

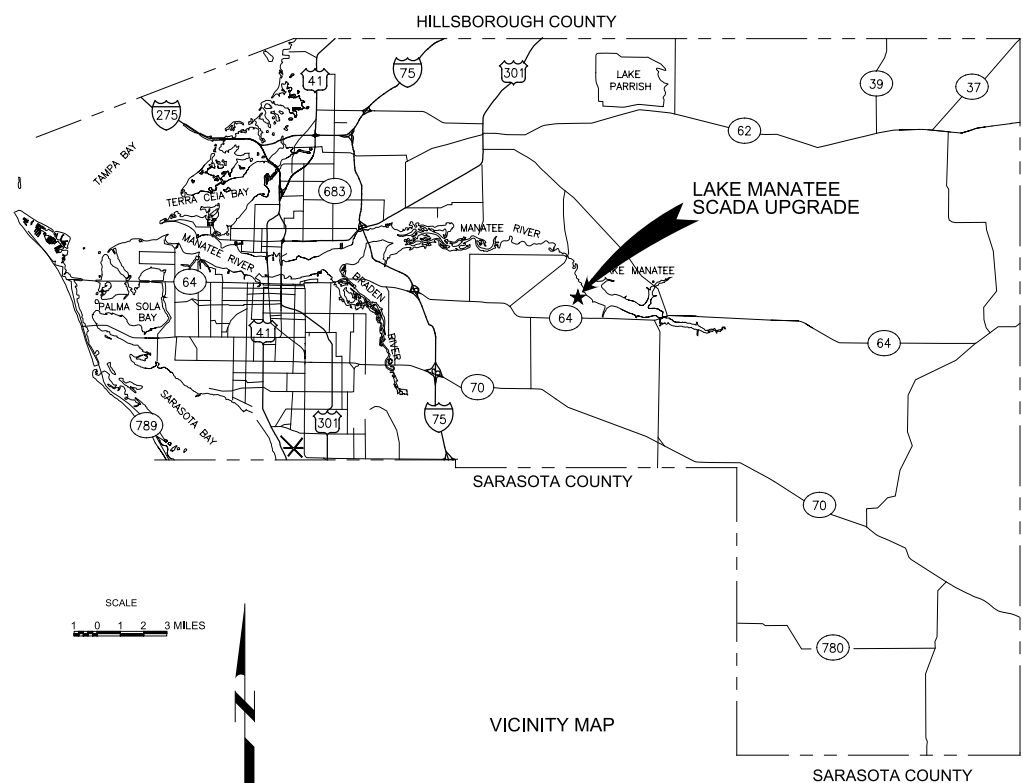
Plot Date: 06-DEC-2018 11:51:04 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Site_Pen_v0905.pen PlotScale: 1:1



MANATEE COUNTY LAKE MANATEE WTP SCADA UPGRADES DECEMBER 2018 VOLUME 1

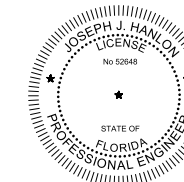


SCALE
1 0 1 2 3 MILES



401 N. CATTLEMEN RD., SUITE 306
SARASOTA, FL. 34232
PHONE: (941)371-9832
FAX: (941)371-9873
CA 00008571

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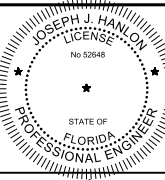
JOB NO. 10716L10
DRAWING NO. 00G01
SHEET NO. 1 OF 84

PLOT Date: 06-DEC-2018 11:51:12 AM
 User: svcPW
 Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1
 LAST SAVED BY: AWillard

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE	SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
GENERAL			77	03N01	SCADA ARCHITECTURE - I
1	00G01	COVER SHEET	78	03N02	SCADA ARCHITECTURE - II
2	00G02	DRAWING INDEX	79	06N01	RTU NO. 1-5 CONTROL SCHEMATIC
ELECTRICAL			80	06N02	SERVER RACK CONTROL SCHEMATIC
3	01E00	ELECTRICAL LEGEND	81	06N03	TYPICAL BOOSTER STATION RTU CONTROL SCHEMATIC
4	01E01	CONTROL ROOM MODIFICATIONS	82	06N04	TAINTER GATES CONTROL PANEL CONTROL SCHEMATIC
5	01E02	FIBER OPTIC BLOCK DIAGRAM	83	06N05	CONTROL SCHEMATICS
6	01E03	FIBER OPTIC CABLE TO RAW WATER 2	84	06N06	TYPICAL RTU CONTROL SCHEMATIC
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			

REV	DATE	BY	DESCRIPTION

DESIGNED	JHH
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CHECKED	NEA
DATE	DECEMBER 2018

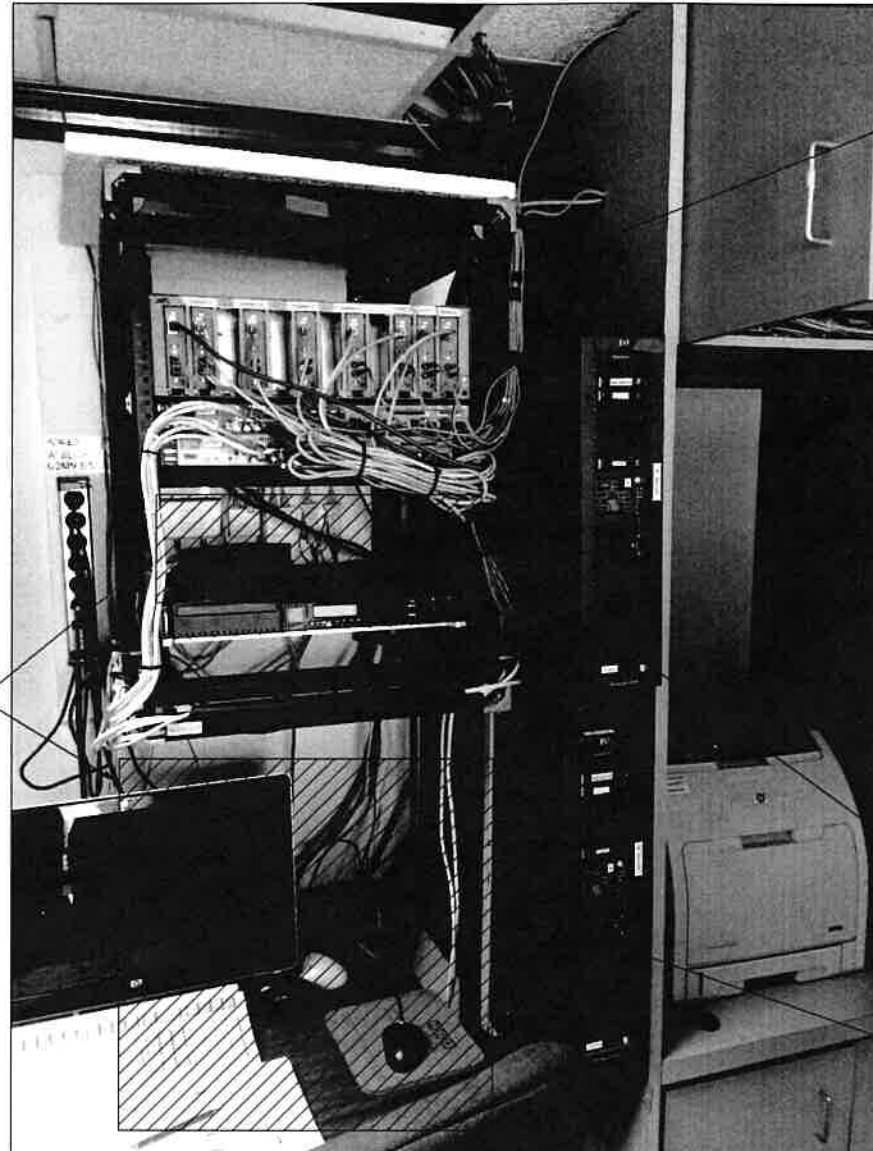


Digitally signed by Joseph J. Hanlon
 DN: cn=Joseph J. Hanlon, o=Carollo Engineers Inc., ou=Carollo Engineers Inc., email=jhanlon@carollo.com, c=US
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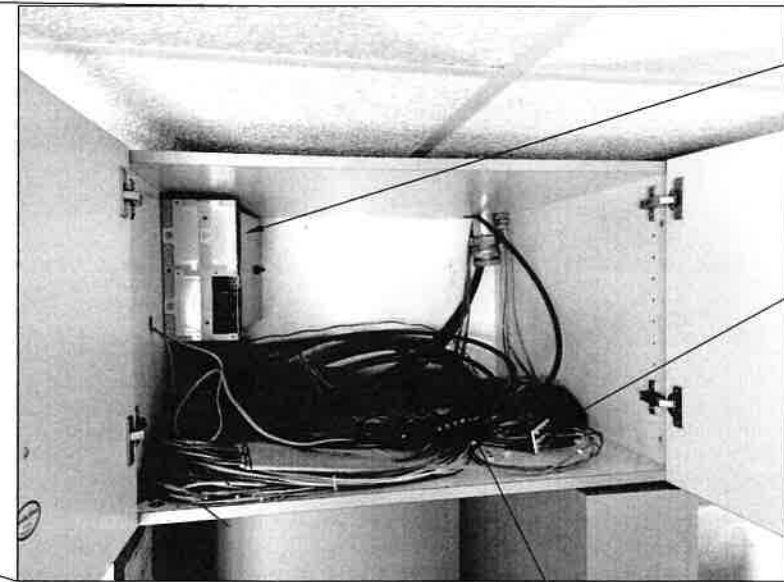
MANATEE COUNTY	
LAKE MANATEE WTP SCADA UPGRADE	
GENERAL	
DRAWING LIST	

VERIFY SCALES	JOB NO. 10716L10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 00G02
0 1"	SHEET NO. 2 OF 84
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	



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

EXISTING FIBER OPTIC MEDIA CONVERTERS



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

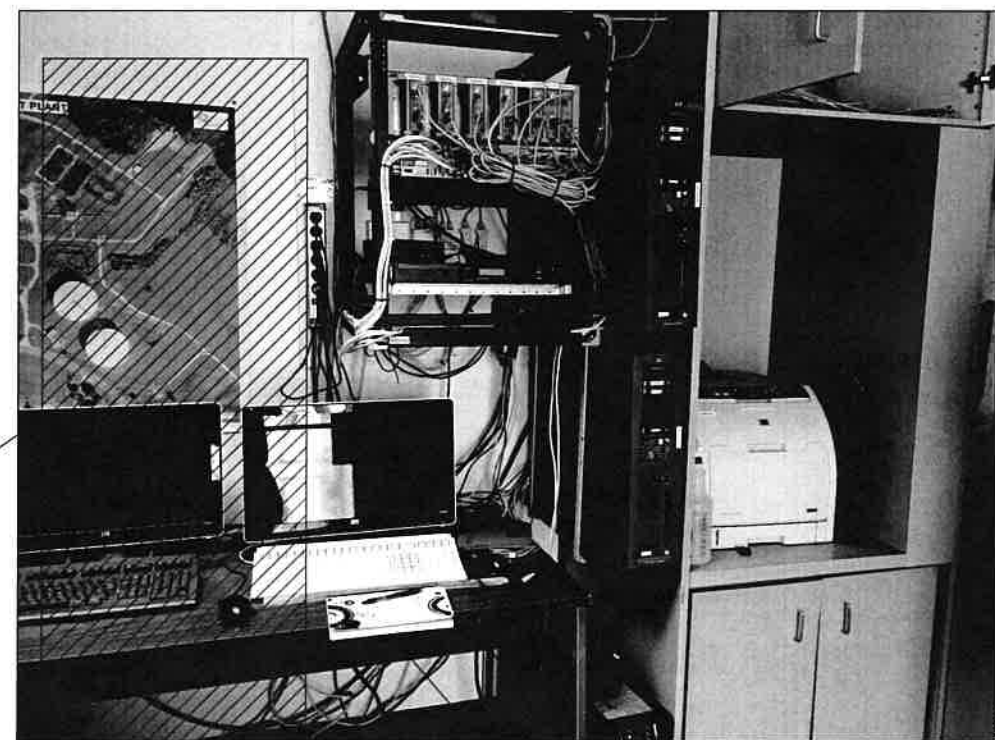
REMOVE ALL EXISTING PATCH PLATES AND PATCH CORDS FROM EXISTING FIBER OPTIC CABLES

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.

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.

PROPOSED LOCATION OF NEW 19" RACK FOR SCADA SERVERS



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



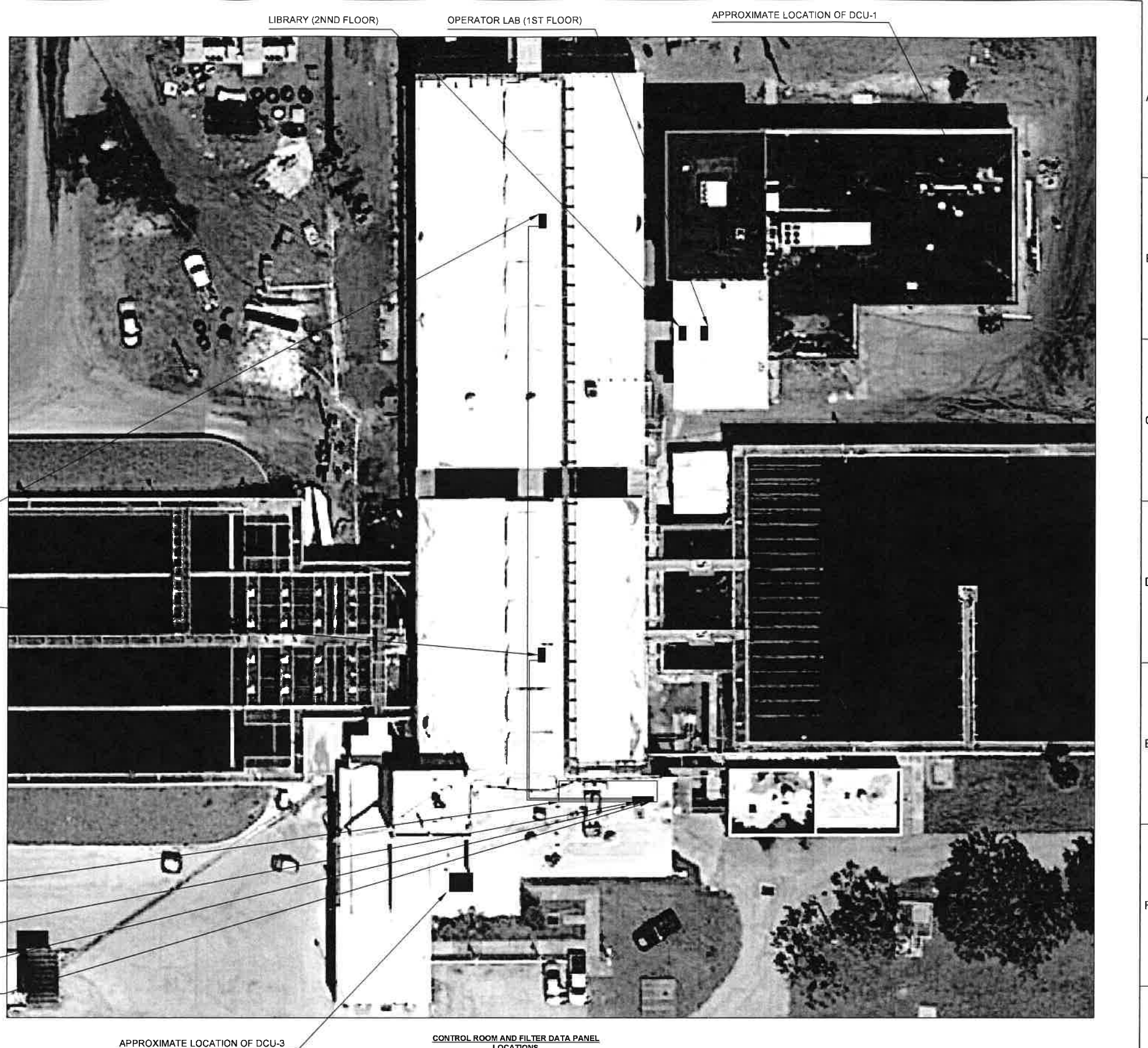
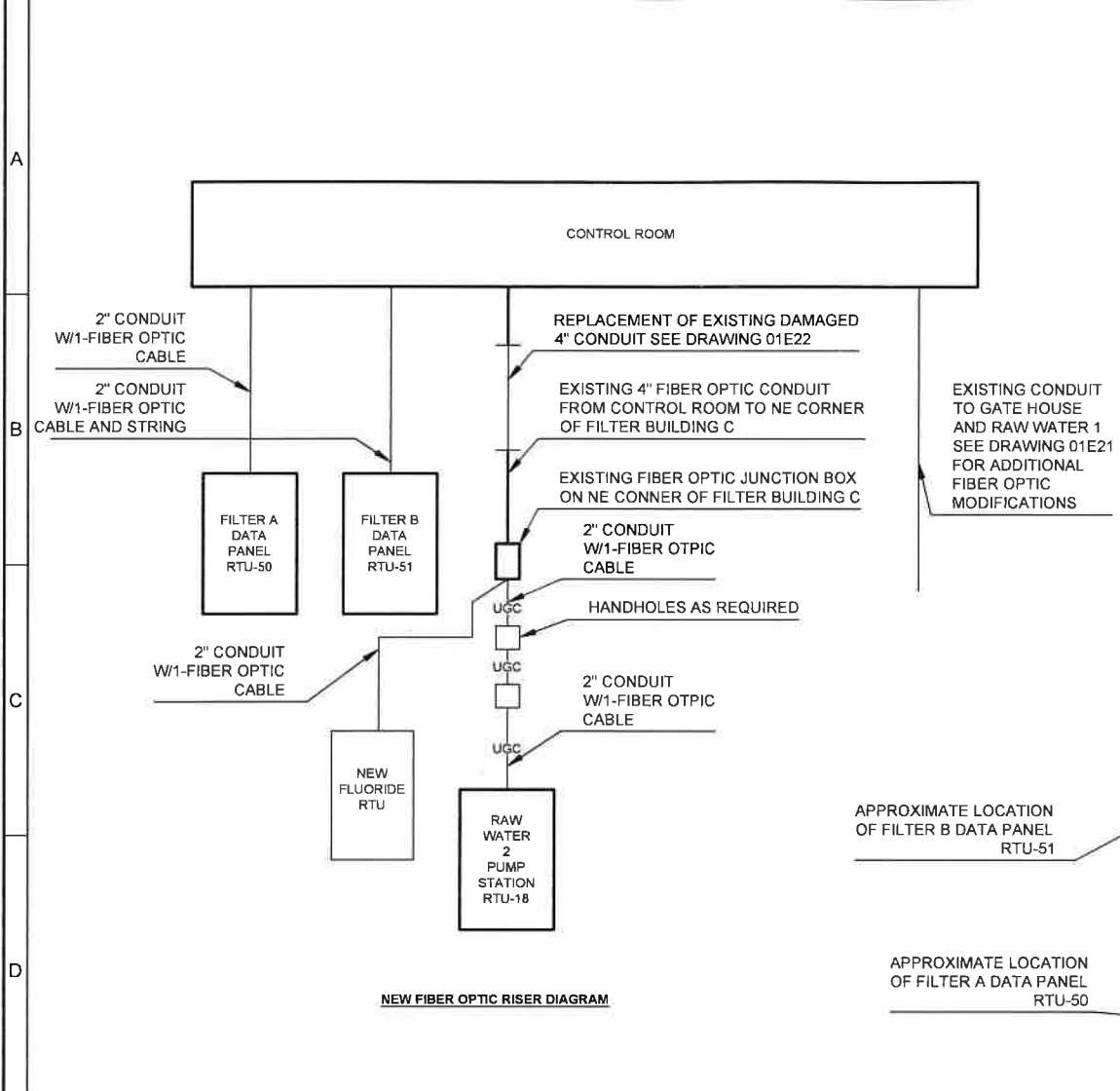
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MAP
DATE
DECEMBER 2018



MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
CONTROL ROOM MODIFICATIONS

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 107161.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 01E01
	SHEET NO. 4 OF 84

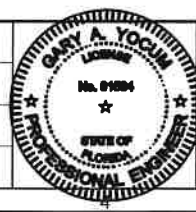


- GENERAL NOTES**
1. SEE DRAWINGS 01E04, 01E05 AND 01E06 FOR ADDITIONAL DETAILS ON THE CONDUIT RUNS TO RTU-50 AND RTU-51
 2. SEE DRAWINGS 01E03, 01E07 AND 01E08 FOR ADDITIONAL DETAILS ON THE CONDUIT RUNS TO RAW WATER 2 PUMP STATION
 3. FIBER OPTIC CABLE SHALL BE CONTINUOUS FROM RTU-50 TO THE CONTROL 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

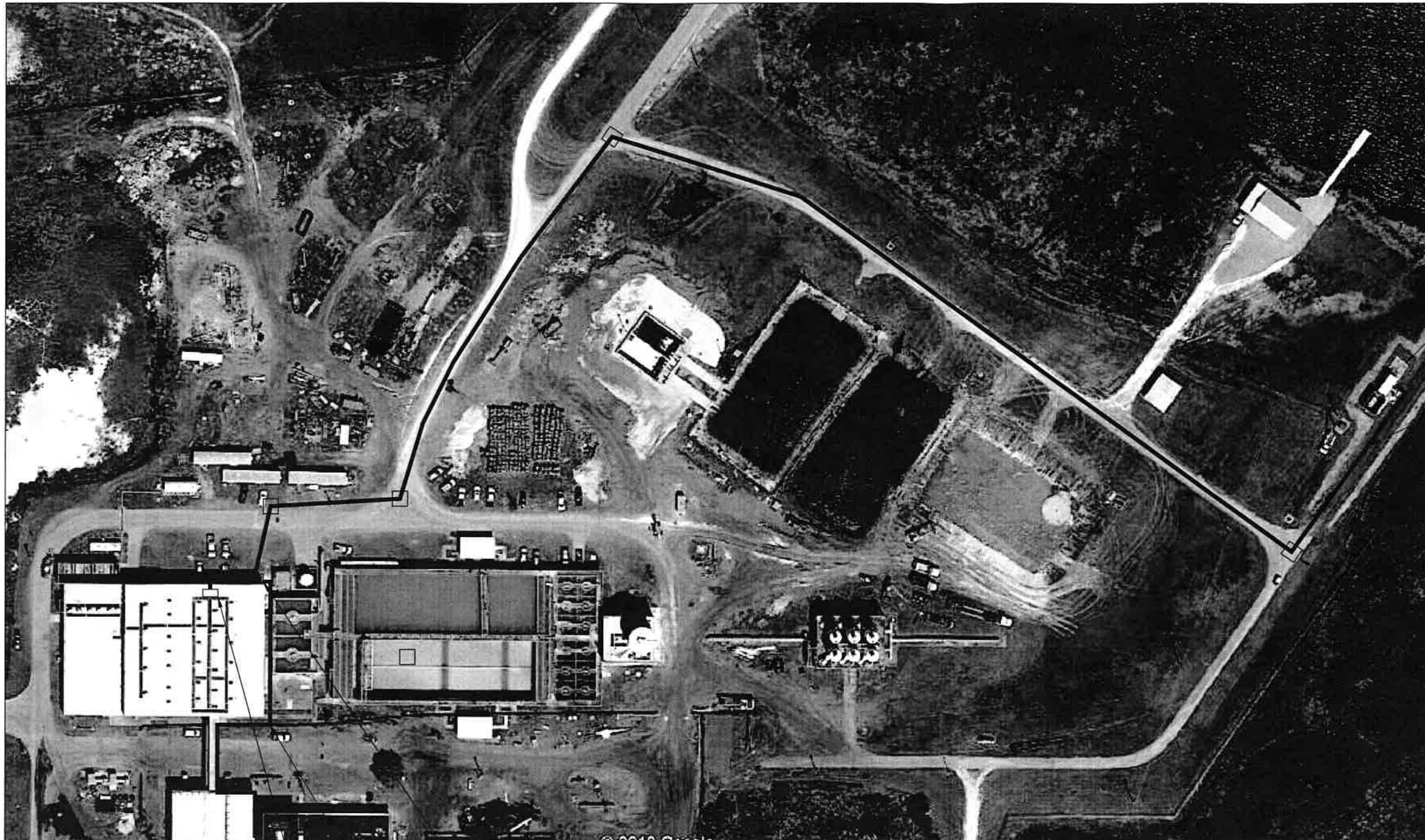
GARY A. YOCUM
 LICENSE
 No. 61594
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 12-10-18

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YOCUM
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YOCUM
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DECEMBER 2018



		MANATEE COUNTY	VERIFY SCALES	JOB NO. 107161.10
		LAKE MANATEE WTP SCADA UPGRADE	BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 01E02
		FIBER OPTIC BLOCK DIAGRAM	0 1"	SHEET NO. 5 OF 84



EXISTING RAW WATER 2
PUMP STATION RTU-18

NEW 2" UG CONDUIT
W/1 FIBER OPTIC CABLE
TO RAW WATER 2
PUMP STATION RTU-18

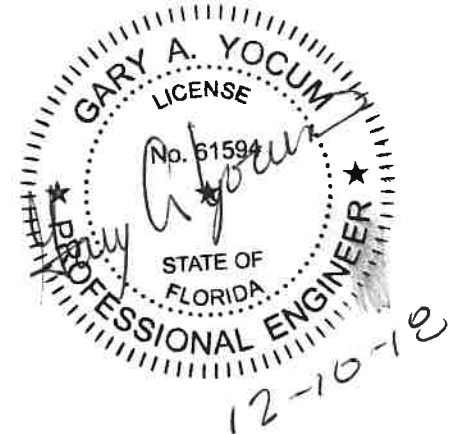
HANDHOLES
AS REQUIRED
(TYPICAL)

EXISTING FIBER OPTIC JUNCTION BOX
NE CORNER OF FILTER BUILDING C

EXISTING 4" FIBER OPTIC CONDUIT TO
CONTROL ROOM

NEW FLUORIDE RTU

RAW WATER 2 PUMP STATION
CONDUIT ROUTE



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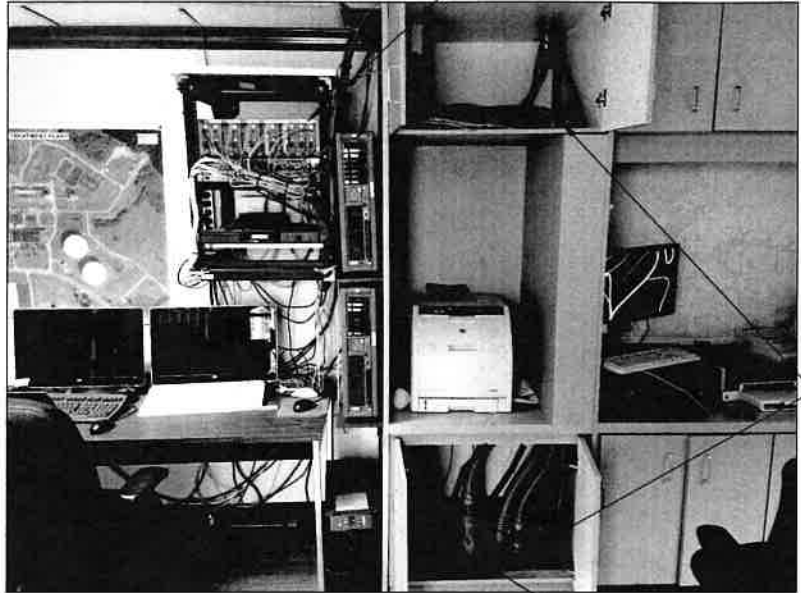


MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
FIBER OPTIC CABLE TO RAW WATER 2

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

JOB NO.
107181.10
DRAWING NO.
01E03
SHEET NO.
6 OF 84

A



EXISTING FIBER OPTIC MEDIA CONVERTERS

B

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

C

CONTROL ROOM FIBER OPTIC CABINET

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

RUN 2-2" CONDUITS ALONG CEILING TOWARDS FILTER GALLERY

RUN 2-2" CONDUITS ALONG CEILING TOWARDS FILTER GALLERY

D

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

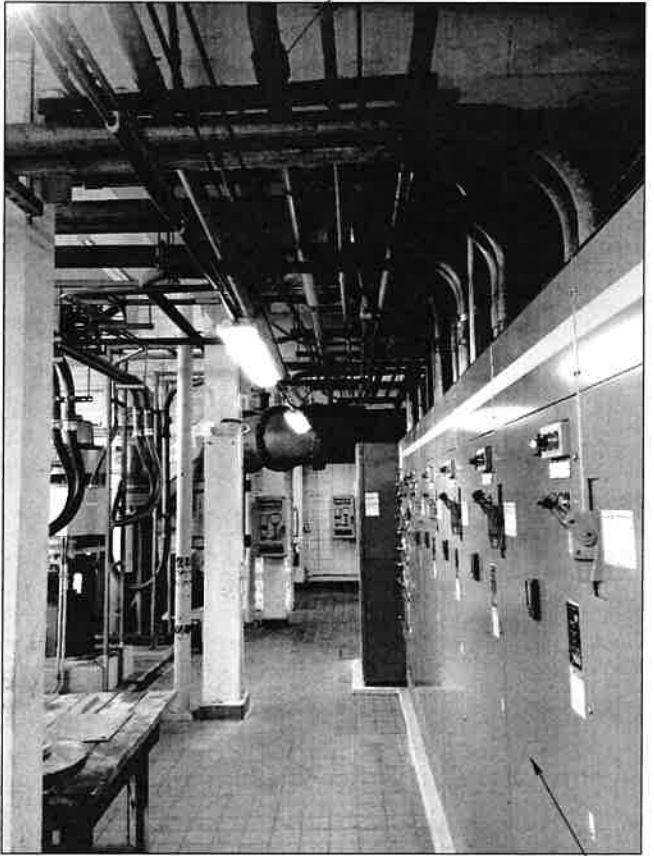


CONTROL ROOM FLOOR FROM GROUND LEVEL

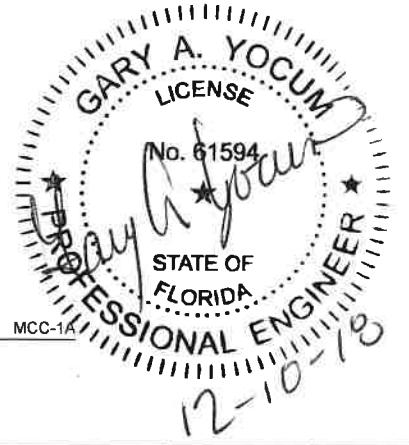


GROUND FLOOR LEVEL VIEWING WEST TOWARDS FILTER GALLERY

MCC-1A



GROUND FLOOR LEVEL VIEWING WEST TOWARDS FILTER GALLERY



REV	DATE	BY	DESCRIPTION
1			
2			
3			

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MAP
DATE
DECEMBER 2018



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.
10718L10
DRAWING NO.
01E04
SHEET NO.
7 OF 84

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

RUN 2-2" CONDUIT ALONG
CEILING IN FILTER GALLERY A

RUN 2-2" CONDUIT ALONG
CEILING IN FILTER GALLERY A

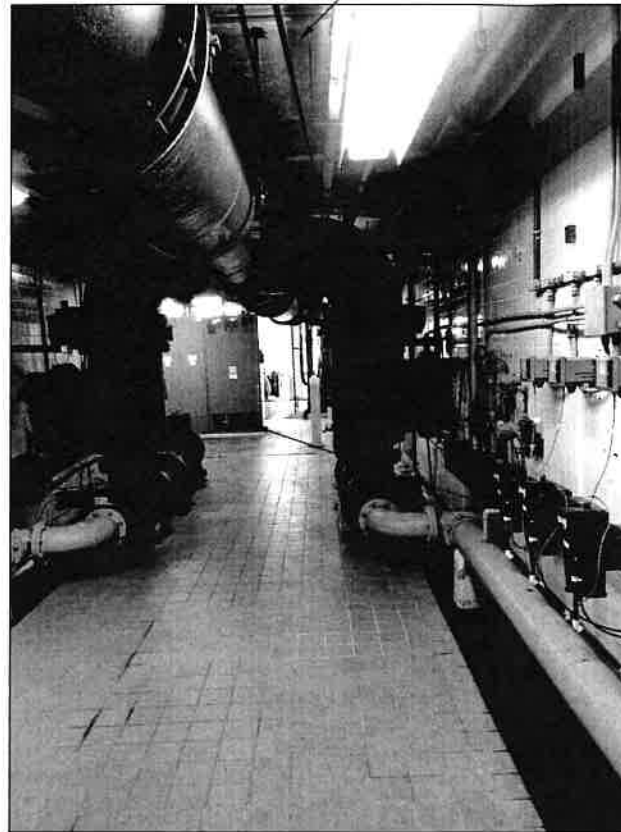
2" CONDUIT W/1 FIBER OPTIC CABLE

FILTER A DATA PANEL
RTU-50

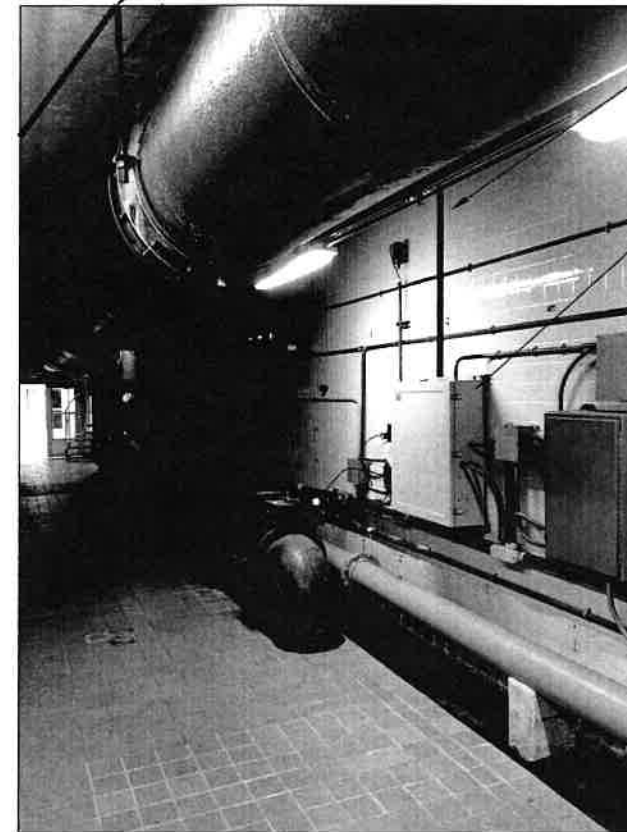
BACKSIDE
OF
MCC-1A



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



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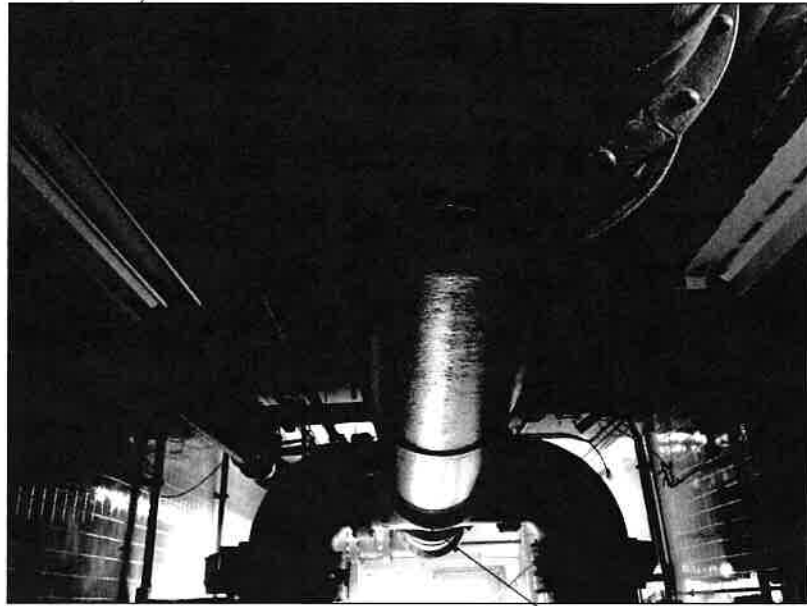


MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
FIBER OPTIC CABLE TO
RTU 50 AND 51 DETAILS

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

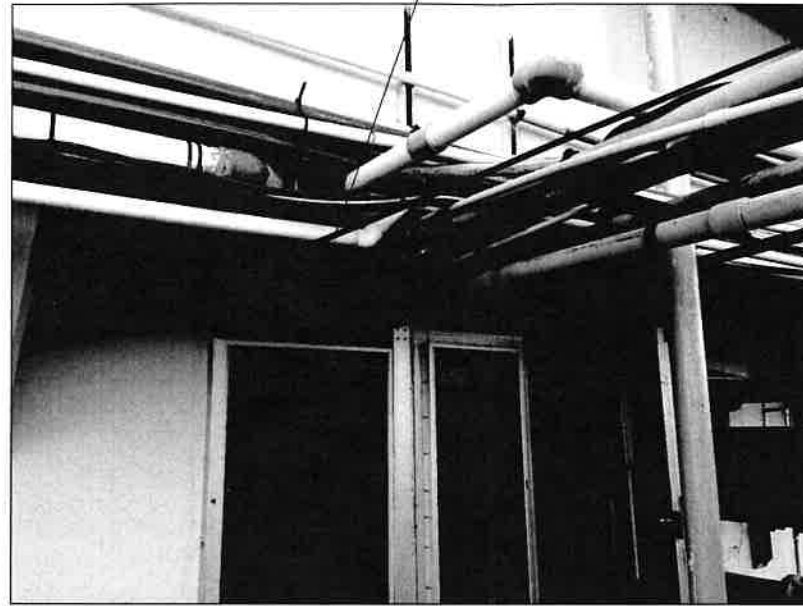
JOB NO.
107161.10
DRAWING NO.
01E05
SHEET NO.
8 OF 84

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



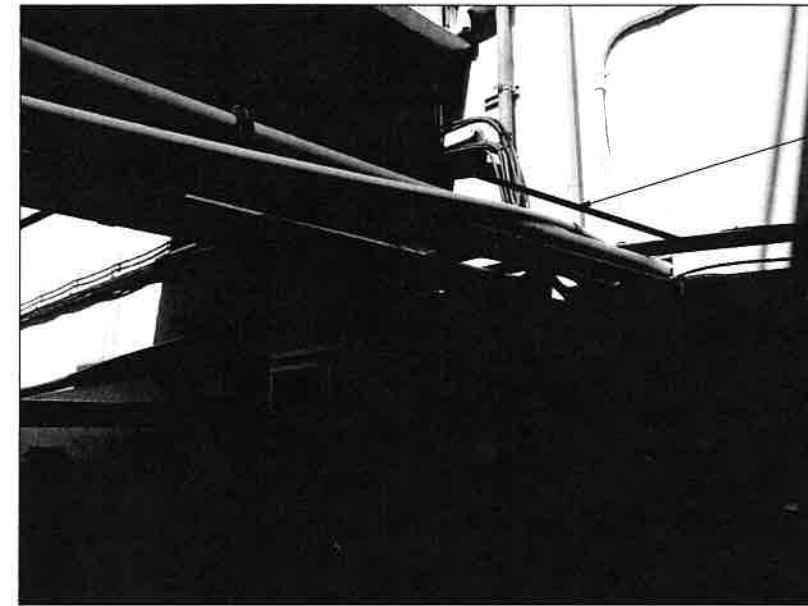
FILTER GALLERY A
VIEWING NORTH
TOWARDS FILTER GALLERY B

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



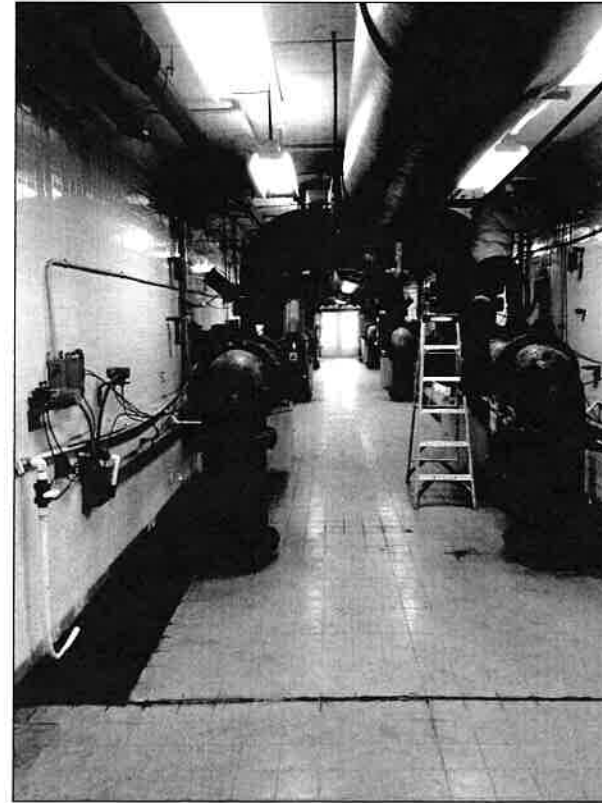
FILTER GALLERY B
VIEWING NORTH
FROM OUTSIDE FILTER GALLERY B

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



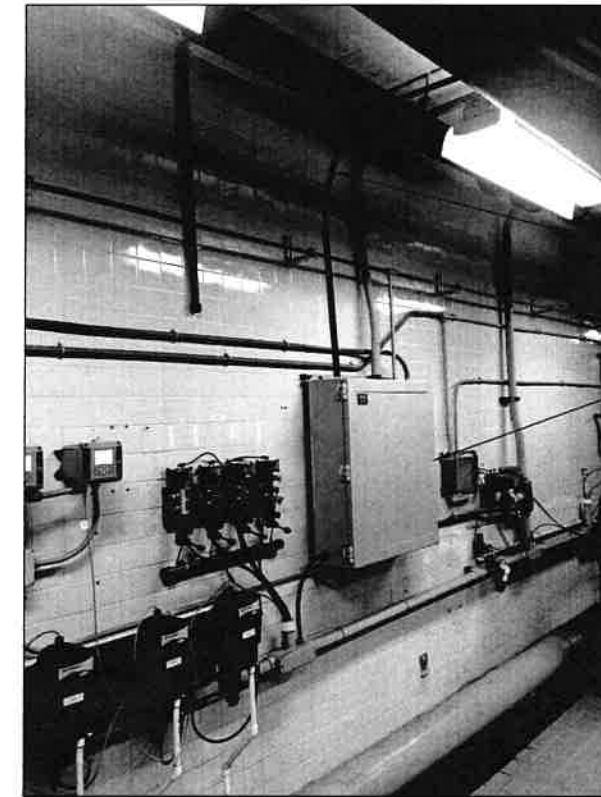
FILTER GALLERY B
VIEWING NORTH

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



FILTER GALLERY B
VIEWING NORTH

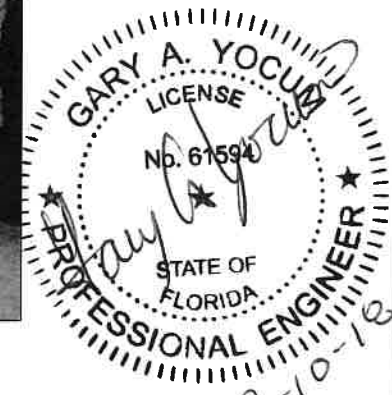
CONTINUE 2" CONDUIT
ALONG CEILING OF FILTER
GALLERY B TOWARDS
FILTER B DATA PANEL
RTU-51



