffman	A36H2408SS6LP
2	1	ea	36"x24" Sub-Panel	Pentair Hoffman	A36P24
3	9	ft	2"x3" Type G Wide Slot Wireway	Panduit	G2x3WH6
4	9	ft	2" Type G Wireway Cover	Panduit	C2WH6
5	140	ea	1492-J IEC Terminal Block Feed Through White	Allen-Bradley	1492-J10-W
6	40	ea	1492-J IEC Terminal Block Feed Through Ground	Allen-Bradley	1492-JG10
7	3	ft	Breakaway Mounting Din Rail	Allen-Bradley	1492-N1
8	6	ea	End Anchors	Allen-Bradley	1492-EAJ35
9					
10					

DCU-1
ANALOG TERMINATION CABLINET

GARY A. YOCUM LICENSE No. 61584 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61584 STATE OF FLORIDA PROFESSIONAL ENGINEER

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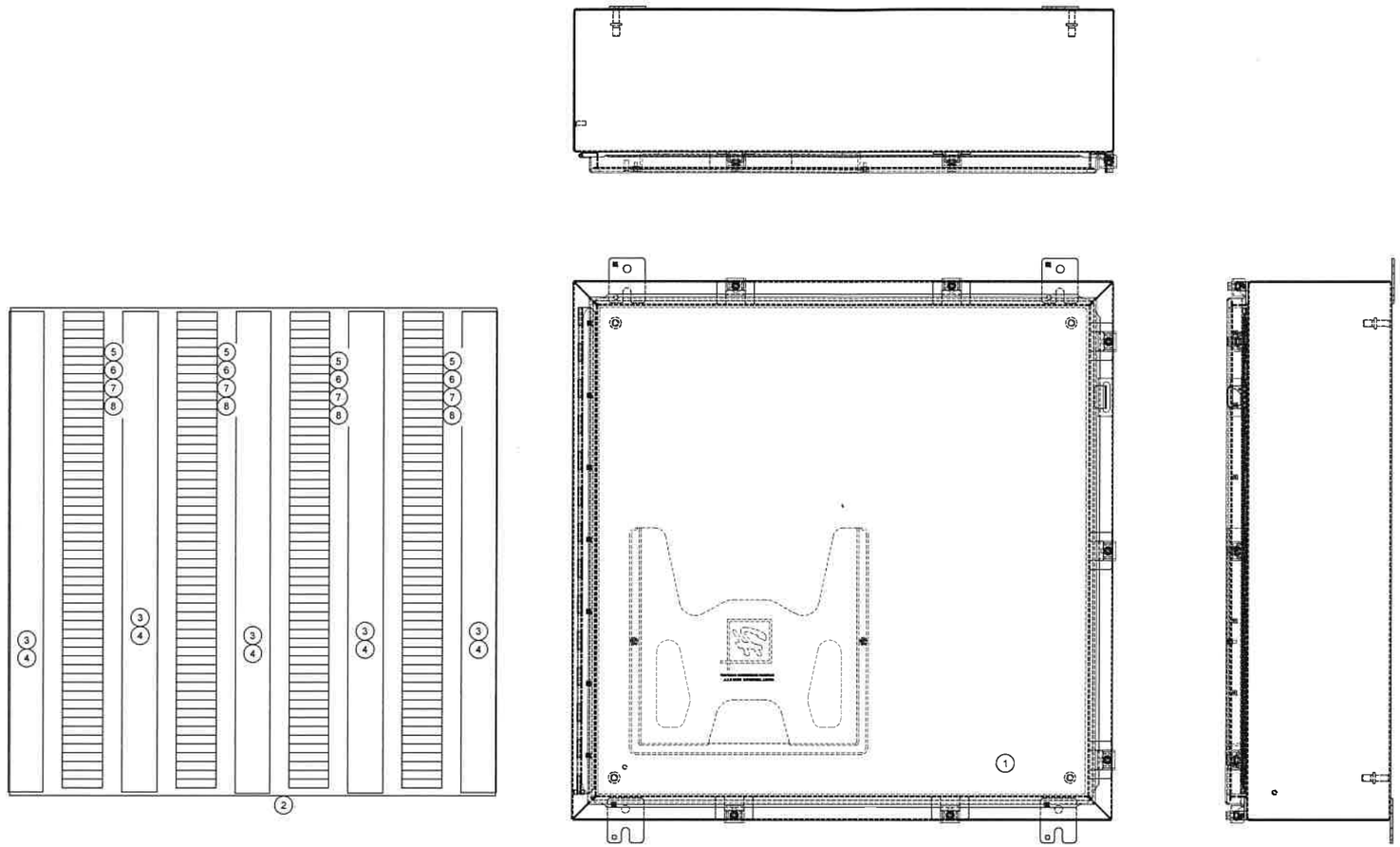
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
DCU TERMINATION CABINET REPLACEMENTS II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO 01E14
SHEET NO 17 OF 84



DCU-1
DIGITAL TERMINATION CABINET

DCU-1
Digital Termination Cabinets
Bill of Material

Item	Qty	Unit	Description	Manufacture	Part Number
1	2	ea	30"x30"x8" Continuous Hinge with Clamps, NEMA 4X 316SS	Pentair Hoffman	A30H30085S6LP
2	2	ea	30"x30" Sub-Panel	Pentair Hoffman	A30P30
3	12	ft	2"x3" Type G Wide Slot Wireway	Panduit	G2x3WH6
4	12	ft	2" Type G Wireway Cover	Panduit	C2WH6
5	180	ea	1492-J IEC Terminal Block Feed Through White	Allen-Bradley	1492-J10-W
6	20	ea	1492-J IEC Terminal Block Feed Through Ground	Allen-Bradley	1492-JG10
7	12	ft	Breakaway Mounting Din Rail	Allen-Bradley	1492-N1
8	8	ea	End Anchors	Allen-Bradley	1492-EAJ35
9					
10					

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
2-10-19

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

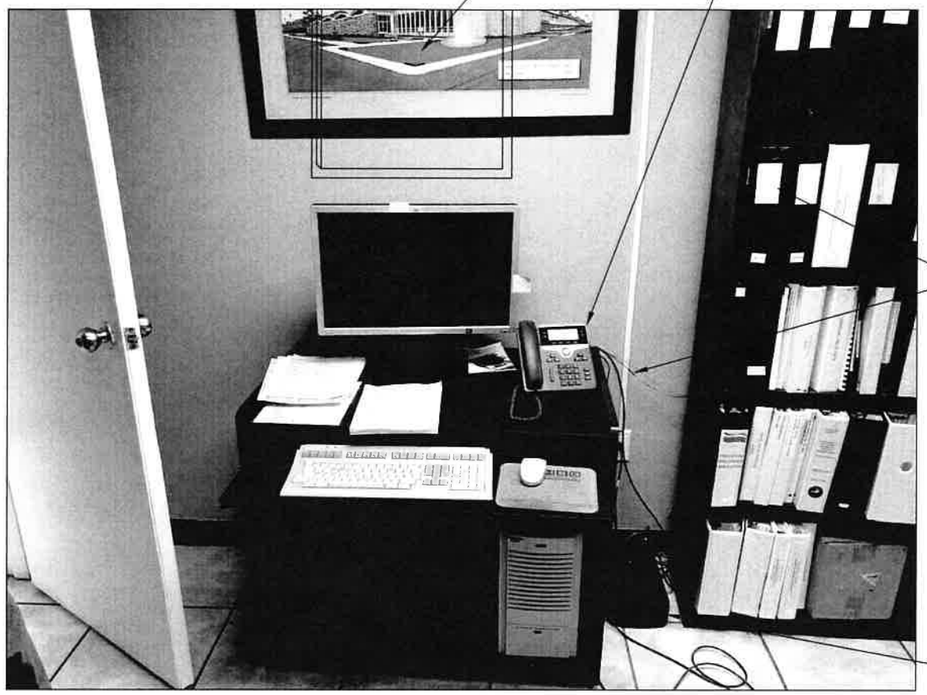
carollo

Manatee County FLORIDA

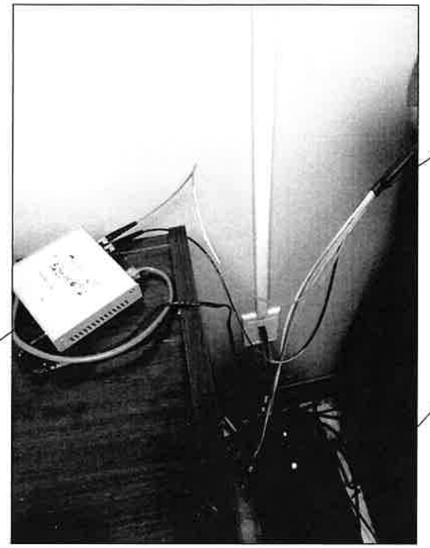
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
DCU TERMINATION CABINET REPLACEMENTS III

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10718I.10
DRAWING NO. 01E15
SHEET NO. 18 OF 84



LIBRARY AREA OVERVIEW



EXISTING FIBER OPTIC NETWORK SWITCH AND UPS

WORKSTATION #1 - LIBRARY AREA

GENERAL NOTES:

1. REMOVE EXISTING NETWORK SWITCH.
2. PROVIDE AND INSTALL WORKSTATION NETWORK INTERFACE PANEL ON WALL.
3. PROVIDE CONDUIT AND WIRE AS REQUIRED FROM NEARBY 120VAC PDP TO THE WORKSTATION NETWORK INTERFACE PANEL.
4. PROVIDE CONDUIT TO PROTECT EXISTING FIBER OPTIC CABLE FROM ABOVE DROP CEILING TO WORKSTATION NETWORK INTERFACE PANEL.
5. REROUTE EXISTING FIBER OPTIC CABLE TO WORKSTATION INTERFACE PANEL.
6. SEE DRAWING 02N09 FOR ADDITIONAL DETAILS ON THE WORKSTATION INTERFACE PANEL.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

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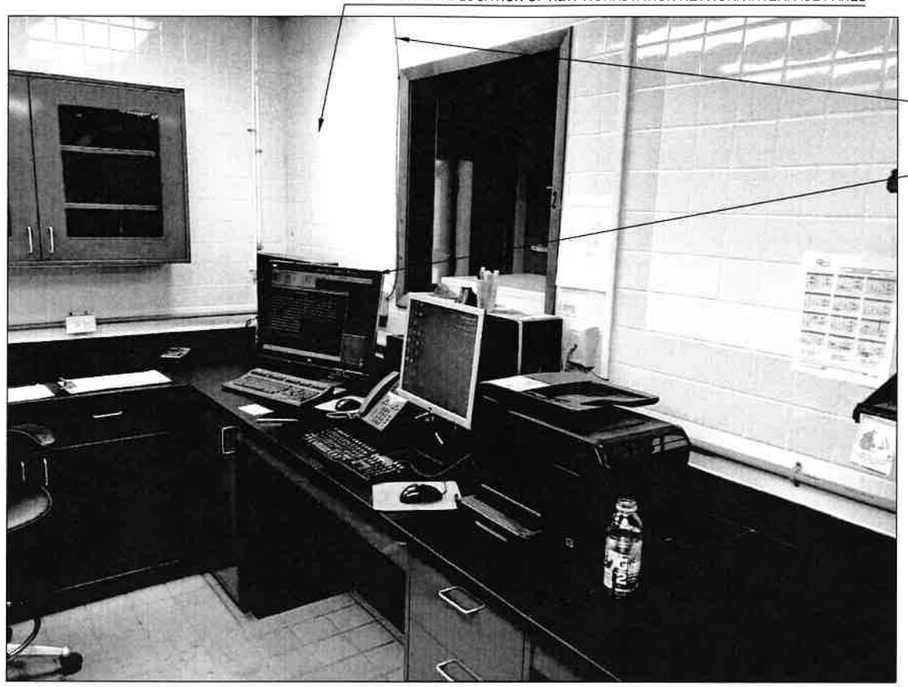
Manatee County FLORIDA

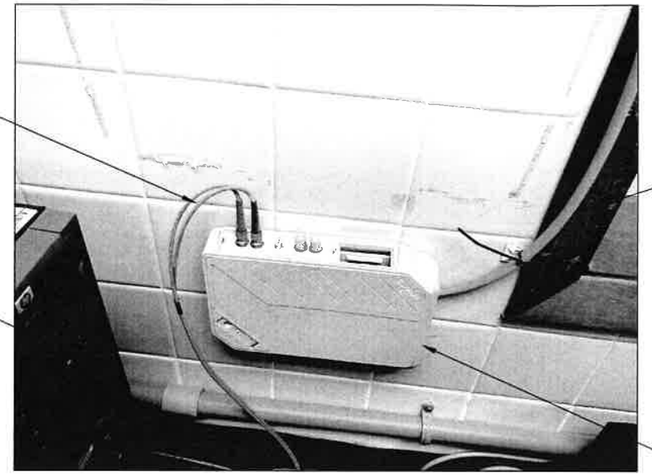
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
WORKSTATION 1 (LIBRARY AREA) NETWORK INTERFACE PANELS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

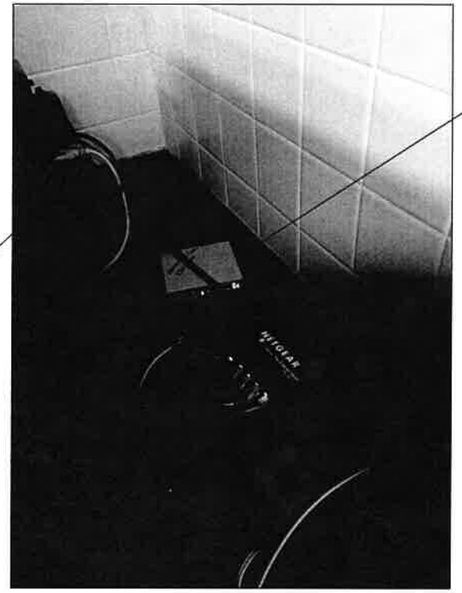
JOB NO. 10716I.10
DRAWING NO. 01E16
SHEET NO 19 OF 84



OPERATORS LAB AREA WORKSTATION OVERVIEW



EXISTING FIBER OPTIC PATCH PANEL



EXISTING FIBER OPTIC NETWORK SWITCH LOCATED BEHIND EXISTING SCADA WORKSTATION

WORKSTATION #5 - OPERATORS LAB AREA

GENERAL NOTES:

1. REMOVE EXISTING NETWORK SWITCH FIBER OPTIC CONVERTER AND PATCH PANEL.
2. PROVIDE AND INSTALL WORKSTATION NETWORK INTERFACE PANEL ON WALL
3. PROVIDE CONDUIT AND WIRE AS REQUIRED FROM NEARBY 120VAC PDP TO THE WORKSTATION NETWORK INTERFACE PANEL.
4. PROVIDE CONDUIT TO PROTECT EXISTING FIBER OPTIC CABLE FROM ABOVE DROP CEILING TO WORKSTATION NETWORK INTERFACE PANEL.
5. REROUTE EXISTING FIBER OPTIC CABLE TO WORKSTATION INTERFACE PANEL.
6. SEE DRAWING 02N09 FOR ADDITIONAL DETAILS ON THE WORKSTATION INTERFACE PANEL.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

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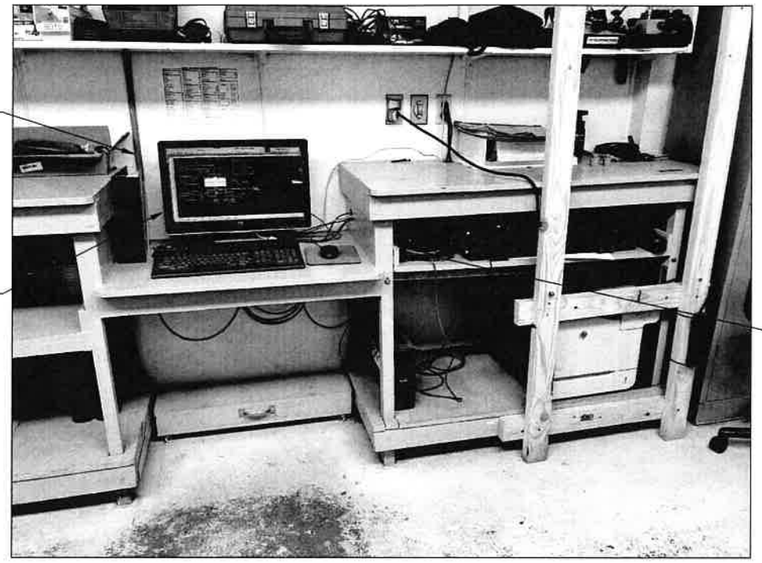
Manatee County FLORIDA

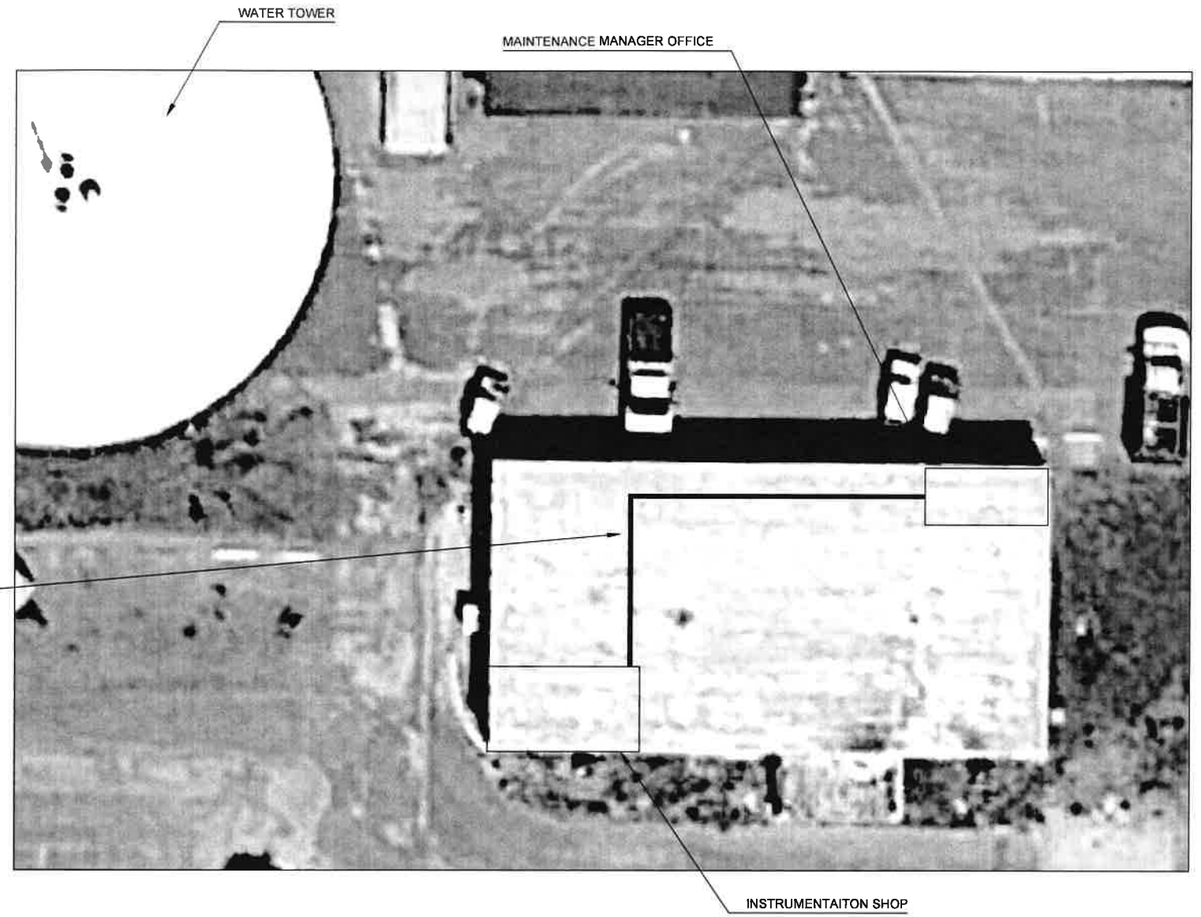
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
WORKSTATION 5 (OPERATORS LAB AREA) NETWORK INTERFACE PANELS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E17
SHEET NO. 20 OF 84



INSTRUMENTATION SHOP OVERVIEW



MAINTENANCE BUILDING

WORKSTATION #4 - INSTRUMENTATION SHOP AREA

GENERAL NOTES:

1. REMOVE EXISTING NETWORK SWITCH FIBER OPTIC CONVERTER AND PATCH PANEL.
2. PROVIDE AND INSTALL WORKSTATION NETWORK INTERFACE PANEL ON WALL (COORDINATE WITH COUNTY STAFF FOR LOCATION)
3. PROVIDE CONDUIT AND WIRE AS REQUIRED FROM NEARBY 120VAC PDP TO THE WORKSTATION NETWORK INTERFACE PANEL.
4. PROVIDE CONDUIT TO PROTECT EXISTING FIBER OPTIC CABLE FROM ABOVE DROP CEILING TO WORKSTATION NETWORK INTERFACE PANEL.
5. REROUTE EXISTING FIBER OPTIC CABLE TO WORKSTATION INTERFACE PANEL.
6. SEE DRAWING 02N10 FOR ADDITIONAL DETAILS ON THE WORKSTATION INTERFACE PANEL.
7. PROVIDE 1" CONDUIT AND ETHERNET CABLE FROM WORKSTATION INTERFACE PANEL TO MAINTENANCE MANGERS OFFICE.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

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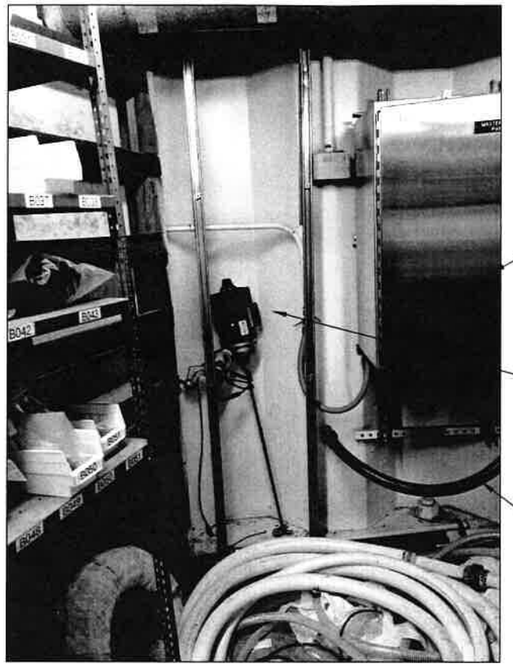
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
WORKSTATION 4 (INSTRUMENTATION SHOP AREA) NETWORK INTERFACE PANELS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E18
SHEET NO. 21 OF 84

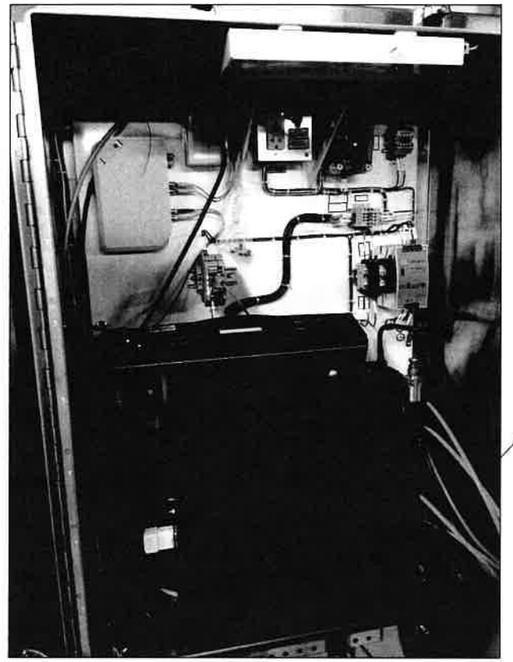


EXISTING SCADA RADIO PANEL

APPROXIMATE LOCATION OF NEW SCADA RADIO PANEL

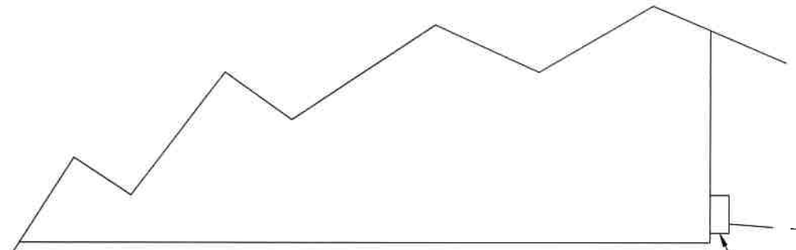
EXISTING FIBER OPTIC ROUTING TO INSTRUMENT SHOP

BACK STORAGE AREA OF ELEVATED TANK



EXISTING FIBER OPTIC CABLE TO INSTRUMENTATION SHOP

INTERIOR VIEW OF EXISTING SCADA RADIO PANEL



MAINTENANCE BUILDING (INSTRUMENT SHOP) (NOT TO SCALE)

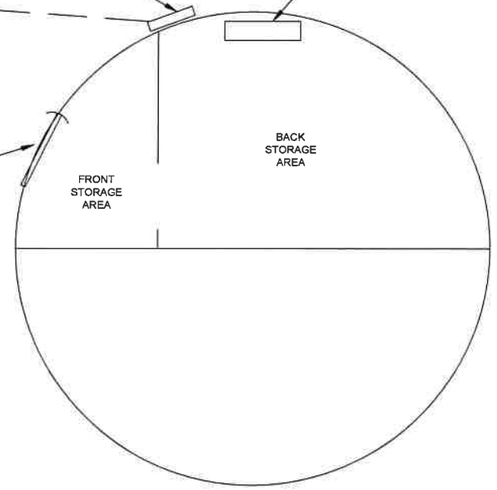
EXISTING FIBER OPTIC JUNCTION BOX ON CORNER OF MAINTENANCE SHOP

EXISTING UNDERGROUND FIBER OPTIC CONDUIT

EXISTING FIBER OPTIC JUNCTION BOX ON ELEVATED TANK

EXISTING SCADA RADIO PANEL

DOORWAY INTO ELEVATED TANK STORAGE AREA



ELEVATE TANK LAYOUT (NOT TO SCALE)

GENERAL NOTES

1. CONTRACTOR TO PROVIDE NEW FIBER OPTIC CABLE FROM NEW SCADA RADIO PANEL TO WORKSTATION NETWORK INTERFACE PANEL LOCATED IN INSTRUMENTATION SHOP.
2. CONTRACTOR SHALL UTILIZE EXISTING UNDERGROUND CONDUIT
3. CONTRACTOR SHALL REMOVE THE EXISTING FIBER OPTIC PATCH CORD BETWEEN THE EXISTING SCADA RADIO PANEL AND THE INSTRUMENTATION SHOP.
4. CONTRACTOR SHALL REMOVE THE INSTRUMENTATION SHOP EXISTING FIBER OPTIC PANEL AND NETWORK SWITCH.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED map
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

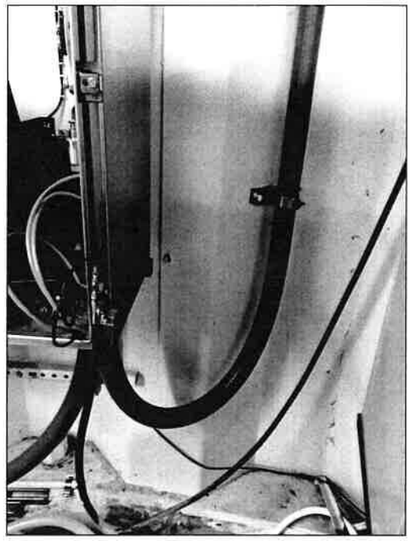
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