FILTER GALLERY B
VIEWING SOUTHWEST

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

FILTER B DATA PANEL
RTU-51



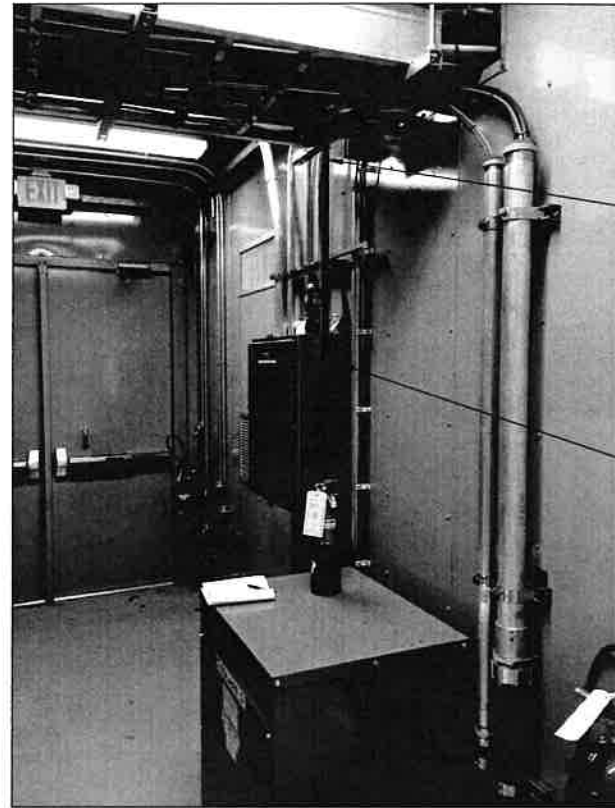
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YOCUM
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YOCUM
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MAP
DATE
DECEMBER 2018



MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
FIBER OPTIC CABLE TO
RTU 50 AND 51 DETAILS

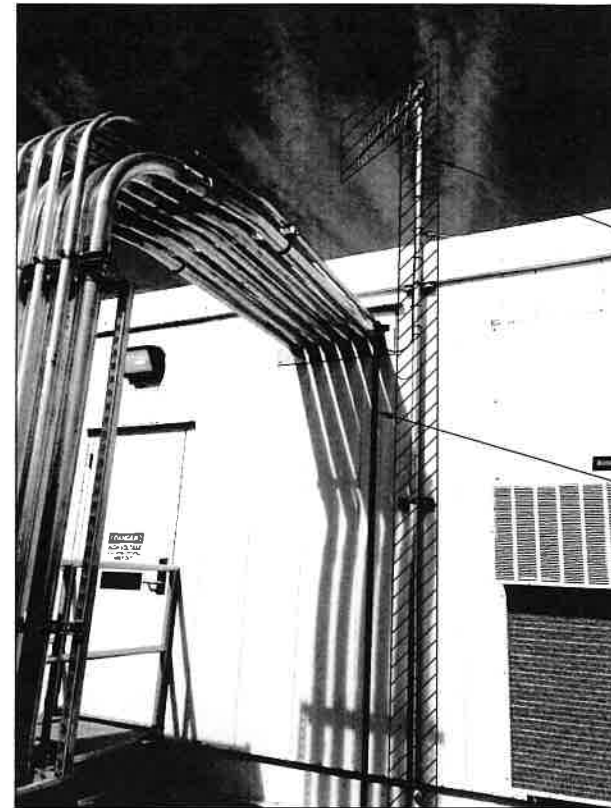
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 107161.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 01E06
	SHEET NO. 9 OF 84



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

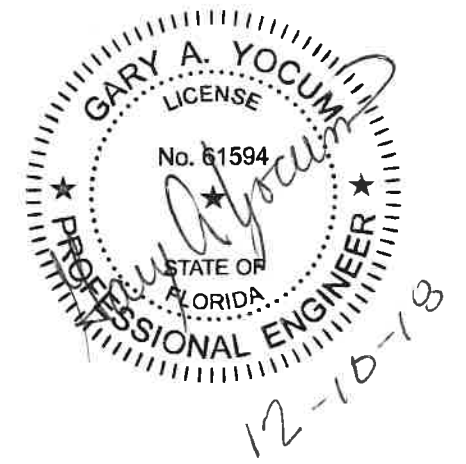
2" CONDUIT W/1 FIBER OPTIC CABLE

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



RAW WATER 2 PUMP STATION

2" UG CONDUIT W/1 FIBER OPTIC CABLE

RAW WATER 2 PUMP STATION
VIEWING NORTH

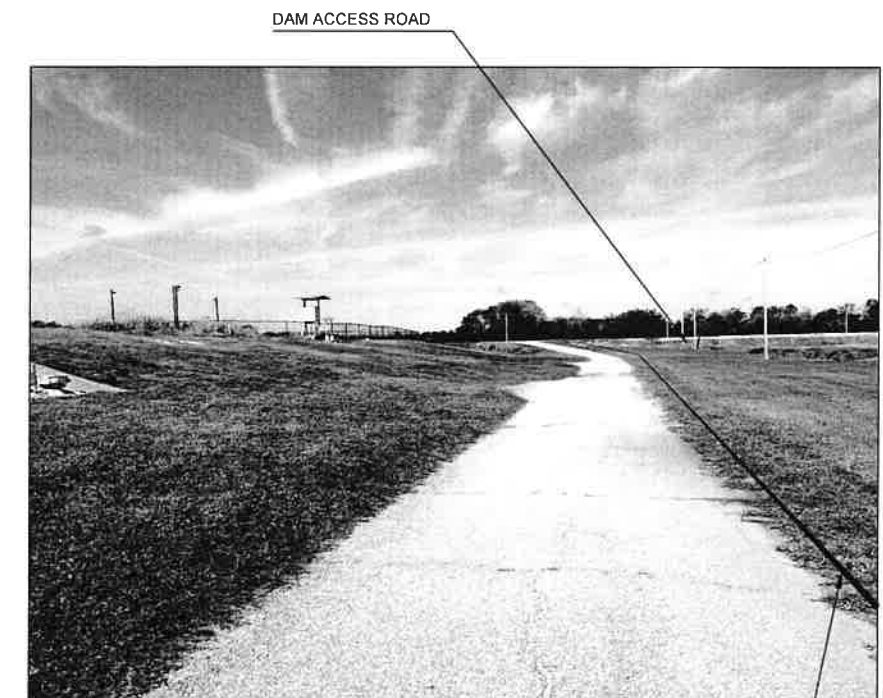


DAM ACCESS ROAD

CARBON SILO

RAW WATER 2 PUMP STATION
VIEWING WEST

2" UG CONDUIT W/1 FIBER OPTIC CABLE



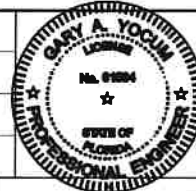
DAM ACCESS ROAD

RAW WATER 2 PUMP STATION
VIEWING WEST

2" UG CONDUIT W/1 FIBER OPTIC CABLE

REV	DATE	BY	DESCRIPTION

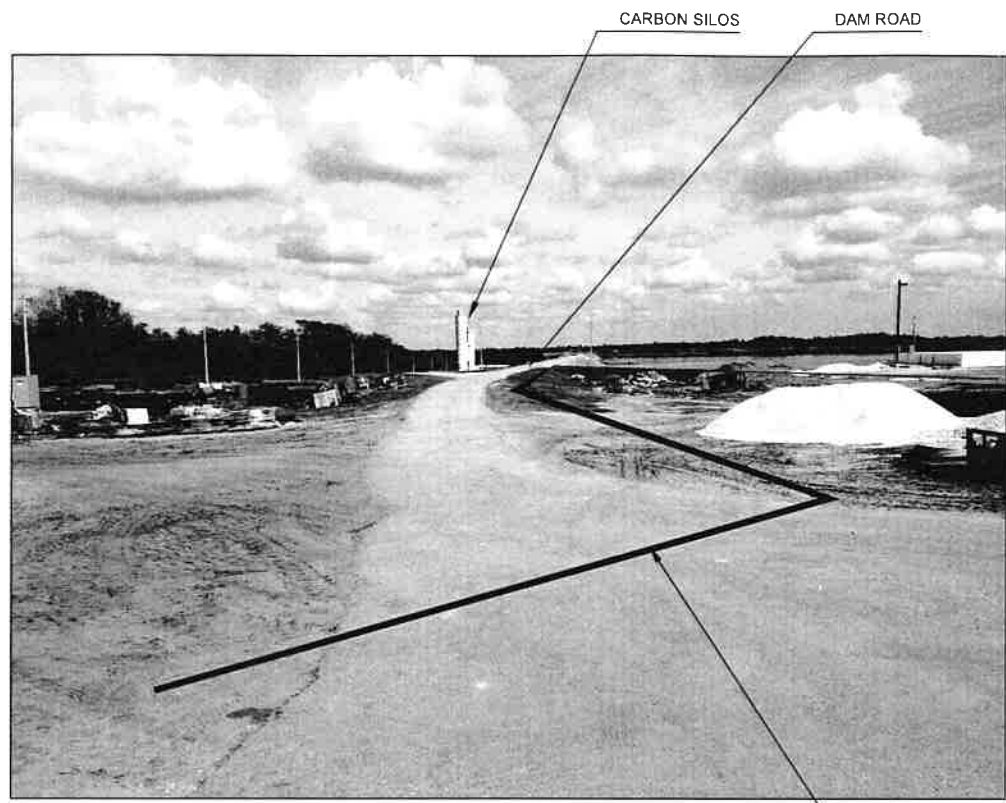
DESIGNED	YOCUM
DRAWN	YOCUM
CHECKED	MAP
DATE	DECEMBER 2018



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

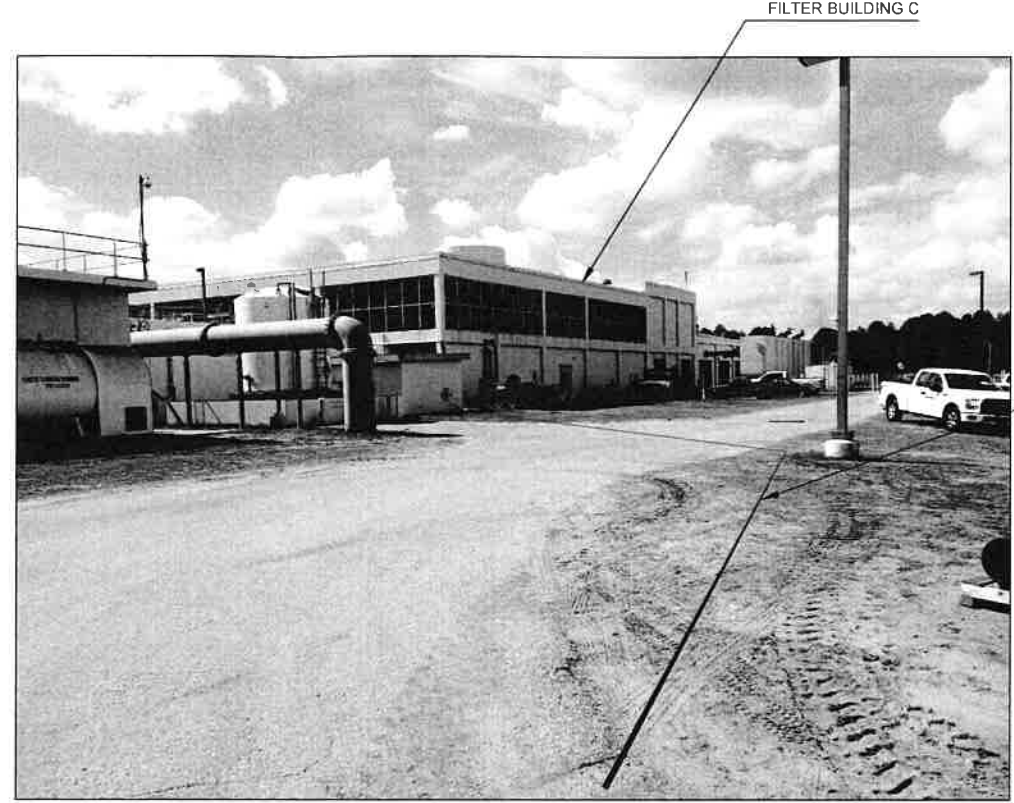
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
107161.10
DRAWING NO.
01E07
SHEET NO.
10 OF 84



VIEW FROM TOP OF THE DAM ACCESS ROAD
VIEWING NORTH

2" UG CONDUIT
W/1 FIBER OPTIC
CABLE



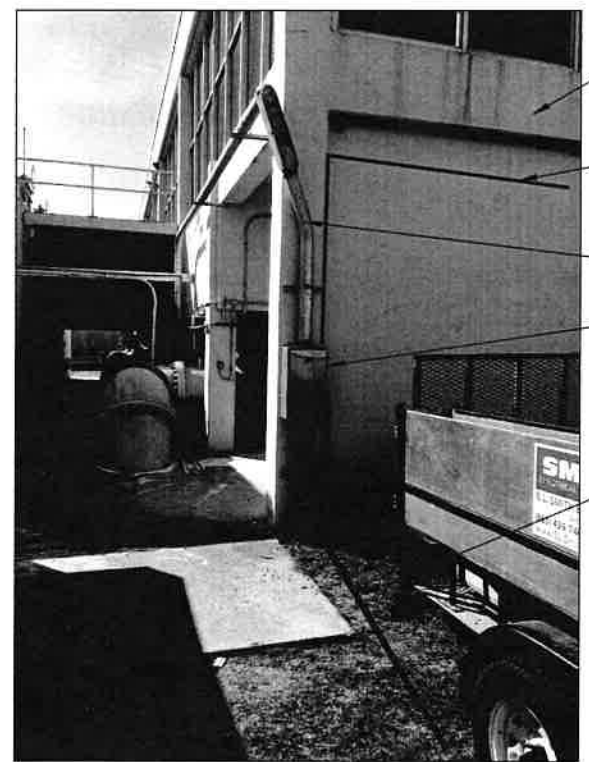
VIEW FROM TOP OF THE DAM ACCESS ROAD
VIEWING EAST

2" UG CONDUIT W/
1 FIBER OPTIC
CABLE



NORTHWEST CORNER OF
FILTER BUILDING C

FILTER BUILDING C
EXISTING 4" FIBER OPTIC
CONDUIT BACK TO
CONTROL ROOM
2" CONDUIT W/1 FIBER OPTIC CABLE
TO NEW FLUORIDE RTU
EXISTING FIBER OPTIC
JUNCTION BOX
2" UG CONDUIT W/
1 FIBER OPTIC
CABLE



NORTHWEST CORNER OF
FILTER BUILDING C

FILTER BUILDING C
2" CONDUIT W/1 FIBER OPTIC CABLE
TO NEW FLUORIDE RTU
EXISTING 4" FIBER OPTIC
CONDUIT BACK TO
CONTROL ROOM W/1 /NEW
FIBER OPTIC CABLE
EXISTING FIBER OPTIC
JUNCTION BOX
2" UG CONDUIT W/
1 FIBER OPTIC
CABLE



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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.
107161.10
DRAWING NO.
01E08
SHEET NO.
11 OF 84

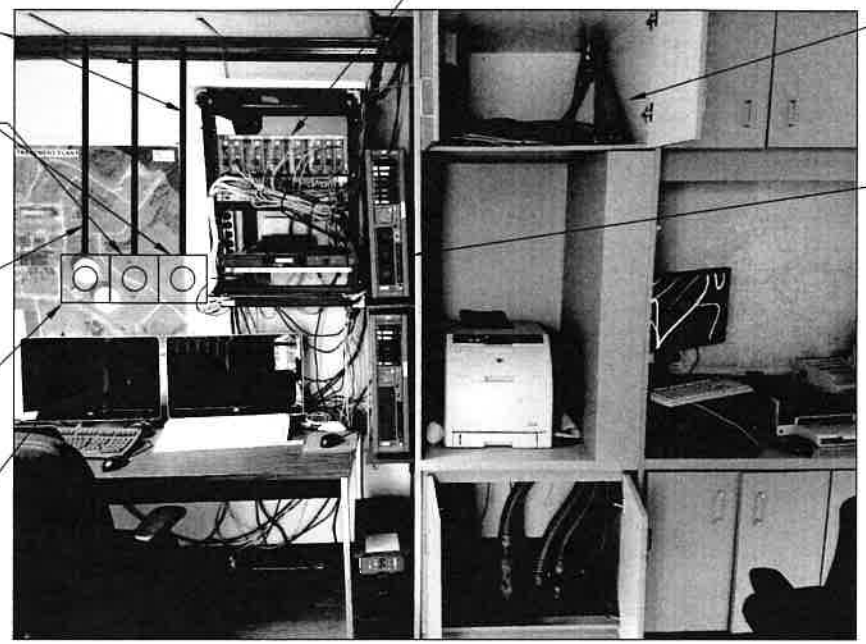
3/4" CONDUIT W/
2-10 AWG BLK,
1-10 AWG WHT
AND 1-10 AWG GRN
TO "PANEL LC"

208VAC 30AMP
TWIST LOCK
RECEPTACLES

3/4" CONDUIT W/
1-8 AWG BLK
1-8 AWG WHT
AND 1-10 AWG GRN
TO "PANEL LC"

120VAC 50AMP
TWIST LOCK
RECEPTACLE

APPROXIMATE
LOCATION OF
NEW SCADA
SERVER RACK

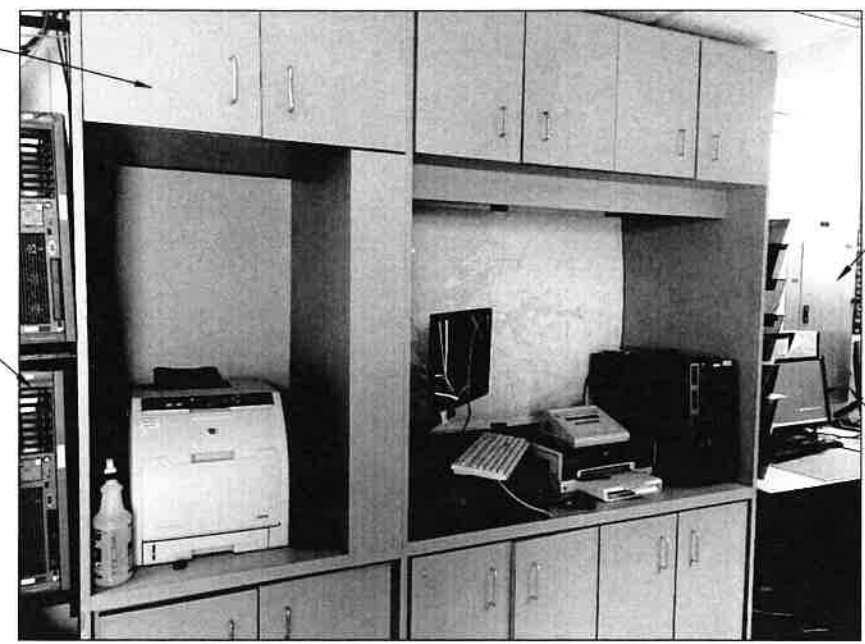


EXISTING FIBER TO COPPER CONVERTERS

EXISTING FIBER OPTIC CABINET

EXISTING SCADA SERVERS

CONTROL ROOM
SCADA SERVERS

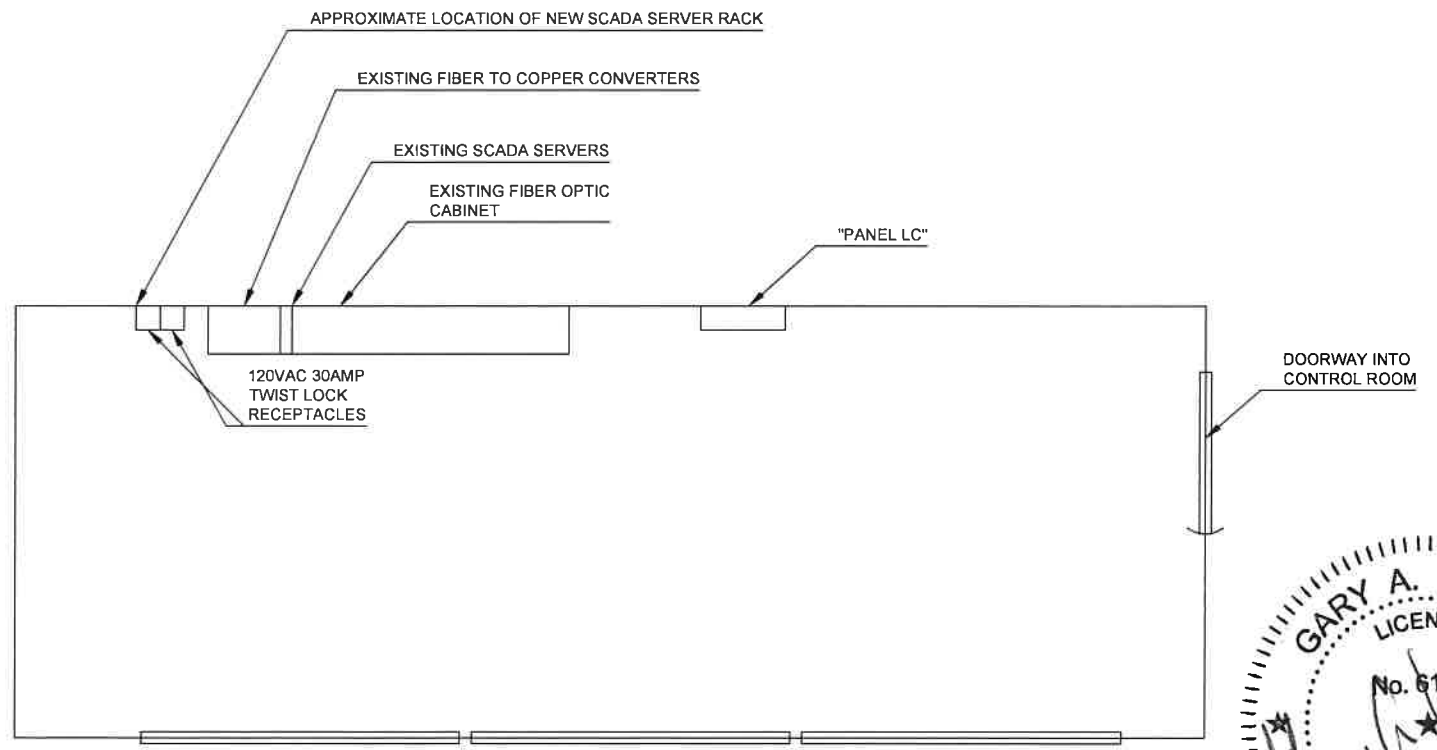


"PANEL LC"

PLACEMENT OF MONITORS AND OTHER
EQUIPMENT WITHIN 42" IN FRONT OF
PANEL "LC" IS PROHIBITED PER NEC

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)



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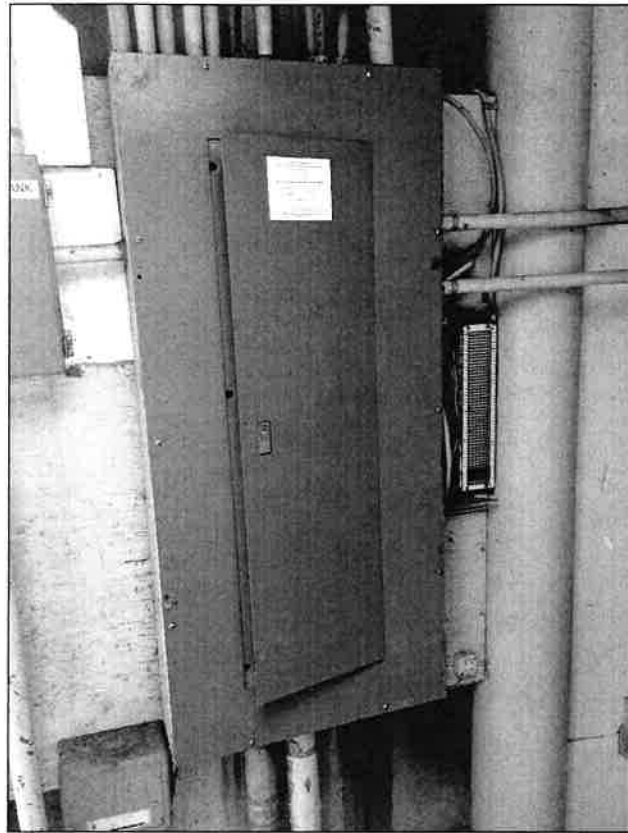
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
120 VAC 30 AMP SERVICE
TO NEW SERVER RACK

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

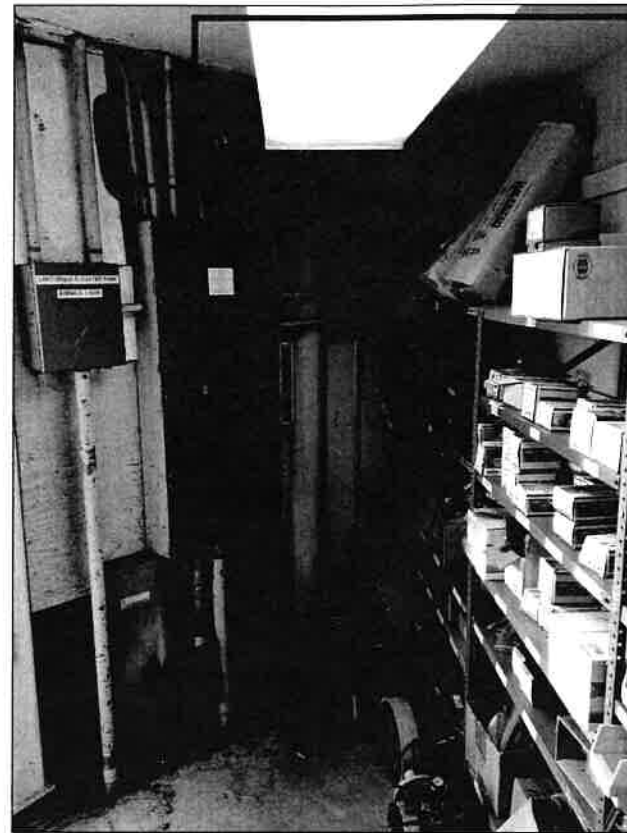
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DRAWING NO.
01E09

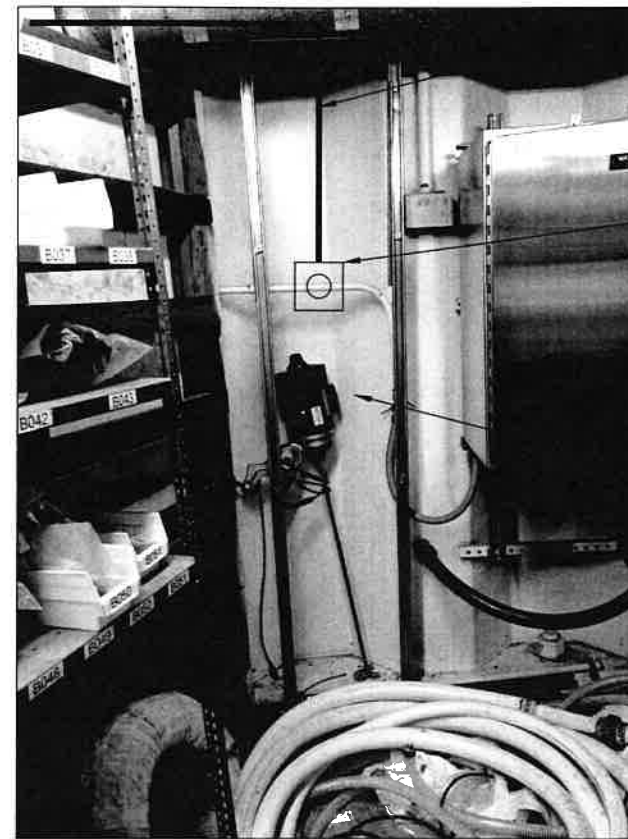
SHEET NO.
12 OF 84



**ELEVATED TANK
120/208VAC POWER
DISTRIBUTION PANEL**



**FRONT STORAGE AREA OF
ELEVATED TANK**



**BACK STORAGE AREA OF
ELEVATED TANK**

3/4" CONDUIT W/
1-10 AWG BLK
1-10 AWG WHT AND
1-10 AWG GRN

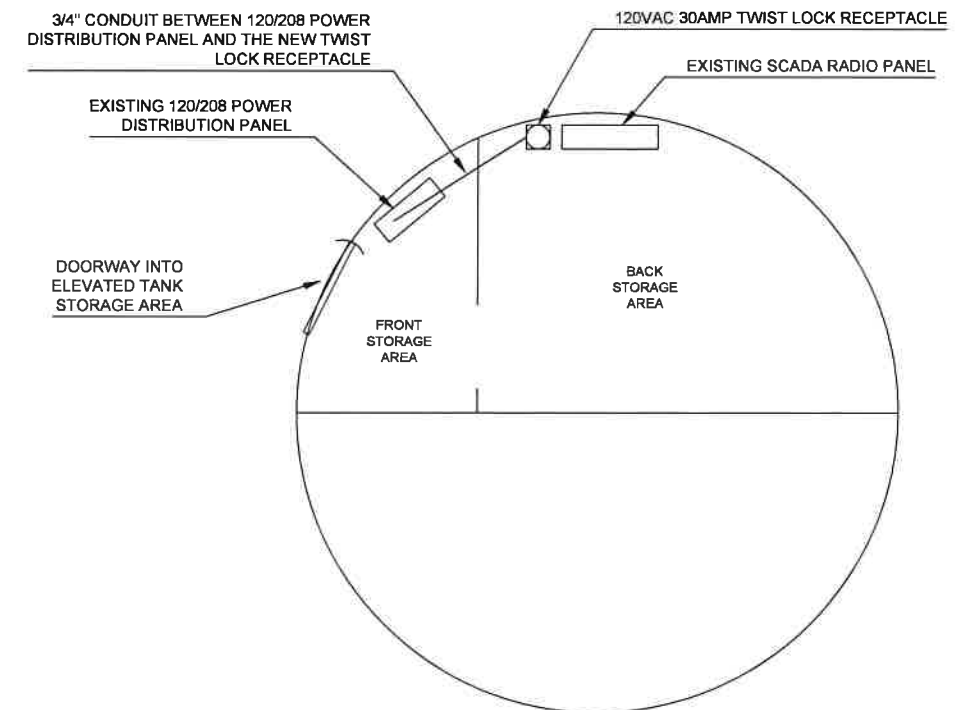
120VAC 30AMP TWIST LOCK
RECEPTACLE

EXISTING SCADA RADIO PANEL

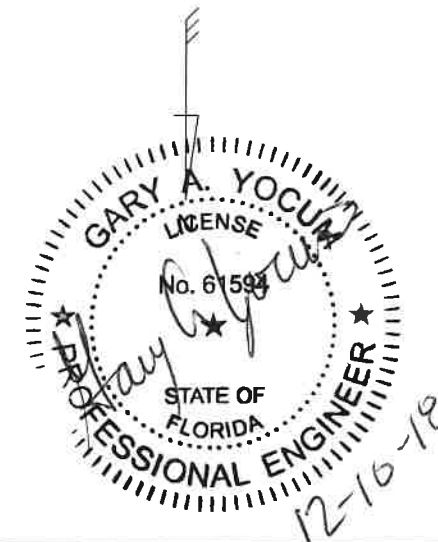
APPROXIMATE LOCATION OF
NEW SCADA RADIO PANEL

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.



**ELEVATED TANK LAYOUT
NOT TO SCALE**



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

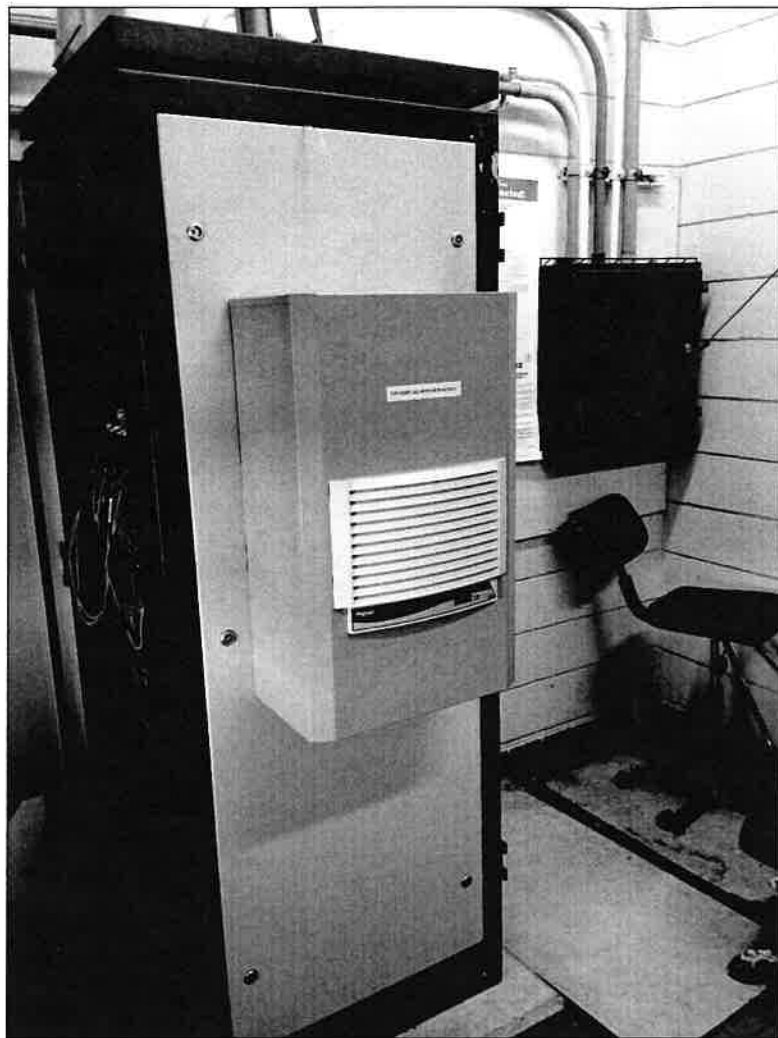
VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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107161.10
DRAWING NO.
01E10
SHEET NO.
13 OF 84



REPLACE EXISTING ANALOG TERMINATION CABINET FOR DCU-3

DCU-3 FILTER A/B CHEMICALS

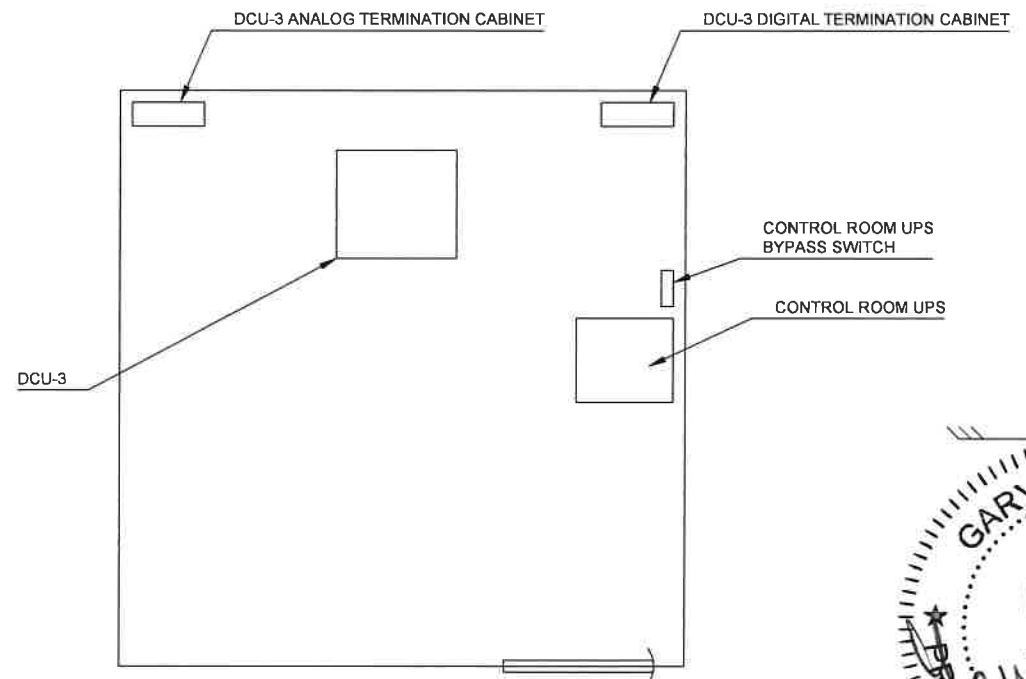


REPLACE EXISTING DIGITAL TERMINATION CABINET FOR DCU-3

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

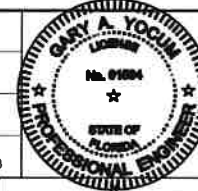


DCU-3 ROOM
FILTER A/B CHEMICALS LAYOUT
(NOT TO SCALE)



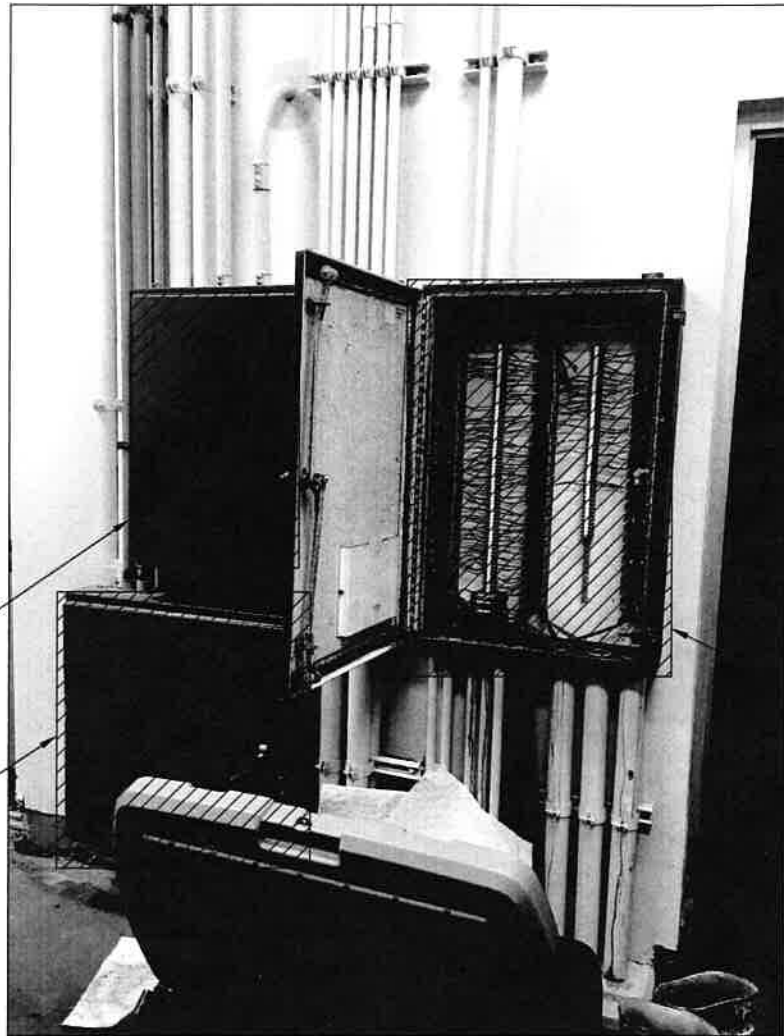
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DRAWN YOCUM
CHECKED MAP
DATE DECEMBER 2018



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"	JOB NO. 107161.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 01E11
	SHEET NO. 14 OF 84

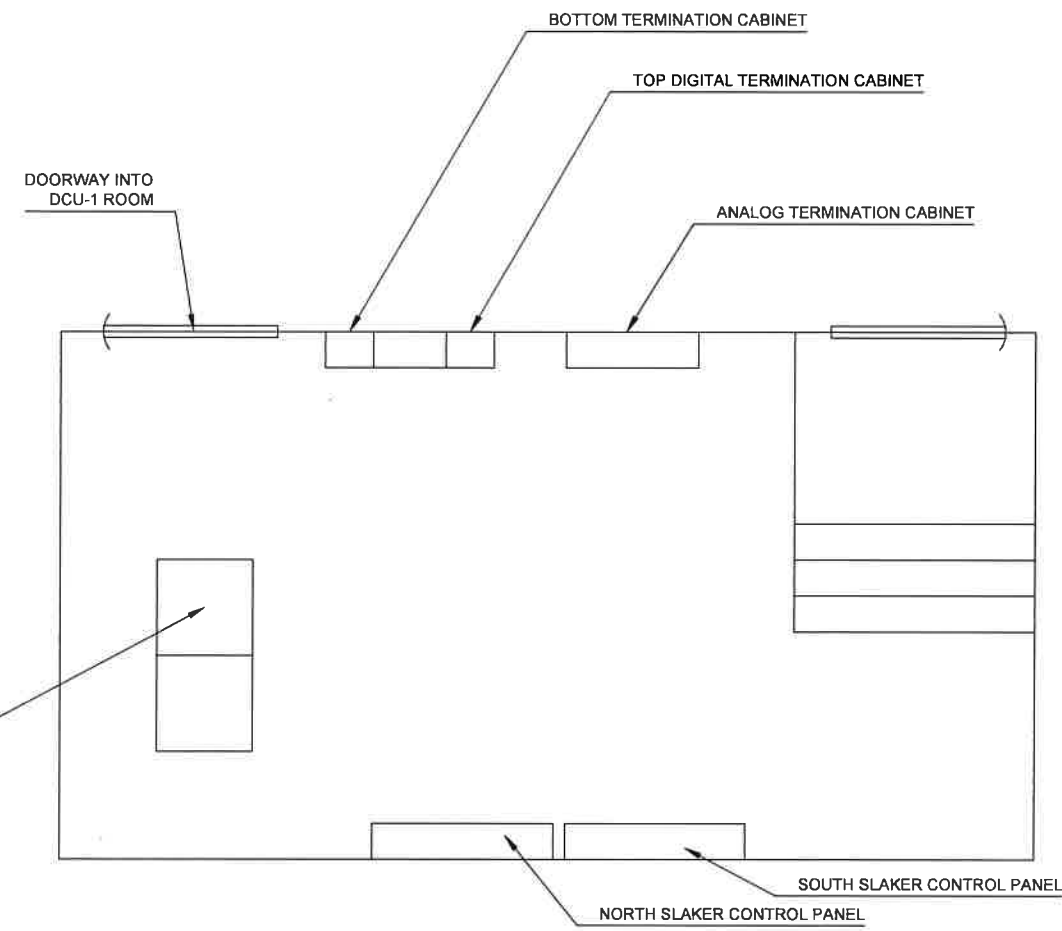


REPLACE EXISTING DIGITAL TERMINAL CABINET FOR DCU-1

REPLACE EXISTING DIGITAL TERMINAL CABINET FOR DCU-1

REPLACE EXISTING ANALOG TERMINAL CABINET FOR DCU-1

DCU-1 C-LIME



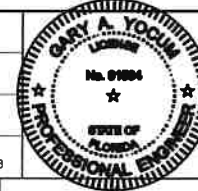
DCU-1 C-LIME ROOM LAYOUT (NOT TO SCALE)

- 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 318SS.
 4. SEE DRAWINGS 01E14 AND 01E15 FOR ADDITIONAL DETAILS ON THESE TERMINATION CABINETS.
 5. SEE DRAWING 01E02 FOR APPROXIMATE LOCATION OF DCU-1.