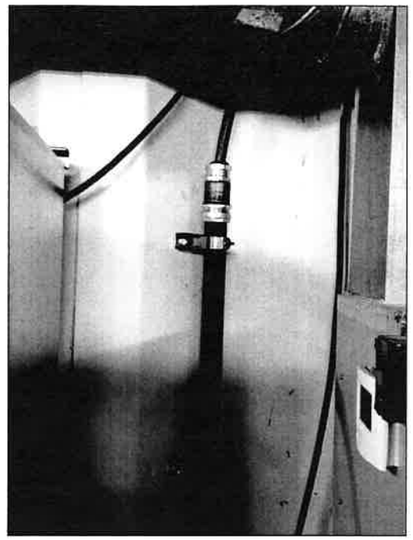
INSTRUMENTATION SHOP FIBER OPTIC ROUTING

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

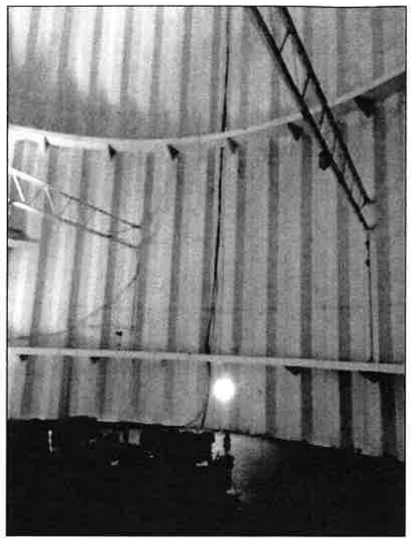
JOB NO. 10716I.10
DRAWING NO. 01E19
SHEET NO. 22 of 84



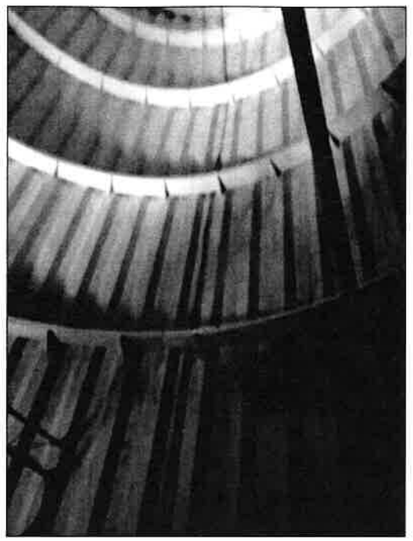
EXISTING SCADA RADIO
ANTENNA CABLES



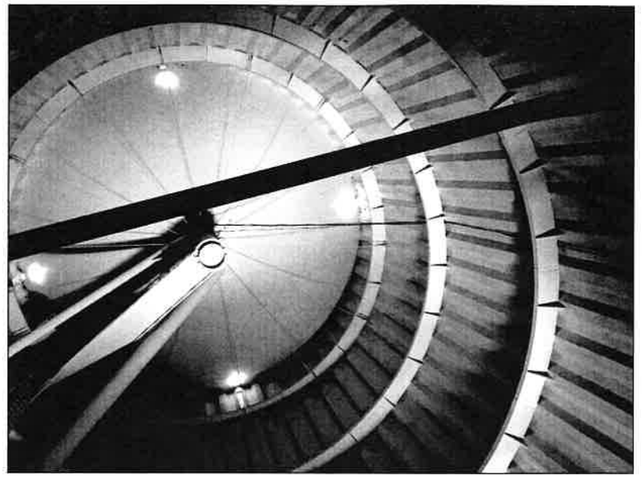
EXISTING SCADA RADIO
ANTENNA CABLES



EXISTING SCADA RADIO
ANTENNA CABLES



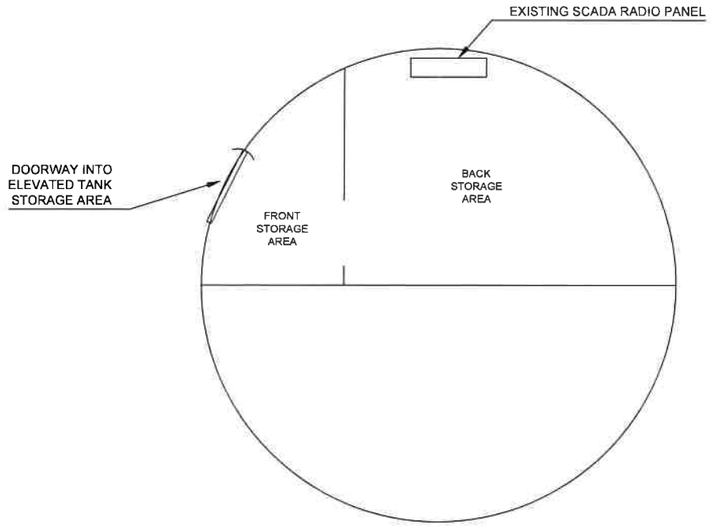
EXISTING SCADA RADIO
ANTENNA CABLES



EXISTING SCADA RADIO
ANTENNA CABLES

GENERAL NOTES

1. CONTRACTOR TO REMOVE EXISTING SCADA RADIO ANTENNA CABLES. NOTE, THERE ARE TWO EXISTING ANTENNA CABLES.
2. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT FOR NEW ANTENNA CABLE FROM NEW SCADA RADIO PANEL UP TO CENTER OF TANK.
3. CONTRACTOR SHALL PROVIDE AND INSTALL NEW ANTENNA ON TOP OF ELEVATED TANK.



ELEVATED TANK
LAYOUT
(NOT TO SCALE)

GARY A. YOCUM
LICENSE
No. 61594
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
12-16-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

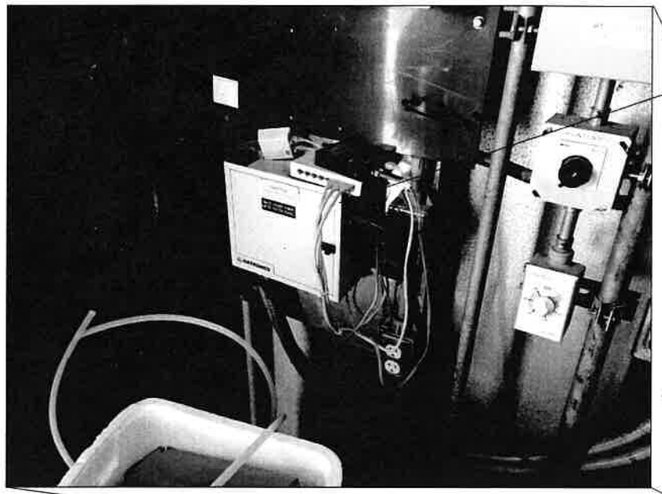
MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

INSTRUMENTATION SHOP
RADIO ANTENNA CABLE ROUTING

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E20
SHEET NO. 23 of 84



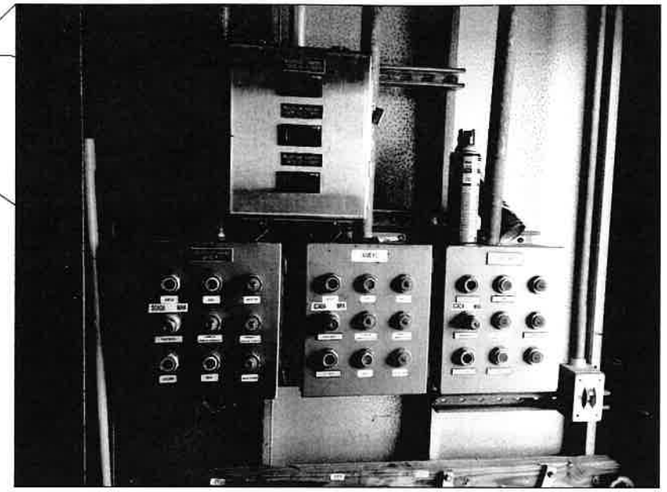
GATE HOUSE EXISTING
FIBER OPTIC PATCH PANEL

GATE HOUSE
EXISTING MCC

N

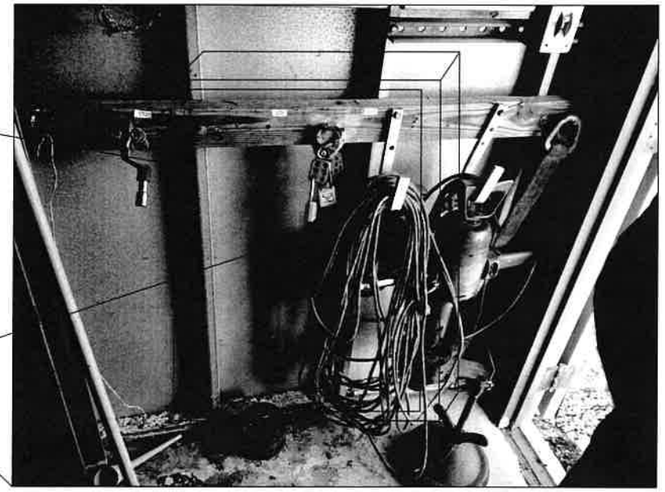
EXISTING LEVEL DISPLAYS

EXISTING GATE CONTROLS



APPROXIMATE LOCATION OF
NEW GATE HOUSE RTU
SEE DRAWINGS 02N016 AND 02N017
FOR ADDITIONAL DETAILS FOR
RTU PANEL

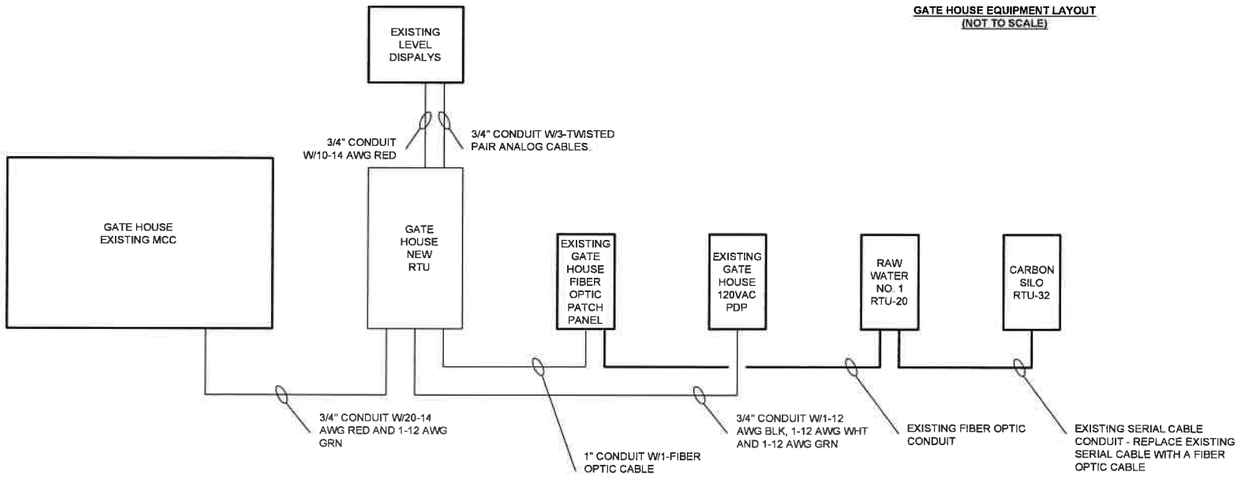
EXISTING EQUIPMENT TO BE REMOVED
BY OWNER IN ORDER TO MAKE
ROOM FOR NEW RTU PANEL.



EXISTING GATE CONTROLS AND NEW RTU LOCATION

GATE HOUSE EXISTING FIBER OPTIC PATCH PANEL

GATE HOUSE EQUIPMENT LAYOUT (NOT TO SCALE)



GATE HOUSE RISER DIAGRAM

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-10-12

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

carollo

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

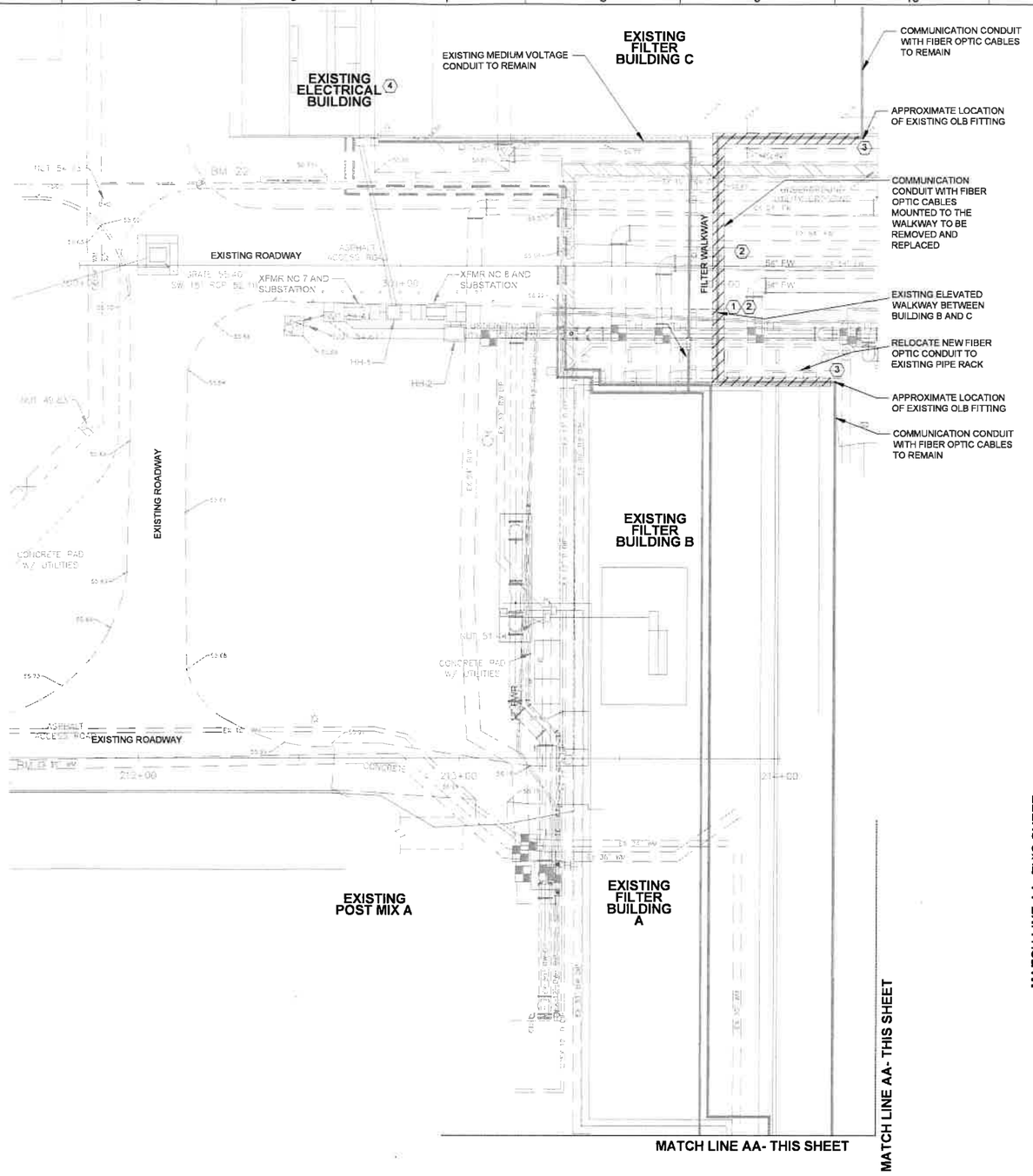
GATE HOUSE MODIFICATIONS

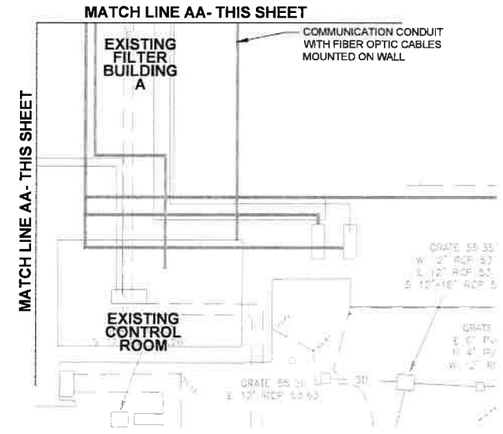
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716I.10
DRAWING NO. 01E21
SHEET NO. 24 OF 84

KEYED NOTES:

1. CONTRACTOR SHALL REMOVE, REPLACE AND RELOCATE THE EXISTING DAMAGED 4" FIBER OPTIC COMMUNICATION CONDUIT. CONTRACTOR SHALL PROVIDE AND INSTALL 4" ALUMINUM CONDUIT AT THE BOTTOM BEAM OF THE ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') BETWEEN FILTER BUILDING "B" AND FILTER BUILDING "C". NEW CONDUIT SHALL BE RELOCATED NORTH OF FILTER BUILDING B OUT TO THE EXISTING PIPE RACK. NEW CONDUIT SHALL CONTINUE TO THE NORTHEAST CORNER OF FILTER BUILDING "B" AND THE SOUTHEAST CORNER OF FILTER BUILDING "C".
2. CONTRACTOR SHALL DE-TERMINATE EXISTING FIBER OPTIC CABLE AT EITHER END AND PULL BACK INNERDUCT AND FIBER OPTIC CABLE TO ALLOW THE REMOVAL, REPLACEMENT AND RELOCATION OF THE CONDUIT. ONCE THE CONDUIT IS REPLACED AND RELOCATED THE CONTRACTOR SHALL RE-PULL THE INNERDUCT AND FIBER OPTIC CABLE ALONG WITH THE TWO NEW REQUIRED FIBER OPTIC CABLES (ONE FOR THE RAW WATER 2 PUMP STATION - RTU-18 AND THE OTHER FOR THE NEW FLUORIDE RTU)
3. NEW CONDUIT INSTALLATION SHALL INCLUDE EXPANSION COUPLINGS AS REQUIRED.
4. BASED ON THE TIMING OF THIS PROJECT AND THE FILTER PROJECT, THE CONDUIT REPAIR AND RELOCATION REFERENCED ON THIS DRAWING MAY HAVE ALREADY BEEN COMPLETED BY THE FILTER PROJECT. IN THAT CASE THIS PROJECT SHALL ONLY BE REQUIRED TO INSTALL THE TWO ADDITIONAL FIBER OPTIC CABLES FOR RTU-18 AND THE NEW FLUORIDE RTU.





GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-10-12

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

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
FIBER OPTIC COMMUNICATION CONDUIT REPLACEMENT

VERIFY SCALES
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0 1"
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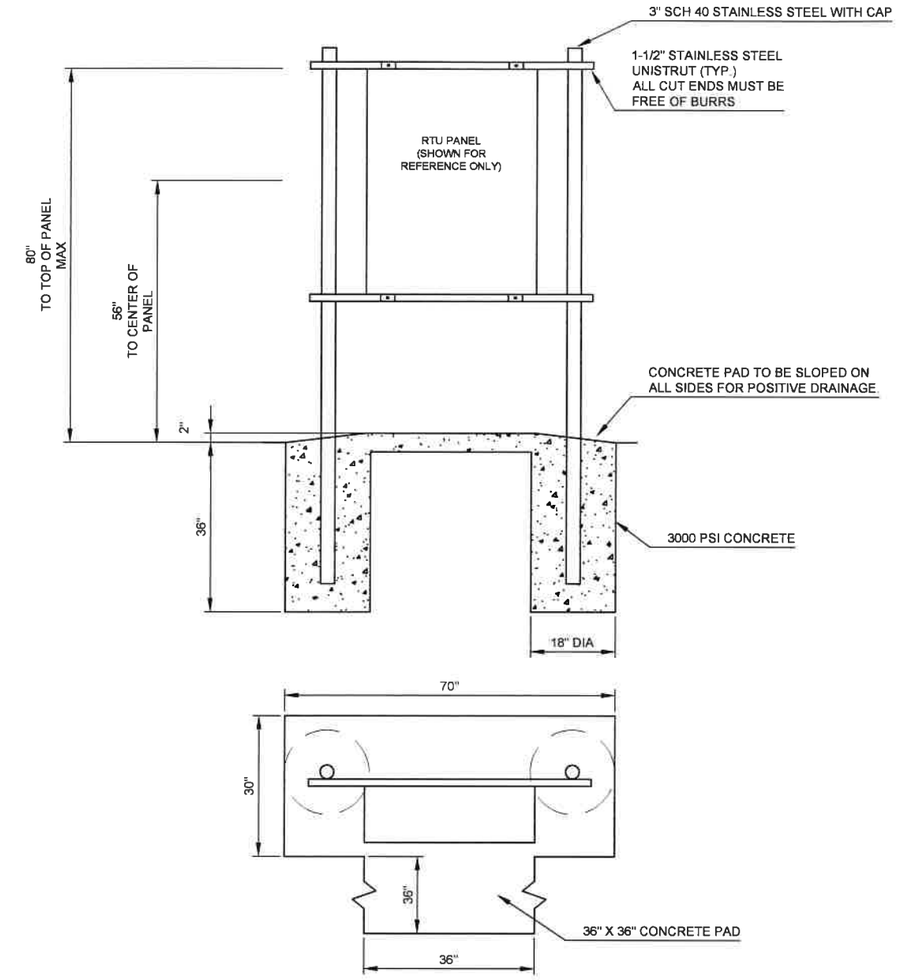
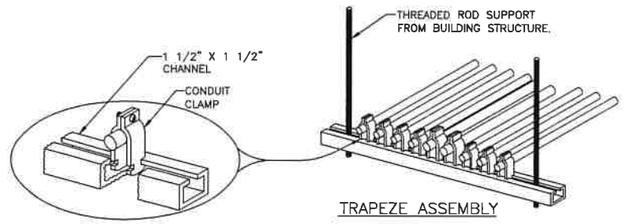
JOB NO. 10716110
DRAWING NO. 018.22
SHEET NO. 25 OF 84

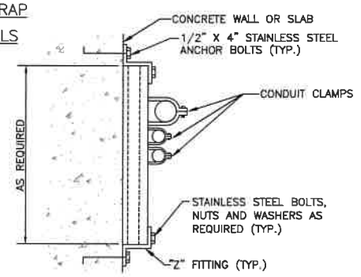


TYPICAL RTU MOUNTING DETAIL



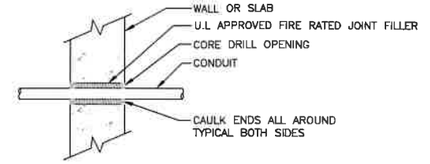
CONDUIT PIPE STRAP MOUNTING DETAILS

TRAPEZE ASSEMBLY



CONDUIT SUPPORT
NOT TO SCALE

NOTES:
1. TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING
2. CHANNEL AND ALL SUPPORT DEVICES TO BE STAINLESS STEEL TYPE 316
3. CHANNELS TO BE SPACED PER NEC MINIMUMS FOR CONDUIT SIZED USED.



CONDUIT PENETRATION AT WALL OR SLAB
NOT TO SCALE

CONDUITS ENTERING BUILDING SHALL BE ADEQUATELY SEALED TO PREVENT MOISTURE MIGRATION FOR EXTERIOR.

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-6-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
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DATE DECEMBER 2018

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
ELECTRICAL DETAILS I

VERIFY SCALES
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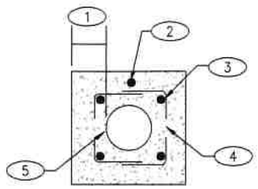
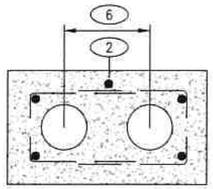
JOB NO. 10716I.10
DRAWING NO. 01E30
SHEET NO. 26 OF 84



1W1 CONCRETE ENCASED DUCTBANK



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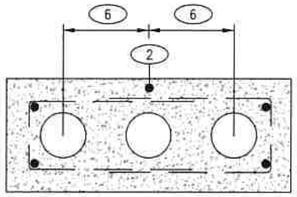
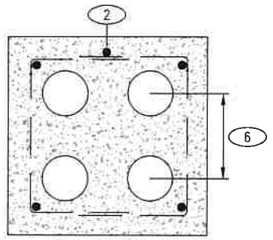
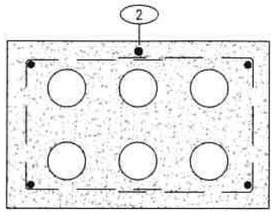


1W3 CONCRETE ENCASED DUCTBANK



2W2 CONCRETE ENCASED DUCTBANK



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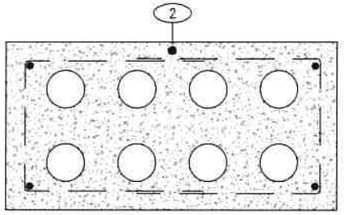
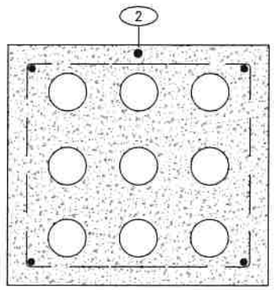


2W4 CONCRETE ENCASED DUCTBANK



3W3 CONCRETE ENCASED DUCTBANK

DUCT BANK DETAILS

(1) 3" CONC COVER FOR ALL CONDUITS, TYPICAL FOR ALL DUCT BANK ARRANGEMENTS

(2) #4/0 BARE COPPER GROUND WIRE, TOP CENTER OF DUCTBANK, 1" CONC COVER

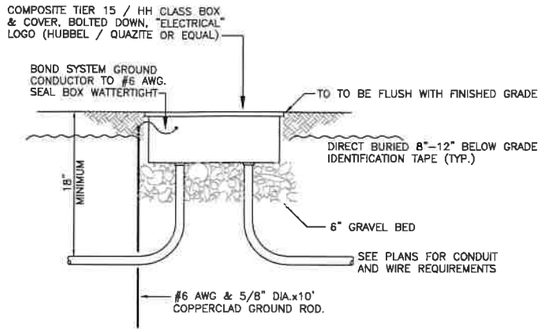
(3) #4 REBAR TOP AND BOTTOM EACH SIDE, TYPICAL FOR ALL DUCTBANK ARRANGEMENTS

(4) 2#3 "U" TIES, 6" OVERLAP, @ 12" O.C. WITH 2" MIN CONCRETE COVER TYPICAL FOR ALL DUCTBANK ARRANGEMENTS

(5) SCHED 40 PVC CONDUIT. SIZE AS NOTED ON PLAN OR 2" IF NOT NOTED.

(6) TYPICAL CONDUIT SPACING TO BE 7-1/2" CENTER TO CENTER, U.O.N., TYPICAL FOR ALL DUCTBANK ARRANGEMENTS

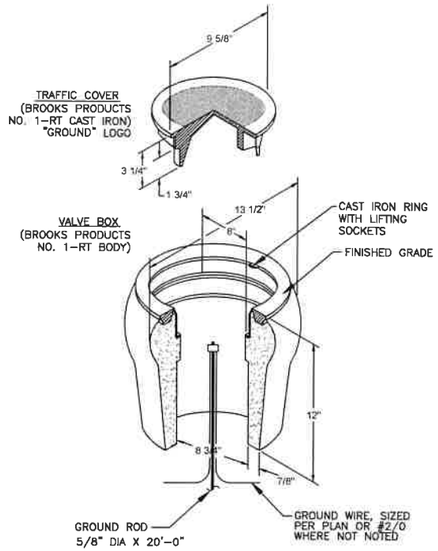
1. PROVIDE EMBEDDED PLASTIC CONDUIT SUPPORTS SPACED PER NEC FOR SIZE OF CONDUIT.
2. (NOT USED)
3. PROVIDE CONDUIT ENDBELLS AT ALL MANHOLE AND HANDHOLE PENETRATIONS. GROUT SOLID ALL SPACES AROUND CONDUIT TO MANHOLE / HANDHOLE WALL
4. PROVIDE BURIED LOCATOR / WARNING TAPE IN CENTER OF TRENCH FOR FULL LENGTH OF RACEWAYS. LOCATE APPROX 8"-12" BELOW FINISHED GRADE.
5. CONTRACTOR SHALL INSTALL PASSIVE BURIED UTILITY MARKERS AT EACH BEND IN DUCTS AND SPACING NOT TO EXCEED 100 FT.