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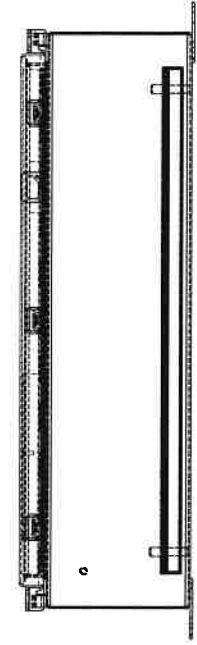
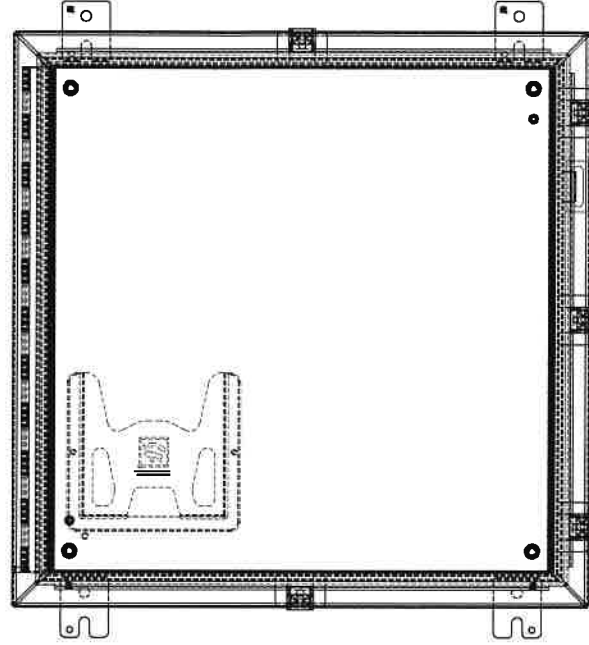
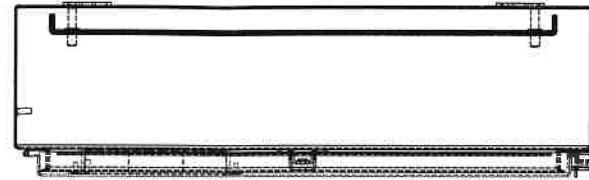
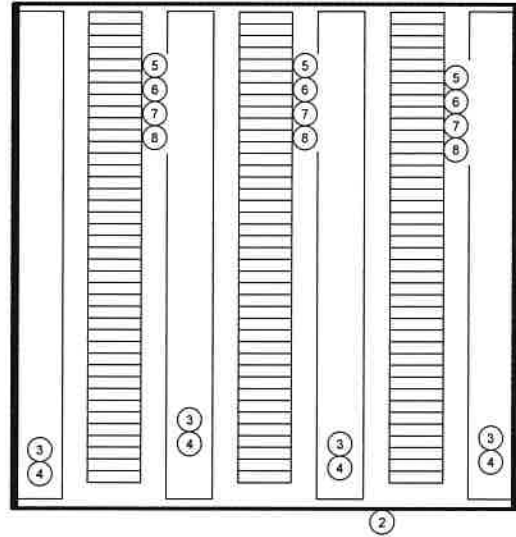
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DECEMBER 2018



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

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107181.10
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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					



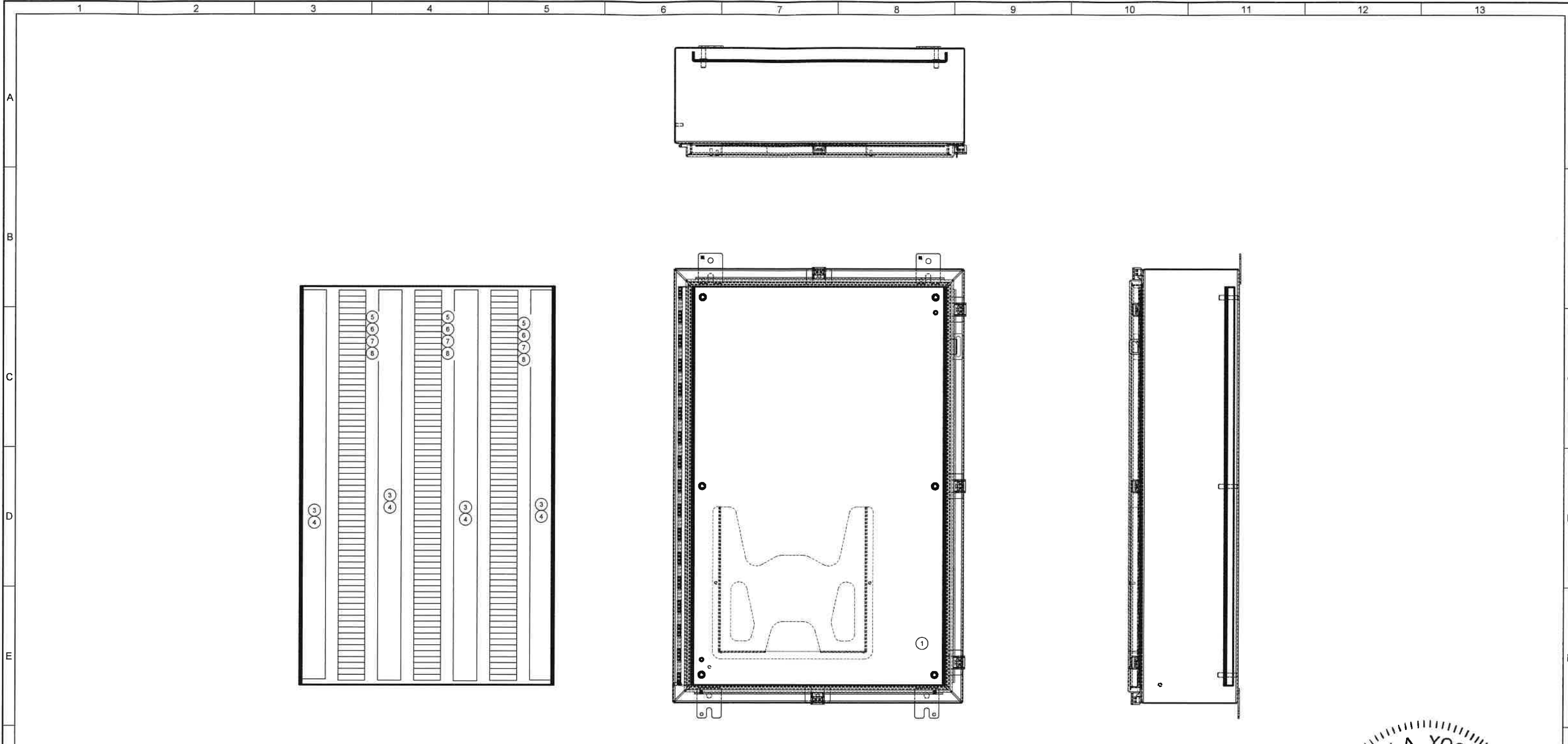
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
DCU TERMINATION CABINET REPLACEMENTS I

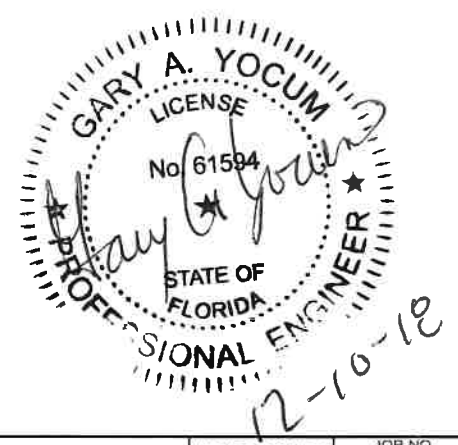
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 107161.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 01E13
	SHEET NO. 16 OF 84



DCU-1
Analog Termination Cabinets
Bill of Material

DCU-1
ANALOG TERMINATION CABINET

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
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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. 107161.10 DRAWING NO. 01E14 SHEET NO. 17 OF 84
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A

B

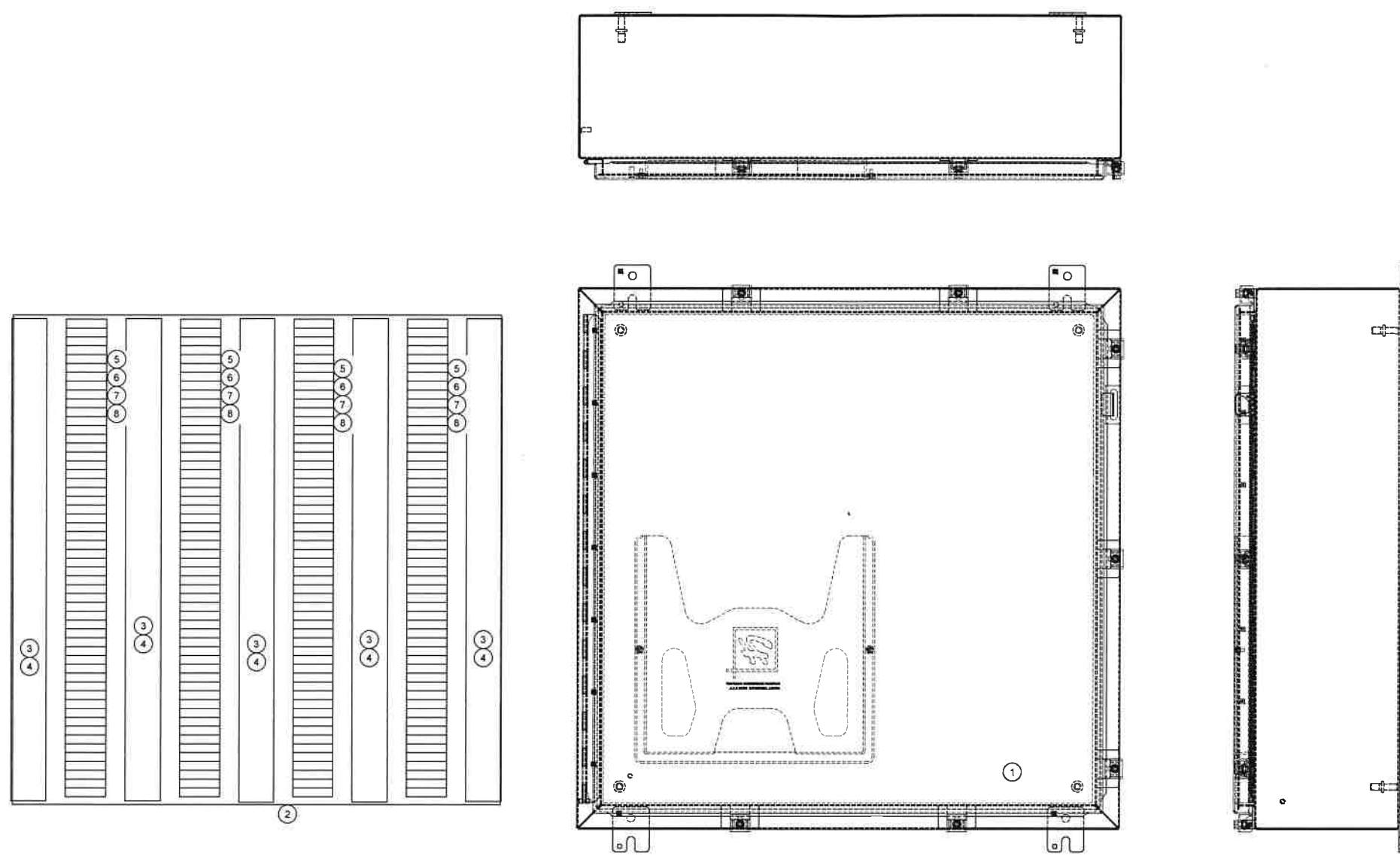
C

D

E

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G



DCU-1
DIGITAL TERMINATION CABINET

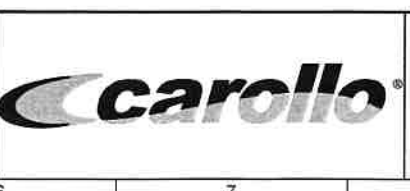
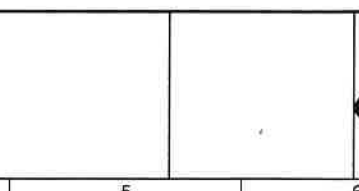
DCU-1
Digital Termination Cabinets
Bill of Material

Item	Qty	Unit	Description	Manufacture	Part Number
1	2	ea	30"x30"x8" Continuous Hinge with Clamps, NEMA 4X 316SS	Pentair Hoffman	A30H3008SS6LP
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-J1G-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
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
DCU TERMINATION CABINET REPLACEMENTS III

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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107181.10
DRAWING NO.
01E15
SHEET NO.
18 OF 64



LIBRARY AREA OVERVIEW

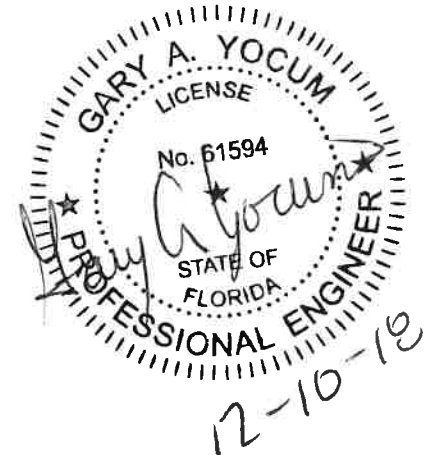


EXISTING FIBER OPTIC NETWORK SWITCH AND UPS

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 02N08 FOR ADDITIONAL DETAILS ON THE WORKSTATION INTERFACE PANEL.



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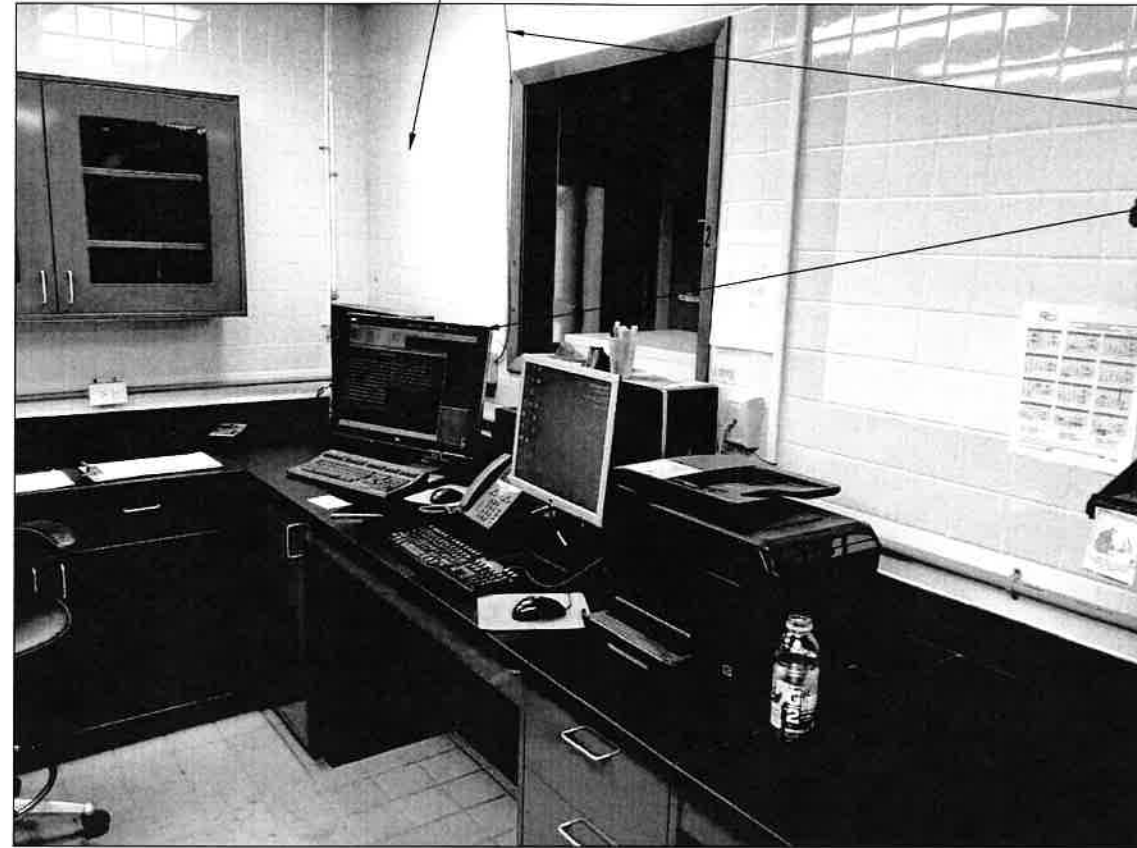
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
WORKSTATION 1 (LIBRARY AREA)
NETWORK INTERFACE PANELS

VERIFY SCALES
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0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
JOB NO. 10716L.10
DRAWING NO. 01E16
SHEET NO. 19 OF 84

APPROXIMATE LOCATION OF NEW WORKSTATION NETWORK INTERFACE PANEL



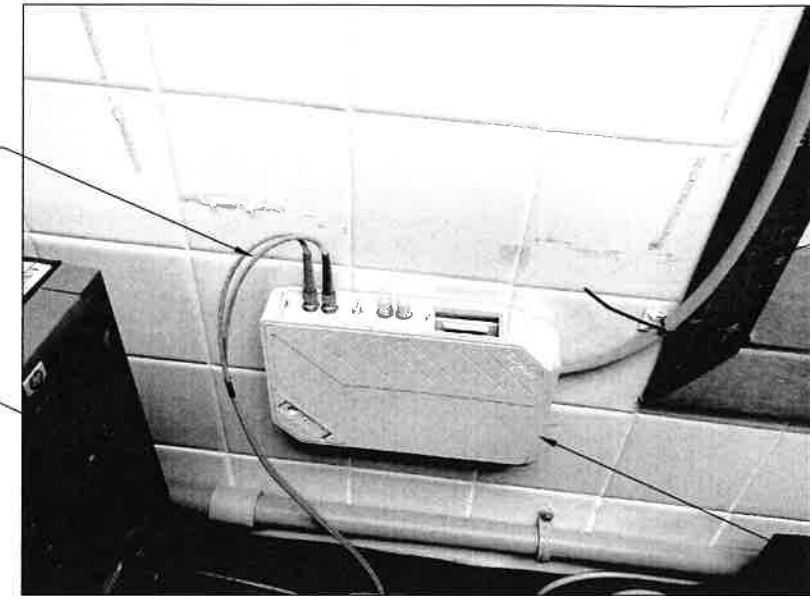
OPERATORS LAB AREA WORKSTATION OVERVIEW

EXISTING FIBER OPTIC CABLE

EXISTING SCADA WORKSTATION

EXISTING FIBER OPTIC PATCH CABLE

EXISTING SCADA WORKSTATION



EXISTING FIBER OPTIC CABLE

EXISTING FIBER OPTIC PATCH PANEL

EXISTING FIBER OPTIC PATCH PANEL

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.

EXISTING FIBER OPTIC NETWORK SWITCH

EXISTING SCADA WORKSTATION



EXISTING FIBER OPTIC NETWORK SWITCH LOCATED BEHIND EXISTING SCADA WORKSTATION



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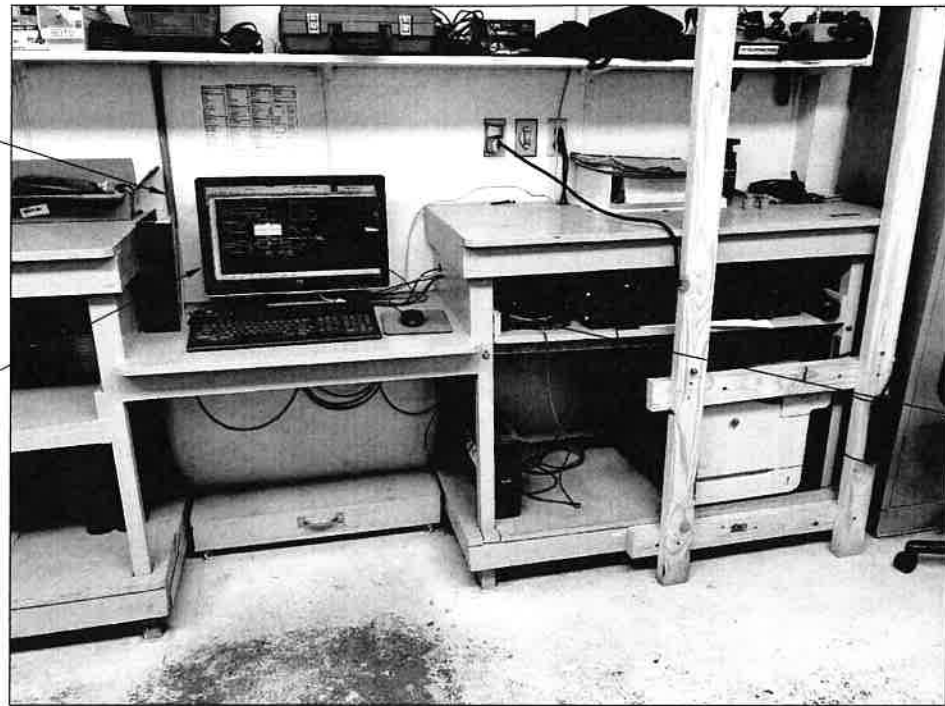
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
WORKSTATION 5 (OPERATORS LAB AREA)
NETWORK INTERFACE PANELS

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

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DRAWING NO.
01E17
SHEET NO.
20 OF 84

EXISTING SCADA SYSTEM FIBER OPTIC CABLE

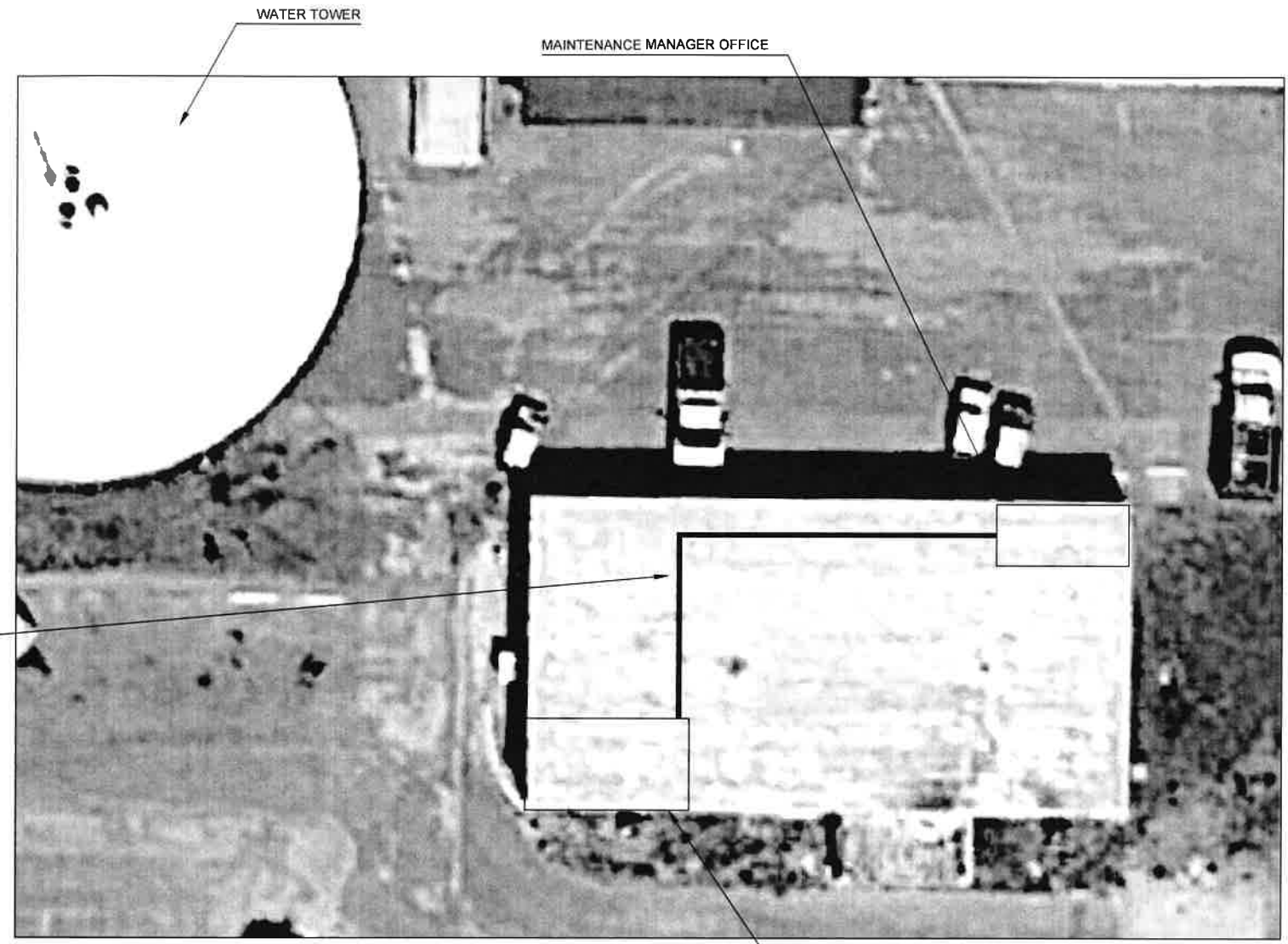
EXISTING SCADA WORKSTATION



INSTRUMENTATION SHOP OVERVIEW

EXISTING SCADA NETWORK EQUIPMENT

1" CONDUIT AND ETHERNET CABLE BETWEEN INSTRUMENTATION SHOP AND MAINTENANCE MANAGERS OFFICE



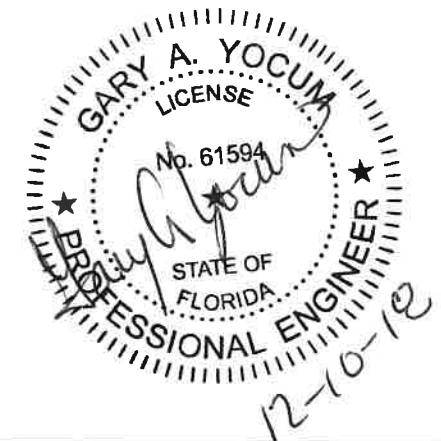
INSTRUMENTAITON SHOP

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 MANAGERS OFFICE.



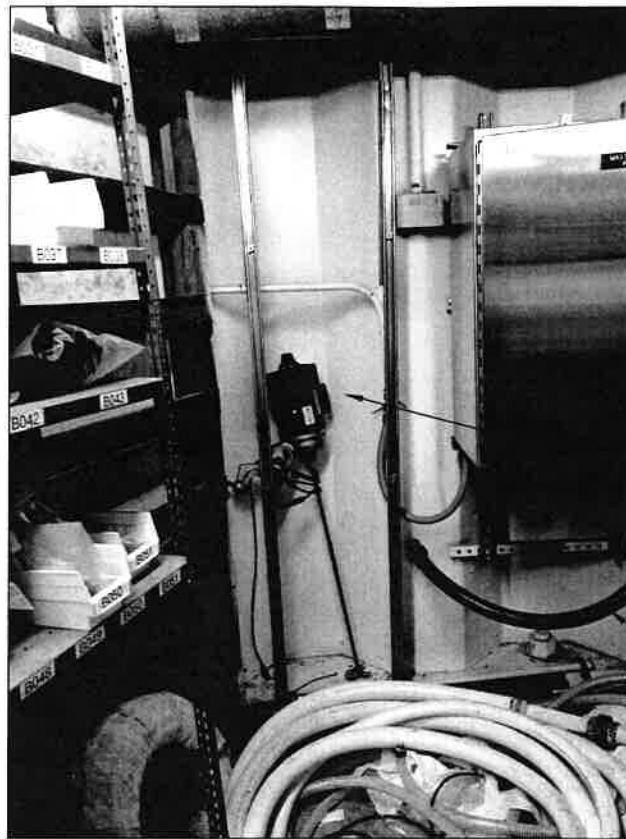
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DATE	DECEMBER 2018



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

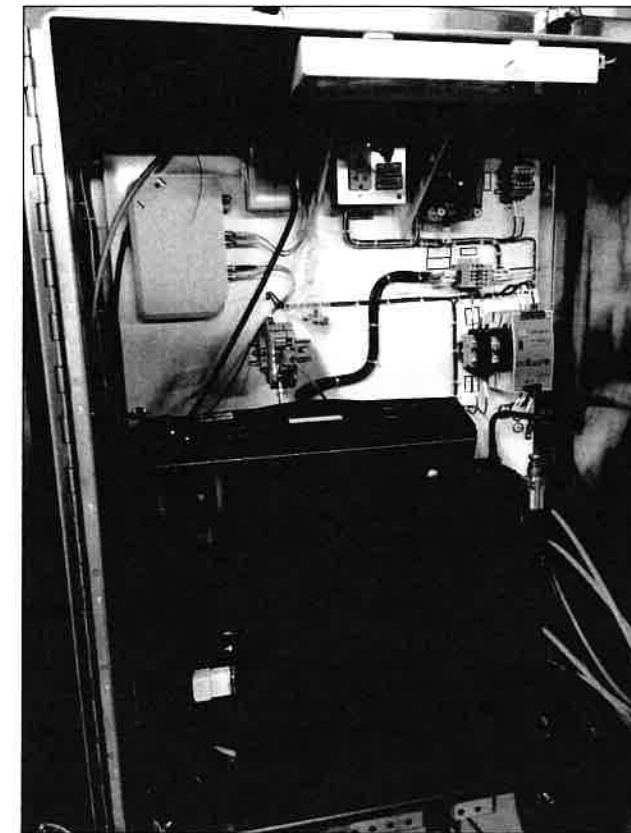
VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	107181.10
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	01E18
	SHEET NO.
	21 OF 84



EXISTING SCADA RADIO PANEL

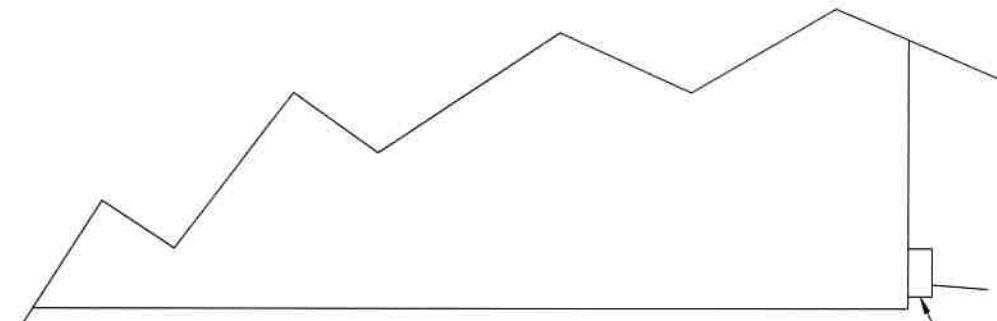
APPROXIMATE LOCATION OF NEW SCADA RADIO PANEL

EXISTING FIBER OPTIC ROUTING TO INSTRUMENT SHOP



INTERIOR VIEW OF EXISTING SCADA RADIO PANEL

EXISTING FIBER OPTIC CABLE TO INSTRUMENTATION SHOP



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

FRONT STORAGE AREA

BACK STORAGE AREA

GENERAL NOTES

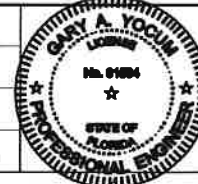
1. CONTRACTOR TO PROVIDE NEW FIBER OPTIC CABLE FROM NEW SCADA RADIO PANEL TO WORKSTATION NETWORK INTERFACE PANEL LOCATED IN INSTRUMENTATION SHOP.
2. CONTRACTOR SHALL UTILIZE EXISTING UNDERGROUND CONDUIT
3. CONTRACTOR SHALL REMOVE THE EXISTING FIBER OPTIC PATCH CORD BETWEEN THE EXISTING SCADA RADIO PANEL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

ELEVATE TANK LAYOUT (NOT TO SCALE)



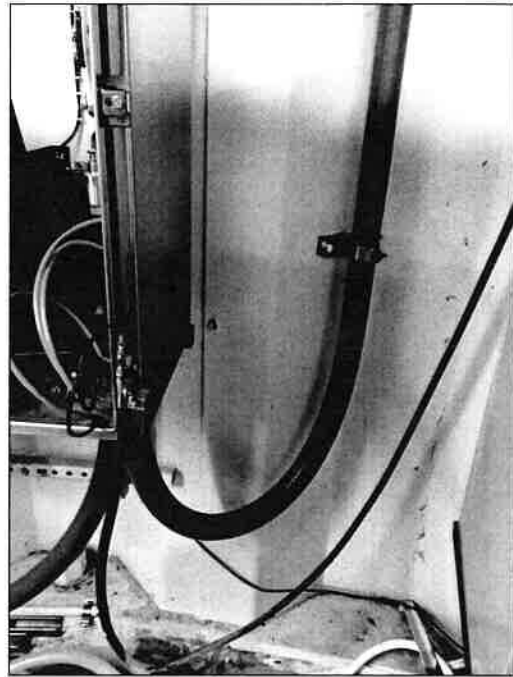
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DECEMBER 2018

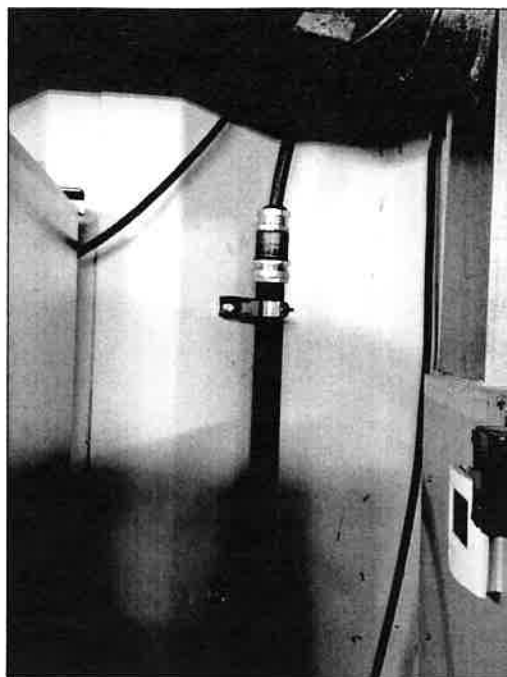


MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION SHOP
FIBER OPTIC ROUTING

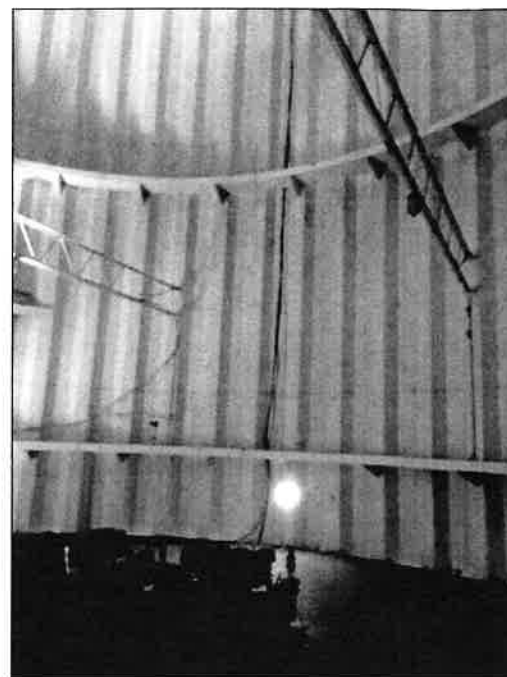
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 107161.10 DRAWING NO. 01E19 SHEET NO. 22 of 84
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EXISTING SCADA RADIO ANTENNA CABLES



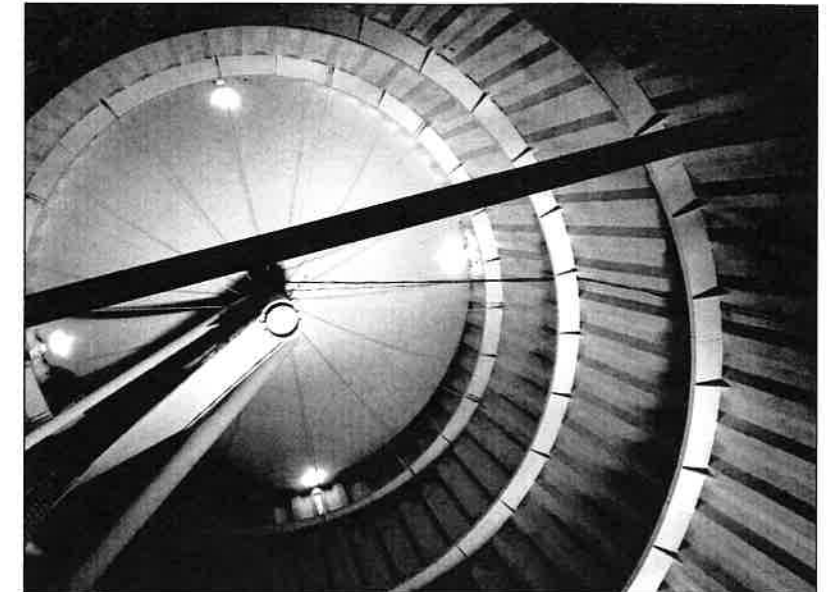
EXISTING SCADA RADIO ANTENNA CABLES



EXISTING SCADA RADIO ANTENNA CABLES



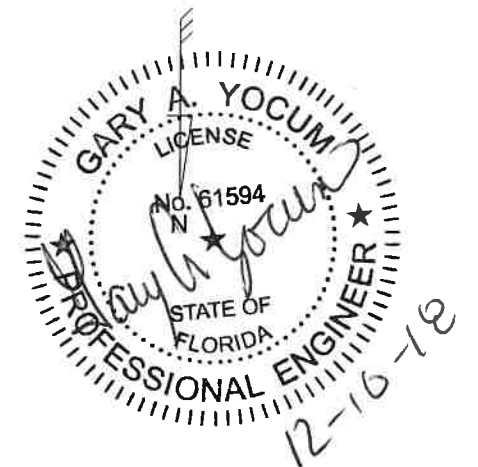
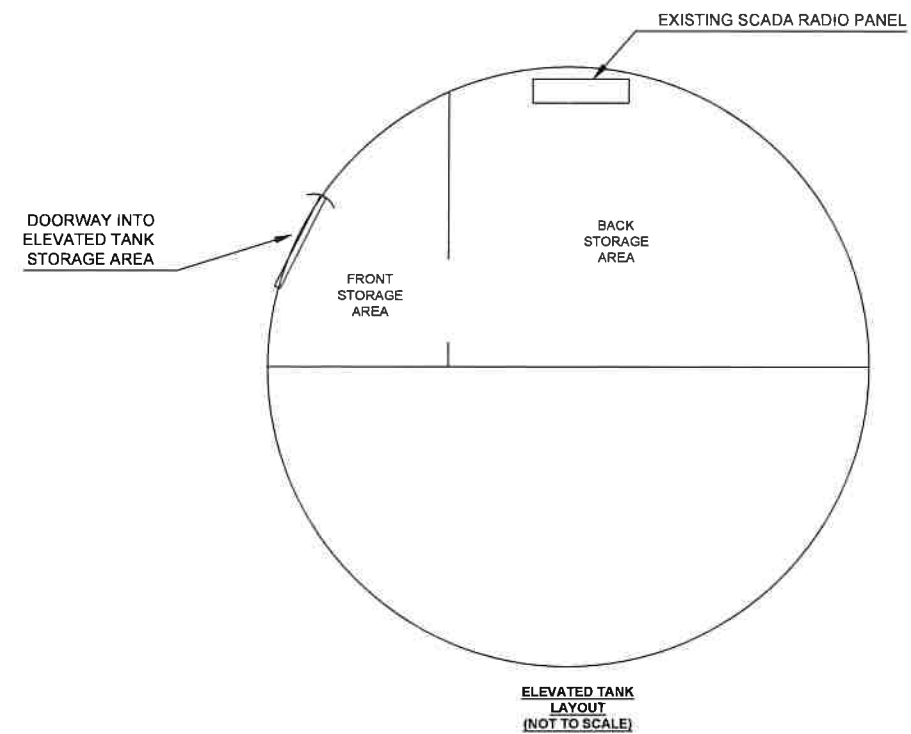
EXISTING SCADA RADIO ANTENNA CABLES



EXISTING SCADA RADIO ANTENNA CABLES

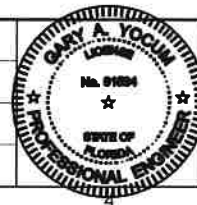
GENERAL NOTES

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.



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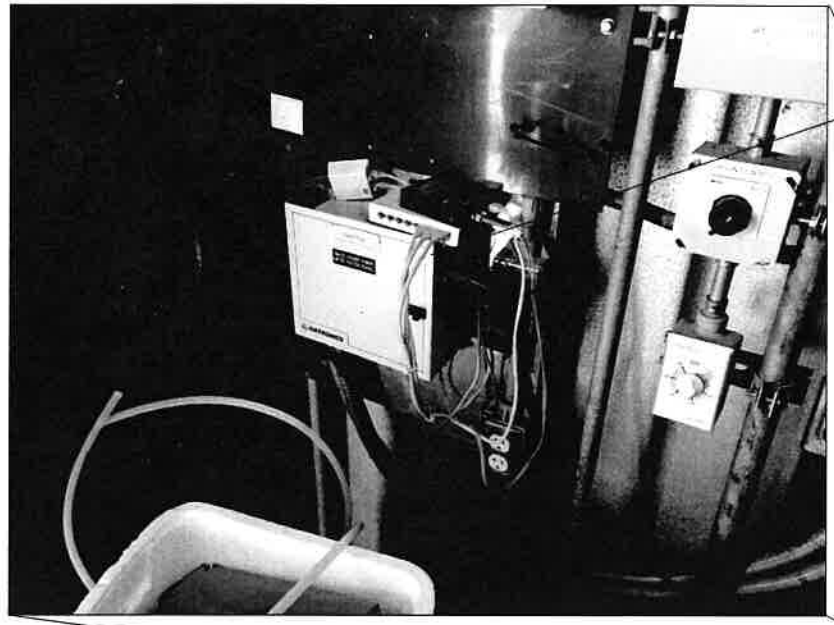
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION SHOP
RADIO ANTENNA CABLE ROUTING

VERIFY SCALES
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0 1" SCALE
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
107161.10
DRAWING NO.
01E20
SHEET NO.
23 of 84

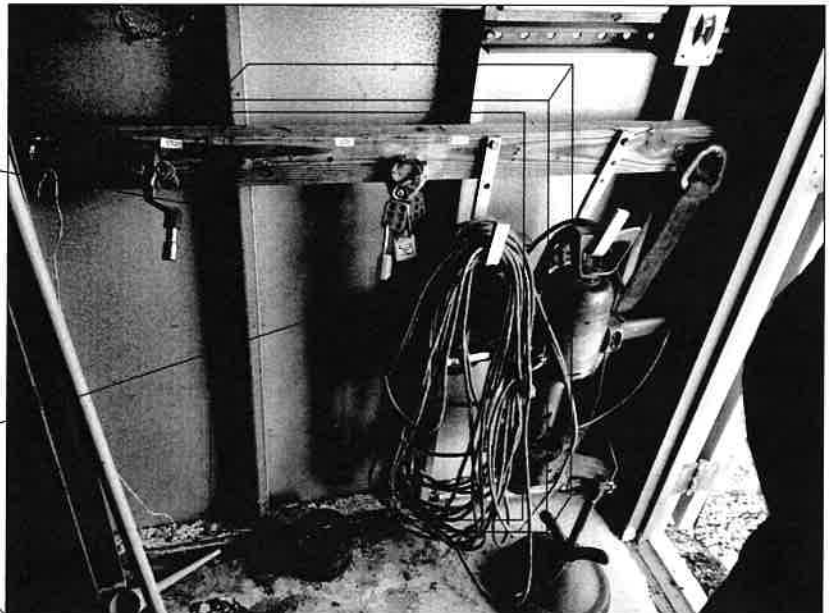
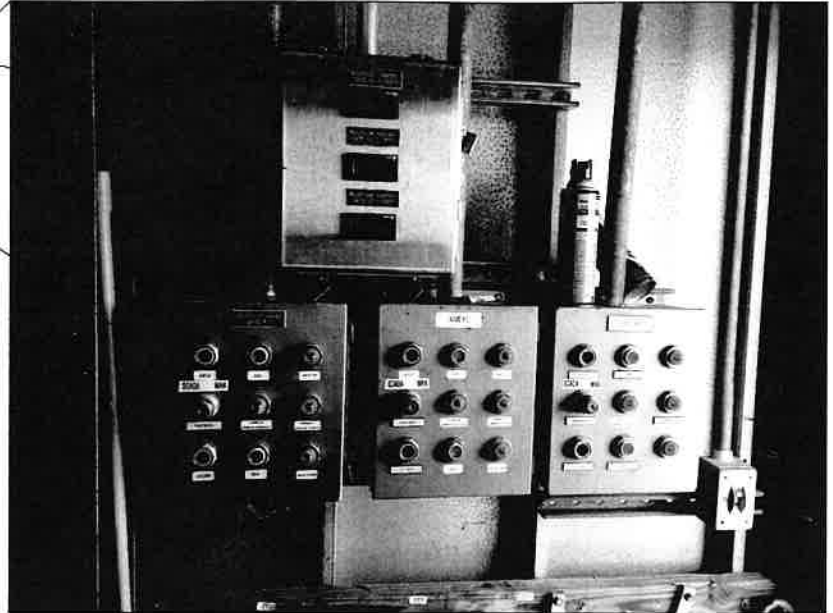


GATE HOUSE EXISTING FIBER OPTIC PATCH PANEL

GATE HOUSE EXISTING MCC

EXISTING LEVEL DISPLAYS

EXISTING GATE CONTROLS

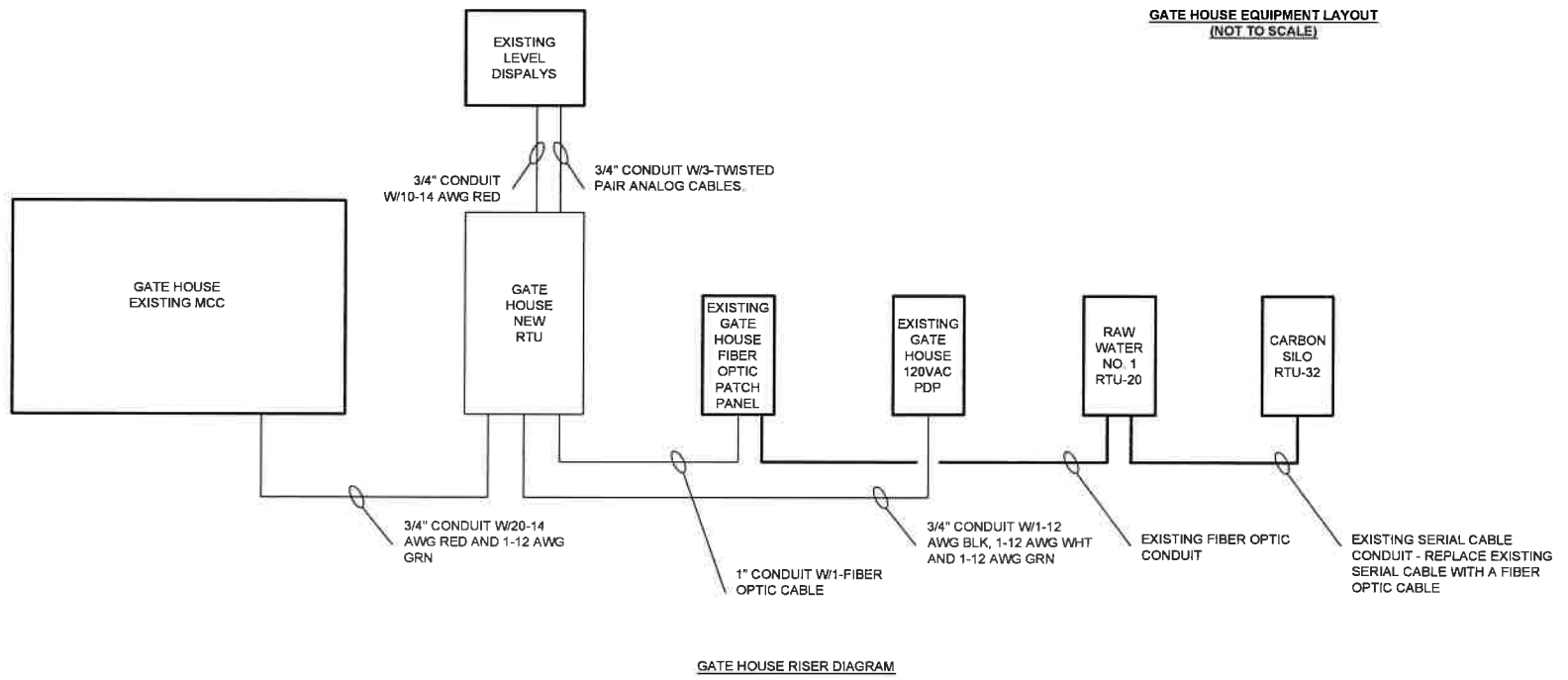


APPROXIMATE LOCATION OF NEW GATE HOUSE RTU SEE DRAWINGS 02N016 AND 02N017 FOR ADDITIONAL DETAILS FOR RTU PANEL

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

GATE HOUSE EXISTING FIBER OPTIC PATCH PANEL

GATE HOUSE EQUIPMENT LAYOUT (NOT TO SCALE)



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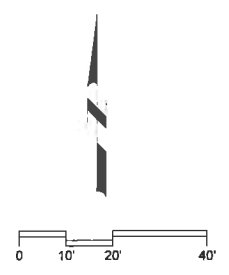
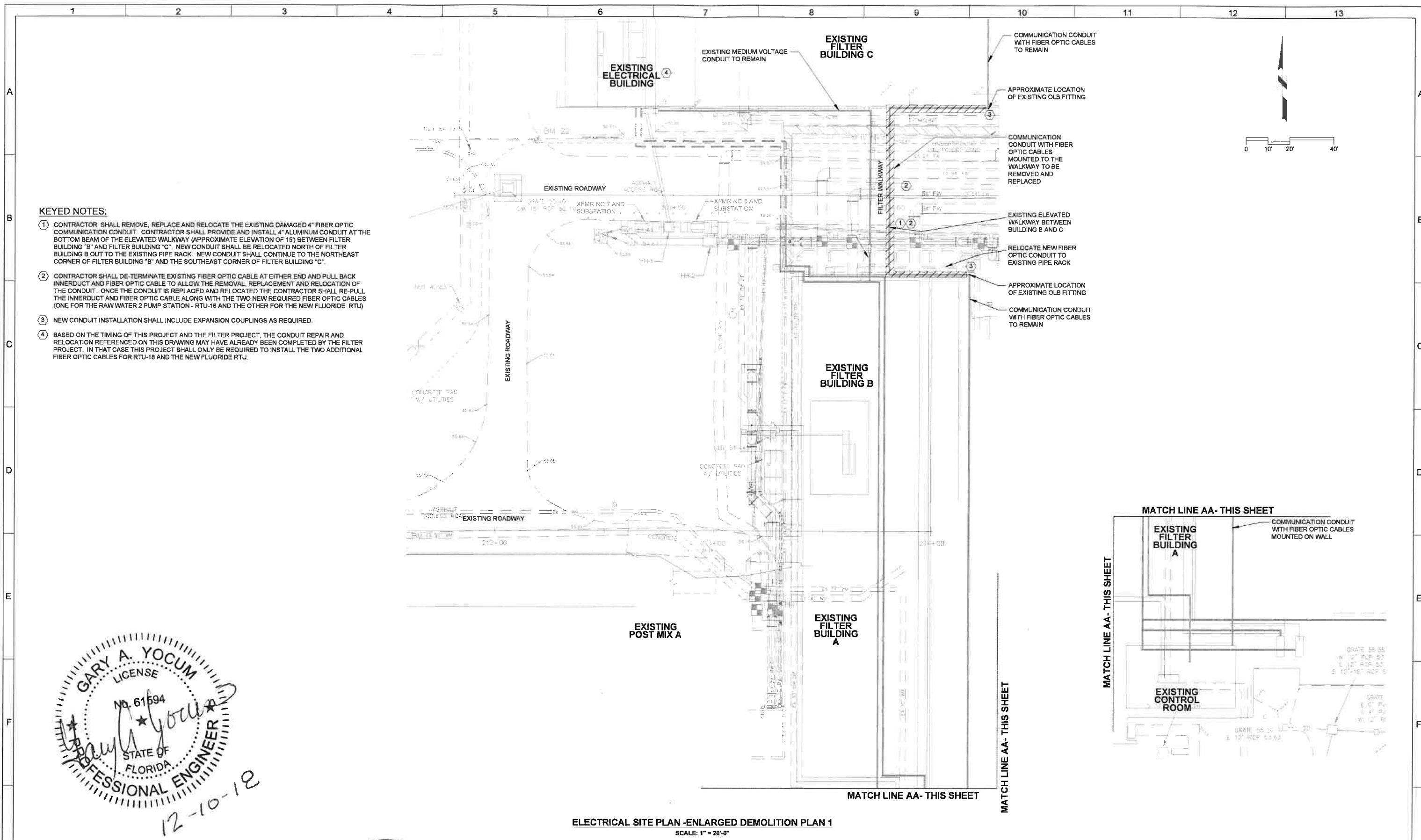
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DATE
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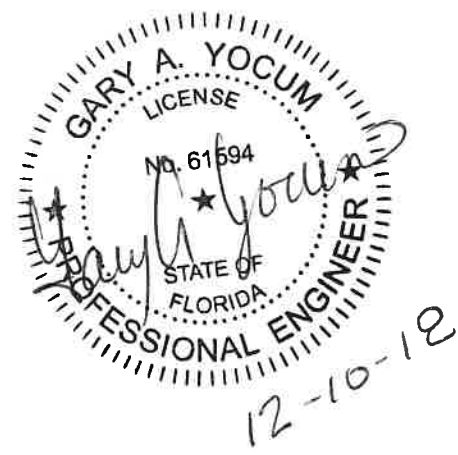
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
GATE HOUSE MODIFICATIONS

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	SHEET NO. 24 OF 64



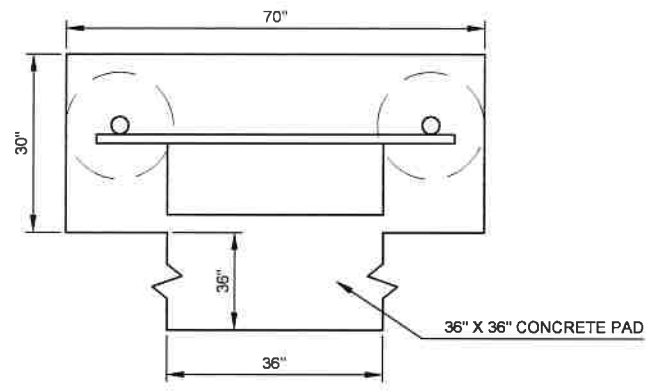
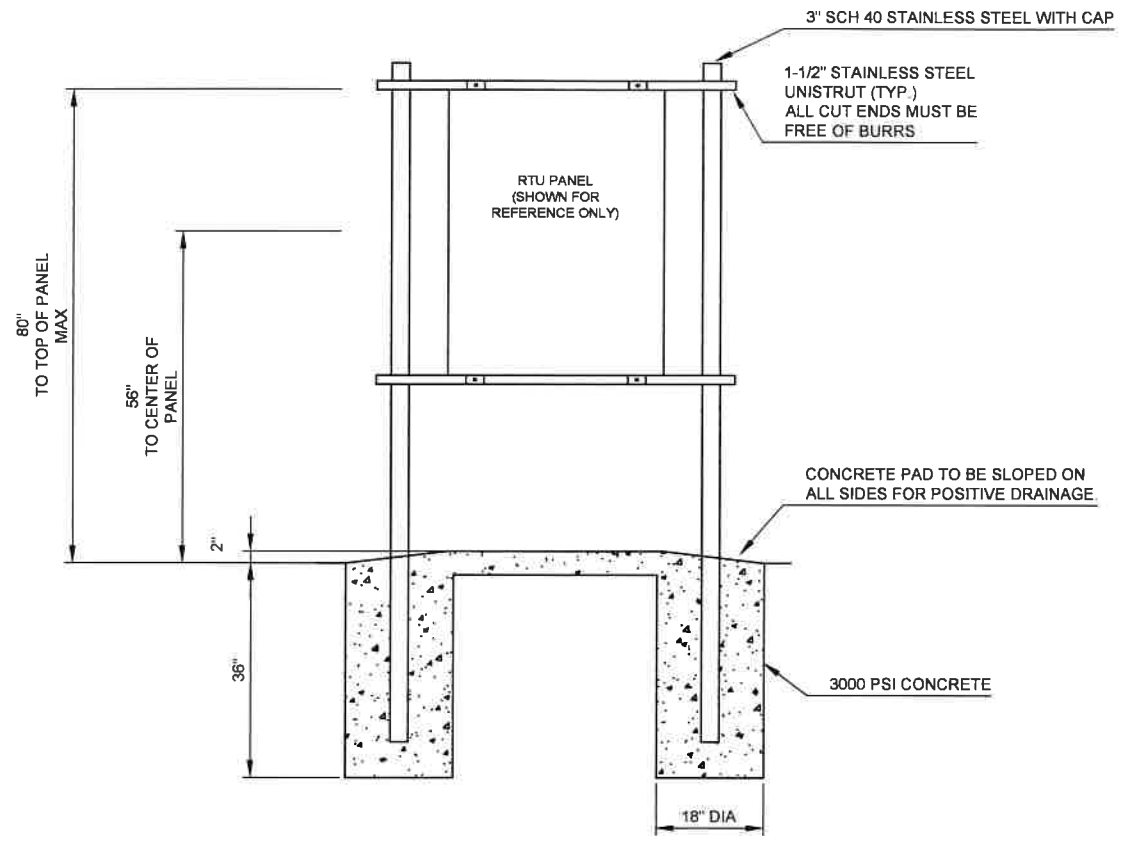
KEYED NOTES:

- 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.

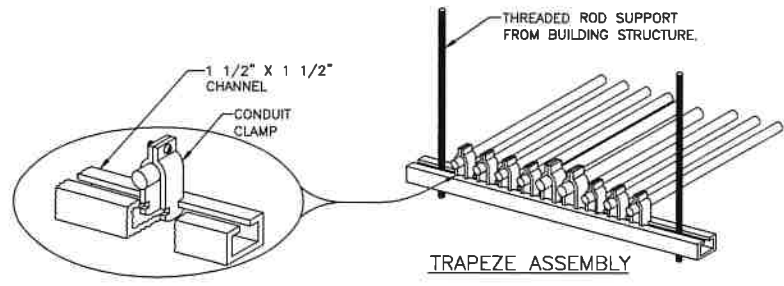


ELECTRICAL SITE PLAN -ENLARGED DEMOLITION PLAN 1
SCALE: 1" = 20'-0"

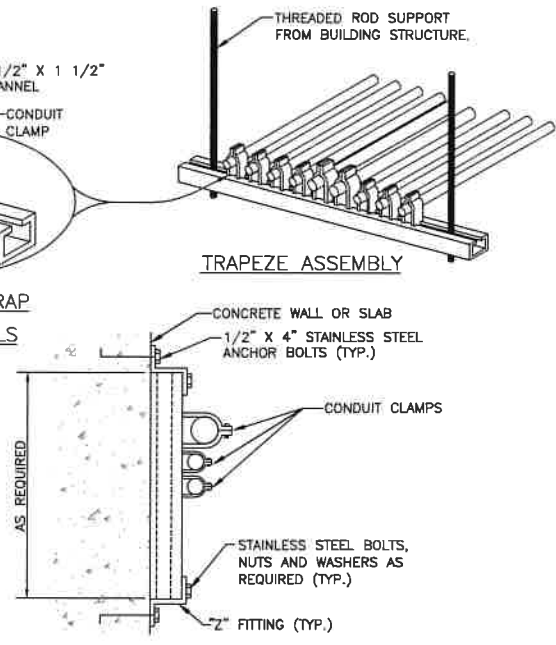
DESIGNED YOCUM DRAWN YOCUM CHECKED MAP DATE DECEMBER 2018									MANATEE COUNTY LAKE MANATEE WTP SCADA UPGRADE FIBER OPTIC COMMUNICATION CONDUIT REPLACEMENT			VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 10716110 DRAWING NO. 01E22 SHEET NO. 25 OF 84			
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TYPICAL RTU MOUNTING DETAIL

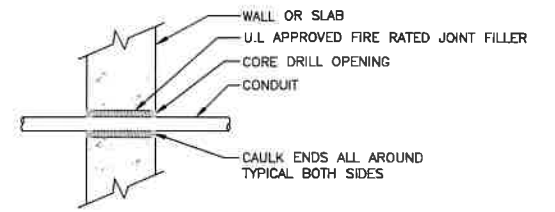


CONDUIT PIPE STRAP MOUNTING DETAILS



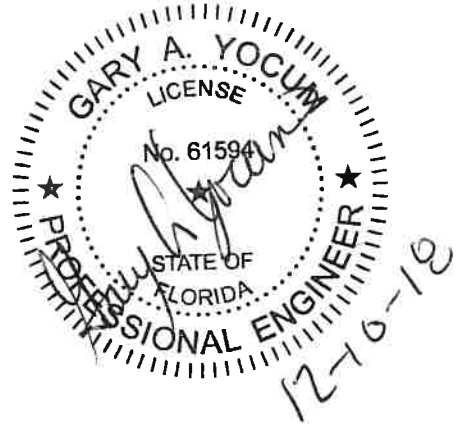
CONDUIT SUPPORT NOT TO SCALE

- 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.



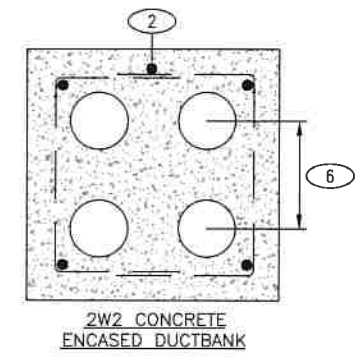
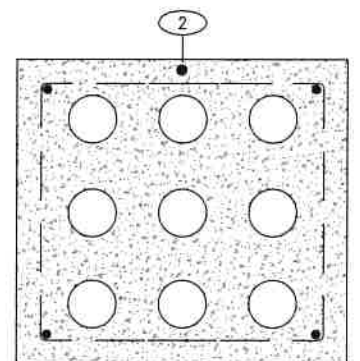
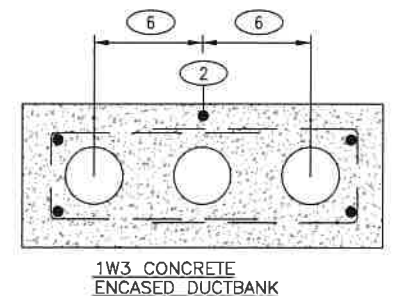
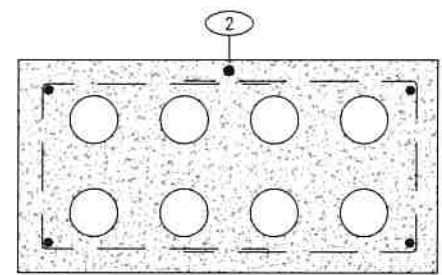
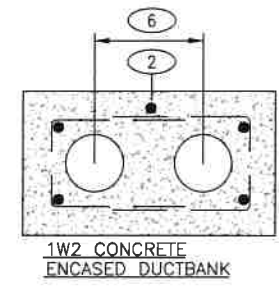
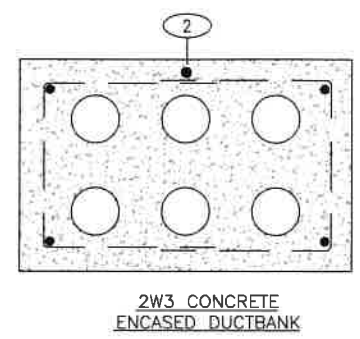
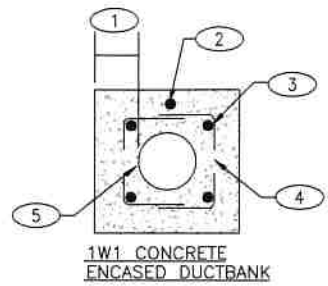
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DATE	DECEMBER 2018



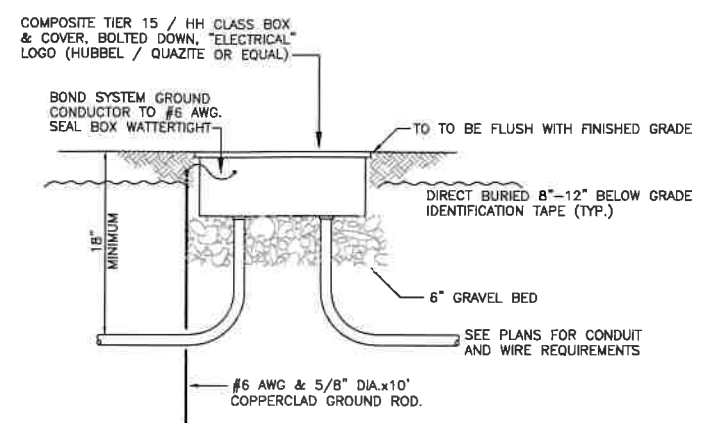
MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
ELECTRICAL DETAILS I

VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	107161.10
0 1"	DRAWING NO.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	01E30
	SHEET NO.
	26 OF 84



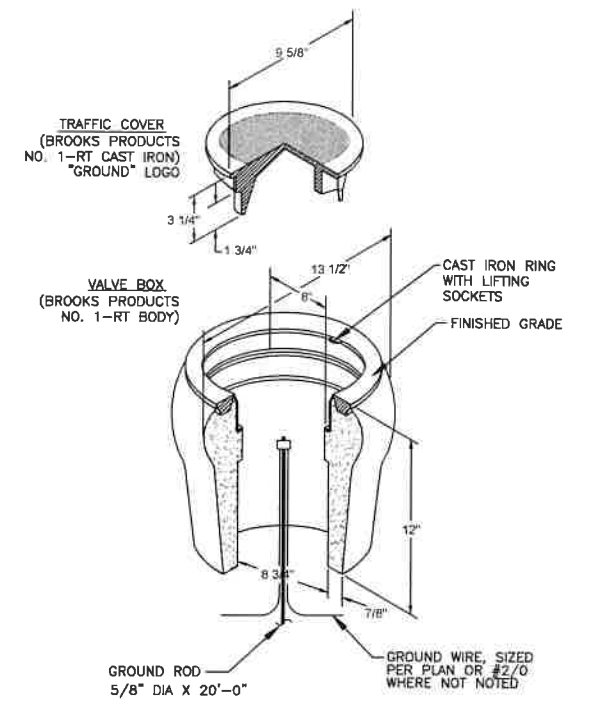
DUCT BANK DETAILS

- 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.
- 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

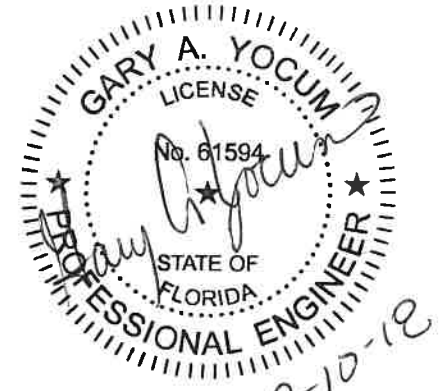


HANDHOLE DETAILS
NOT TO SCALE

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



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
ELECTRICAL DETAILS II

VERIFY SCALES	JOB NO. 107181.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 01E31
0 1"	SHEET NO. 27 OF 84
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

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LAST SAVED BY: AWillard

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PROCESS SWITCHES		HAND SWITCHES		RELAYS		TERMINAL BLOCKS		I/O		MISC		
<p>Float switch symbols: Close on rising level, Open on rising level.</p> <p>Pressure switch symbols: Close on rising pressure, Open on rising pressure.</p> <p>Temperature switch symbols: Close on rising temperature, Open on rising temperature.</p> <p>Flow switch symbols: Close on increase in flow, Open on increase in flow.</p> <p>Vibration switch symbols: Open on rising vibration, Close on rising vibration.</p> <p>Torque switch symbols: Open on high torque, Close on high torque.</p> <p>Limit switch symbols: Normally closed held open, Normally open limit, Normally open held closed.</p>		<p>Normally open momentary pushbutton</p> <p>Normally closed momentary pushbutton</p> <p>Three position selector switch</p> <p>Two position selector switch</p> <p>Mushroom head pushbutton</p> <p>Push-pull pushbutton</p> <p>Padlock switch</p> <p>Pull cord switch</p> <p>Stop-lockout pushbutton</p> <p>Spring-return</p>		<p>Relay coil symbols: CR, TD, M, L, H, F, R</p> <p>Control contact symbols: Normally open, Normally closed, Time delay (NOTC, NCTO, NCTC)</p>		<p>Terminal block symbols: PLC/PCM panel, Motor control center, Local starter control panel, RTU, Field panel, Relay panel, Digital bus connector</p>		<p>I/O symbols: PLC discrete, PLC analog, Digital bus</p> <p>Designations: Existing, New</p>		<p>Miscellaneous symbols: Solenoid, Meter unit, Motor, Circuit breaker, Disconnect, Fuse, Transient surge protection, Motor winding heater, Space heater, Varistor, Capacitor, Resistor, Battery, Diode, Motor overload heaters, Overload contact, Drawout connection, Ground, Lightning arrestor, Control power transformer, Elapsed time meter</p>		
		PILOT LIGHTS										
		<p>Pilot light symbols: a = lens color (R=Red, G=Green, W=White, A=Amber)</p>										

REV	DATE	BY	DESCRIPTION

DESIGNED: JHJ
 DRAWN: ANW
 CHECKED: NEA
 DATE: DECEMBER 2018

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 Date: 2018.12.28 14:46:50-0500

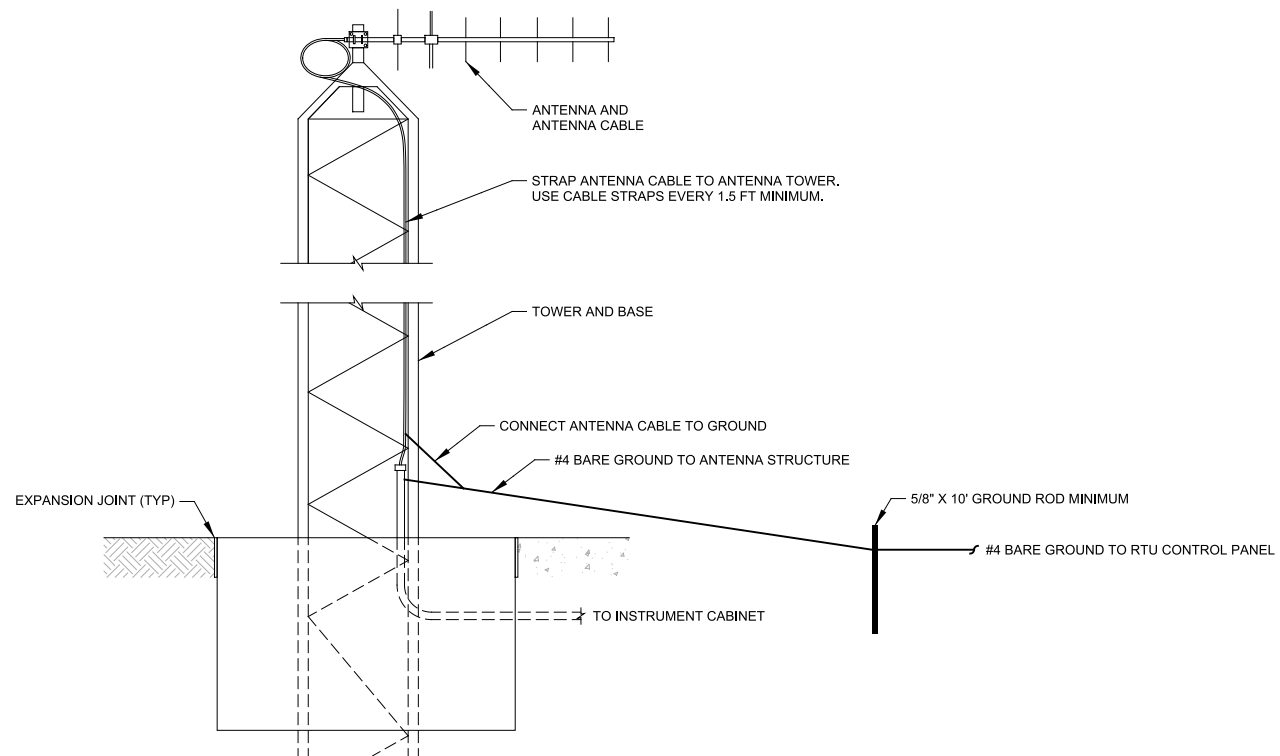
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MANATEE COUNTY
 LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
 SCHEMATIC SYMBOLS

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JOB NO. 10716L10
 DRAWING NO. 00GN01
 SHEET NO. 28 OF 84

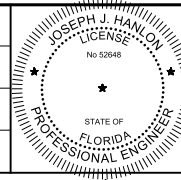
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 LAST SAVED BY: AWillard



- 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.

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

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 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

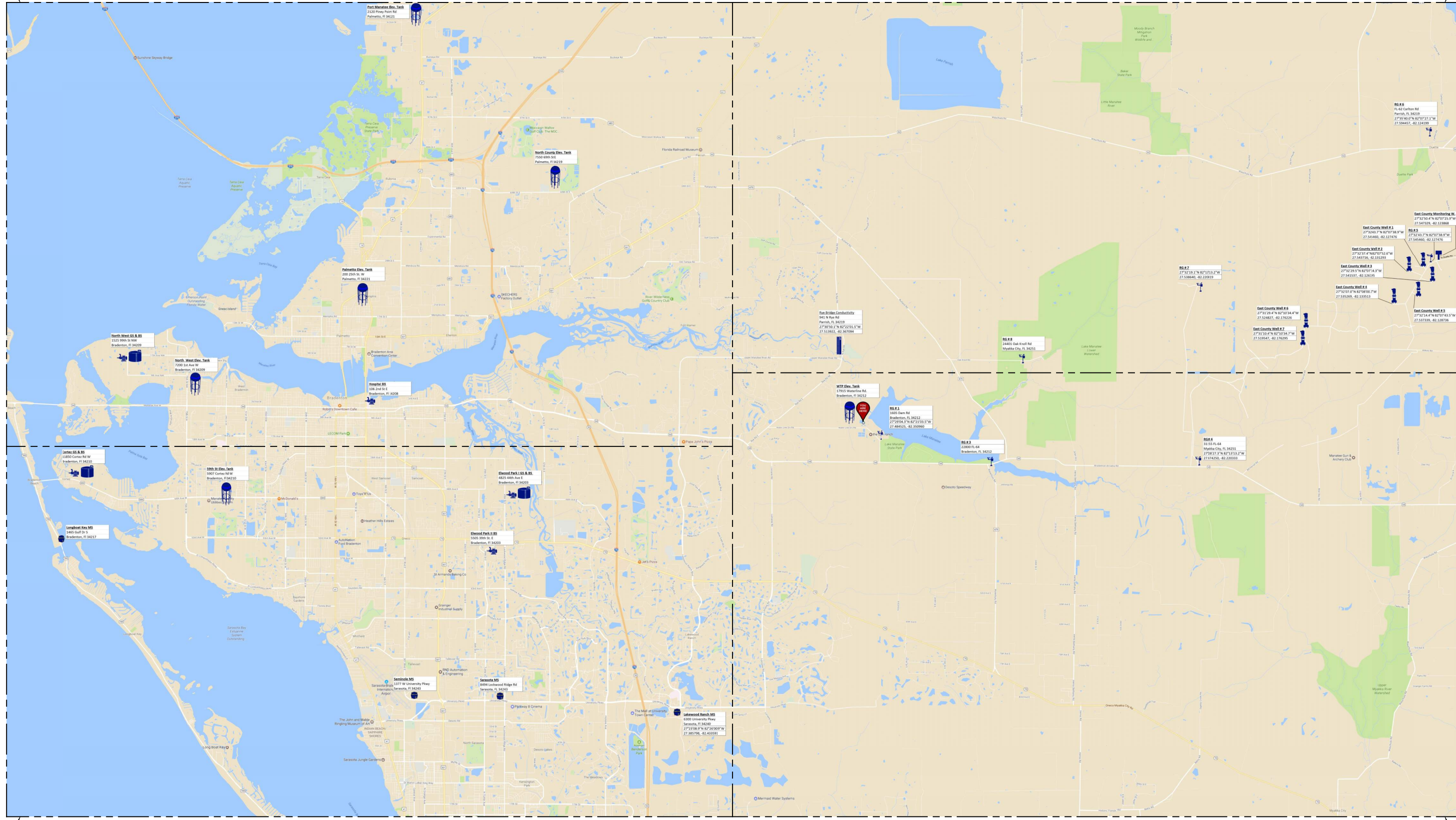
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00GN02
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29 OF 84

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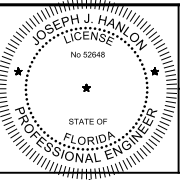
LAST SAVED BY: AWillard



SITE PLAN
SCALE: NO SCALE
FILE: 1071611001N101

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

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

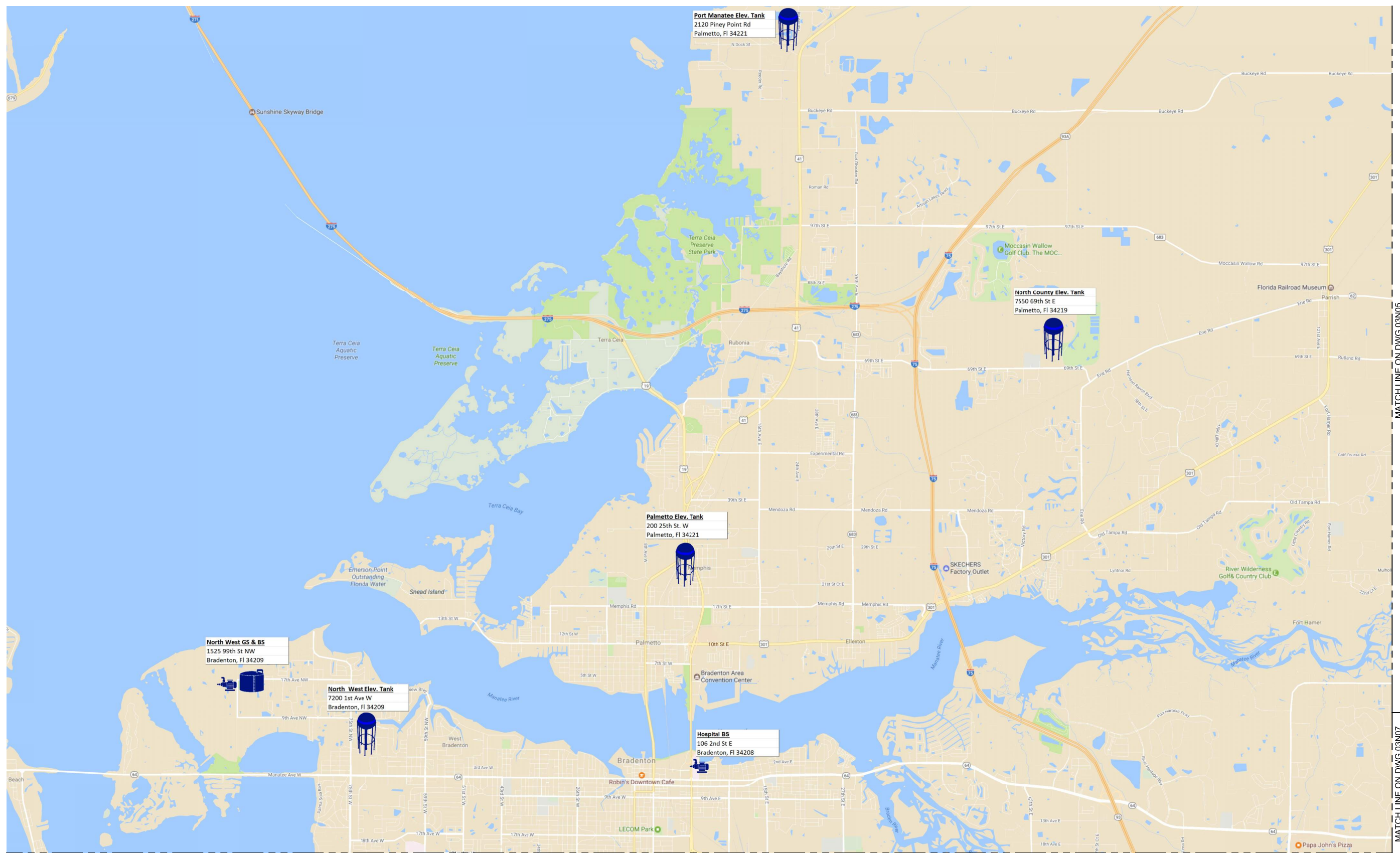
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01N01
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30 OF 84