HANDHOLE DETAILS

NOT TO SCALE

1. BOX SIZES TO BE PROVIDED PER NEC REQUIREMENTS BASED ON CONDUIT AND CONDUCTOR SIZES.
2. THE HEIGHT OF THE CONTRACTOR SHALL BE COORDINATED BY THE CONTRACTOR TO ACCOMMODATE OTHER UTILITIES IN THE AREA.
3. ALL HANDHOLES SHALL BE H-20-44 TRAFFIC RATED.
4. DO NOT LOCATE BOXES IN NORMAL TRAFFIC AREAS.
5. CONTRACTOR SHALL COORDINATE CONDUIT ENTRY REQUIREMENTS WITH SITE PLAN, PRIOR TO ORDERING HANDHOLES.
6. CONTRACTOR SHALL PROVIDE REQUIRED END BELL LOCATIONS TO HANDHOLE MANUFACTURER BEFORE MANUFACTURING.
7. PROVIDE LABELING ON EACH HANDHOLE COVER TO INDICATE USE, SUCH AS "COMMUNICATIONS". LETTERING TO BE 2" HIGH AND FACTORY FABRICATED.
8. ALL METAL PARTS OF HANDHOLE, IF ANY, SHALL BE BONDED TO GROUND ROD WITH #6 WIRE. ALSO BOND TO EXPOSED GROUND CONDUCTORS IN DUCTBANK/CIRCUITS CONTAINED.



GROUND WELL DETAIL

NOT TO SCALE

GARY A. YOCUM LICENSE No. 61594 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-10-18

REV	DATE	BY	DESCRIPTION

DESIGNED YOCUM
DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

ELECTRICAL DETAILS II

VERIFY SCALES
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JOB NO. 10716I.10
DRAWING NO. 01E31
SHEET NO. 27 OF 84

PROCESS SWITCHES

- FLOAT SWITCH — CLOSE ON RISING LEVEL
- FLOAT SWITCH — OPEN ON RISING LEVEL
- PRESSURE SWITCH — CLOSE ON RISING PRESSURE
- PRESSURE SWITCH — OPEN ON RISING PRESSURE
- TEMPERATURE SWITCH — CLOSE ON RISING TEMPERATURE
- TEMPERATURE SWITCH — OPEN ON RISING TEMPERATURE
- FLOW SWITCH — CLOSE ON INCREASE IN FLOW
- FLOW SWITCH — OPEN ON INCREASE IN FLOW
- VIBRATION SWITCH — OPEN ON RISING VIBRATION
- VIBRATION SWITCH — CLOSE ON RISING VIBRATION
- TORQUE SWITCH — OPEN ON HIGH TORQUE
- TORQUE SWITCH — CLOSE ON HIGH TORQUE
- NORMALLY CLOSED — LIMIT SWITCH
- NORMALLY CLOSED — HELD OPEN LIMIT SWITCH
- NORMALLY OPEN — LIMIT SWITCH
- NORMALLY OPEN — HELD CLOSED LIMIT SWITCH

HAND SWITCHES

- NORMALLY OPEN — MOMENTARY PUSHBUTTON
- NORMALLY CLOSED — MOMENTARY PUSHBUTTON
- THREE POSITION SELECTOR SWITCH (xoo) — x - DENOTES POSITION CONTACTS CLOSED IN
- TWO POSITION SELECTOR SWITCH (xo) — x - DENOTES POSITION CONTACTS CLOSED IN
- MUSHROOM HEAD PUSHBUTTON
- PUSH-PULL PUSHBUTTON — MAINTAINED CONTACT
- PADLOCK SWITCH (xox) — x - DENOTES POSITION CONTACTS CLOSED IN
- PULL CORD SWITCH
- STOP-LOCKOUT PUSHBUTTON
- SPRING-RETURN (xoo) — x - DENOTES POSITION CONTACTS CLOSED IN

PILOT LIGHTS

- PILOT LIGHT — a = LENS COLOR: R = RED, G = GREEN, W = WHITE, A = AMBER

RELAYS

- RELAY COIL — a = TYPE: CR - CONTROL RELAY; TD - TIME DELAY RELAY; M - MOTOR STARTER COIL; L - MOTOR STARTER COIL - LOW SPEED; H - MOTOR STARTER COIL - HIGH SPEED; F - MOTOR STARTER COIL - FORWARD; R - MOTOR STARTER COIL - REVERSE; b = TDON - TIME DELAY ON ENERGIZATION, TDOFF - TIME DELAY ON DEENERGIZATION; c = TIMING RANGE/SETTING; d = DESCRIPTION
- NORMALLY OPEN — CONTROL CONTACT
- NORMALLY CLOSED — CONTROL CONTACT
- NOTC — TIME DELAY CONTACT, NORMALLY OPEN, TIMED CLOSING
- NCTO — TIME DELAY CONTACT, NORMALLY CLOSED, TIMED OPENING
- NOTO — TIME DELAY CONTACT, NORMALLY OPEN, TIMED OPENING
- NCTC — TIME DELAY CONTACT, NORMALLY CLOSED, TIMED CLOSING

TERMINAL BLOCKS

- TERMINAL — IN PLC/PCM PANEL
- TERMINAL — IN MOTOR CONTROL CENTER
- TERMINAL — IN LOCAL STARTER CONTROL PANEL
- TERMINAL — AT FIELD DEVICE
- TERMINAL — IN RTU
- TERMINAL — IN FIELD PANEL
- TERMINAL — IN RELAY PANEL
- DIGITAL BUS CONNECTOR — * = D - DEVICENET; * = PA - PROFIBUS PA; * = DP - PROFIBUS DP; * = H1 - FOUNDATION FIELDBUS H1; * = H2 - FOUNDATION FIELDBUS H2

I/O

- PLC DISCRETE (a) — a = INPUT OR OUTPUT AS INDICATED
- PLC ANALOG (ANALOG a) — a = INPUT OR OUTPUT AS INDICATED
- DIGITAL BUS (DIGITAL BUS)

DESIGNATIONS

- EXISTING
- NEW

MISC

- SOLENOID
- METER UNIT (M) — M = TYPE
- MOTOR (HP)
- CIRCUIT BREAKER
- DISCONNECT
- FUSE
- TRANSIENT SURGE PROTECTION
- MOTOR WINDING HEATER (MWH-*) — * - MOTOR TAG I.D.
- SPACE HEATER
- VARISTOR
- CAPACITOR
- RESISTOR
- BATTERY
- DIODE
- MOTOR OVERLOAD HEATERS
- OVERLOAD CONTACT
- DRAWOUT CONNECTION
- GROUND
- LIGHTNING ARRESTOR
- CONTROL POWER TRANSFORMER (H1, H3, H2, H4, X1, X2)
- ELAPSED TIME METER (KH-* / ETM)

REV	DATE	BY	DESCRIPTION

DESIGNED JJH
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No.52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Joseph J. Hanlon
Contact Info: Carollo Engineers Inc
Date: 2018.12.06 14:04:46 -05'00'

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SCHEMATIC SYMBOLS

VERIFY SCALES
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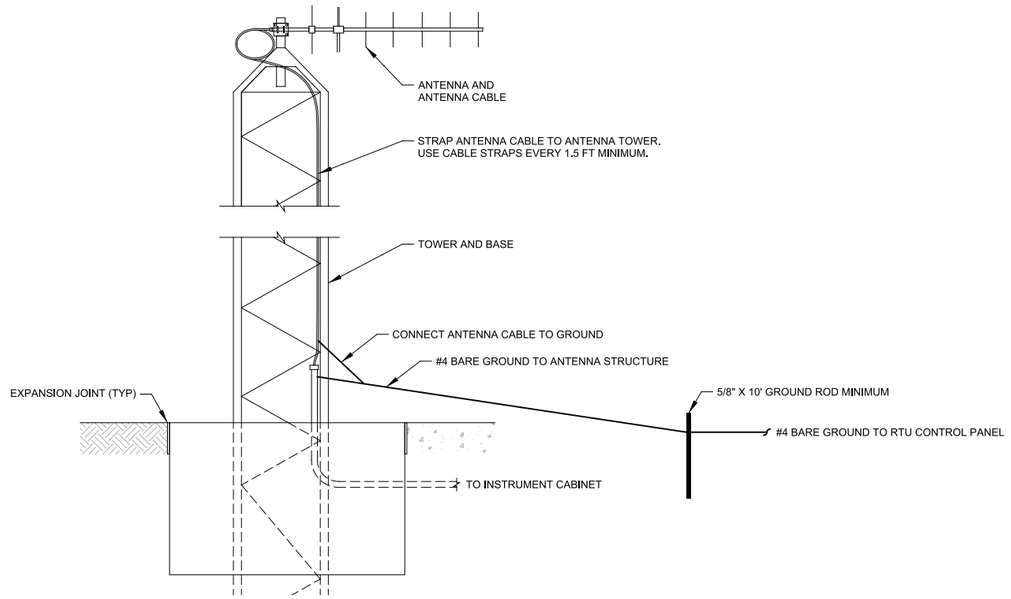
JOB NO. 10716I.10
DRAWING NO. 00GN01
SHEET NO. 28 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1000GN001.dgn



GENERAL NOTES:

1. PROVIDE NEW ANTENNA TOWER. SELF-SUPPORTING (NON-GUYED.). PERFORM SITE RADIO SURVEY AND ADJUST HEIGHTS AS NECESSARY. TOWER/BASE SHALL BE DESIGNED PER CURRENT REVISION OF ANSI/EIA/TIA-222 AND ANY LOCAL CODES AND APPLICABLE WIND LOADING REQUIREMENTS. TOWER/BASE DESIGN SHALL BE CERTIFIED FOR THE APPLICATION. BY FLORIDA REGISTERED STRUCTURAL ENGINEER. CERTIFICATION DOCUMENTATION SHALL BE PROVIDED AS PART OF THE PROJECT. TOWER SHALL BE GROUNDED IN ACCORDANCE WITH LOCAL AND NATIONAL CODES AND STANDARDS. STRAP ANTENNA CABLE TO TOWER.

2. PROVIDE AND INSTALL NEW ANTENNA, ANTENNA CABLE, AND COAXIAL SURGE PROTECTOR.

   - ANTENNA CABLE: MODEL HELIAX LDF4-50A, AS MANUFACTURED BY ANDREWS OR EQUAL.

3. INSTALL 1-1/2" CONDUIT FROM TOWER BASE, EXTENDING TO INSTRUMENTATION CONTROL PANEL, FOR ROUTING ANTENNA CABLE. CONDUIT SHALL BE ALUMINUM CONDUIT. CONDUIT THAT COMES IN CONTACT WITH CONCRETE PAD, SHALL BE TREATED WITH PROTECTIVE COATING. COATING SHALL EXTEND TO 4" BEYOND POINT OF CONTACT AT TOWER END. INSTALL CABLE LOCK FITTING TO PROVIDE WATER-TIGHT SEAL.

4. ALL EXTERIOR COAXIAL CONNECTORS MUST BE PROTECTED WITH A WEATHER PROOFING KIT SIMILAR TO: ANDREW CONNECTOR SEALING KIT AND TAPE #3M1700.

5. COAXIAL SURGE PROTECTION TO BE PROVIDED AT RADIO END.

6. REFER TO TOWER MANUFACTURER'S RECOMMENDED FOUNDATION DRAWINGS AND SPECIFICATIONS. COORDINATE WITH TOWER MANUFACTURER DETAILS FOR TOWER SELECTION AND FOUNDATION REQUIREMENTS.

REV	DATE	BY	DESCRIPTION

DESIGNED AMA
DRAWN BPR
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
TYPICAL ANTENNA / TOWER DETAILS

VERIFY SCALES
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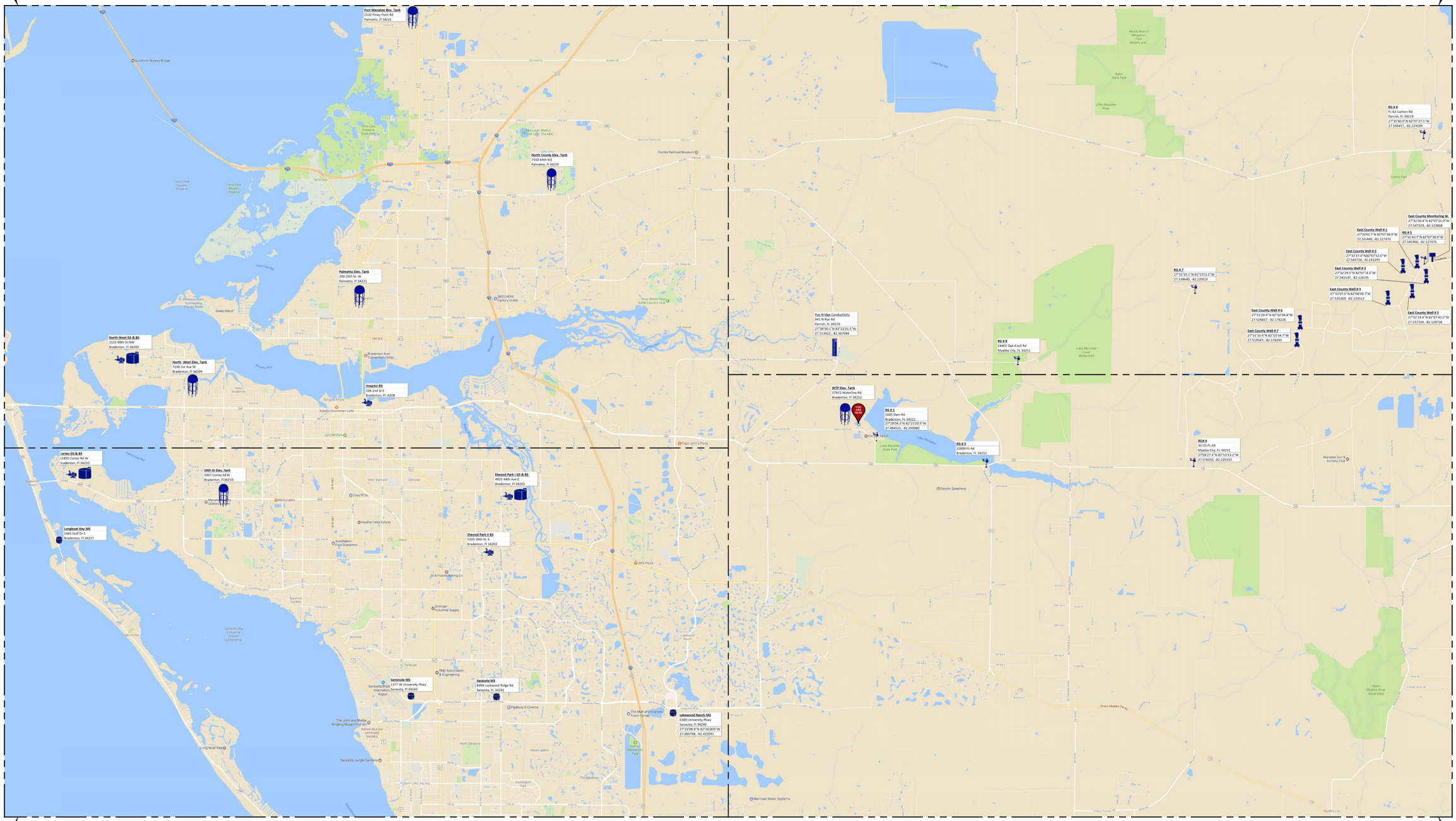
JOB NO. 10716I.10
DRAWING NO. 00GN02
SHEET NO. 29 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1000GN002.dgn