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LAST SAVED BY: broepken

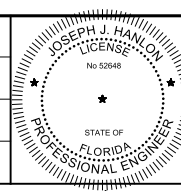


MATCH LINE ON DWG 03N06

A PLAN - I
03N003 SCALE: NO SCALE
FILE: 1071611001N101

REV	DATE	BY	DESCRIPTION
1			
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3			

DESIGNED
JH
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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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0 1"
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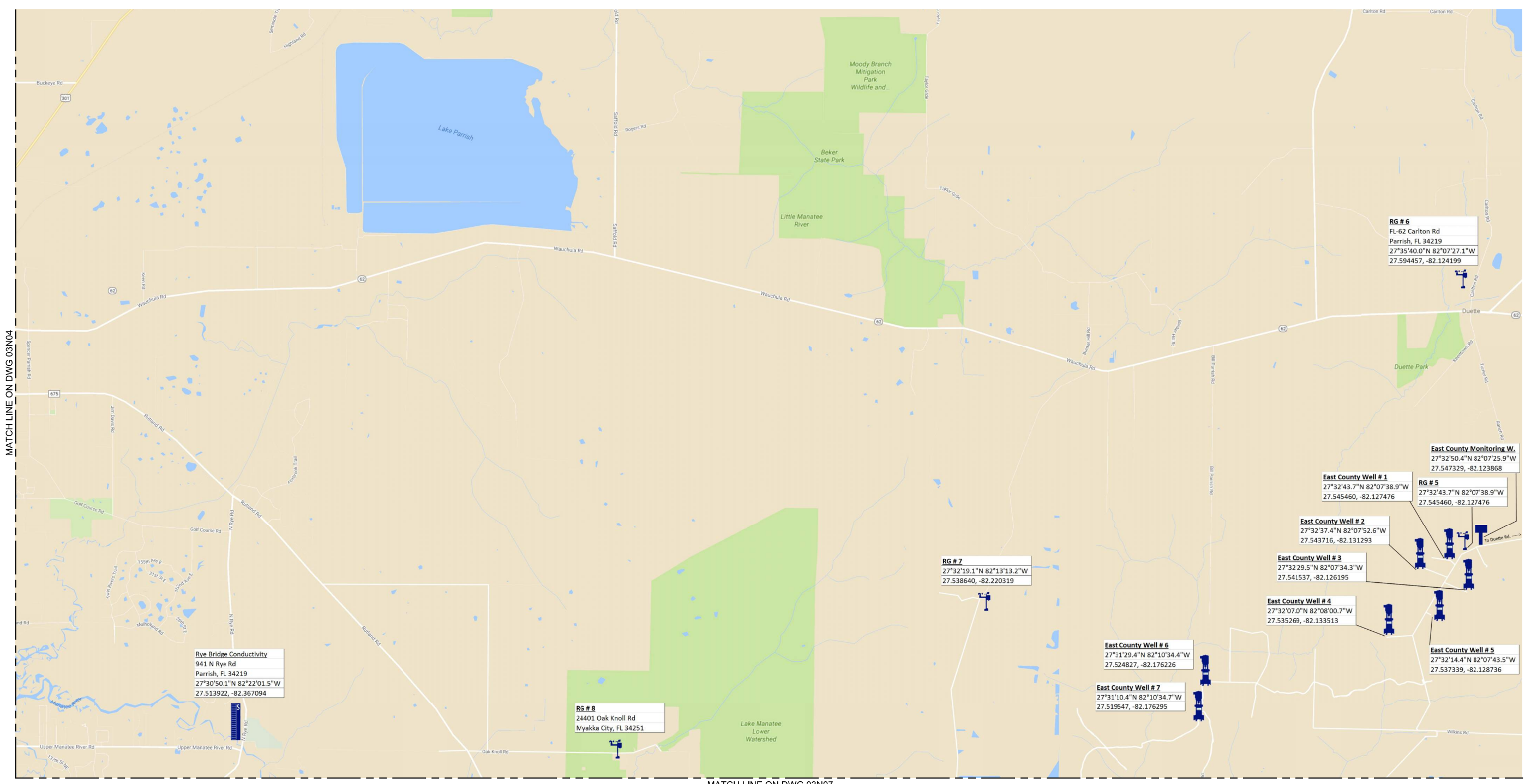
JOB NO.
107161.10
DRAWING NO.
01N02
SHEET NO.
31 OF 84

Plot Date: 06-DEC-2018 11:50:33 AM

User: svcPW

PlotScale: 1:1

LAST SAVED BY: broepken



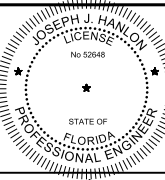
MATCH LINE ON DWG 03N04

MATCH LINE ON DWG 03N07

B PLAN - II
 03N003 SCALE: NO SCALE
 FILE: 1071611001N101

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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JHH
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MANATEE COUNTY
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 REMOTE RTU COUNTY WIDE MAP
 PLAN - II

VERIFY SCALES
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 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

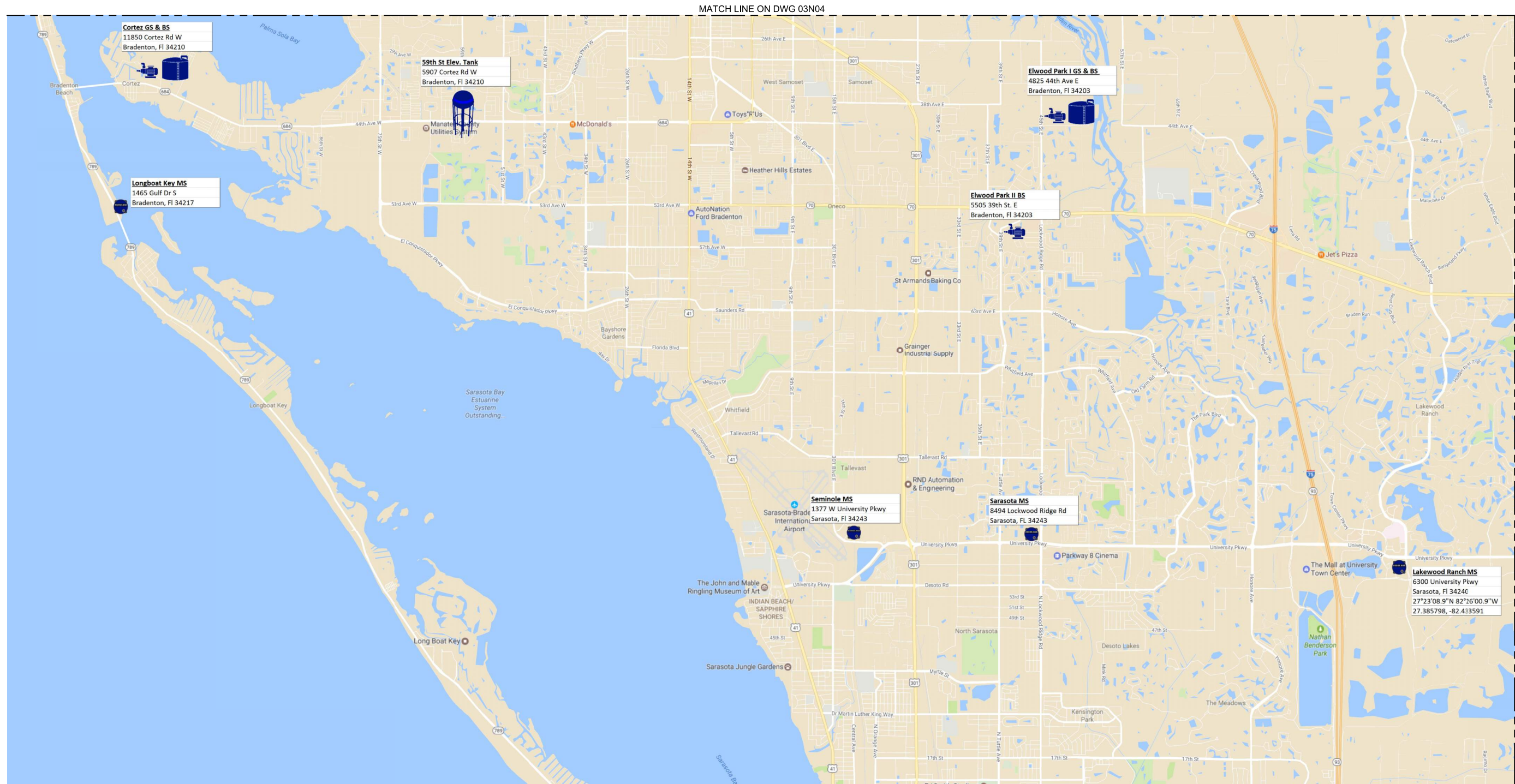
JOB NO.
107161.10
 DRAWING NO.
01N03
 SHEET NO.
32 OF 84

Plot Date: 06-DEC-2018 11:49:36 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: broepken



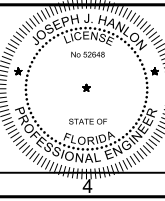
MATCH LINE ON DWG 03N04

MATCH LINE ON DWG 03N07

C PLAN - III
 03N003 SCALE: NO SCALE
 FILE: 1071611001N101

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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MANATEE COUNTY
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 REMOTE RTU COUNTY WIDE MAP
 PLAN - III

VERIFY SCALES
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 0 1"
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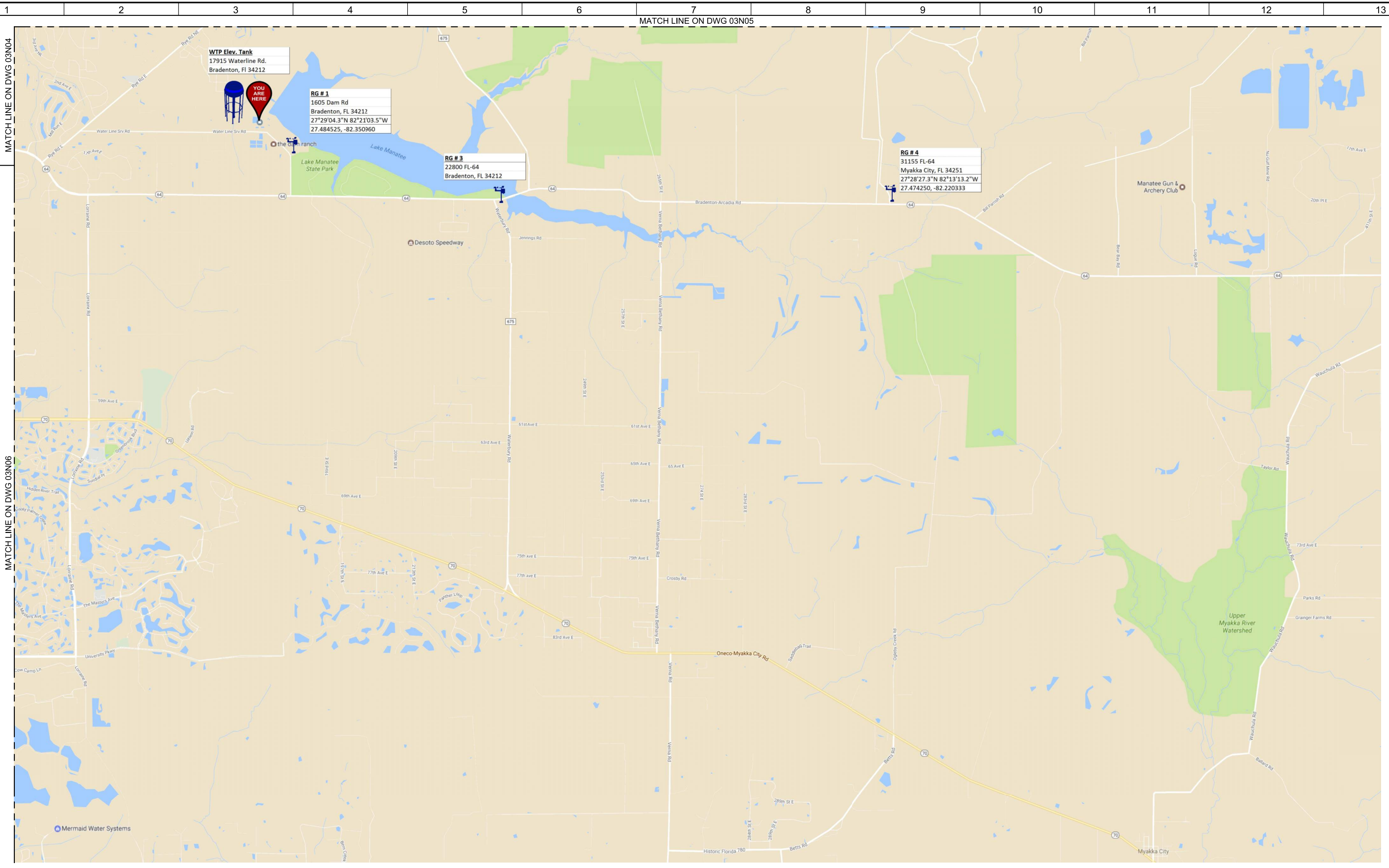
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10716110
 DRAWING NO.
01N04
 SHEET NO.
33 OF 84

Plot Date: 06-DEC-2018 11:50:18 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

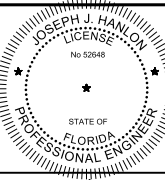
LAST SAVED BY: broepken



D PLAN - IV
03N003 SCALE: NO SCALE
FILE: 1071611001N101

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

VERIFY SCALES
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JOB NO.
107161.10
DRAWING NO.
01N05
SHEET NO.
34 OF 84

Plot Date: 06-DEC-2018 11:50:55 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sid_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWilford

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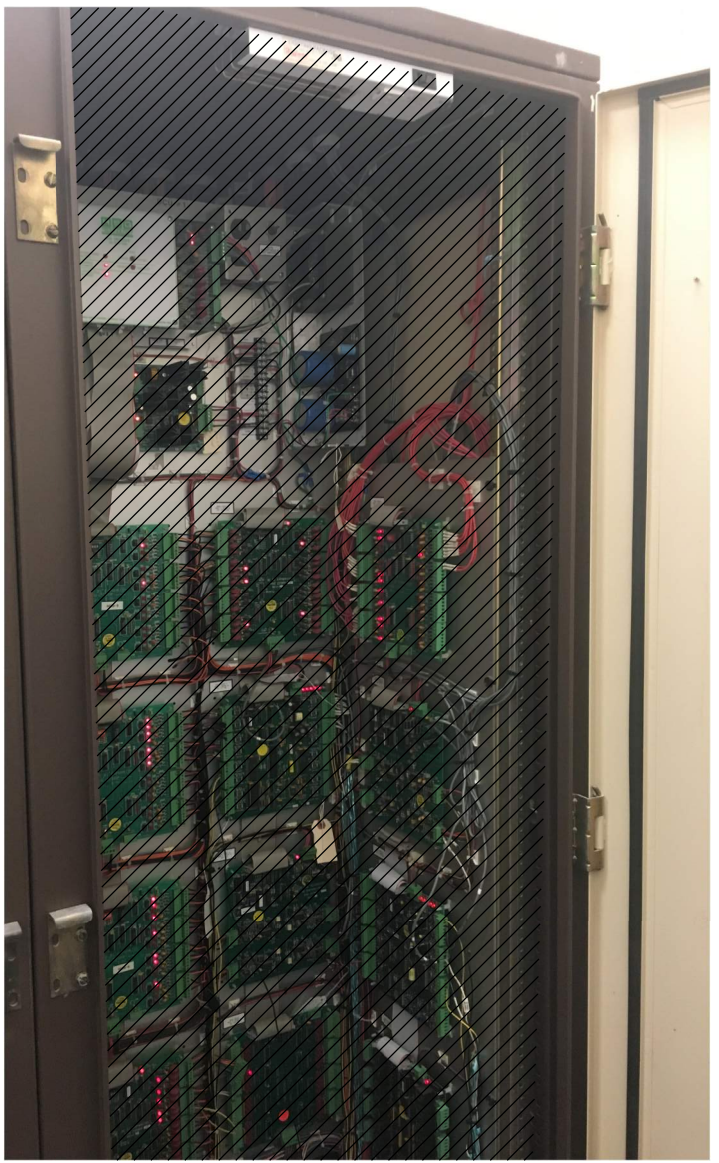
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GENERAL NOTES:

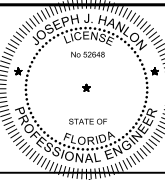
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED AND RETURNED TO MANATEE COUNTY.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION 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: 1071611002DN001A

2 RIGHT SIDE
 FILE: 1071611002DN001B

REV	DATE	BY	DESCRIPTION

DESIGNED
JHJ
DRAWN
ANW
CHECKED
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DATE
DECEMBER 2018



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

VERIFY SCALES
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 0 1"
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JOB NO.
107161.10
 DRAWING NO.
02DN01
 SHEET NO.
35 OF 84

Plot Date: 06-DEC-2018 11:50:58 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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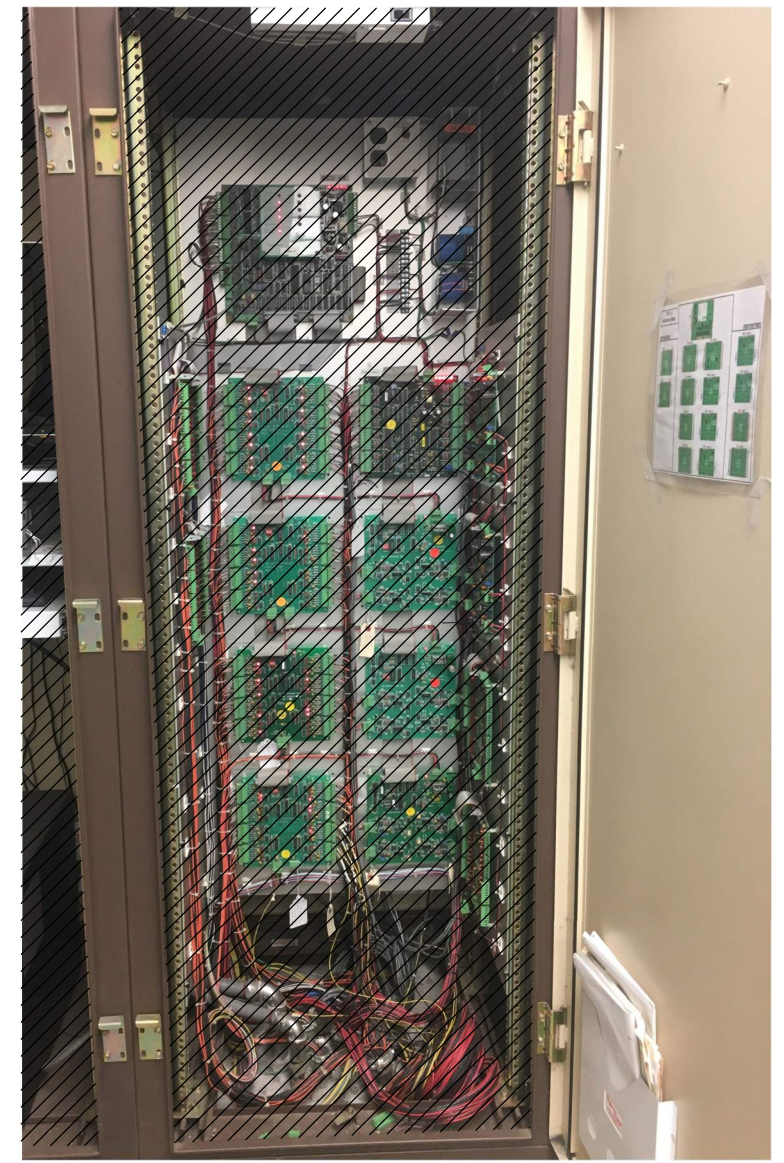
G

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.



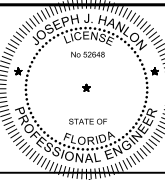
1 LEFT SIDE
FILE: 1071611002DN002A



2 RIGHT SIDE
FILE: 1071611002DN002B

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RTU NO. 2 DEMOLITION

VERIFY SCALES
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0 1"
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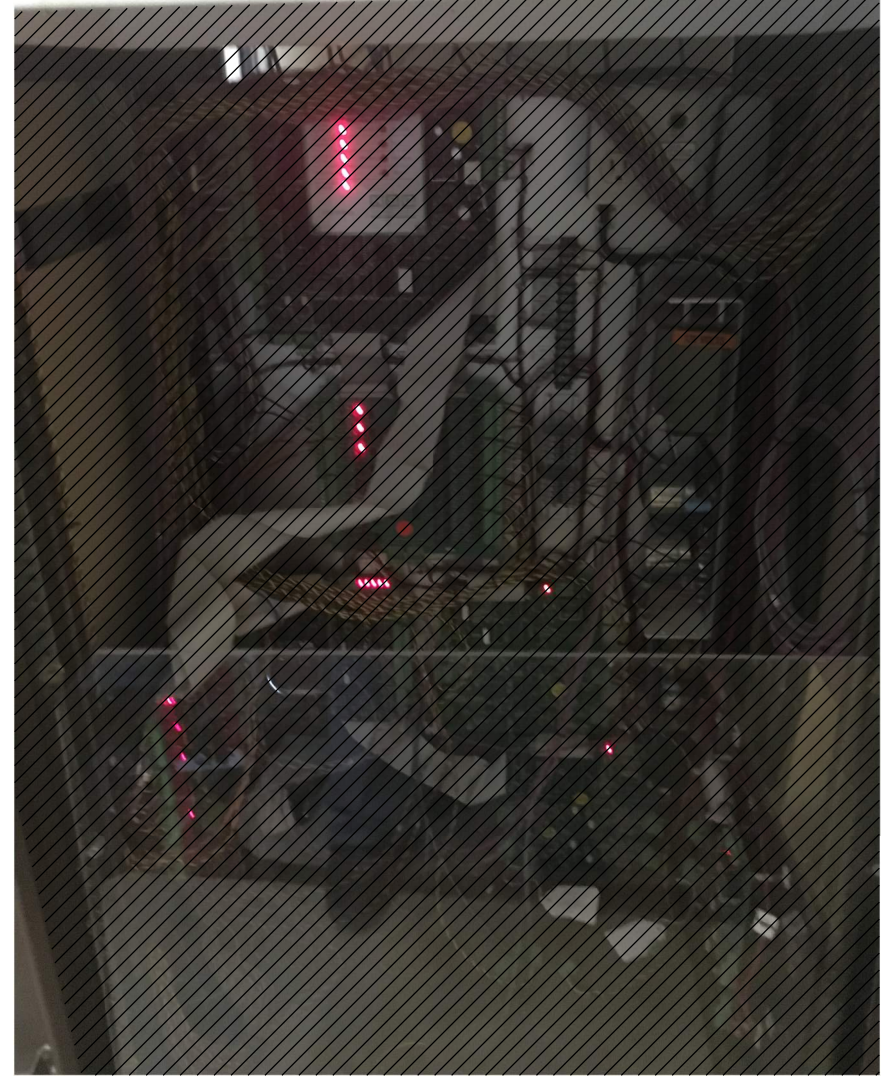
JOB NO.
107161.10
DRAWING NO.
02DN02
SHEET NO.
36 OF 84

Plot Date: 06-DEC-2018 11:50:43 AM
 User: svcPW
 Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1
 LAST SAVED BY: AWilford

1 2 3 4 5 6 7 8 9 10 11 12 13

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- 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.

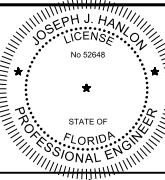


1 TOP HALF OF EXISTING ENCLOSURE
 FILE: 1071611002DN003A

2 BOTTOM HALF OF EXISTING ENCLOSURE
 FILE: 1071611002DN003B

REV	DATE	BY	DESCRIPTION

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

VERIFY SCALES
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 0 1"
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JOB NO.
 107161.10
 DRAWING NO.
02DN03
 SHEET NO.
 37 OF 84

Plot Date: 06-DEC-2018 11:50:21 AM
 User: svcPW
 Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1
 LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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GENERAL NOTES:

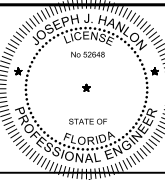
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW PLC AND REMOVAL OF EXISTING 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: 1071611002DN004A

REV	DATE	BY	DESCRIPTION

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 DECEMBER 2018



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

VERIFY SCALES
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 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
 107161.10
 DRAWING NO.
02DN04
 SHEET NO.
 38 OF 84

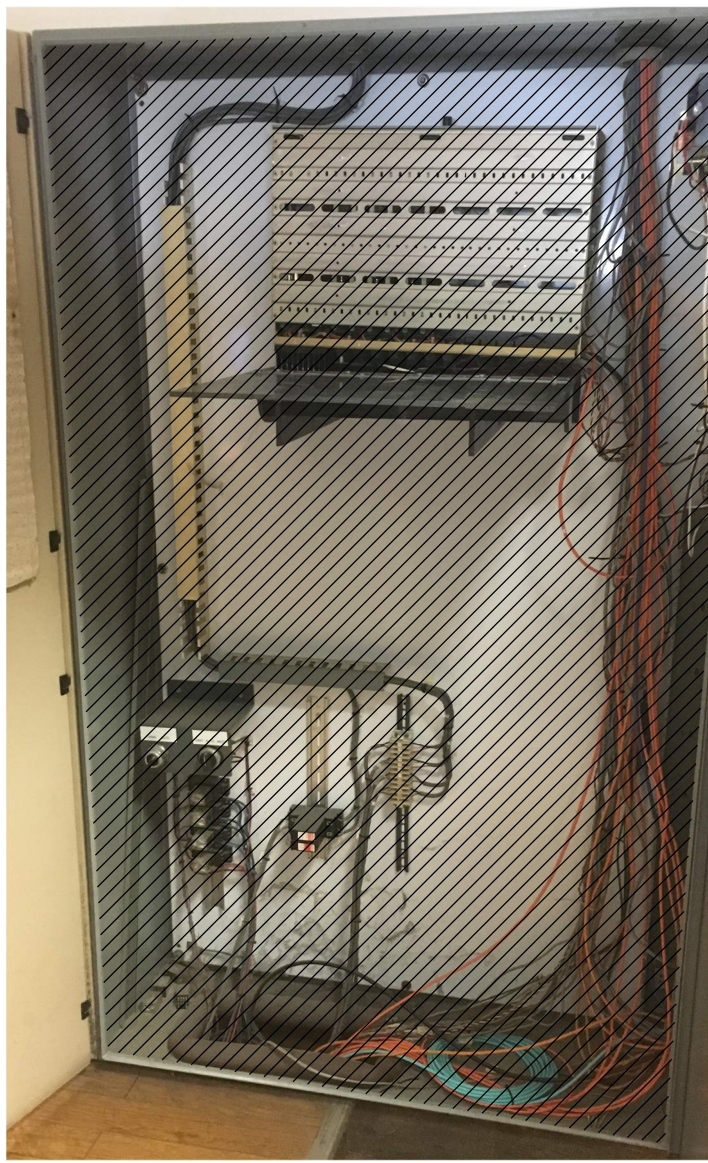
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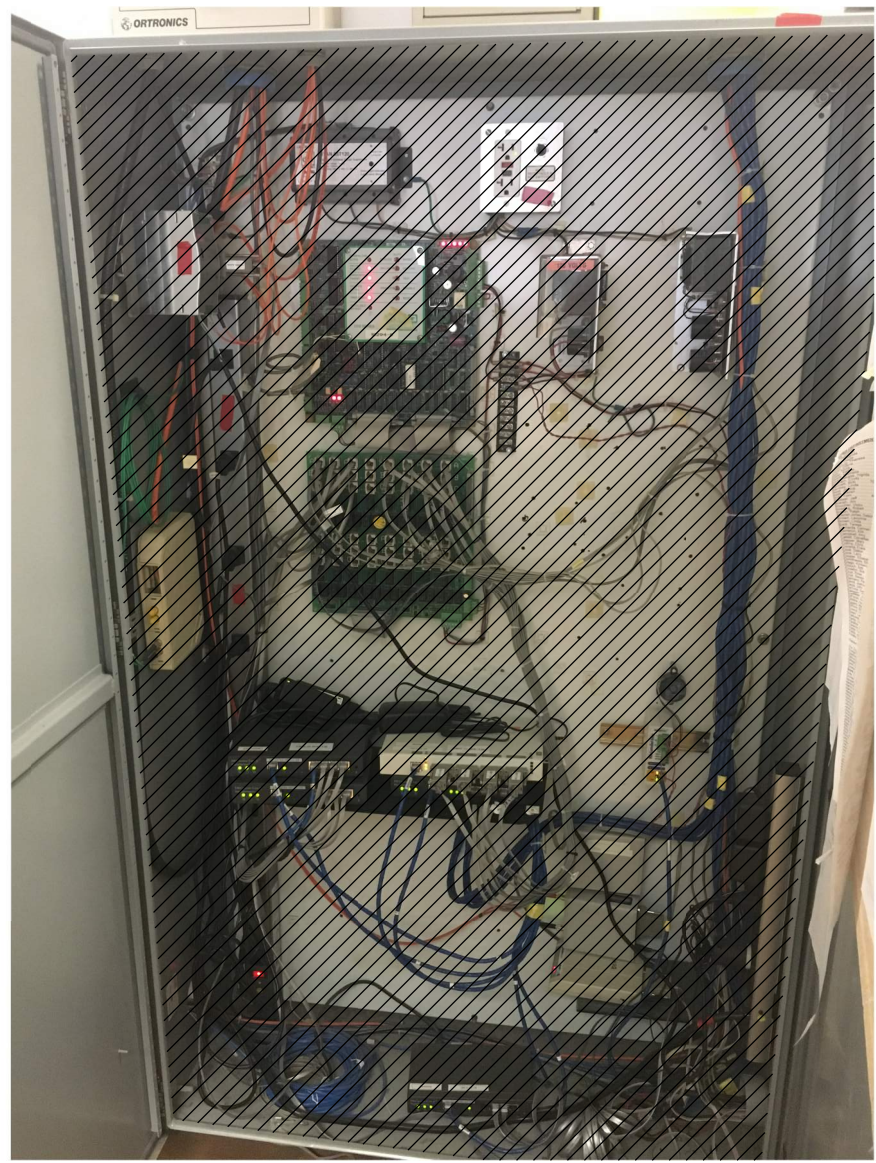
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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1

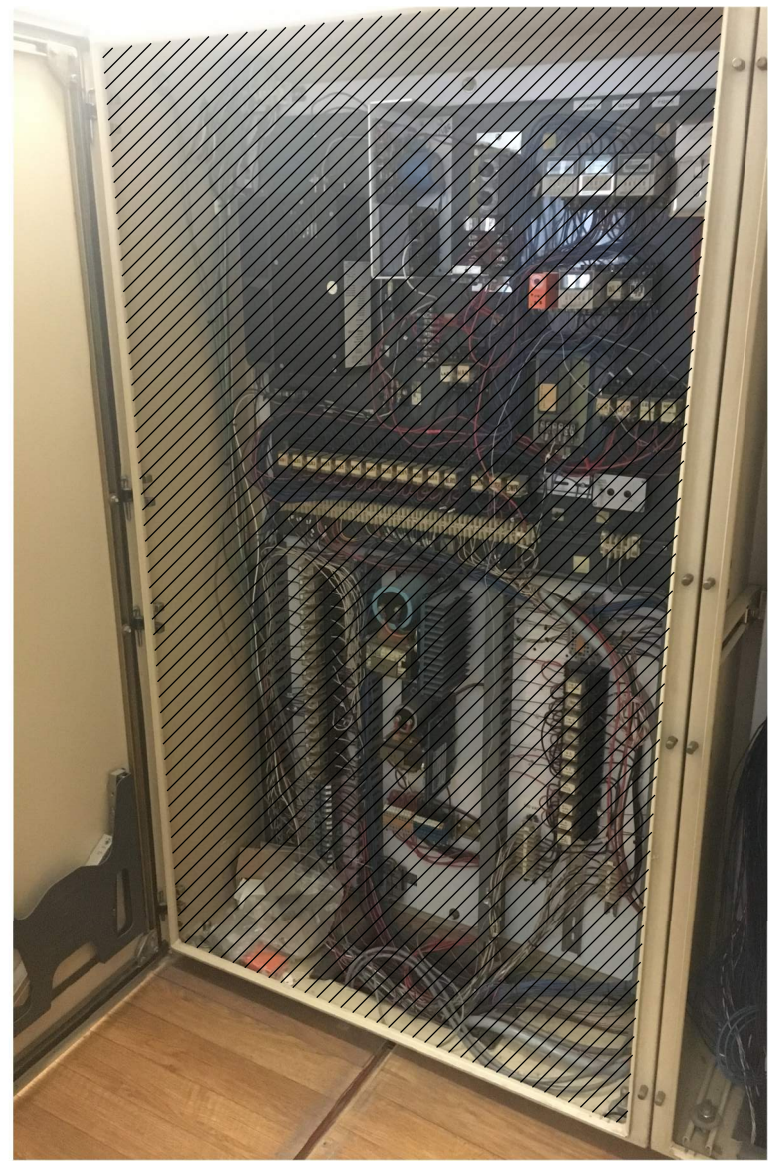
LAST SAVED BY: AWI/ward



1 FRONT
FILE: 1071611002DN005A



2 FRONT
FILE: 1071611002DN005B



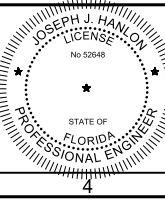
3 FRONT
FILE: 1071611002DN005C

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
1			
2			
3			

DESIGNED JHJ
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018



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

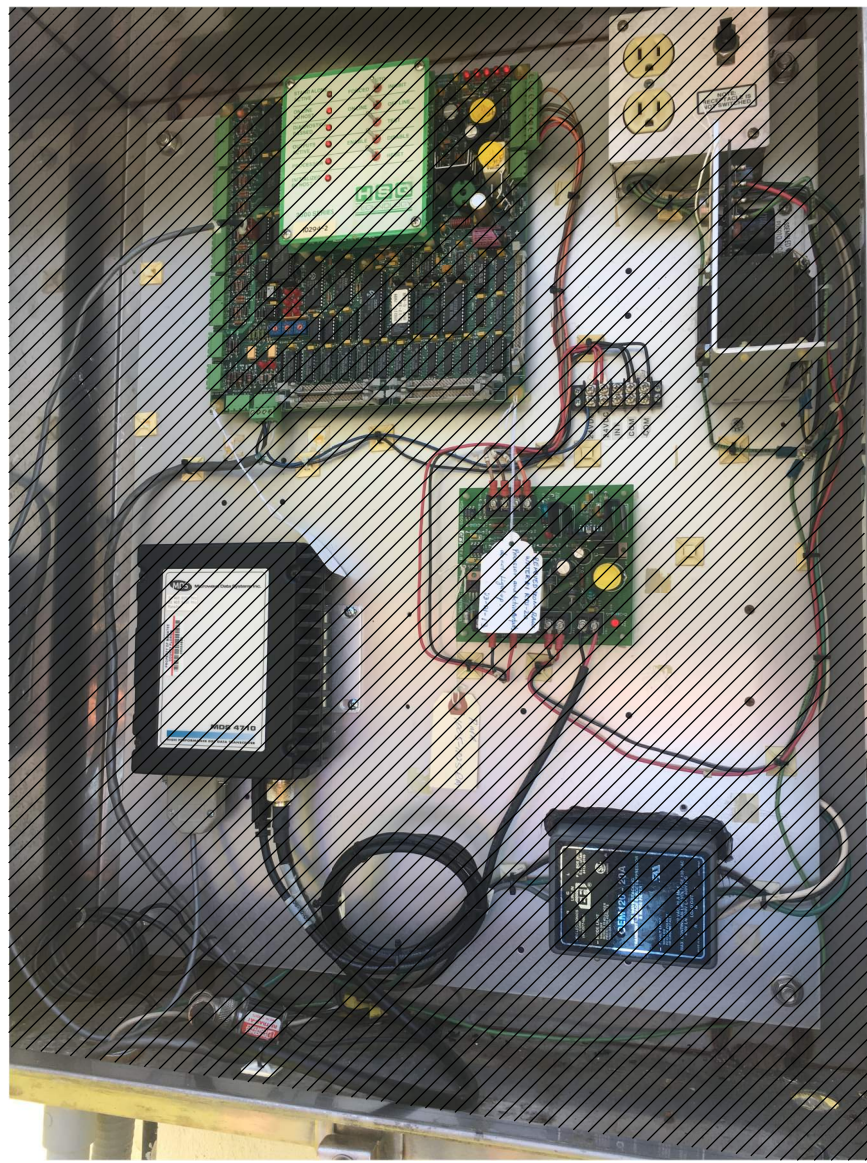
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 107161.10 DRAWING NO. 02DN05 SHEET NO. 39 OF 84
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Plot Date: 06-DEC-2018 11:51:00 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWillard

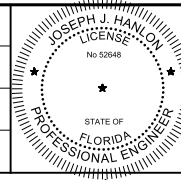


- GENERAL NOTES:**
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
 2. FIELD INVESTIGATION OF ALL CONTROL PANELS BY THE CONTRACTOR IS NECESSARY.
 3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
 4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW 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.

1 FRONT
FILE: 1071611002DN006A

REV	DATE	BY	DESCRIPTION

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DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RAIN GAUGE RTUS DEMOLITION

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
107161.10
DRAWING NO.
02DN06
SHEET NO.
40 OF 84

Plot Date: 06-DEC-2018 11:47:09 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo_Sig_Pen_v0905.pen

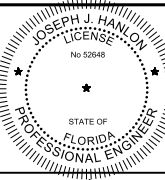


1 FRONT
FILE: 1071611002DN007A

- 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.