C 03N006 | D 03N007

SITE PLAN

SCALE: NO SCALE
FILE: 10716I1001N101

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DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
REMOTE RTU COUNTY WIDE MAP
SITE PLAN

VERIFY SCALES
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JOB NO. 10716I.10
DRAWING NO. 01N01
SHEET NO. 30 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1001N001,dgn

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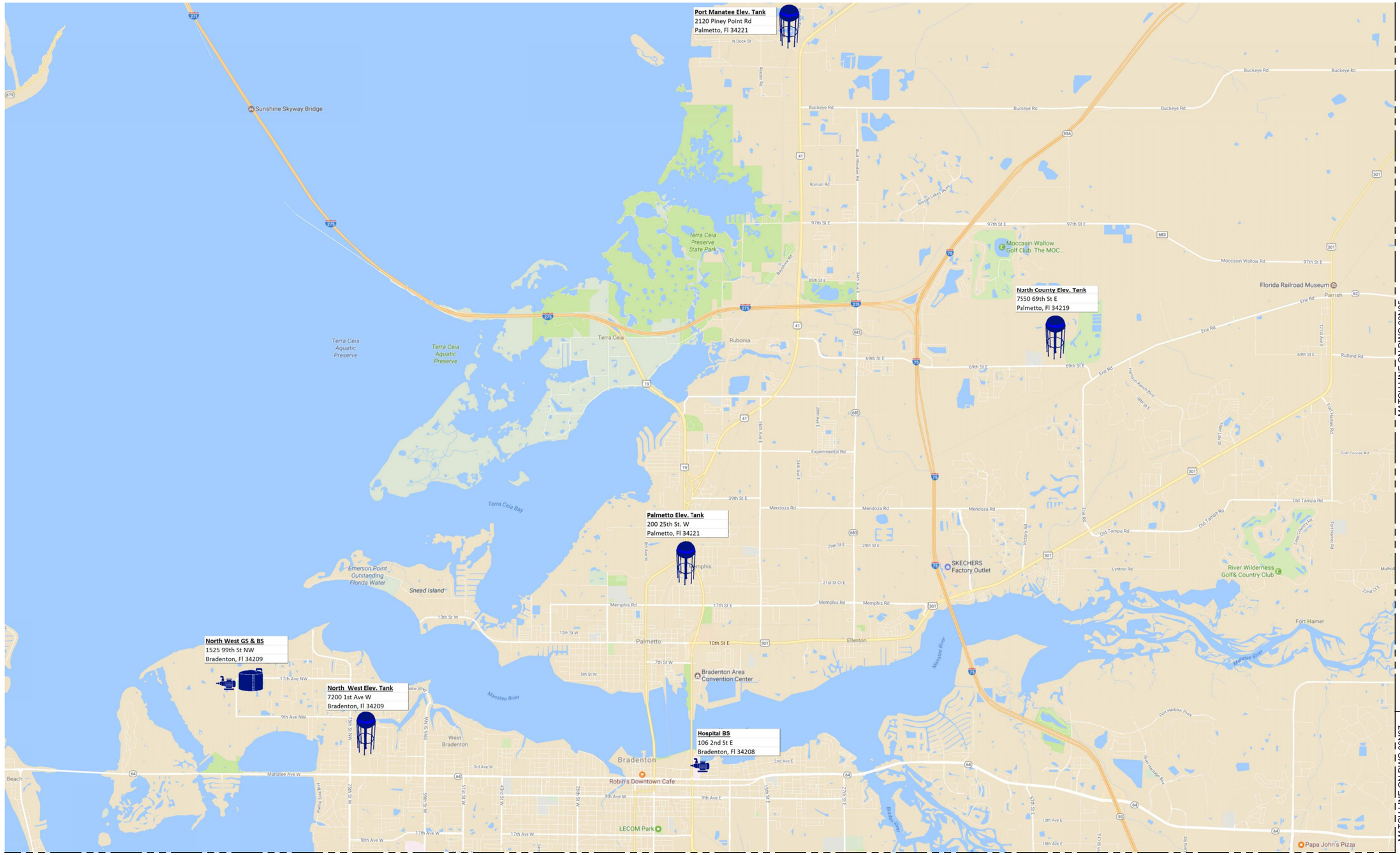

A PLAN - I

03N003

SCALE: NO SCALE
FILE: 10716I1001N101

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DATE DECEMBER 2018

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
REMOTE RTU COUNTY WIDE MAP
PLAN - I

VERIFY SCALES
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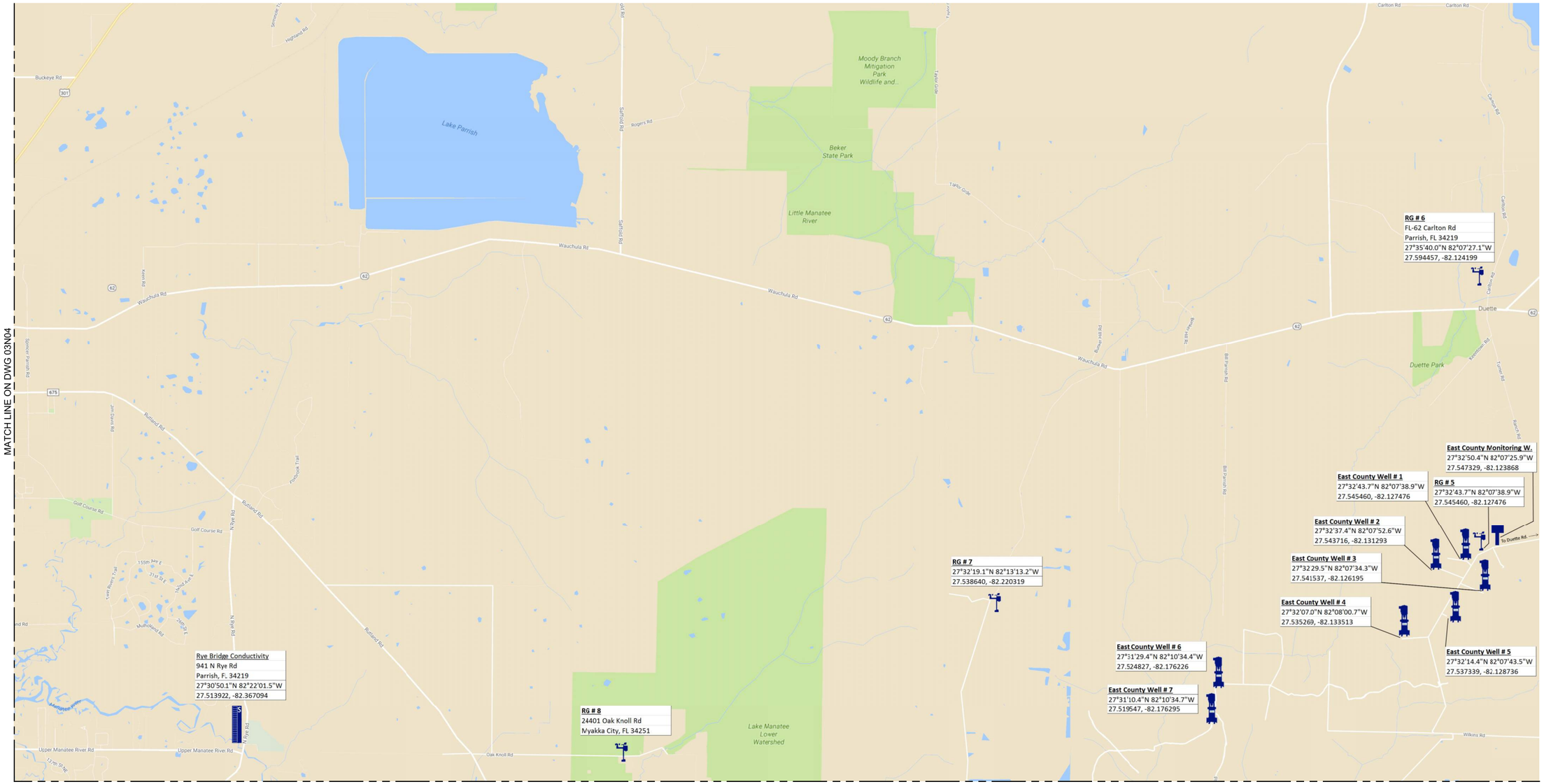
JOB NO. 10716I.10
DRAWING NO. 01N02
SHEET NO. 31 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1001N002.dgn



B 03N003 **PLAN - II**
SCALE: NO SCALE
FILE: 10716I1001N101

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DESIGNED JJH
DRAWN BPR
CHECKED NEA
DATE DECEMBER 2018

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
REMOTE RTU COUNTY WIDE MAP
PLAN - II

VERIFY SCALES
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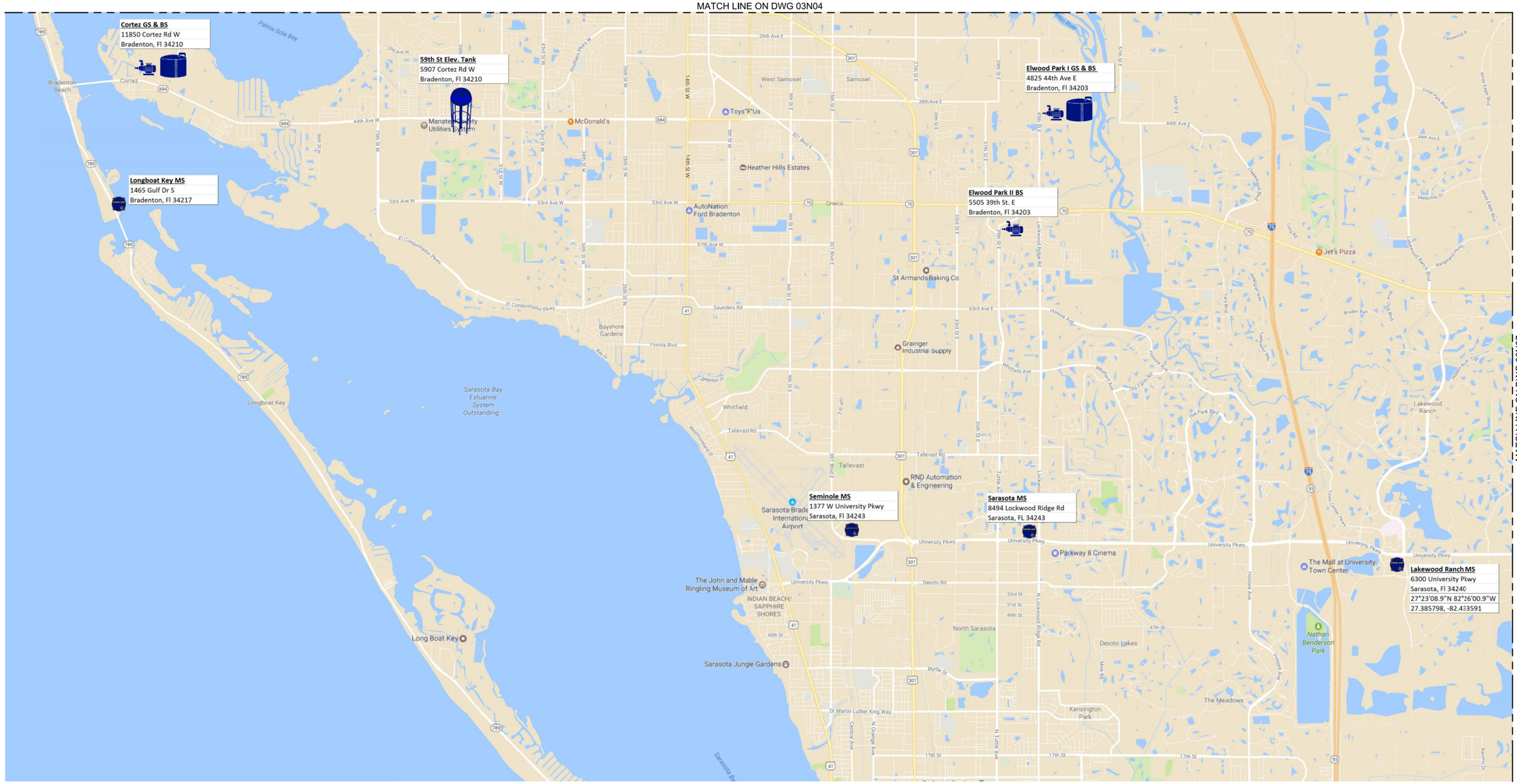
JOB NO. 10716I.10
DRAWING NO. 01N03
SHEET NO. 32 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1001N003.dgn