REV	DATE	BY	DESCRIPTION

DESIGNED JHJ
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018



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

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
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JOB NO.
107161.10
 DRAWING NO.
02DN07
 SHEET NO.
41 OF 84

Plot Date: 06-DEC-2018 11:50:30 AM

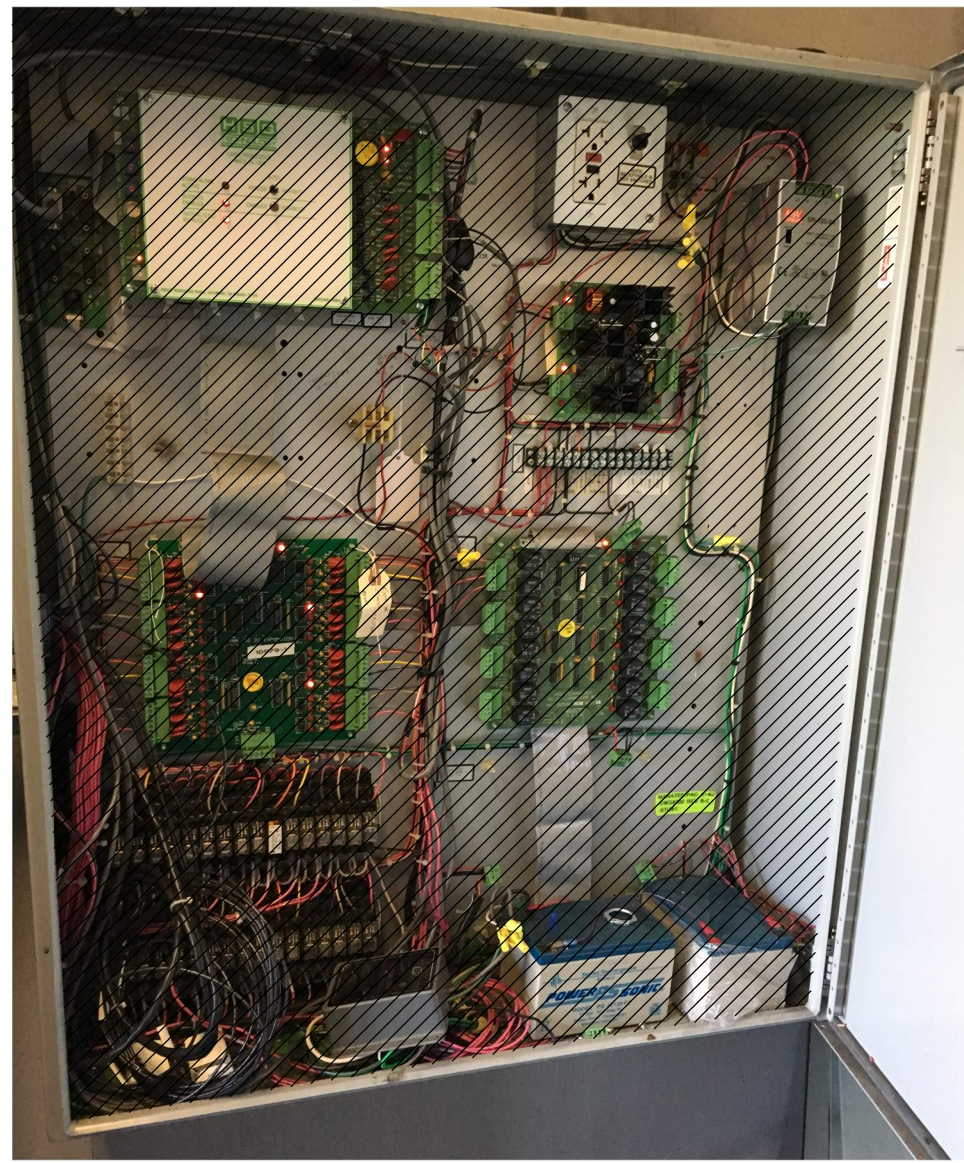
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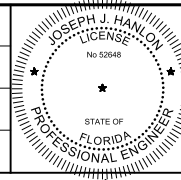


- GENERAL NOTES:**
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
 2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
 3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC IN EXISTING VENDOR CONTROL PANEL IN THE CARBON SILO BUILDING.
 4. CONTRACTOR TO DEVELOP 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: 1071611002DN008A

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RTU NO. 8 CARBON SILO DEMOLITION

VERIFY SCALES
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JOB NO.
107161.10
DRAWING NO.
02DN08
SHEET NO.
42 OF 84

Plot Date: 06-DEC-2018 11:45:50 AM

User: svcPW

PlotScale: 1:1

Model: Layout1

ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

1 2 3 4 5 6 7 8 9 10 11 12 13

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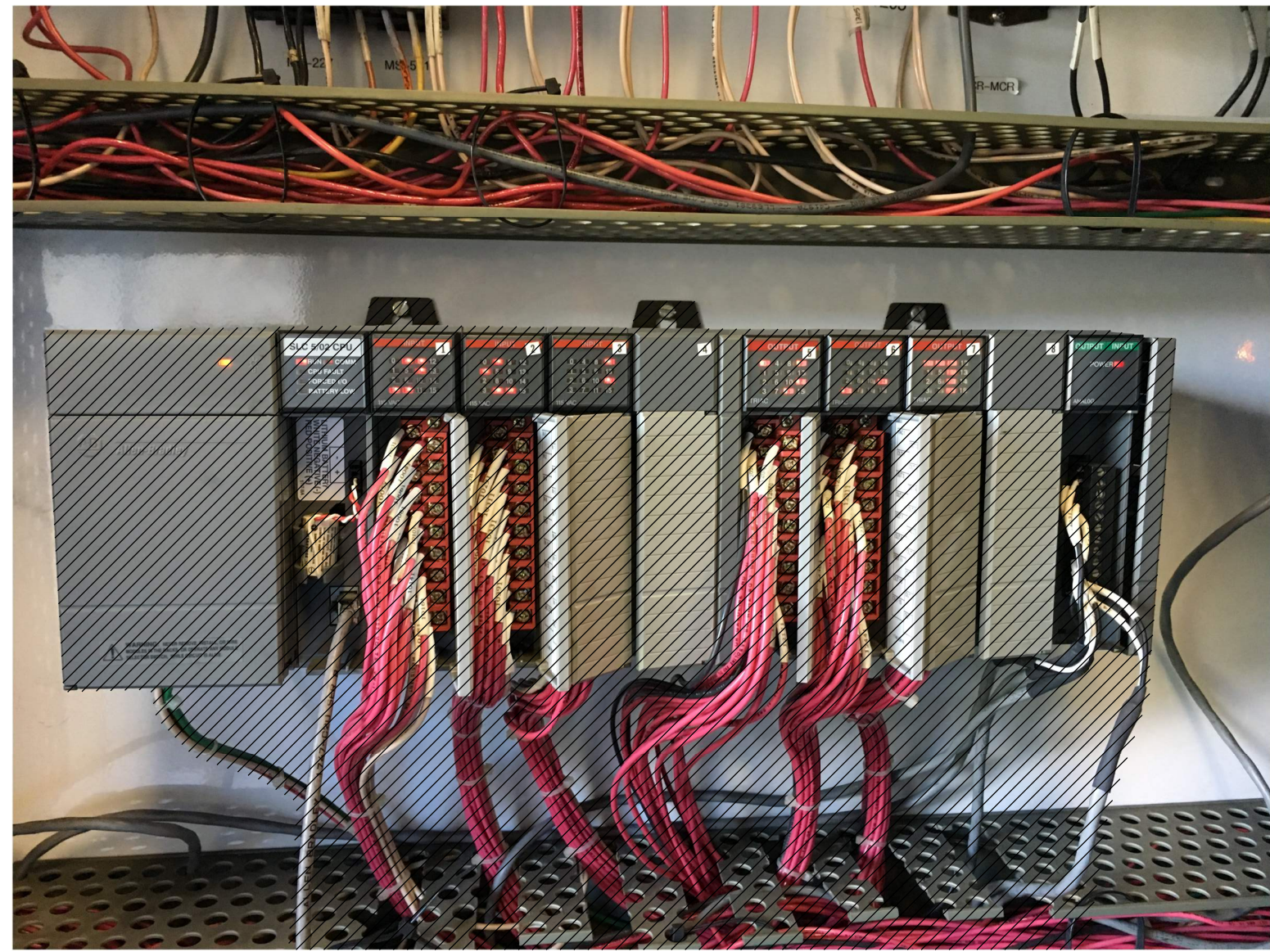
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GENERAL NOTES:

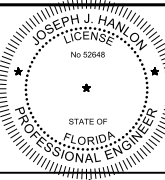
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC IN EXISTING VENDOR CONTROL PANEL IN THE CARBON SILO BUILDING FROM THE EXISTING RTU NO. 8.
4. CONTRACTOR TO 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. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
7. MIGRATE EXISTING PLC PROGRAM FROM SLC 500/RS LOGIX 500 SOFTWARE TO RS LOGIX 5000 SOFTWARE. NO CHANGES TO CONTROL STRATEGIES OR LOGIC ARE REQUIRED.
8. REMOVE EXISTING SLC 500 PLC AND REPLACE WITH NEW COMPACT LOGIX PLC. USE SIMILAR I/O MODULES, VOLTAGE LEVELS FOR DISCRETE MODULES, AND ANALOG MODULES WITH NEW COMPACT LOGIX PLC.



1 FRONT
FILE: 1071611002DN009A

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
CARBON SILO VENDOR CONTROL PANEL PLC
DEMOLITION

VERIFY SCALES
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JOB NO.
107161.10
DRAWING NO.
02DN09
SHEET NO.
43 OF 84

Plot Date: 06-DEC-2018 11:47:09 AM
 User: svcPW
 Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1
 LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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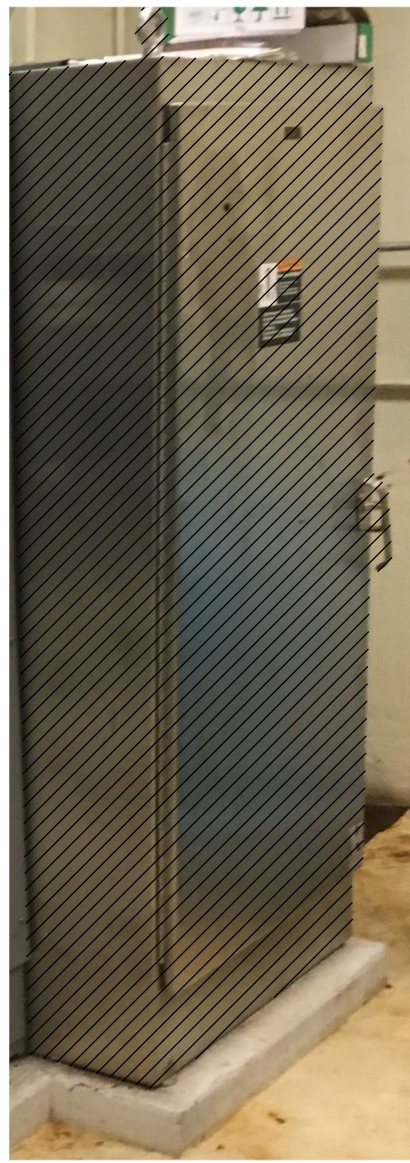
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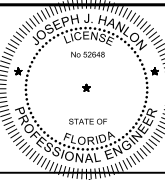
- GENERAL NOTES:**
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
 2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
 3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
 4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW 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. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.



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MANATEE COUNTY
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 INSTRUMENTATION
 NW GROUND STORAGE AND PUMP STATION
 DEMOLITION

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JOB NO.
 107161.10
 DRAWING NO.
02DN10
 SHEET NO.
 44 OF 84

Plot Date: 06-DEC-2018 11:46:50 AM
 User: svcPW
 Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1
 LAST SAVED BY: AWillard

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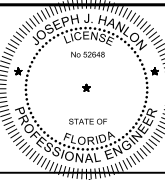
- GENERAL NOTES:**
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
 2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
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 6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.



1 FRONT
FILE: 1071611002DN011A

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MANATEE COUNTY
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 INSTRUMENTATION
 CORTEZ GROUND STORAGE AND
 BOOSTER STATION RTU DEMOLITION

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 SCALES ACCORDINGLY

JOB NO.
 107161.10
 DRAWING NO.
02DN11
 SHEET NO.
 45 OF 84

Plot Date: 06-DEC-2018 11:47:49 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo_Sig_Pen_v0905.pen

1 2 3 4 5 6 7 8 9 10 11 12 13

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GENERAL NOTES:

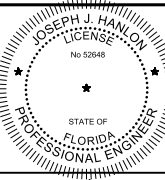
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
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5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.



1 FRONT
FILE: 1071611002DN012A

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

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JOB NO.
107161.10
DRAWING NO.
02DN12
SHEET NO.
46 OF 84

Plot Date: 06-DEC-2018 11:46:50 AM

User: svcFW

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo_Sig_Pen_v0905.pen

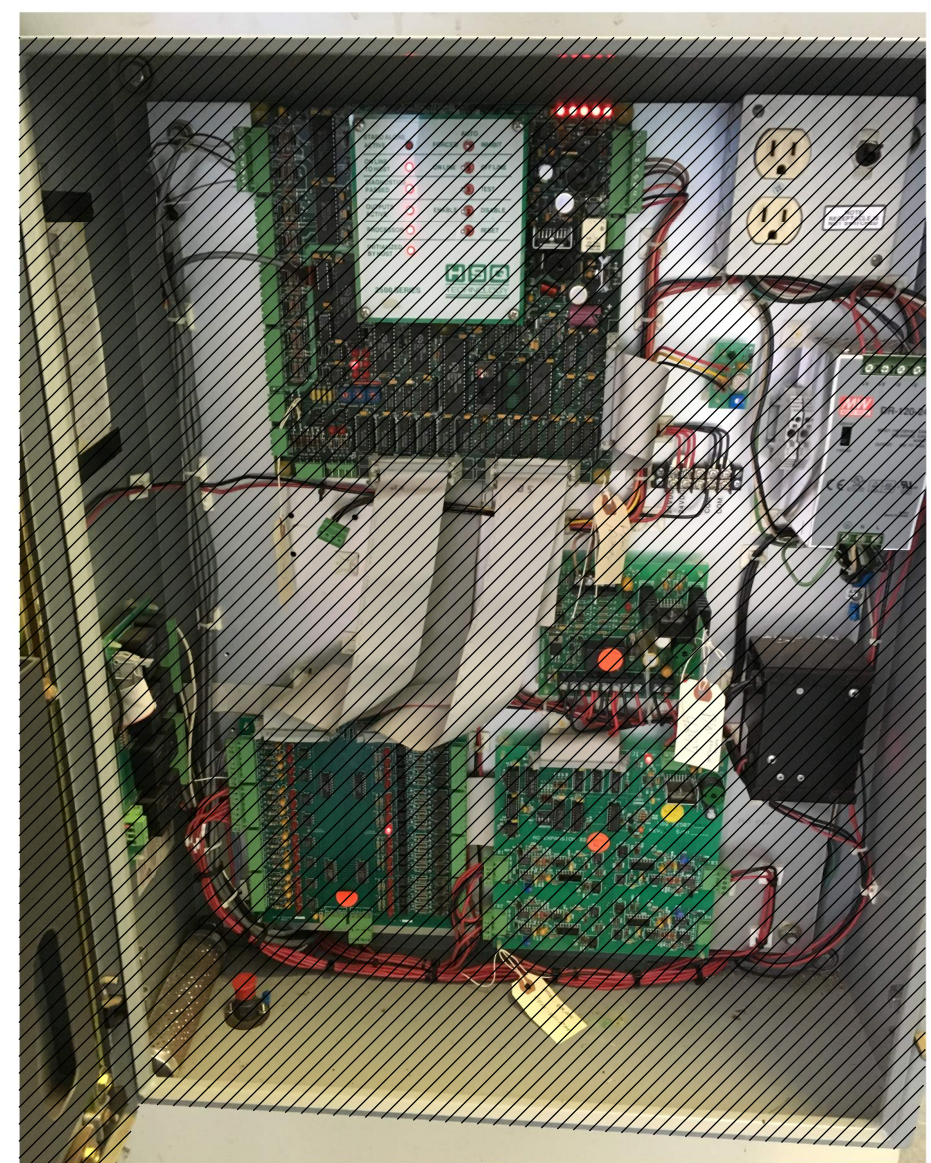
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1 RADIO PANEL
FILE: 1071611002DN013A



2 HSQ ENCLOSURE
FILE: 1071611002DN013B

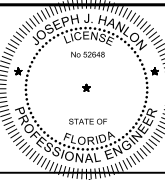


3 HSQ ENCLOSURE BACK PANEL
FILE: 1071611002DN013C

- 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. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.

REV	DATE	BY	DESCRIPTION
1			
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
ELLWOOD PARK NO. 2 RTU DEMOLITION

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JOB NO.
107161.10
DRAWING NO.
02DN13
SHEET NO.
47 OF 84

Plot Date: 06-DEC-2018 11:47:42 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo_Sig_Pen_v0905.pen

1 2 3 4 5 6 7 8 9 10 11 12 13

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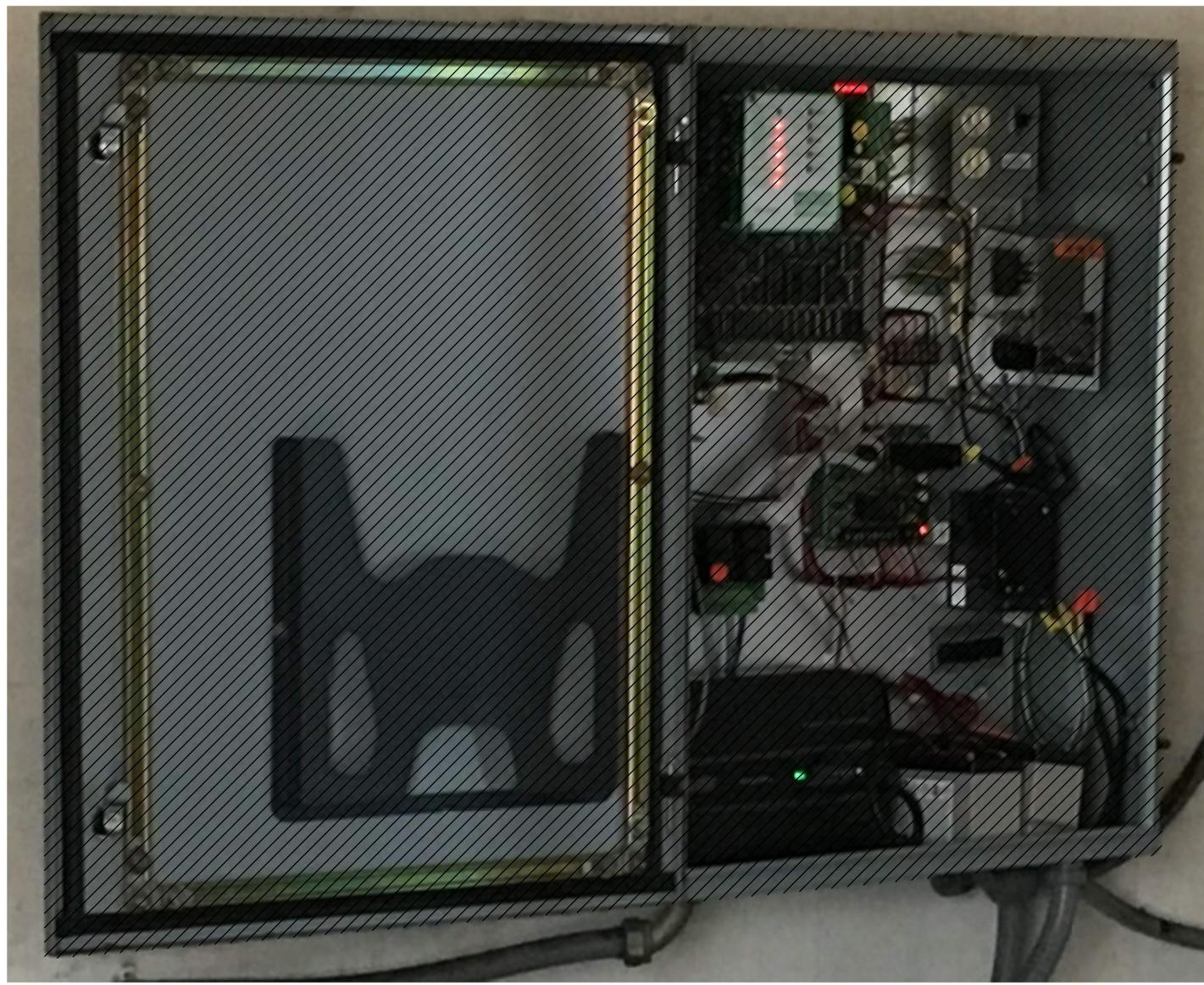
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GENERAL NOTES:

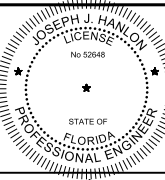
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
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5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.



1 FRONT
FILE: 1071611002DN014A

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LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
HOSPITAL BOOSTER STATION RTU
DEMOLITION

VERIFY SCALES
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0 1"
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JOB NO.
107161.10
DRAWING NO.
02DN14
SHEET NO.
48 OF 84

Plot Date: 06-DEC-2018 11:49:28 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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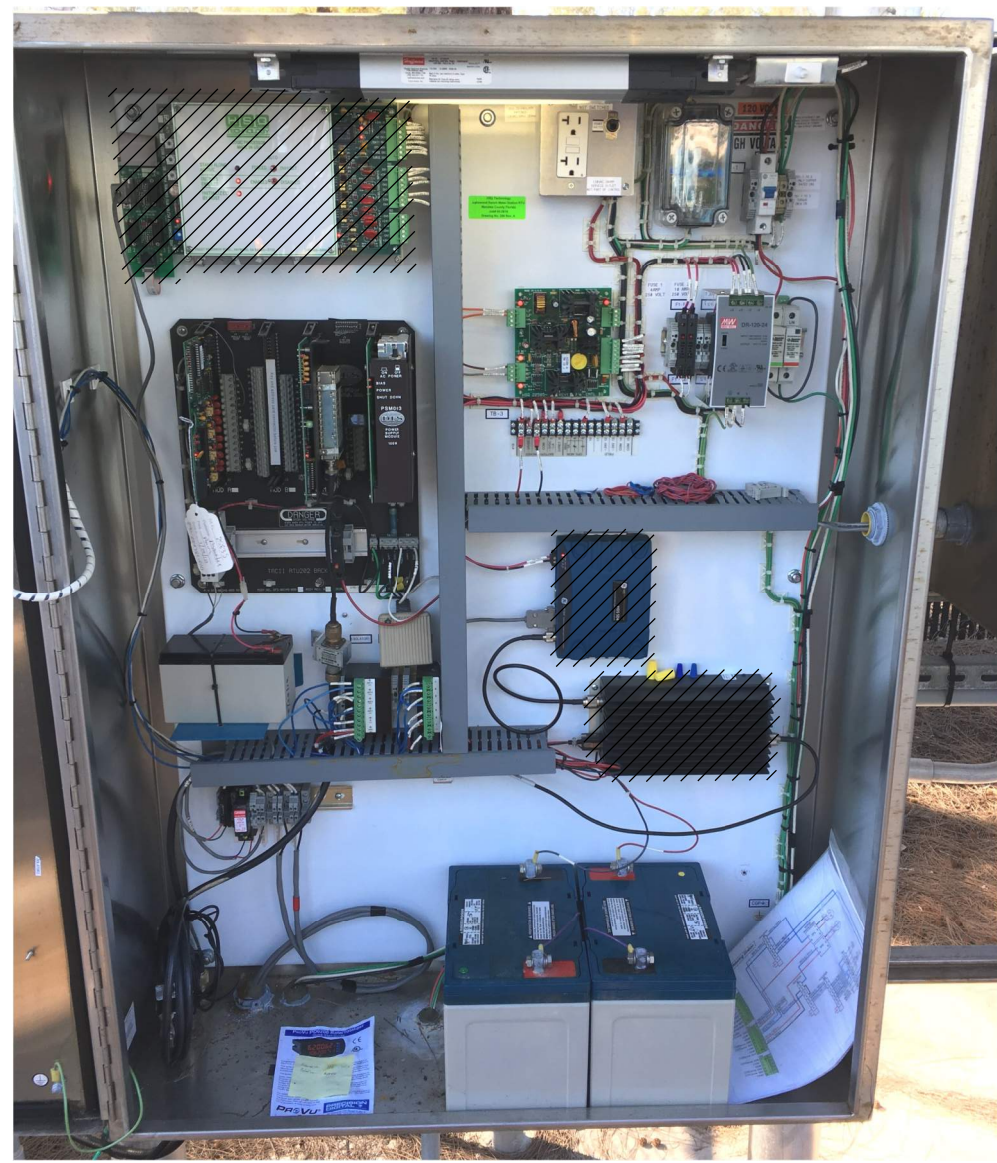
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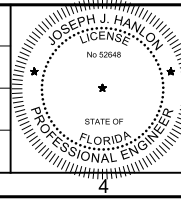
GENERAL NOTES:

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 RTU AND ASSOCIATED EQUIPMENT.
7. MOUNT NEW PLC AND ASSOCIATED EQUIPMENT AFTER REMOVAL OF HSQ EQUIPMENT.
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.

1 FRONT
 FILE: 1071611002N014A

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MANATEE COUNTY
 LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
 LONG BOAT KEY PANEL DEMOLITION

VERIFY SCALES
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JOB NO.
107161.10
 DRAWING NO.
02DN15
 SHEET NO.
49 OF 84

Plot Date: 06-DEC-2018 11:45:18 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

Color Table: gshade.ctb

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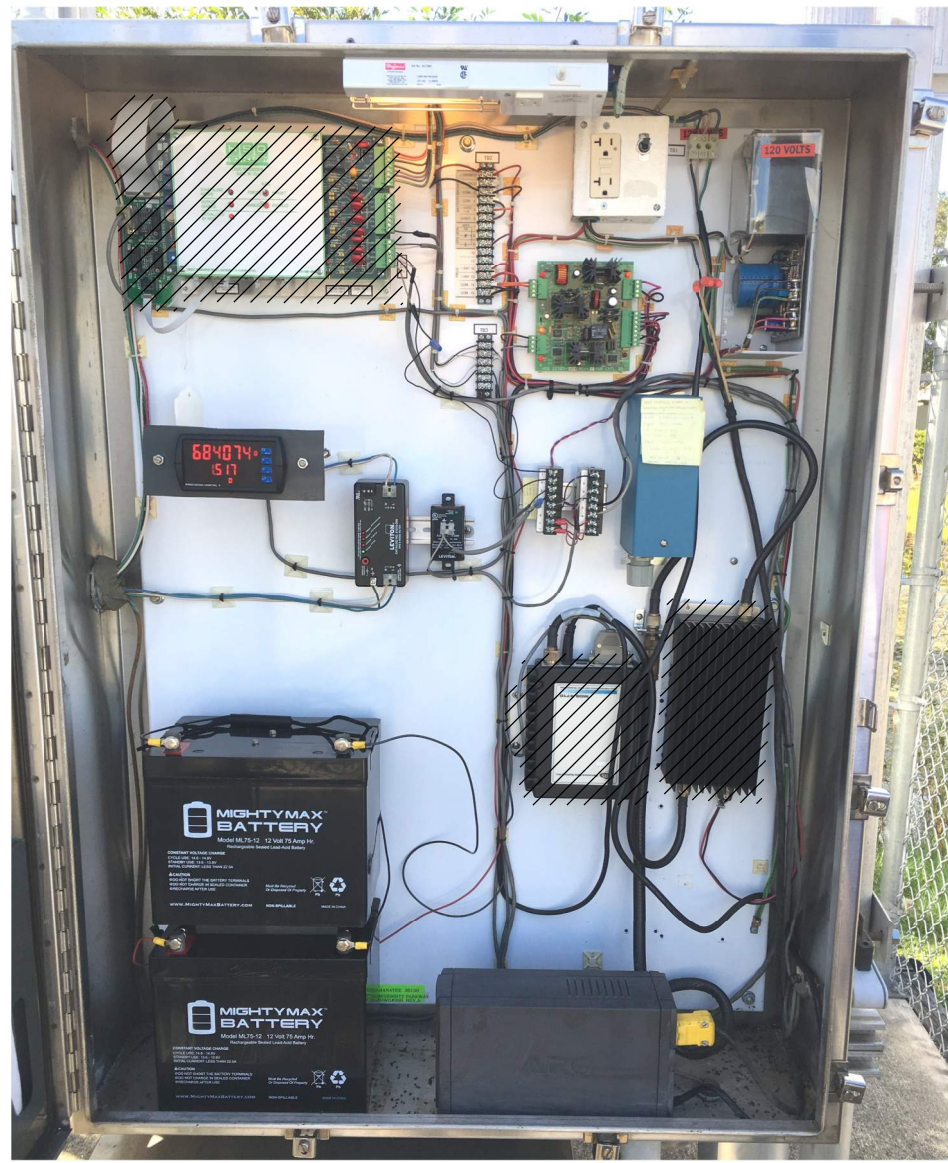
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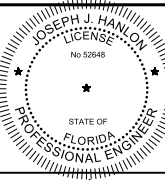
1 FRONT
FILE: 1071611002N015A

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
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5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. REMOVE HSQ RTU AND ASSOCIATED EQUIPMENT.
7. MOUNT NEW PLC AND ASSOCIATED EQUIPMENT AFTER REMOVAL OF HSQ EQUIPMENT.
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
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SARASOTA METER STATION PANEL
DEMOLITION

VERIFY SCALES
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0 1"
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JOB NO.
107161.10
DRAWING NO.
02DN16
SHEET NO.
50 OF 84

Plot Date: 06-DEC-2018 11:45:00 AM

User: svcPW

Model: Layout1

ColorTable: gshade.ctb

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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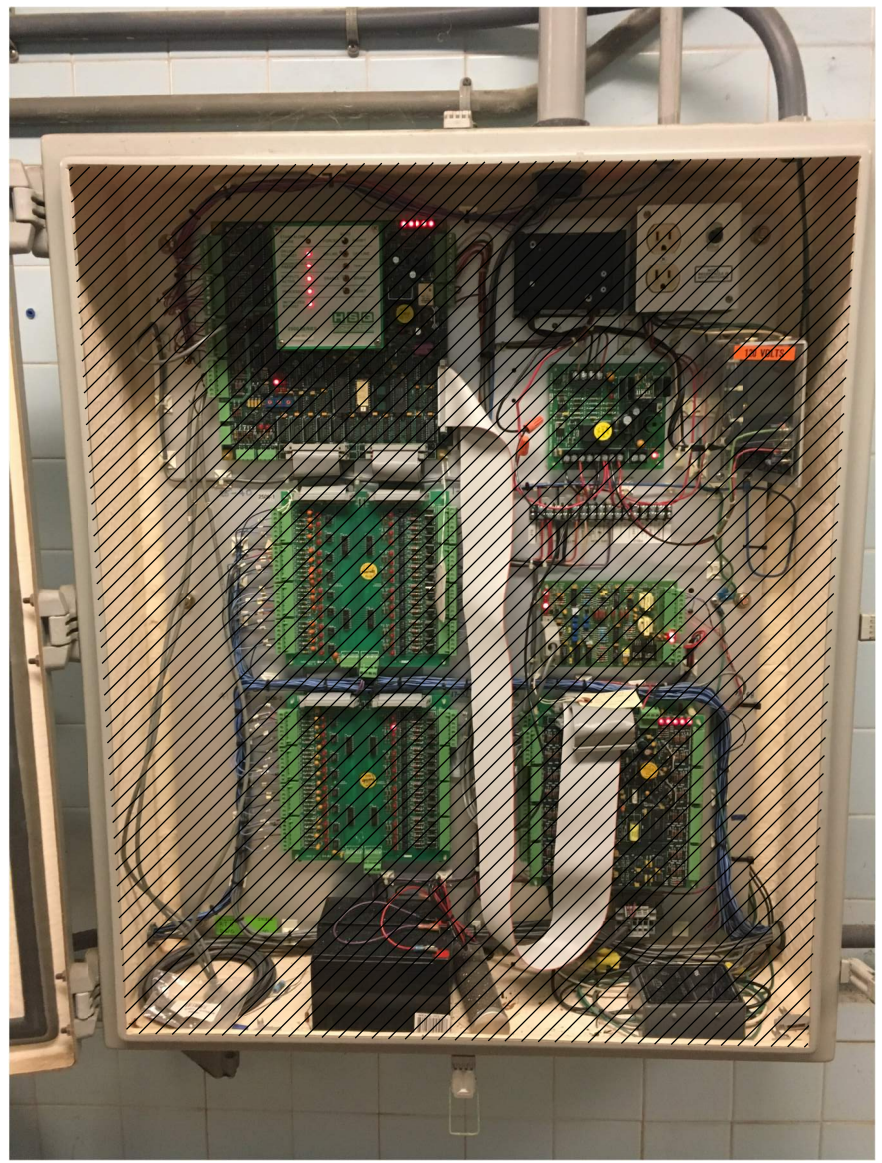
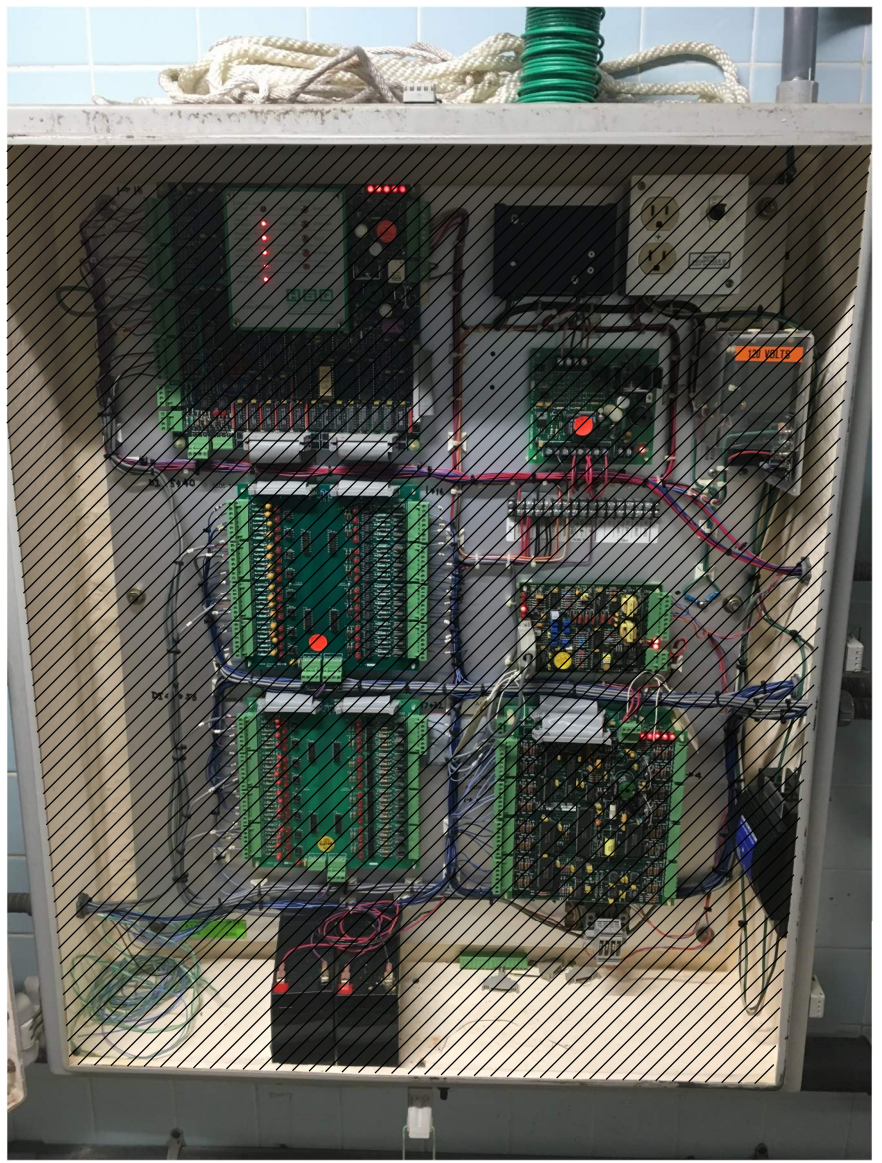
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GENERAL NOTES:

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.
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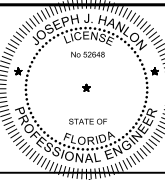


1 TRAIN A - RTU 50
FILE: 1071611002DN017A

2 TRAIN B - RTU 51
FILE: 1071611002DN017A

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INSTRUMENTATION
WTP TRAIN A AND TRAIN B RTU DEMOLITION

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

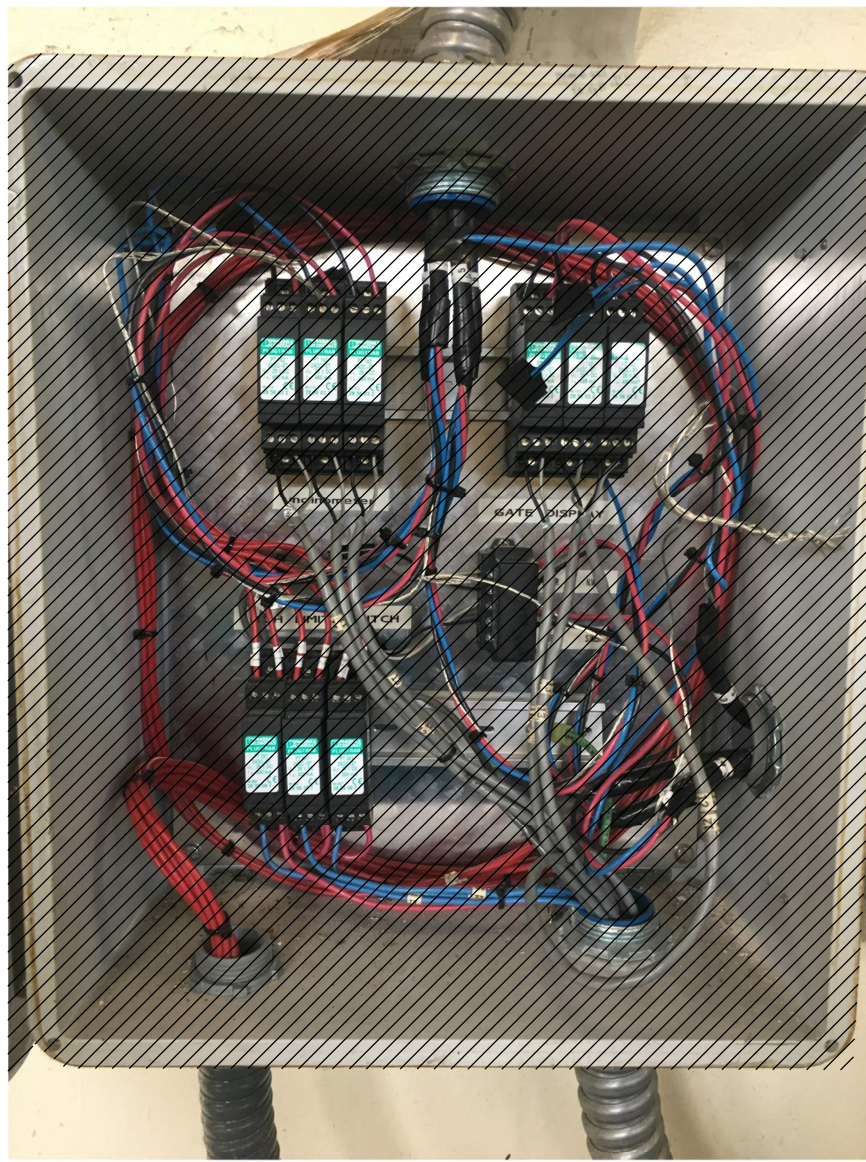
JOB NO.
107161.10
DRAWING NO.
02DN17
SHEET NO.
51 OF 84

Plot Date: 06-DEC-2018 11:45:08 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

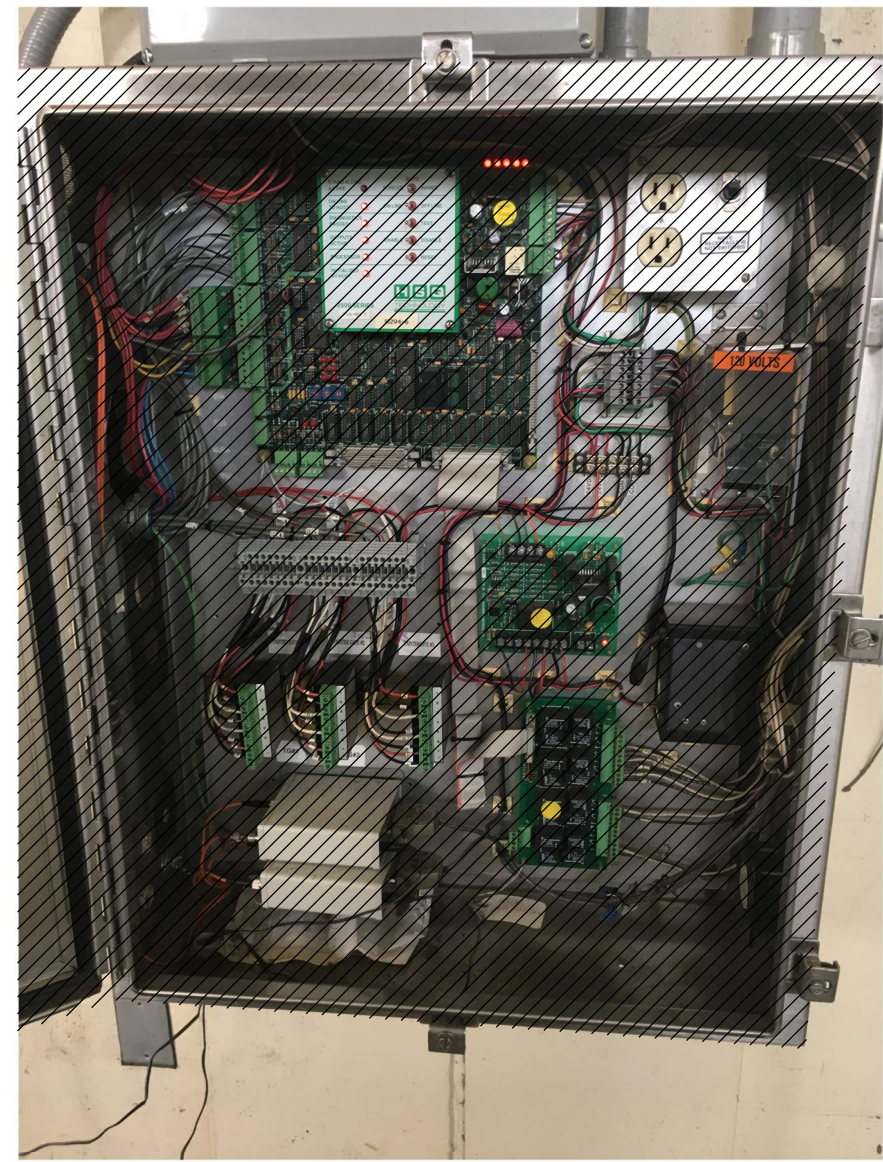
LAST SAVED BY: AWillard



1 SURGE SUPPRESSOR PANEL
FILE: 1071611002DN018A



2 FRONT
FILE: 1071611002DN018B

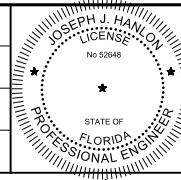


3 HSQL PANEL
FILE: 1071611002DN018C

- 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 HSQL EQUIPMENT TO NEW ALLEN BRADLEY PLC.
 6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO.
107161.10
DRAWING NO.
02DN18
SHEET NO.
52 OF 84