MATCH LINE ON DWG 03N04



MATCH LINE ON DWG 03N07

C 03N003 PLAN - III

SCALE: NO SCALE
FILE: 10716I1001N101

REV	DATE	BY	DESCRIPTION

DESIGNED JJH
DRAWN BPR
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Joseph J. Hanlon
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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
REMOTE RTU COUNTY WIDE MAP
PLAN - III

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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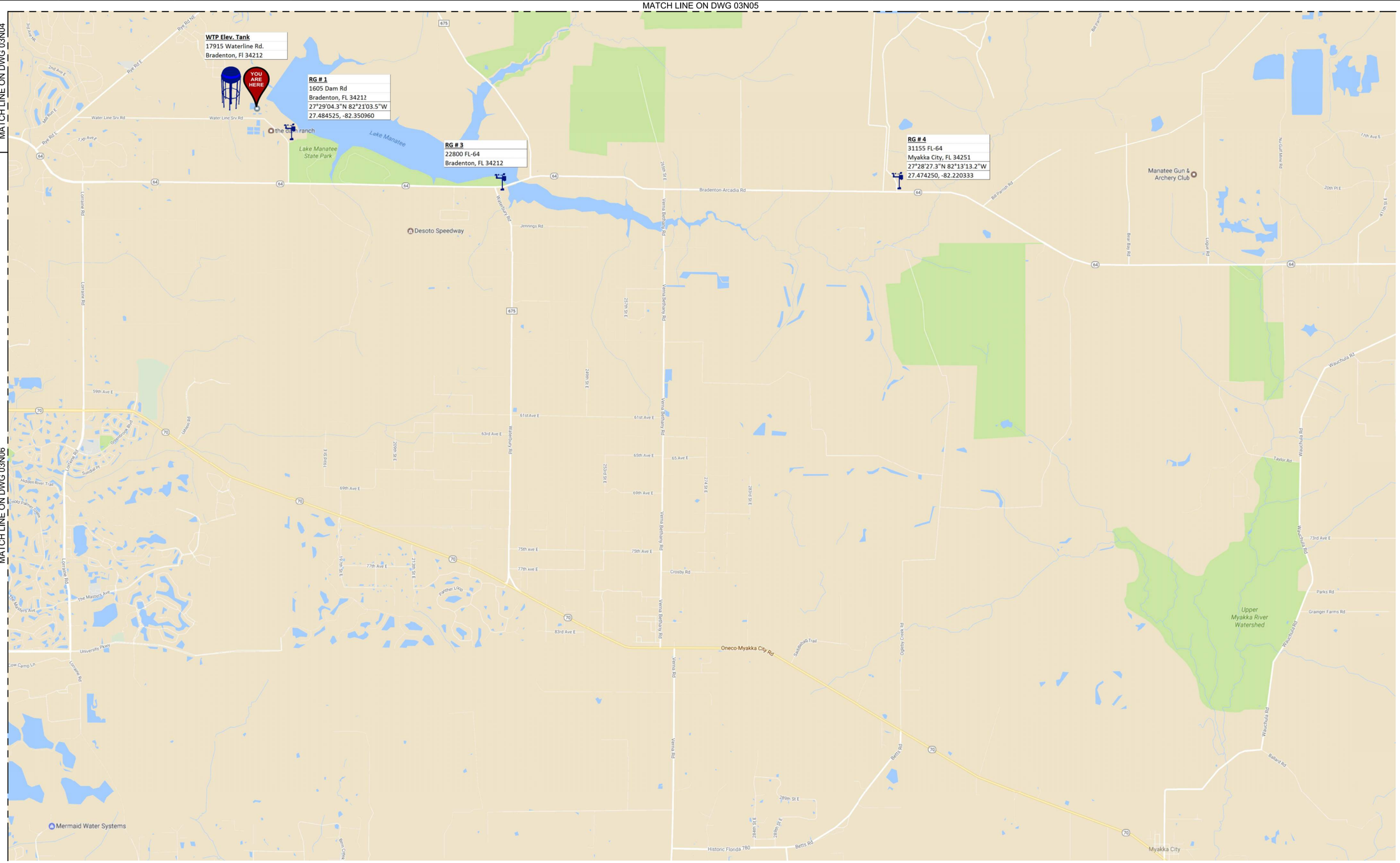
JOB NO. 10716I.10
DRAWING NO. 01N04
SHEET NO. 33 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1001N004.dgn



D PLAN - IV

03N003

SCALE: NO SCALE

FILE: 10716I1001N101

REV	DATE	BY	DESCRIPTION

DESIGNED JJH

DRAWN BPR

CHECKED NEA

DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

INSTRUMENTATION

REMOTE RTU COUNTY WIDE MAP
PLAN - IV

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JOB NO. 10716I.10

DRAWING NO. 01N05

SHEET NO. 34 OF 84

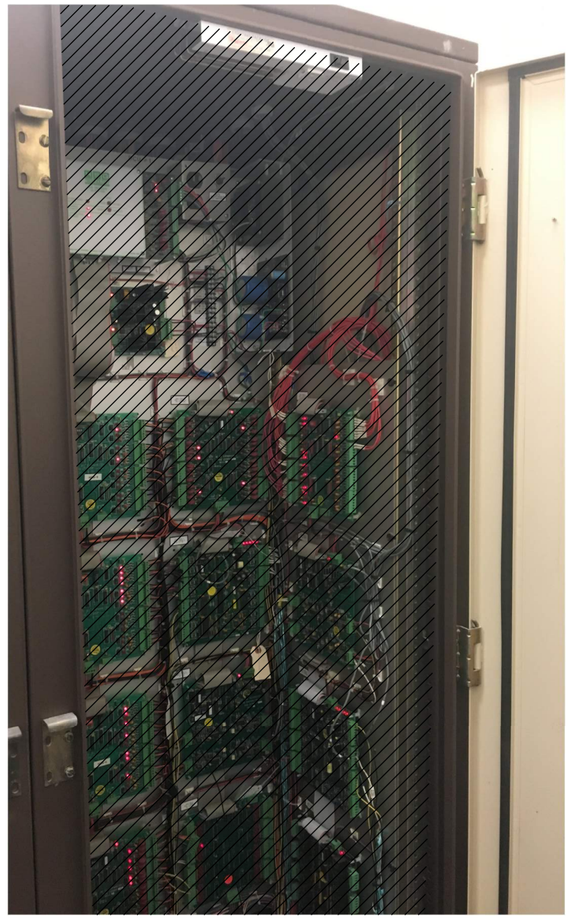
PROJECT NO. 10716I10 FILE NAME: 10716I1001N005.dgn

Plot Date: 06-DEC-2018 11:50:18 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: broepken

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED AND RETURNED TO MANATEE COUNTY.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. REMOVE HSQ WORKSTATION AND ASSOCIATED EQUIPMENT.
7. MOUNT NEW PLC BACKPANEL AND ASSOCIATED EQUIPMENT IN LEFT SIDE OF EXISTING RTU. NEW PLC BACK PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N01.
8. REMOVE HSQ RTU EQUIPMENT AFTER SUCCESSFUL INSTALLATION OF NEW PLC IN ADJACENT LEFT CABINET. TURN OVER EQUIPMENT TO OWNER.
9. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
10. INSTALL NEW UPS.
11. UTILIZE EXISTING CABINET LIGHT. REPLACE ALL NON-OPERABLE COMPONENTS.
12. REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

1 **LEFT SIDE**
FILE: 10716I1002DN001A



2 **RIGHT SIDE**
FILE: 10716I1002DN001B

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DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RTU NO. 1 DEMOLITION

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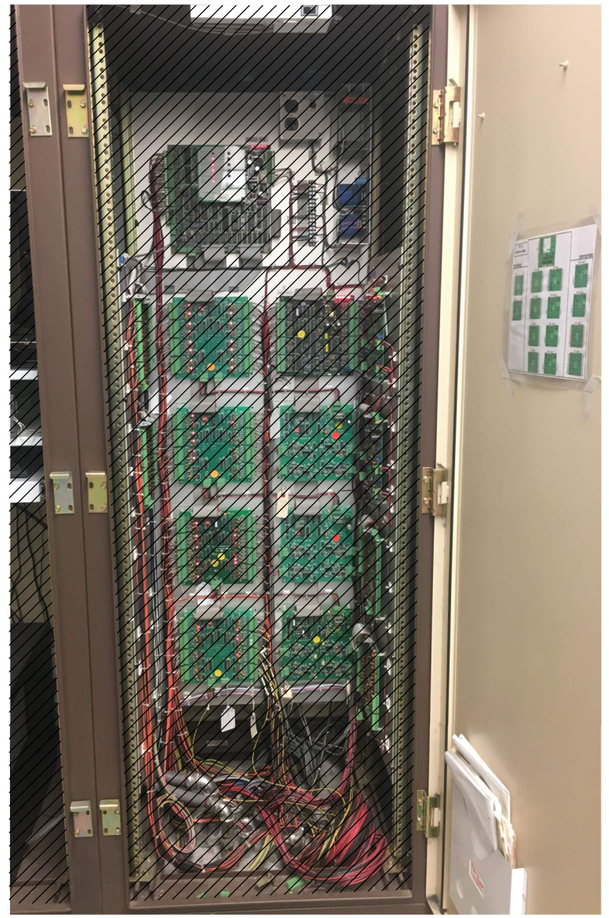
JOB NO. 10716I.10
DRAWING NO. 02DN01
SHEET NO. 35 OF 84

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED AND RETURNED TO MANATEE COUNTY.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. REMOVE HSQ WORKSTATION AND ASSOCIATED EQUIPMENT.
7. MOUNT NEW PLC BACKPANEL AND ASSOCIATED EQUIPMENT IN LEFT SIDE OF EXISTING RTU. NEW PLC BACK PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N02.
8. REMOVE HSQ RTU EQUIPMENT AFTER SUCCESSFUL INSTALLATION OF NEW PLC IN ADJACENT LEFT CABINET. TURN OVER EQUIPMENT TO OWNER.
9. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
10. REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

1 **LEFT SIDE**
FILE: 10716I1002DN002A



2 **RIGHT SIDE**
FILE: 10716I1002DN002B

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RTU NO. 2 DEMOLITION

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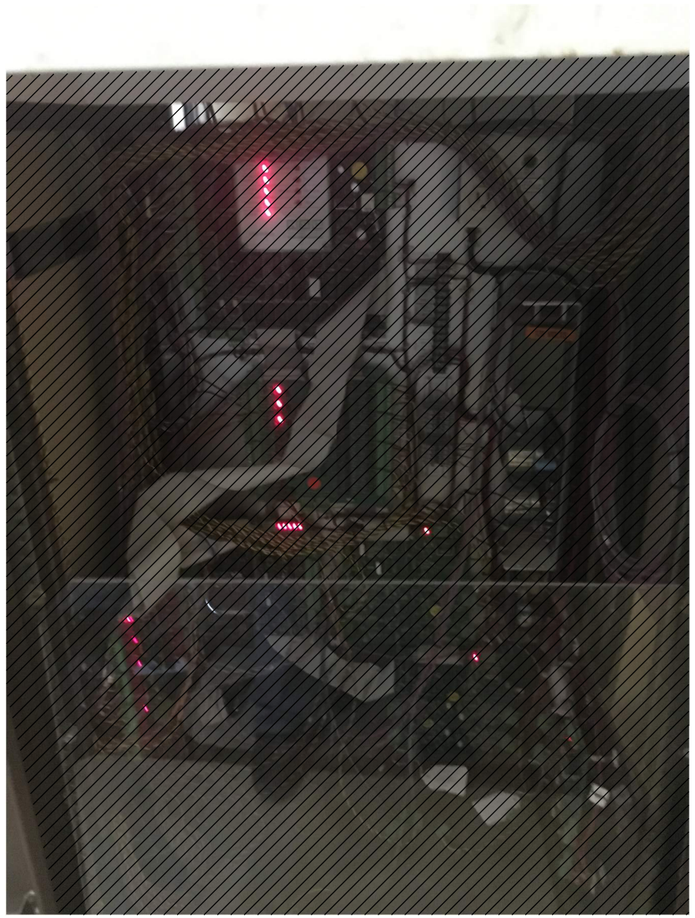
JOB NO. 10716I.10
DRAWING NO. 02DN02
SHEET NO. 36 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1002DN002.dgn

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. REMOVE HSQ WORKSTATION AND ASSOCIATED EQUIPMENT.
7. MOUNT NEW PLC BACKPANEL AND ASSOCIATED EQUIPMENT IN EXISTING RTU. NEW PLC BACK PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N03.
8. REMOVE HSQ RTU EQUIPMENT AFTER SUCCESSFUL INSTALLATION OF NEW PLC. TURN OVER EQUIPMENT TO OWNER.
9. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
10. REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

1 TOP HALF OF EXISTING ENCLOSURE
FILE: 10716I1002DN003A



2 BOTTOM HALF OF EXISTING ENCLOSURE
FILE: 10716I1002DN003B

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
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RTU NO. 3 DEMOLITION

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JOB NO. 10716L10
DRAWING NO. 02DN03
SHEET NO. 37 OF 84

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. REMOVE HSQ WORKSTATION AND ASSOCIATED EQUIPMENT.
7. REMOVE HSQ RTU EQUIPMENT, RTU PANEL, AND MOUNT NEW PLC PANEL AND ASSOCIATED EQUIPMENT. NEW PLC PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N04. TURN OVER OLD EQUIPMENT TO THE OWNER.
8. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
9. EXISTING ENCLOSURE TO BE REMOVED. REPLACE WITH NEW ENCLOSURE AS SHOWN ON DRAWING 02N04.