Plot Date: 06-DEC-2018 11:49:37 AM

User: svcPW

PlotScale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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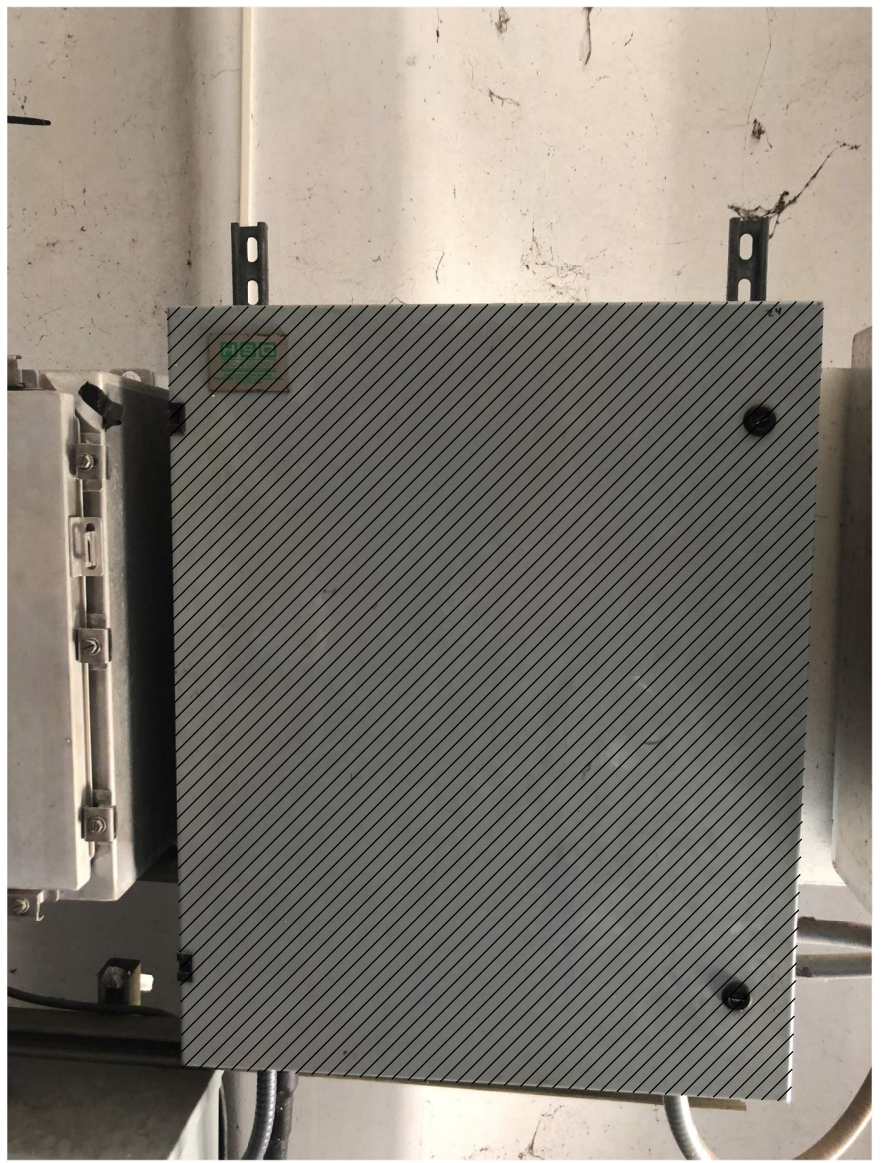
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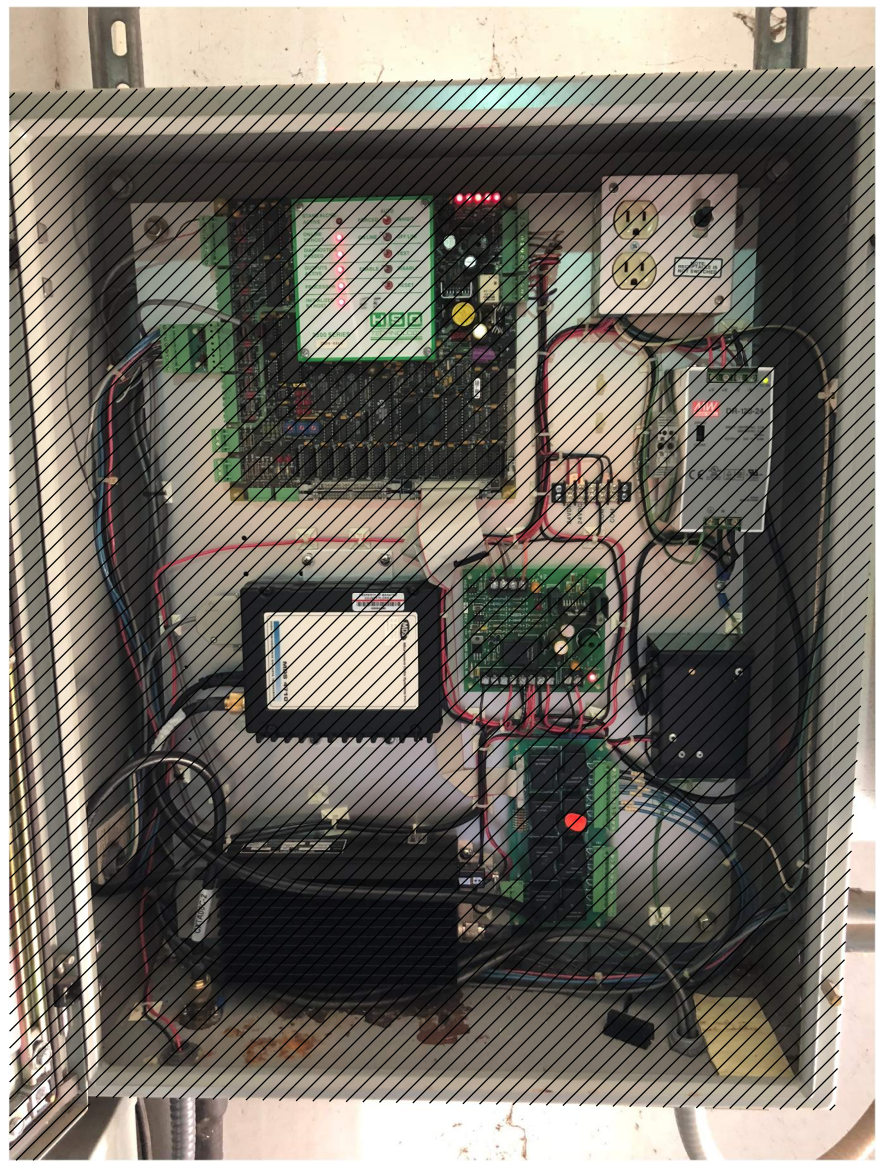
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E

F



1 FRONT
FILE: 1071611002DN020A



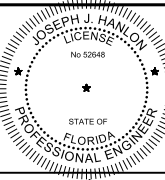
2 HSQ PANEL
FILE: 1071611002DN020B

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. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
NORTH COUNTY ELEVATED TANK RTU
DEMOLITION

VERIFY SCALES
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0 1"
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JOB NO.
107161.10
DRAWING NO.
02DN20
SHEET NO.
53 OF 84

Plot Date: 06-DEC-2018 11:48:17 AM

User: svcPW

Plot Scale: 1:1

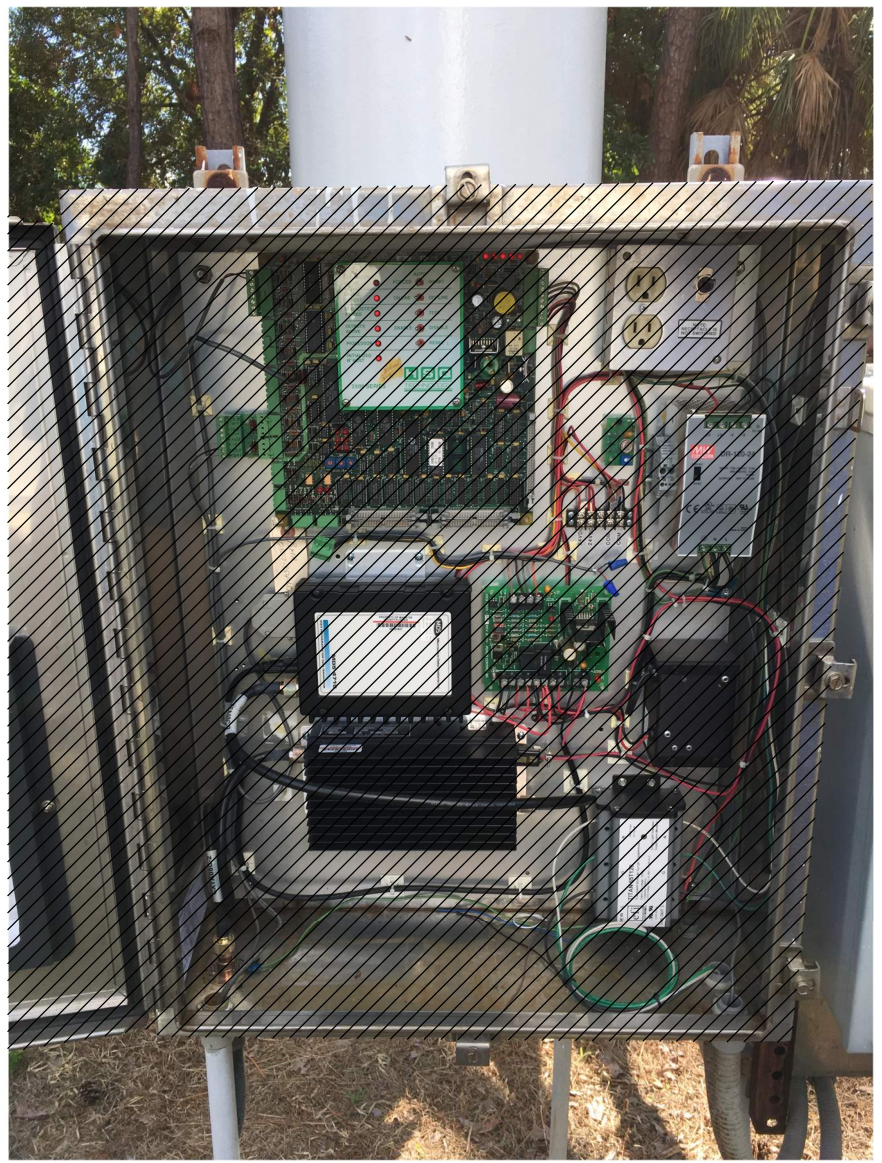
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ColorTable: gshade.ctb

DesignScript: Carollo_Sig_Pen_v0905.pen



1 FRONT
FILE: 1071611002DN021A



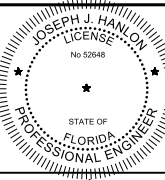
2 HSQ PANEL
FILE: 1071611002DN021B

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF ALL CONTROL PANELS BY THE CONTRACTOR IS NECESSARY.
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5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.

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INSTRUMENTATION
59TH STREET ELEVATED TANK RTU
DEMOLITION

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JOB NO.
107161.10
DRAWING NO.
02DN21
SHEET NO.
54 OF 84

Plot Date: 06-DEC-2018 11:50:37 AM

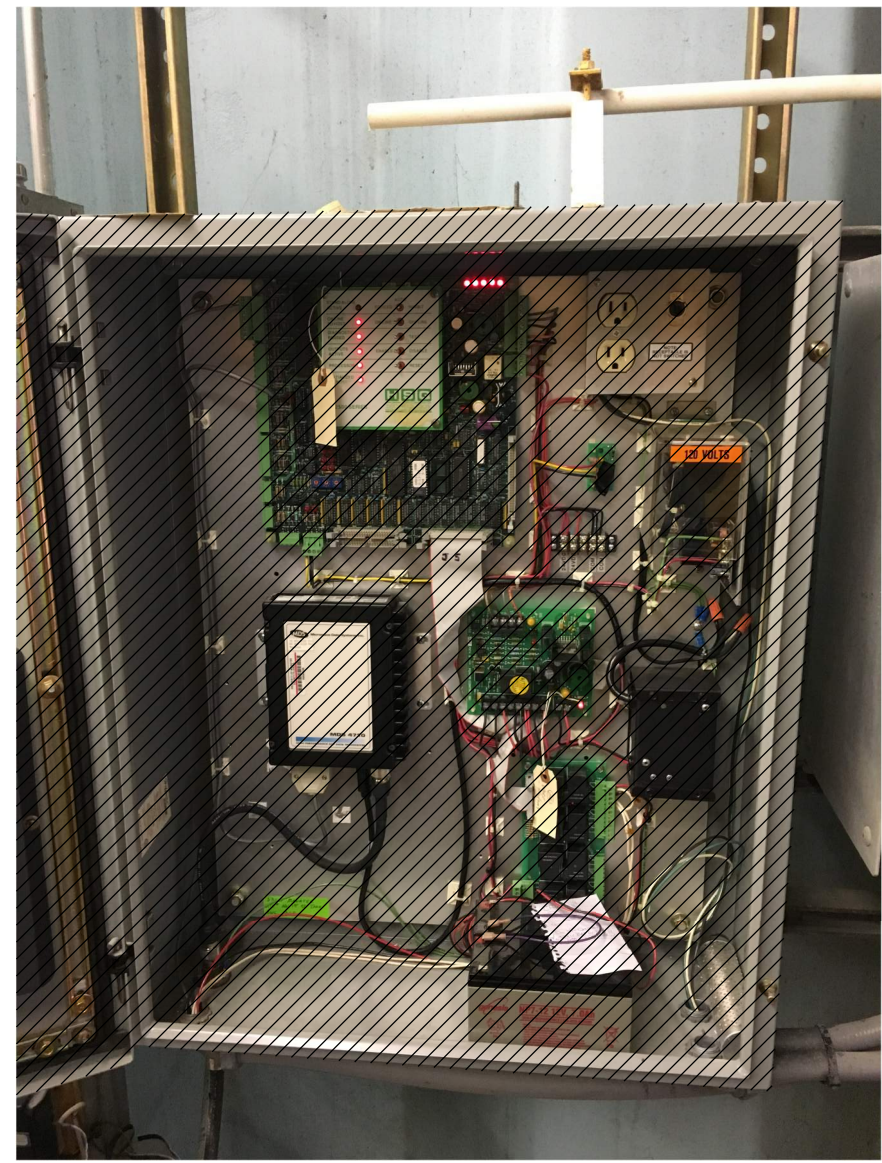
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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWilford



1 FRONT
FILE: 1071611002DN022A



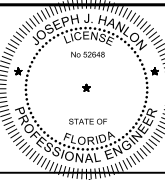
2 HSQ PANEL
FILE: 1071611002DN022B

GENERAL NOTES:

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2. FIELD INVESTIGATION OF ALL CONTROL PANELS BY THE CONTRACTOR IS NECESSARY.
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6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.

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NORTH WEST ELEVATED TANK RTU
DEMOLITION

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JOB NO.
107161.10
DRAWING NO.
02DN22
SHEET NO.
55 OF 84

Plot Date: 06-DEC-2018 11:46:55 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo_Sld_Pen_v0905.pen

1 2 3 4 5 6 7 8 9 10 11 12 13

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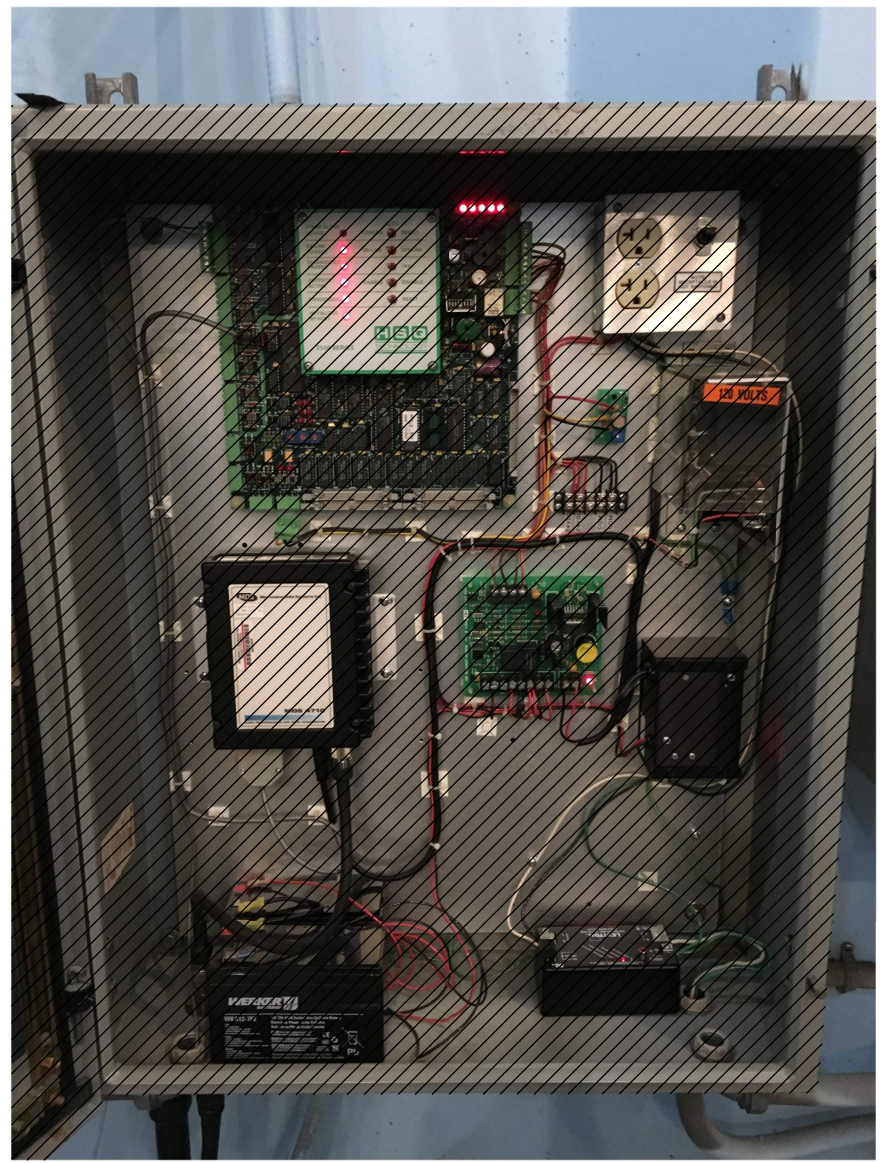
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GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
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6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.



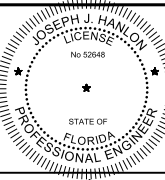
1 FRONT
FILE: 1071611002DN023A



2 HSQ PANEL
FILE: 1071611002DN023B

REV	DATE	BY	DESCRIPTION
1			
2			
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MANATEE COUNTY
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INSTRUMENTATION
PALMETTO ELEVATED TANK RTU DEMOLITION

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JOB NO.
107161.10
DRAWING NO.
02DN23
SHEET NO.
56 OF 84

Plot Date: 06-DEC-2018 11:45:59 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb

LAST SAVED BY: AWilford

1 2 3 4 5 6 7 8 9 10 11 12 13

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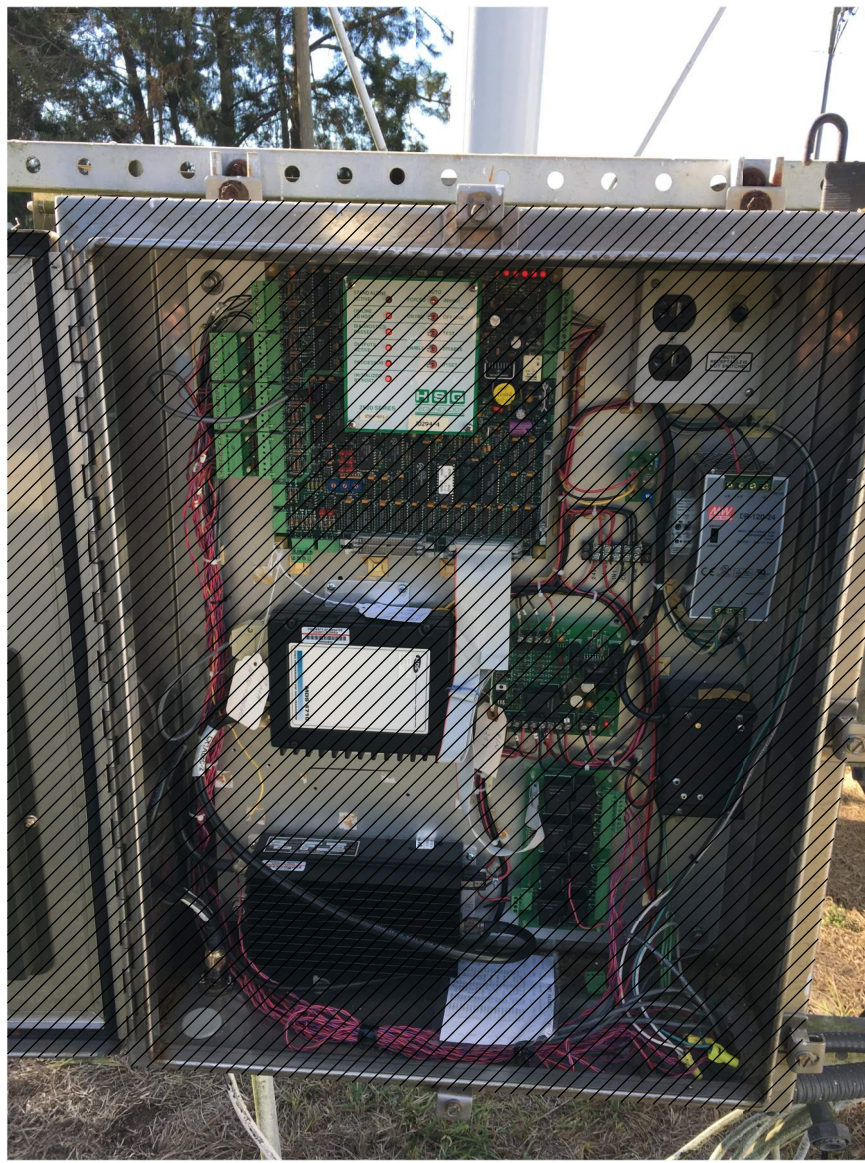
G

GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
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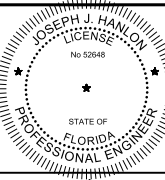
1 FRONT
FILE: 1071611002DN024A



2 HSQ PANEL
FILE: 1071611002DN024B

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DECEMBER 2018



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LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
PORT MANATEE ELEVATED TANK RTU
DEMOLITION

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JOB NO.
107161.10
DRAWING NO.
02DN24
SHEET NO.
57 OF 84

Plot Date: 06-DEC-2018 11:50:25 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

LAST SAVED BY: AWillard



GENERAL NOTES:

1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
2. FIELD INVESTIGATION OF ALL CONTROL PANELS BY THE CONTRACTOR IS NECESSARY.
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5. AFTER APPROVAL OF CUT OVER PLAN, TRANSFER ALL I/O WIRING FROM HSQ EQUIPMENT TO NEW ALLEN BRADLEY PLC.
6. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
7. INSTALL NEW ALLEN BRADLEY PLC WHERE EXISTING PLC IS LOCATED.
8. INSTALL NEW STRATIX SWITCH.

1 FRONT
 FILE: 1071611002DN025A

REV	DATE	BY	DESCRIPTION
1			

DESIGNED JH		<small>Digitally signed by Joseph J. Hanlon Contact info: Carollo Engineers Inc. Date: 2018.12.06 14:56:05-0500</small>
DRAWN ANW		
CHECKED NEA		
DATE DECEMBER 2018		

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
EQUALIZATION BACKWASH RTU DEMOLITION

VERIFY SCALES	JOB NO. 107161.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 02DN25
0 1"	SHEET NO. 58 OF 84
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

Plot Date: 06-DEC-2018 11:50:06 AM
 User: svcPW
 Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1
 LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

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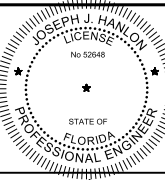
- GENERAL NOTES:**
1. ITEMS SHOWN IN HATCHED AREA TO BE REMOVED.
 2. FIELD INVESTIGATION OF THIS CONTROL PANEL BY THE CONTRACTOR IS NECESSARY.
 3. ALL EXISTING OPERATION CONTROL SIGNALS WILL BE ROUTED TO THE NEW PLC.
 4. CONTRACTOR TO DEVELOP A CUT OVER PLAN PRIOR TO EXECUTING THE INSTALLATION OF NEW 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. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.



1 INTERNAL
 FILE: 1071611002DN012A

REV	DATE	BY	DESCRIPTION

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MANATEE COUNTY
 LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
 SR 64 RTU DEMOLITION

VERIFY SCALES
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JOB NO.
 107161.10
 DRAWING NO.
02DN26
 SHEET NO.
 59 OF 84

Plot Date: 06-DEC-2018 11:49:03 AM

User: svcPW

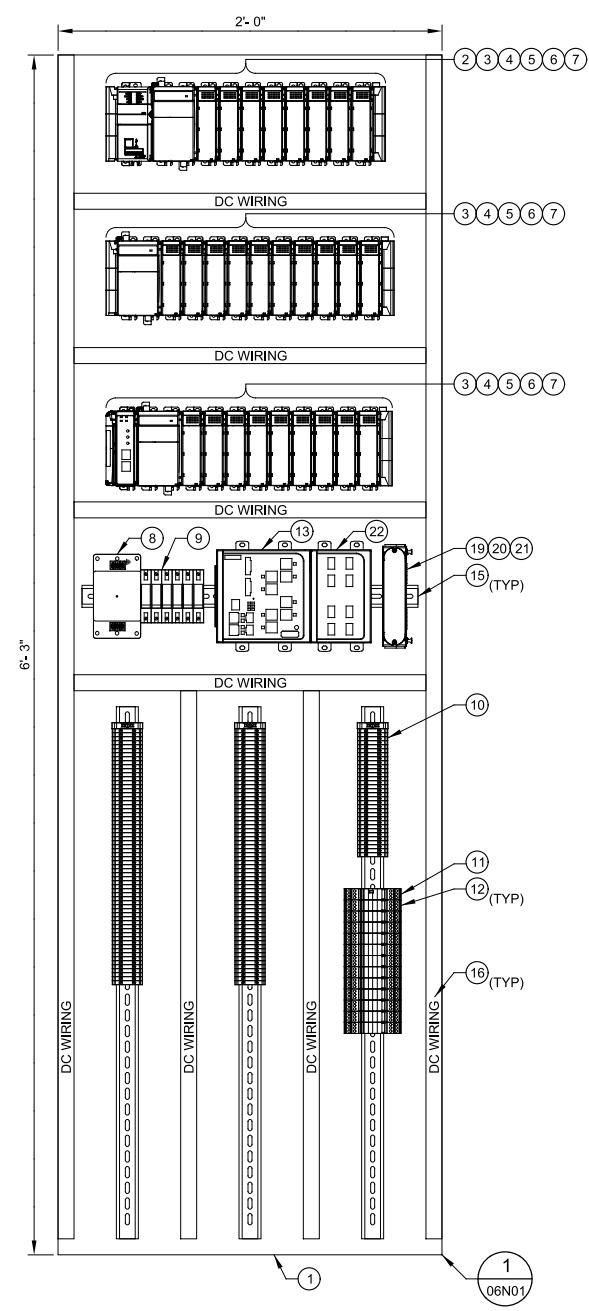
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LAST SAVED BY: AWillard



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

GENERAL NOTES:

1. UTILIZE EXISTING ENCLOSURE FOR NEW PLC BACKPANEL. AS DETAILED ON DEMOLITION DRAWINGS, REMOVE EXISTING HSO EQUIPMENT AND INSTALL NEW ALLEN BRADLEY PLC EQUIPMENT. REPLACE EXISTING WIRING AS REQUIRED. ENSURE ALL WIRE AND TERMINAL NUMBERS ARE APPLIED.
2. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
3. DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
4. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
5. DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.
6. REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PLC AO MODULE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	ETHERNET SWITCH
14	NOT USED
15	DIN RAIL
16	WHITE WIRE DUCT
17	GRAY WIRE DUCT
18	INDUSTRIAL PC
19	FIBER CONNECTOR HOUSING
20	CLOSET CONNECTOR ASSEMBLY
21	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING
22	ETHERNET SWITCH FIBER EXPANSION MODULE

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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JH

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DECEMBER 2018

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MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

INSTRUMENTATION

RTU NO. 1 ELEVATION

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
107161.10

DRAWING NO.
02N01

SHEET NO.
60 OF 84

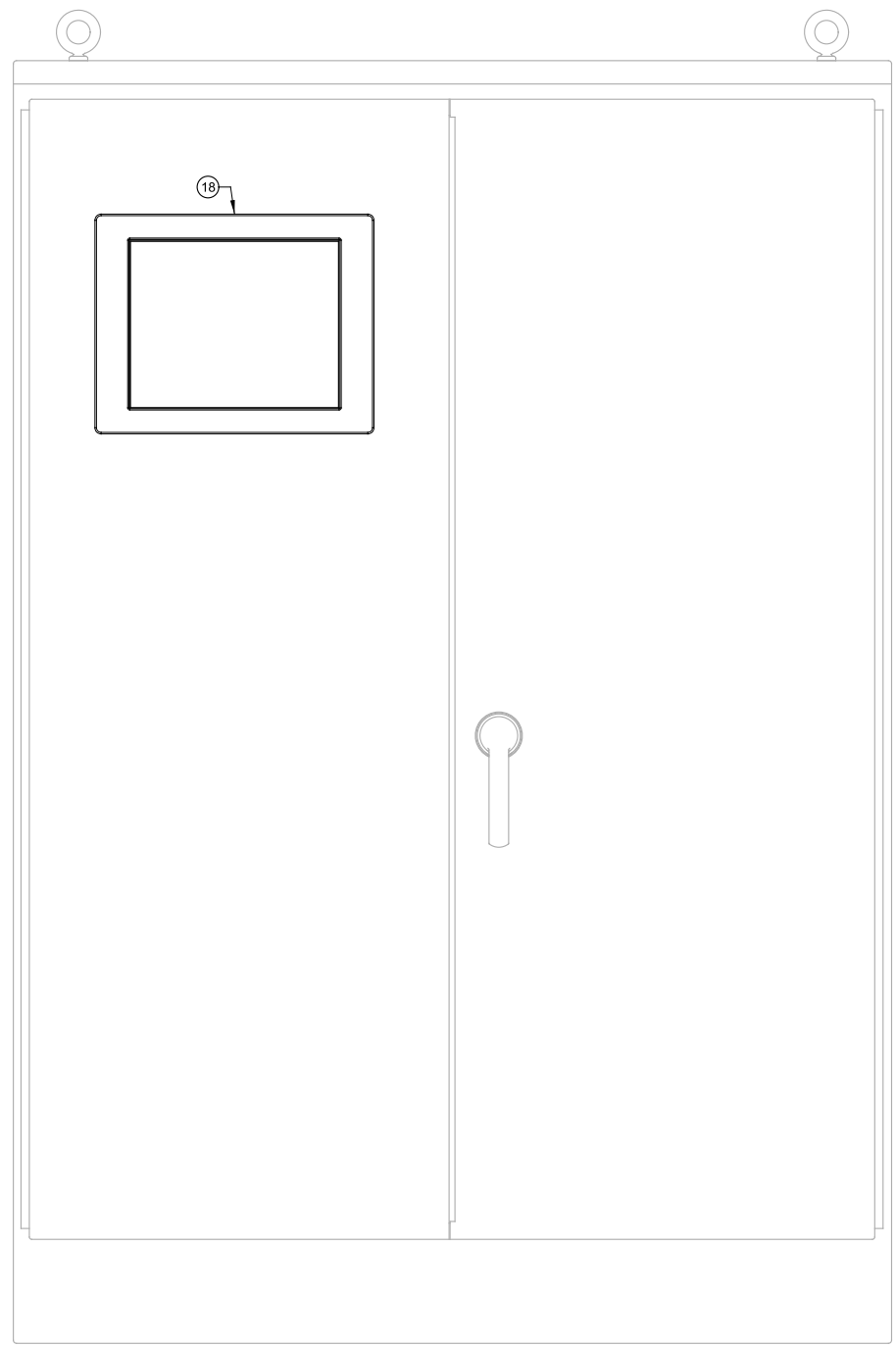
Plot Date: 06-DEC-2018 11:49:47 AM

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Plot Scale: 1:1

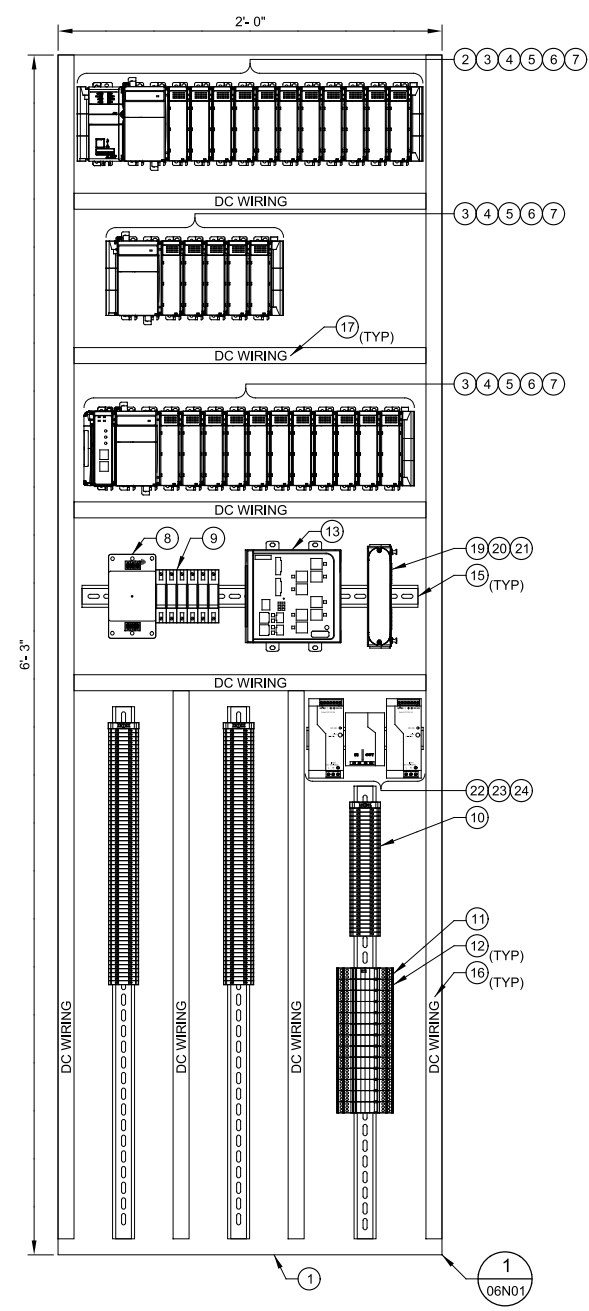
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWillard



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

GENERAL NOTES:

- UTILIZE EXISTING ENCLOSURE FOR NEW PLC BACKPANEL. AS DETAILED ON DEMOLITION DRAWINGS, REMOVE EXISTING HSO EQUIPMENT AND INSTALL NEW ALLEN BRADLEY PLC EQUIPMENT. REPLACE EXISTING WIRING AS REQUIRED. ENSURE ALL WIRE AND TERMINAL NUMBERS ARE APPLIED.
- MOUNT NEW INDUSTRIAL PC TO EXTERIOR OF EXISTING ENCLOSURE AT EYE LEVEL.
- DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS
- DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
- SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
- DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.
- REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PLC AO MODULE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	ETHERNET SWITCH
14	NOT USED
15	DIN RAIL
16	WHITE WIRE DUCT
17	GRAY WIRE DUCT
18	INDUSTRIAL PC
19	FIBER CONNECTOR HOUSING
20	CLOSET CONNECTOR ASSEMBLY
21	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING
22	24VDC POWER SUPPLIES
23	24VDC POWER SUPPLY REDUNDANCY MODULE
24	DIODE BRIDGE

REV	DATE	BY	DESCRIPTION
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2			
3			

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INSTRUMENTATION
RTU NO. 2 ELEVATION

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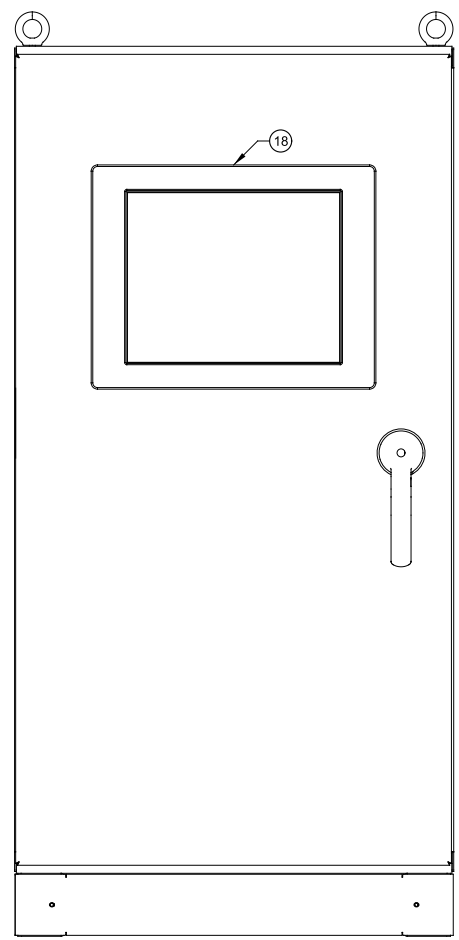
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DRAWING NO. 02N02
SHEET NO. 61 OF 84

Plot Date: 06-DEC-2018 11:50:13 AM

User: svcPW

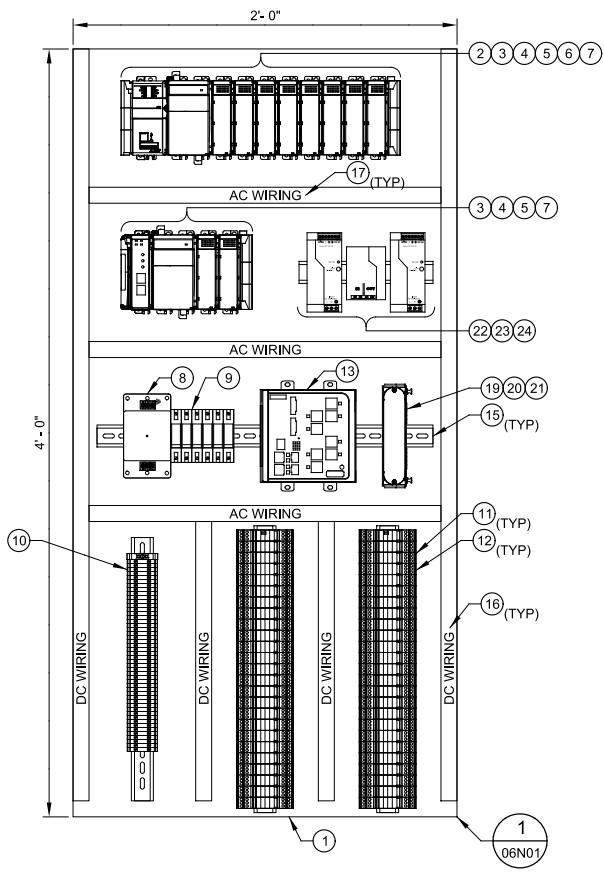
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LAST SAVED BY: AWillard



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

GENERAL NOTES:

- UTILIZE EXISTING ENCLOSURE FOR NEW PLC BACKPANEL. AS DETAILED ON DEMOLITION DRAWINGS, REMOVE EXISTING HSO EQUIPMENT AND INSTALL NEW ALLEN BRADLEY PLC EQUIPMENT. REPLACE EXISTING WIRING AS REQUIRED. ENSURE ALL WIRE AND TERMINAL NUMBERS ARE APPLIED.
- PROVIDE NEW EXTERIOR DOOR FOR EXISTING HOFFMAN ENCLOSURE.
- MOUNT NEW INDUSTRIAL PC TO EXTERIOR OF ENCLOSURE AT EYE LEVEL, MOUNT NEW PC IN THE NEW DOOR.
- DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
- DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
- SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
- DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.
- REPLACE ALL CONTROL RELAYS, RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PLC AO MODULE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	ETHERNET SWITCH
14	NOT USED
15	DIN RAIL
16	WHITE WIRE DUCT
17	GRAY WIRE DUCT
18	INDUSTRIAL PC
19	FIBER CONNECTOR HOUSING
20	CLOSET CONNECTOR ASSEMBLY
21	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING
22	24VDC POWER SUPPLIES
23	24VDC POWER SUPPLY REDUNDANCY MODULE
24	DIODE BRIDGE

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
JHJ

DRAWN
ANW

CHECKED
NEA

DATE
DECEMBER 2018

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MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