1 **SIDE VIEW**
FILE: 10716I1002DN004A

REV	DATE	BY	DESCRIPTION

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DATE DECEMBER 2018

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RTU NO. 4 DEMOLITION

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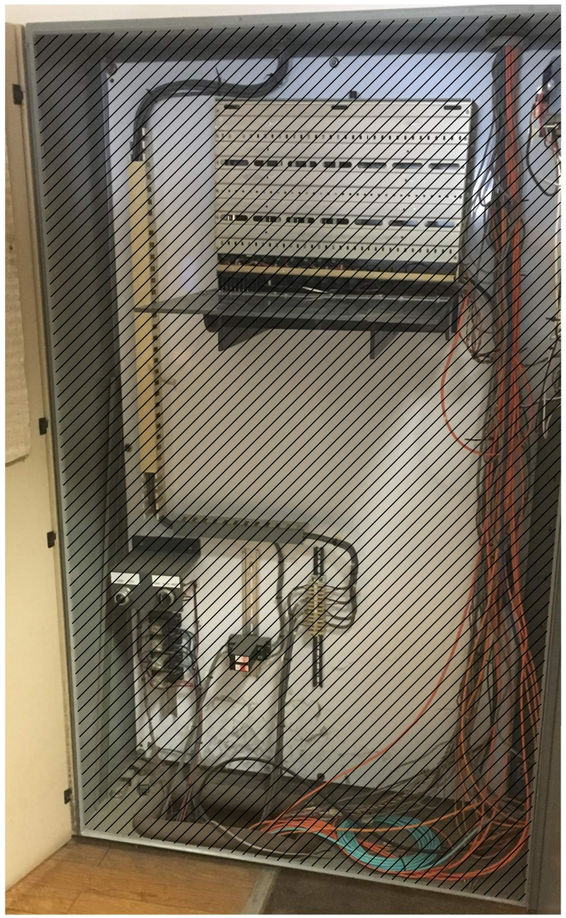
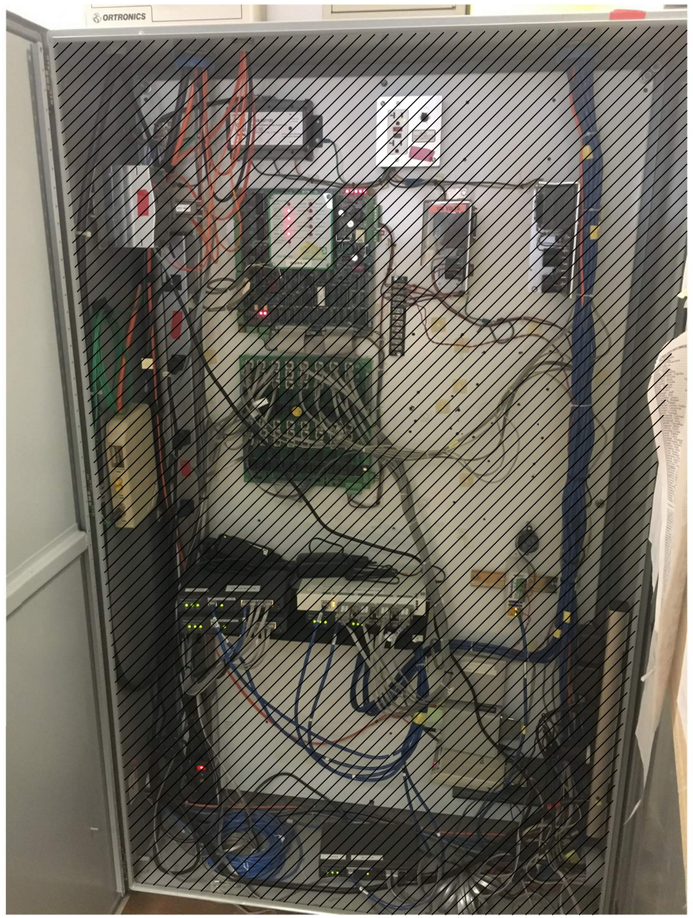
JOB NO. 10716I.10
DRAWING NO. 02DN04
SHEET NO. 38 OF 84

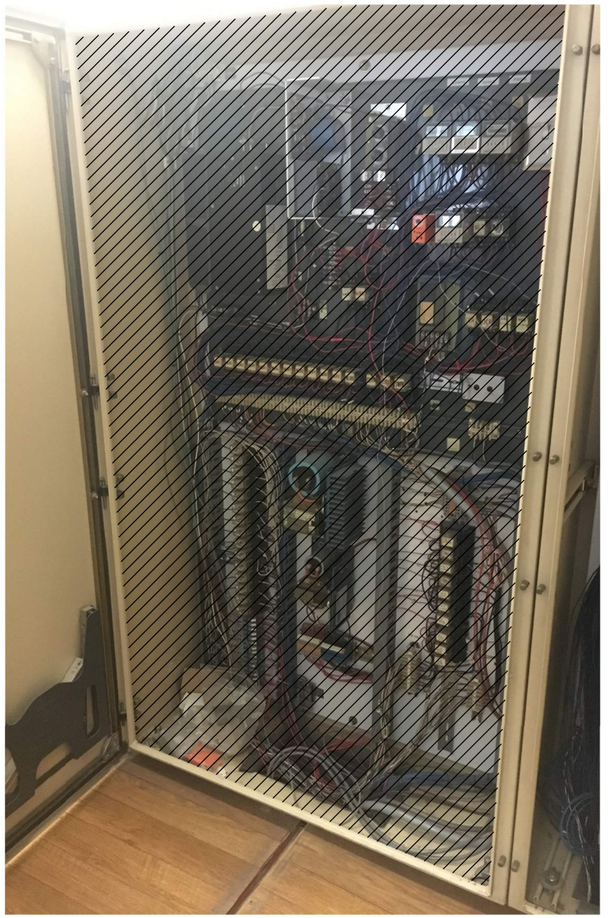
PROJECT NO. 10716I10 FILE NAME: 10716I1002DN004.dgn



1 **FRONT**
FILE: 10716I1002DN005A



2 **FRONT**
FILE: 10716I1002DN005B



3 **FRONT**
FILE: 10716I1002DN005C

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. MOUNT NEW PLC BACKPANEL AND ASSOCIATED EQUIPMENT IN EXISTING HSQ CONTROL PANEL. NEW PLC BACK PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N05.
7. TURN OVER EQUIPMENT TO OWNER.
8. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
9. REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.
10. DEMO ALL UNUSED CONTROL PANELS. FLOOR RACEWAY NOT TO BE USED FOR CONDUIT OR CABLE INSTALLATION.

REV	DATE	BY	DESCRIPTION

DESIGNED JJH
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52648 STATE OF FLORIDA PROFESSIONAL ENGINEER

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RTU NO. 5 DEMOLITION

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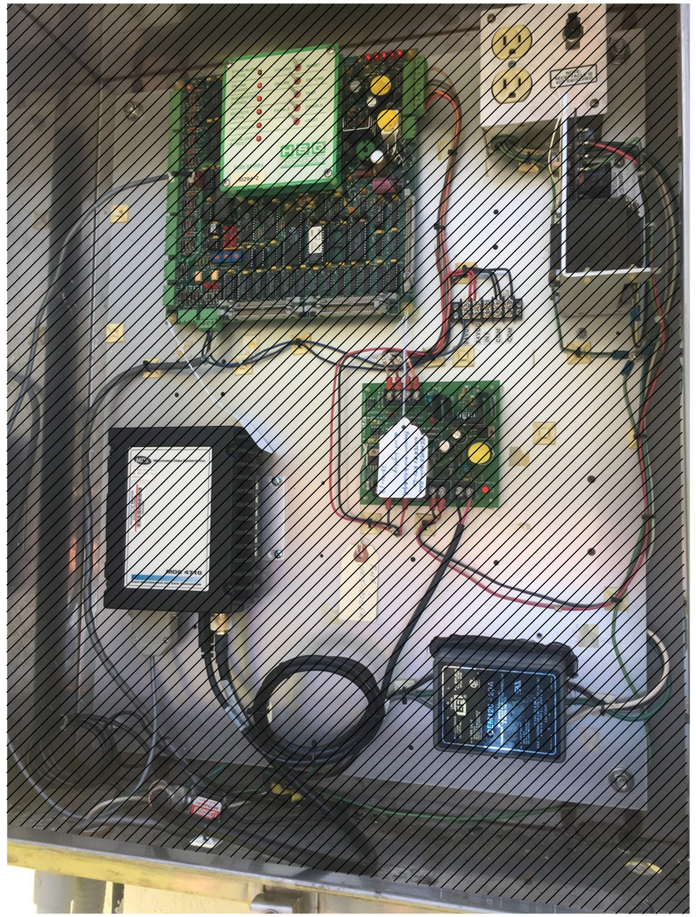
JOB NO. 10716I.10
DRAWING NO. 02DN05
SHEET NO. 39 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1002DN005.dgn



1 **FRONT**
FILE: 10716I1002DN006A

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF ALL CONTROL PANELS BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. NEW COAXIAL CABLE, CONNECTORS, SURGE PROTECTION, ANTENNA, AND ALL OTHER EQUIPMENT REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
7. MOUNT NEW PLC AND REPLACE/REUSE EXISTING ENCLOSURE AND ASSOCIATED EQUIPMENT AS NOTED ON DRAWING 02N13. NEW PLC BACK PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N06.
8. REMOVE HSQ RTU EQUIPMENT AND TURN OVER EQUIPMENT TO OWNER.
9. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.

REV	DATE	BY	DESCRIPTION

DESIGNED JJH
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON LICENSE No 52646 STATE OF FLORIDA PROFESSIONAL ENGINEER

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MANATEE COUNTY
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INSTRUMENTATION
RAIN GAUGE RTUS DEMOLITION

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JOB NO. 10716I.10
DRAWING NO. 02DN06
SHEET NO. 40 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1002DN006.dgn

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. NEW COAXIAL CABLE, CONNECTORS, SURGE PROTECTION, ANTENNA, AND ALL OTHER EQUIPMENT REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
7. MOUNT NEW PLC BACKPANEL AND ASSOCIATED EQUIPMENT IN EXISTING RTU. NEW PLC BACK PANEL CONCEPT LAYOUT SHOWN ON DRAWING 02N06.
8. REMOVE HSQ RTU EQUIPMENT AND TURN OVER EQUIPMENT TO OWNER.
9. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
10. UTILIZE EXISTING CABINET LIGHT. REPLACE ALL NON-OPERABLE COMPONENTS.

1 **FRONT**
FILE: 10716I1002DN007A

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DATE DECEMBER 2018

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
AQUIFER STORAGE AND RECOVERY WELL RTU DEMOLITION

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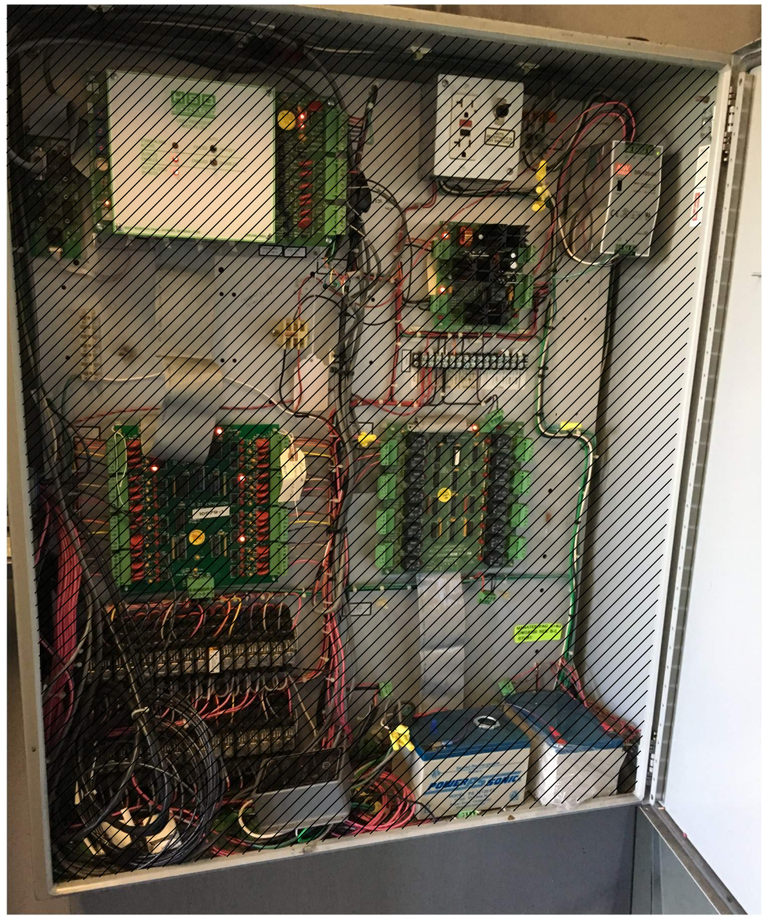
JOB NO. 10716I.10
DRAWING NO. 02DN07
SHEET NO. 41 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1002DN007.dgn

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC IN EXISTING VENDOR CONTROL PANEL IN THE CARBON SILO BUILDING.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING EQUIPMENT IN RTU.
5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. REMOVE HSQ RTU EQUIPMENT AND TURN OVER EQUIPMENT TO OWNER.
7. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
8. ENCLOSURE AND BACK PANEL WILL REMAIN. UTILIZE THIS ENCLOSURE AS A TERMINAL CABINET BETWEEN THE FIELD AND THE VENDOR CONTROL PANEL. ALL I/O WILL BE RE-TERMINATED ON NEW TERMINAL BLOCKS IN THIS ENCLOSURE. FIELD WIRING SHALL RE-TERMINATE ON NEW TERMINAL BLOCKS IN THIS ENCLOSURE THEN TERMINATE WIRING FROM THIS TERMINAL CABINET TO THE NEW PLC IN THE EXISTING VENDOR CONTROL PANEL. ALL FIELD SIGNALS WILL REQUIRE NEW SURGE PROTECTORS TO BE INSTALLED IN THIS TERMINAL CABINET.



1 **FRONT**
FILE: 10716I1002DN008A

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MANATEE COUNTY
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RTU NO. 8 CARBON SILO DEMOLITION

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JOB NO. 10716I.10
DRAWING NO. 02DN08
SHEET NO. 42 OF 84

PROJECT NO. 10716I10 FILE NAME: 10716I1002DN008.dgn