INSTRUMENTATION

RTU NO. 3 ELEVATION

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
107161.10

DRAWING NO.
02N03

SHEET NO.
62 OF 84

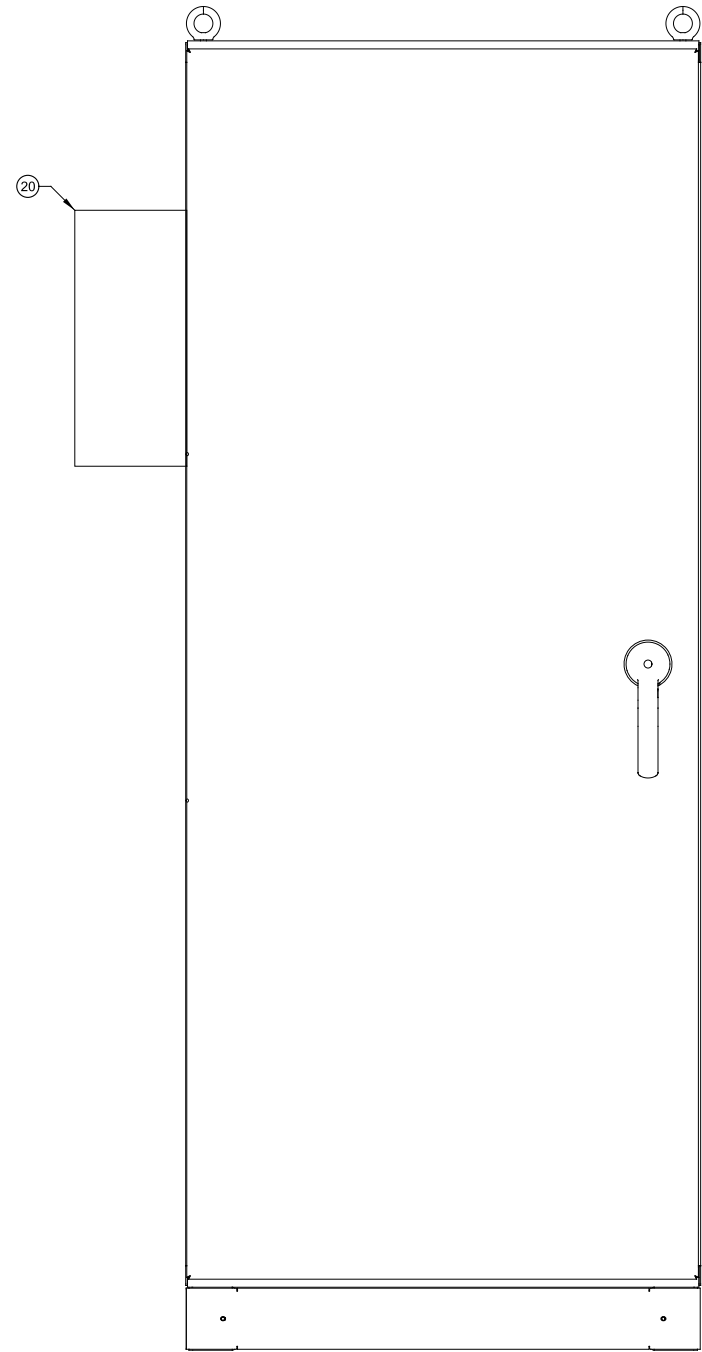
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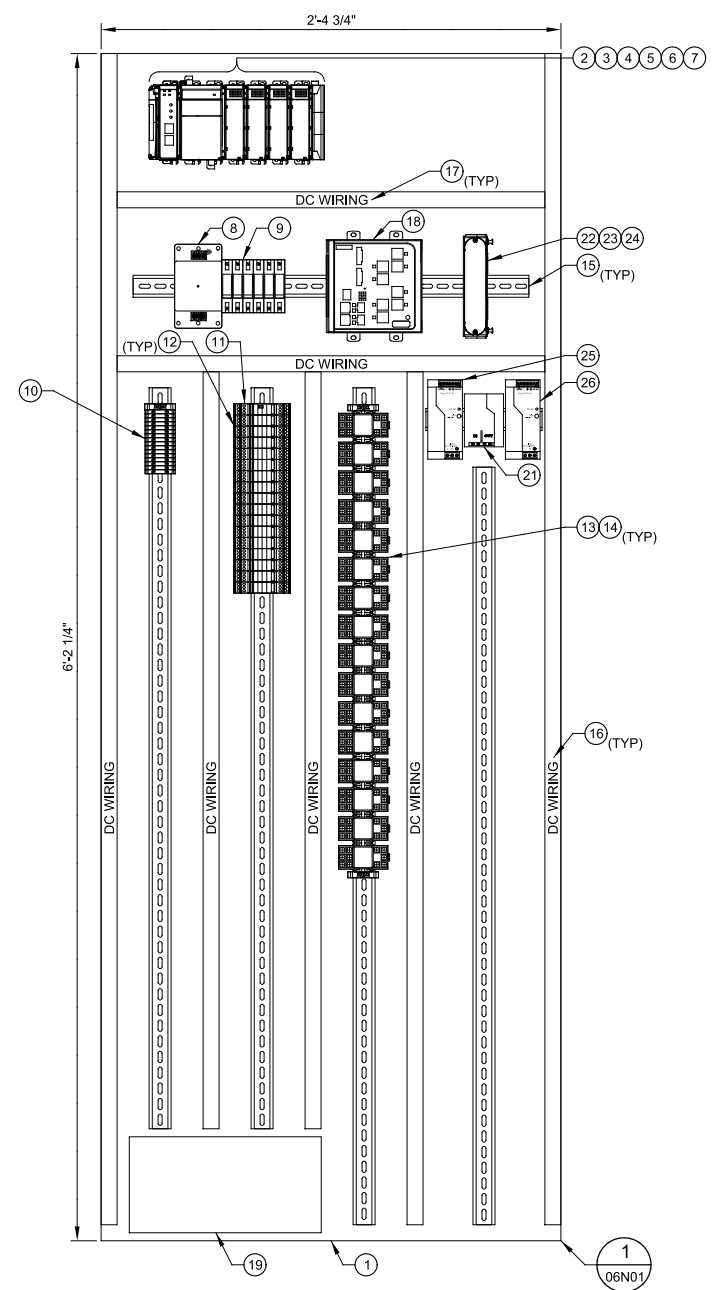
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ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

GENERAL NOTES:

1. MOUNT NEW INDUSTRIAL PC TO EXTERIOR OF ENCLOSURE AT EYE LEVEL.
2. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
3. DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
4. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
5. DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PLC AO MODULE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	TIMER / CONTROL RELAYS
14	INTERPOSING RELAYS
15	DIN RAIL
16	WHITE WIRE DUCT
17	GRAY WIRE DUCT
18	ETHERNET SWITCH
19	UPS
20	AIR CONDITIONING UNIT
21	DIODE BRIDGE
22	FIBER CONNECTOR HOUSING
23	CLOSET CONNECTOR ASSEMBLY
24	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING
25	24VDC POWER SUPPLIES
26	24VDC POWER SUPPLY REDUNDANCY MODULE

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
JHH

DRAWN
ANW

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NEA

DATE
DECEMBER 2018

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

VERIFY SCALES
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JOB NO.
107161.10

DRAWING NO.
02N04

SHEET NO.
63 OF 84

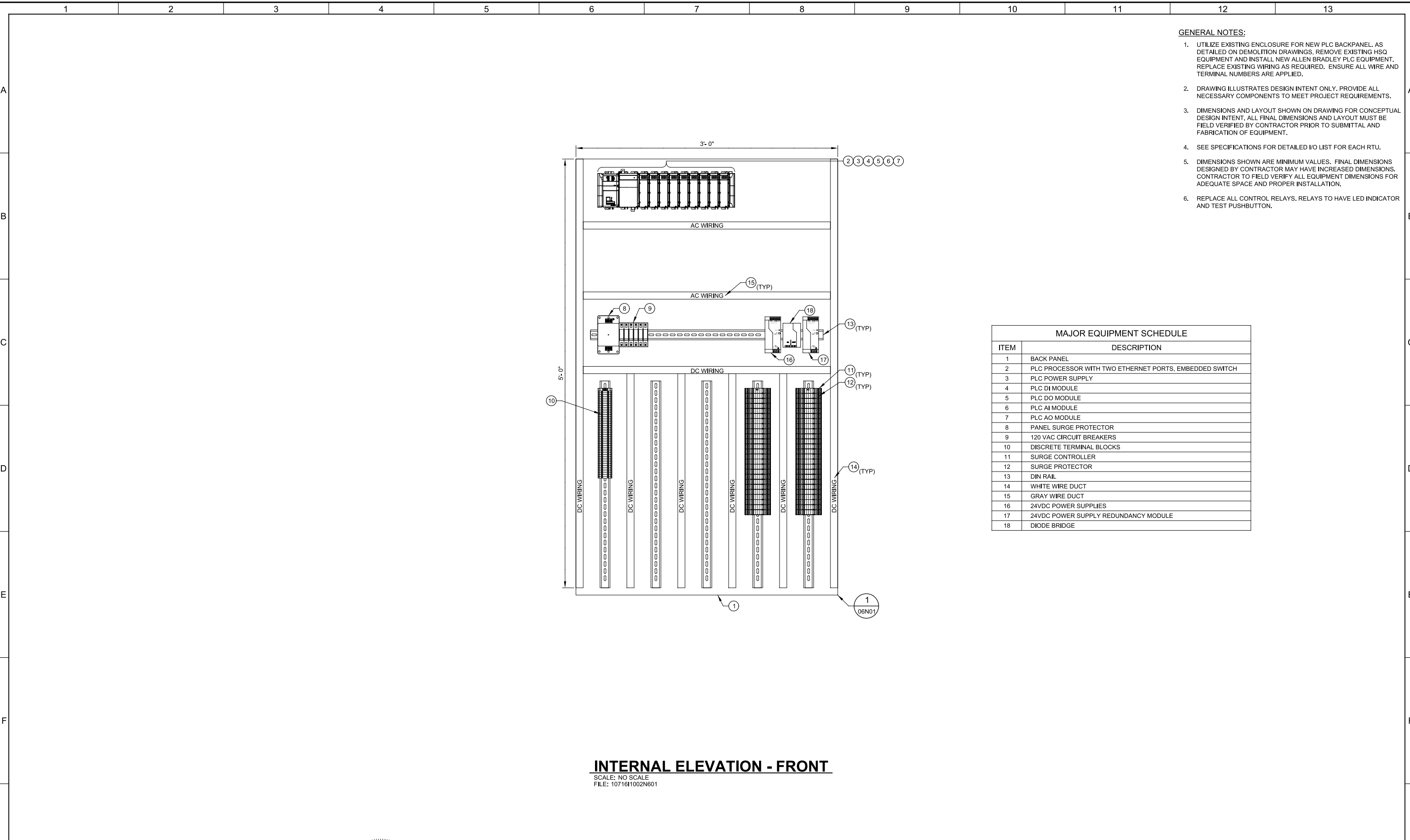
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User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb



- GENERAL NOTES:**
- UTILIZE EXISTING ENCLOSURE FOR NEW PLC BACKPANEL. AS DETAILED ON DEMOLITION DRAWINGS, REMOVE EXISTING HSO EQUIPMENT AND INSTALL NEW ALLEN BRADLEY PLC EQUIPMENT. REPLACE EXISTING WIRING AS REQUIRED. ENSURE ALL WIRE AND TERMINAL NUMBERS ARE APPLIED.
 - DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
 - DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
 - SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
 - DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.
 - REPLACE ALL CONTROL RELAYS. RELAYS TO HAVE LED INDICATOR AND TEST PUSHBUTTON.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR WITH TWO ETHERNET PORTS, EMBEDDED SWITCH
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PLC AO MODULE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	DIN RAIL
14	WHITE WIRE DUCT
15	GRAY WIRE DUCT
16	24VDC POWER SUPPLIES
17	24VDC POWER SUPPLY REDUNDANCY MODULE
18	DIODE BRIDGE

INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

REV	DATE	BY	DESCRIPTION

DESIGNED: JHJ
DRAWN: ANW
CHECKED: NEA
DATE: DECEMBER 2018

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

VERIFY SCALES
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0 1"
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JOB NO. 107161.10
DRAWING NO. 02N05
SHEET NO. 64 OF 84

Plot Date: 06-DEC-2018 11:49:52 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

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C

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E

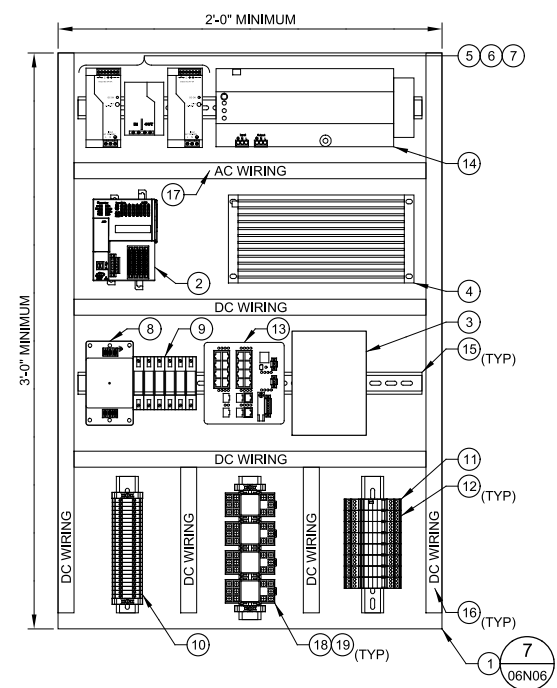
F

G

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
2. FOR PORT MANATEE ELEVATED TANK RTU, I/O IS WIRED IN SERIES FROM FIELD, TO RTU TO PUMP PLC.
3. DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.
4. PREVENT AC AND DC WIRING FROM RUNNING IN PARALLEL IN WIRE DUCTS.

RTU LIST	
RTU	DESCRIPTION
11	59TH STREET ELEVATED TANK
12	NORTH WEST ELEVATED TANK
13	PALMETTO ELEVATED TANK
16	NORTH COUNTY ELEVATED TANK
19	PORT MANATEE ELEVATED TANK
21	RAIN GAUGE NO. 1
22	RAIN GAUGE NO. 2
23	RAIN GAUGE NO. 3
24	RAIN GAUGE NO. 4
25	RAIN GAUGE NO. 5 (ECW NO. 1)
26	RAIN GAUGE NO. 6
27	RAIN GAUGE NO. 7
28	RAIN GAUGE NO. 8
29	RAIN GAUGE NO. 9
30	ELWOOD PARK NO. 1
40	MONITORING WELLS
41	EAST COUNTY WELL NO. 1 (RG NO. 5)
42	EAST COUNTY WELL NO. 2
43	EAST COUNTY WELL NO. 3
44	EAST COUNTY WELL NO. 4
45	EAST COUNTY WELL NO. 5
52	RYE BRIDGE - CONDUCTIVITY MON
53	ASR WELLS
54	64 STATE ROAD MONITORING WELL
56	EAST COUNTY WELL NO. 6
57	EAST COUNTY WELL NO. 7
61	EQUALIZATION BACKWASH



MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	MDS RADIO
4	RADIO AMPLIFIER
5	24VDC POWER SUPPLIES
6	24VDC POWER SUPPLY REDUNDANCY MODULE
7	DIODE BRIDGE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	ETHERNET SWITCH
14	UPS WITH RELAY CARD
15	DIN RAIL
16	WHITE WIRE DUCT
17	GRAY WIRE DUCT
18	TIMER / CONTROL RELAYS
19	INTERPOSING RELAYS

INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

REV	DATE	BY	DESCRIPTION

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JHH

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BPR

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NEA

DATE
DECEMBER 2018

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MANATEE COUNTY

LAKE MANATEE WTP SCADA UPGRADE

INSTRUMENTATION

TYPICAL RTU BACK PANEL ELEVATION

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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JOB NO.
107161.10

DRAWING NO.
02N06

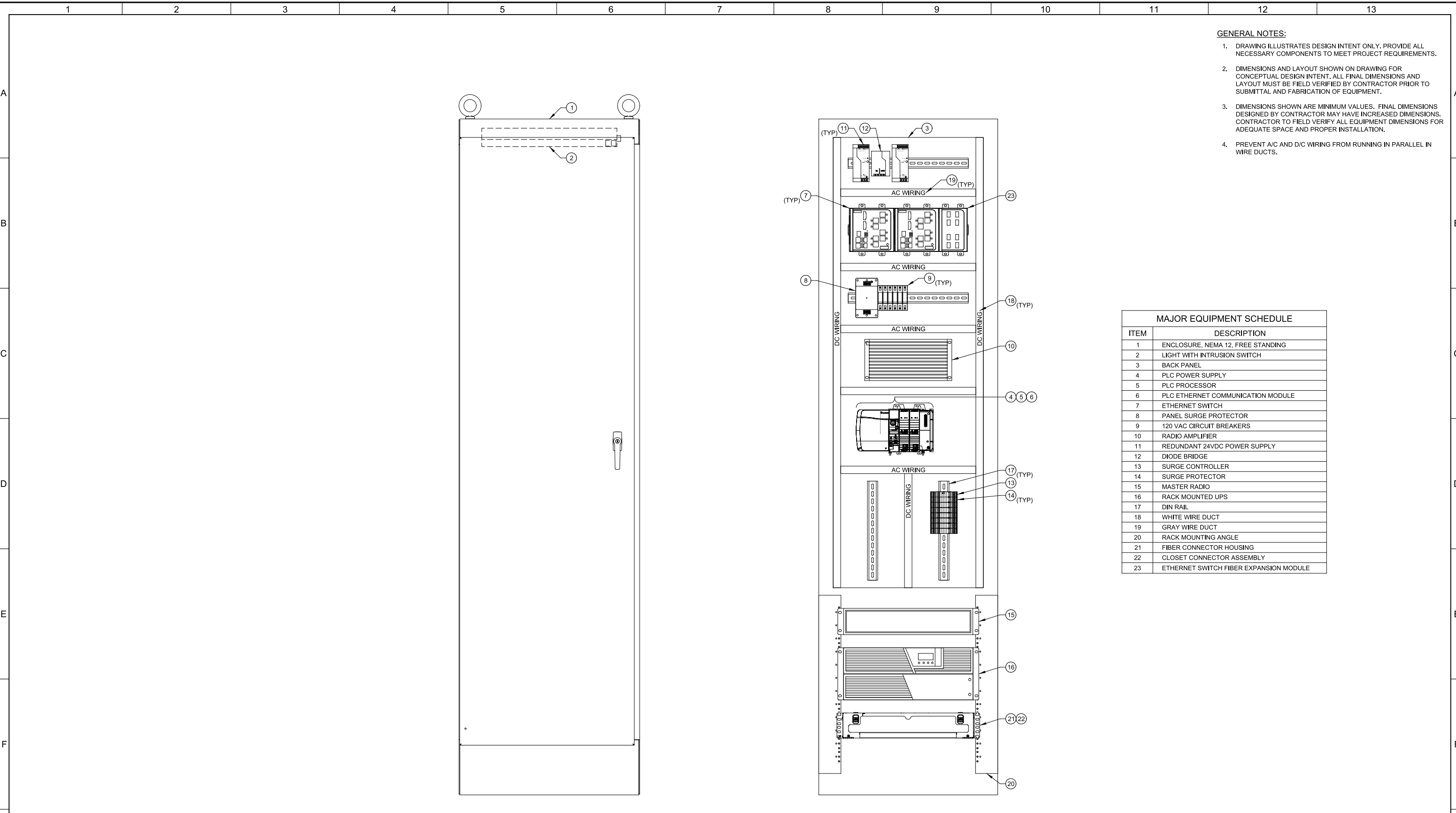
SHEET NO.
65 OF 84

Plot Date: 06-DEC-2018 11:50:10 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWilward



- GENERAL NOTES:**
1. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
 2. DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
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 4. PREVENT A/C AND D/C WIRING FROM RUNNING IN PARALLEL IN WIRE DUCTS.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	ENCLOSURE, NEMA 12, FREE STANDING
2	LIGHT WITH INTRUSION SWITCH
3	BACK PANEL
4	PLC POWER SUPPLY
5	PLC PROCESSOR
6	PLC ETHERNET COMMUNICATION MODULE
7	ETHERNET SWITCH
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	RADIO AMPLIFIER
11	REDUNDANT 24VDC POWER SUPPLY
12	DIODE BRIDGE
13	SURGE CONTROLLER
14	SURGE PROTECTOR
15	MASTER RADIO
16	RACK MOUNTED UPS
17	DIN RAIL
18	WHITE WIRE DUCT
19	GRAY WIRE DUCT
20	RACK MOUNTING ANGLE
21	FIBER CONNECTOR HOUSING
22	CLOSET CONNECTOR ASSEMBLY
23	ETHERNET SWITCH FIBER EXPANSION MODULE

EXTERNAL ELEVATION
SCALE: NO SCALE
FILE: 1071611002N601

INTERNAL ELEVATION
SCALE: NO SCALE
FILE: 1071611002N601

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			

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AMA

DRAWN
ANW

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DATE
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
MASTER RADIO PANEL ELEVATION

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 107161.10 DRAWING NO. 02N07 SHEET NO. 66 OF 84
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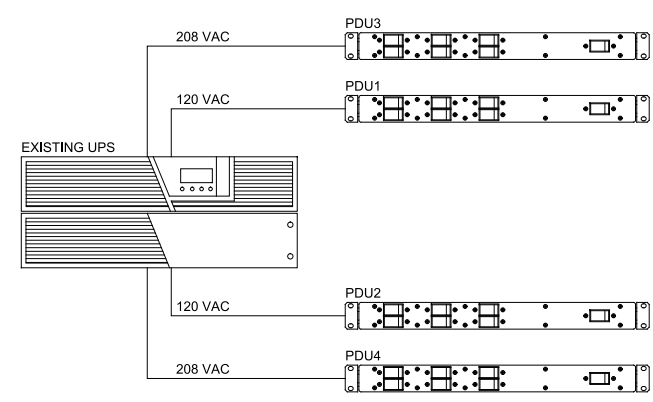
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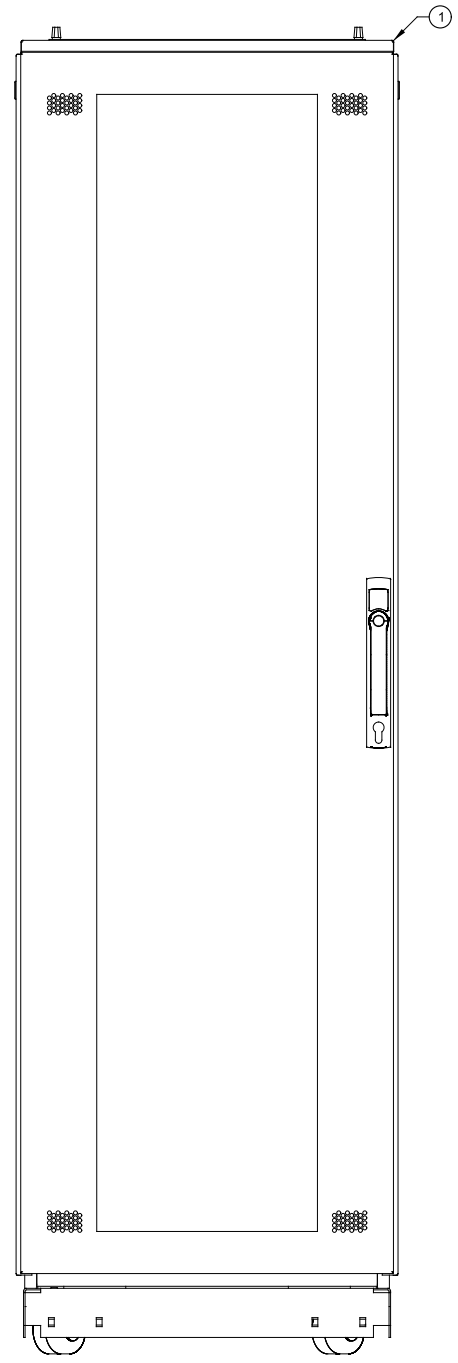
LAST SAVED BY: AWillard

GENERAL NOTES:

- 1. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
- 2. DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
- 3. DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.

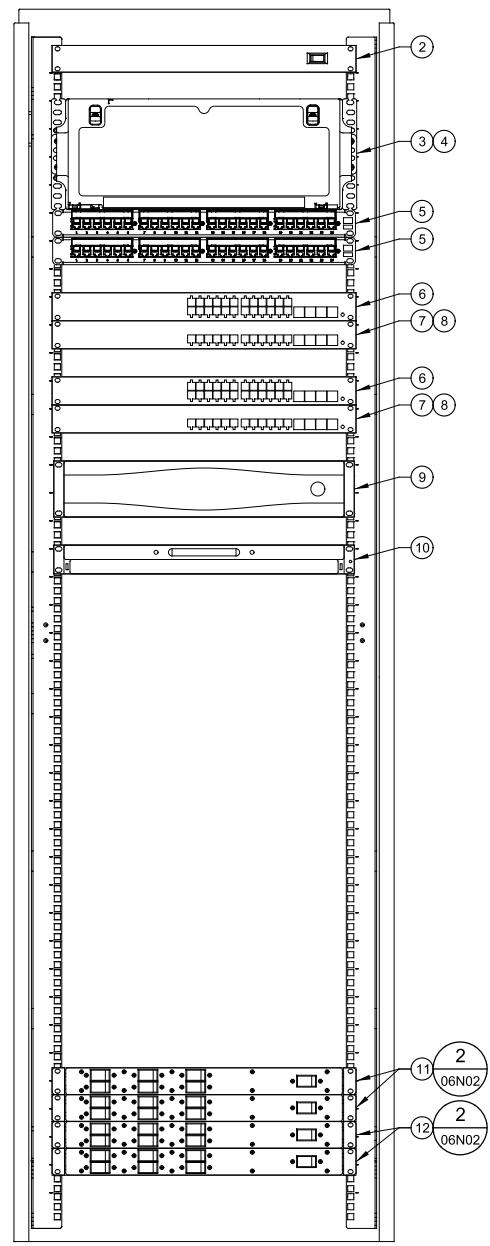


PDU CONNECTIONS	
PDU PORT	DEVICE
PDU1-1	NETWORK COPPER SWITCH A POWER SUPPLY NO. 1
PDU1-2	NETWORK FIBER SWITCH A POWER SUPPLY NO. 1
PDU1-3	NETWORK COPPER SWITCH B POWER SUPPLY NO. 1
PDU1-4	NETWORK FIBER SWITCH B POWER SUPPLY NO. 1
PDU1-5	19" RACK FAN TRAY
PDU1-6	NOT USED
PDU1-7	NOT USED
PDU1-8	NOT USED
PDU2-1	NETWORK COPPER SWITCH A POWER SUPPLY NO. 2
PDU2-2	NETWORK FIBER SWITCH A POWER SUPPLY NO. 2
PDU2-3	NETWORK COPPER SWITCH B POWER SUPPLY NO. 2
PDU2-4	NETWORK FIBER SWITCH B POWER SUPPLY NO. 2
PDU2-5	KVM CONSOLE/SWITCH
PDU2-6	NOT USED
PDU2-7	NOT USED
PDU2-8	NOT USED
PDU3-1	NUTANIX HARDWARE PLATFORM POWER SUPPLY NO. 1
PDU4-1	NUTANIX HARDWARE PLATFORM POWER SUPPLY NO. 2



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



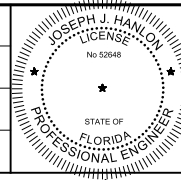
INTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601

MAJOR EQUIPMENT SCHEDULE				
ITEM	DESCRIPTION	MANUFACTURER	MODEL	QUANTITY
1	42U PROLINE SERVER CABINET	HOFFMAN	PSC2069B	1
2	RACKMOUNT FAN TRAY	HOFFMAN	A19FT3B	1
3	FIBER CONNECTOR HOUSING	CORNING	CCH-04U	1
4	CLOSET CONNECTOR ASSEMBLY	CORNING	CCH-CP12-91	12
5	24 PORT COPPER PATCH PANEL	HUBBEL	HP624	2
6	COPPER SWITCH	CISCO	WS-C3850-24P-E	2
7	FIBER SWITCH	CISCO	WS-C3850-24S-E	2
8	SFP	CISCO	GLC-GE-100FX	48
9	NUTANIX HARDWARE PLATFORM	NUTANIX	NX-1365-G6	1
10	KVM SWITCH/CONSOLE 19"	AVOCENT	LRA185KMM8-001	1
11	PDU	UNIPOWER	PDUAC1US-N	2
12	PDU	UNIPOWER	PDUAC1US-E	2

REV	DATE	BY	DESCRIPTION

DESIGNED
JHJ
DRAWN
ANW
CHECKED
NEA
DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SERVER RACK ELEVATION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO.
107161.10
DRAWING NO.
02N08
SHEET NO.
67 OF 84

Plot Date: 06-DEC-2018 11:50:29 AM

User: svcPW

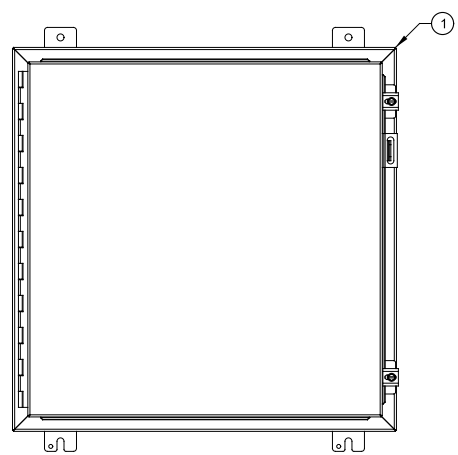
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LAST SAVED BY: AWillard

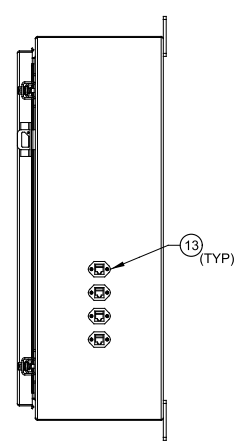
GENERAL NOTES:

1. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
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3. DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.



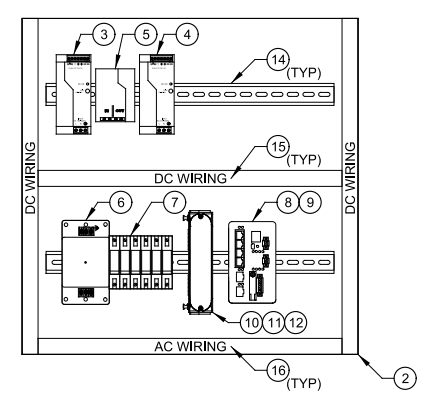
EXTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601



EXTERNAL ELEVATION - SIDE

SCALE: NO SCALE
FILE: 1071611002N601



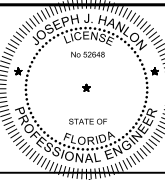
INTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601

MAJOR EQUIPMENT SCHEDULE				
ITEM	DESCRIPTION	MANUFACTURER	MODEL	QUANTITY
1	ENCLOSURE, NEMA 12, WALL MOUNTED	HOFFMAN	A242408LP	1
2	BACK PANEL	HOFFMAN	A24P24G	1
3	24VDC POWER SUPPLIES			1
4	24VDC POWER SUPPLY REDUNDANCY MODULE			1
5	DIODE BRIDGE			1
6	PANEL SURGE PROTECTOR	EDCO	HSP121BT1RU	1
7	120 VAC CIRCUIT BREAKERS			6
8	ETHERNET SWITCH	ROCKWELL	1783-BMS06SA	1
9	SFP	CISCO	GLC-GE-100FX	2
10	FIBER CONNECTOR HOUSING	CORNING	SPH-01P	1
11	CLOSET CONNECTOR ASSEMBLY	CORNING	CCH-CP12-91	1
12	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING	CORNING	SPH-DIN-KIT	1
13	PANEL MOUNT ETHERNET RJ45 CAT-6			4
14	DIN RAIL			2
15	WHITE WIRE DUCT			
16	GRAY WIRE DUCT			

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
AMA
DRAWN
ANW
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NEA
DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
WORKSTATIONS NO. 1 AND NO. 5
PANEL ELEVATION

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
107161.10
DRAWING NO.
02N09
SHEET NO.
68 OF 84

Plot Date: 06-DEC-2018 11:50:24 AM

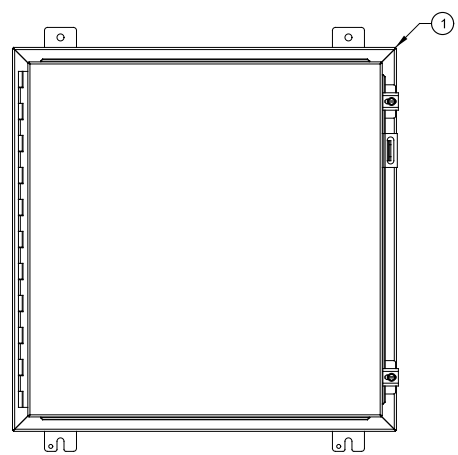
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Plot Scale: 1:1

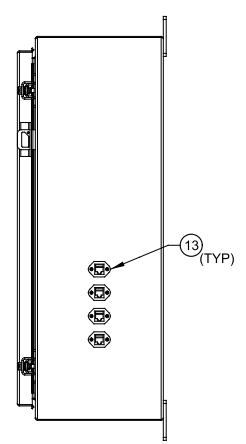
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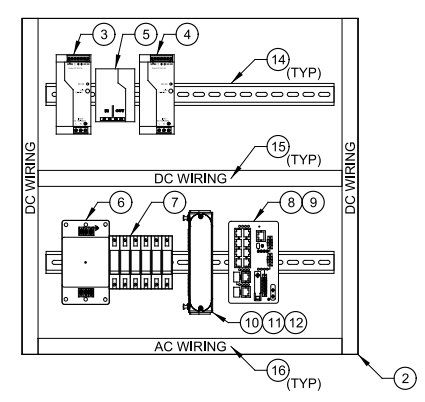
- GENERAL NOTES:**
- DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
 - DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.



EXTERNAL ELEVATION - FRONT
 SCALE: NO SCALE
 FILE: 1071611002N601



EXTERNAL ELEVATION - SIDE
 SCALE: NO SCALE
 FILE: 1071611002N601

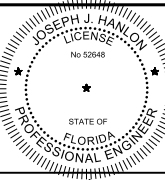


INTERNAL ELEVATION
 SCALE: NO SCALE
 FILE: 1071611002N601

MAJOR EQUIPMENT SCHEDULE				
ITEM	DESCRIPTION	MANUFACTURER	MODEL	QUANTITY
1	ENCLOSURE, NEMA 12, WALL MOUNTED	HOFFMAN	A242408LP	1
2	BACK PANEL	HOFFMAN	A24P24G	1
3	24VDC POWER SUPPLIES			1
4	24VDC POWER SUPPLY REDUNDANCY MODULE			1
5	DIODE BRIDGE			1
6	PANEL SURGE PROTECTOR	EDCO	HSP121BT1RU	1
7	120 VAC CIRCUIT BREAKERS			6
8	ETHERNET SWITCH	ROCKWELL	1783-BMS10CGA	1
9	SFP	CISCO	GLC-GE-100FX	4
10	FIBER CONNECTOR HOUSING	CORNING	SPH-01P	1
11	CLOSET CONNECTOR ASSEMBLY	CORNING	CCH-CP12-91	1
12	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING	CORNING	SPH-DIN-KIT	1
13	PANEL MOUNT ETHERNET RJ45 CAT-6			4
14	DIN RAIL			2
15	WHITE WIRE DUCT			
16	GRAY WIRE DUCT			

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
AMA
 DRAWN
ANW
 CHECKED
NEA
 DATE
DECEMBER 2018



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 Date: 2018.12.18 14:46:05-0500
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MANATEE COUNTY
 LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
 WORKSTATION NO. 4
 PANEL ELEVATION

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

JOB NO.
107161.10
 DRAWING NO.
02N10
 SHEET NO.
69 OF 84

Plot Date: 06-DEC-2018 11:45:14 AM

User: svcPW

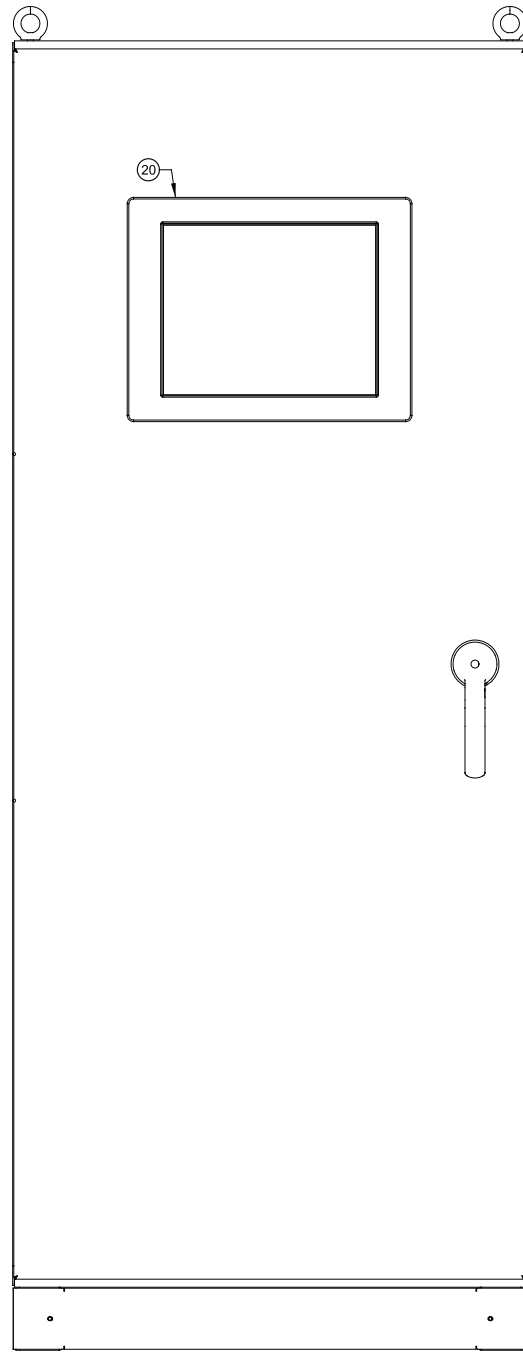
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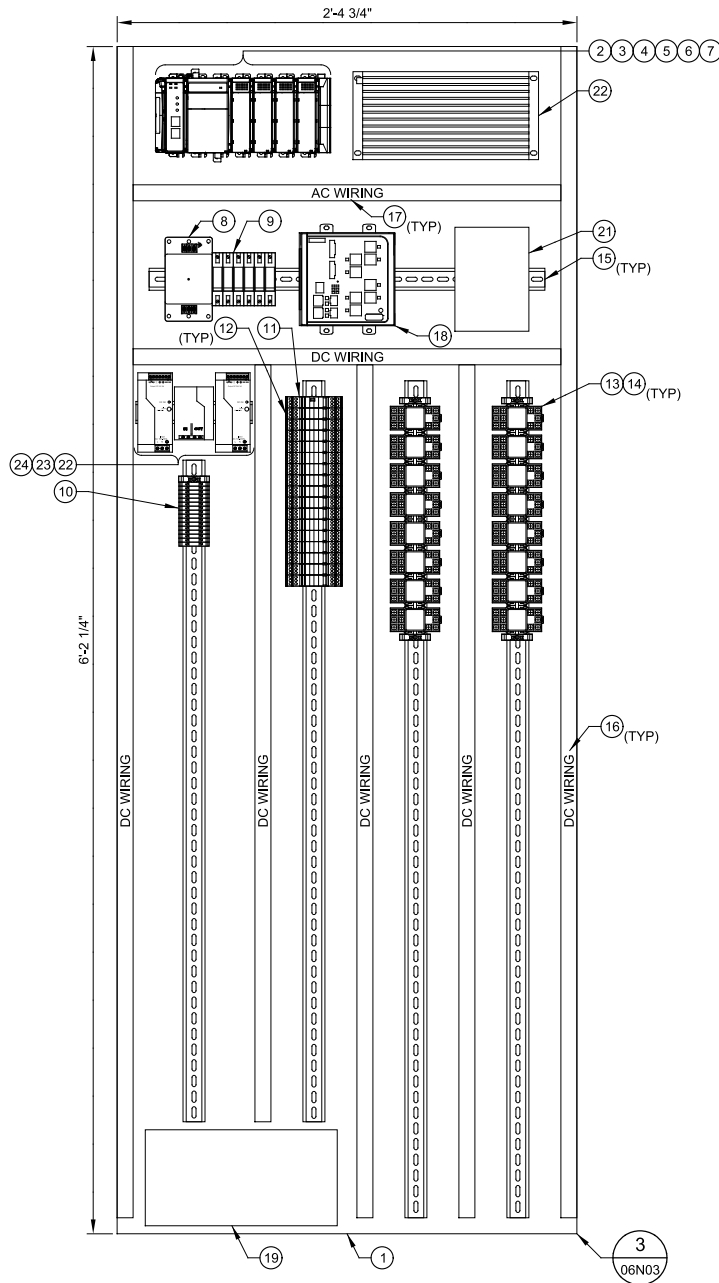
Model: Layout1

Color Table: gshade.ctb



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

GENERAL NOTES:

1. MOUNT NEW LOCAL OPERATOR INTERFACE TO EXTERIOR OF ENCLOSURE AT EYE LEVEL.
2. DRAWING ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
3. DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
4. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
5. CONTRACTOR TO VISIT EACH SITE PRIOR TO BID TO REVIEW SITE CONDITIONS. CONTRACTOR TO INCLUDE ALL NECESSARY MATERIALS, EQUIPMENT, AND SOFTWARE/PROGRAMMING FOR A FULLY FUNCTIONAL SYSTEM.
6. UNLESS OTHERWISE NOTED, ENCLOSURE SHALL BE 316 STAINLESS STEEL NEMA 4X.
7. TYPICAL LAYOUT FOR:
 - A. RTU-46: NW GST & BOOSTER STATION
 - B. RTU-30: ELWOOD PARK #1
 - C. RTU-17: ELWOOD PARK #2
 - D. RTU-31: CORTEZ GROUND STORAGE AND BOOSTER STATION
 - E. RTU-15: HOSPITAL BOOSTER STATION (CONTRACTOR TO CONFIRM FLOOR SPACE FOR FREE STANDING ENCLOSURE. OTHERWISE A WALL MOUNT ENCLOSURE WILL BE REQUIRED.
8. FOR NW GST AND BOOSTER STATION AND CORTEZ GST AND BOOSTER STATION PROVIDE BACK HAUL CONNECTION USING UNLICENSED SPREAD SPECTRUM RADIOS TO STATIONS WITH GOOD COMMS TO MASTER STATION (USING LICENSED FREQUENCY), E.G., NORTH WEST ELEVATED TANK OR 59TH STREET ELEVATED TANK. THIS SOLUTION IS ONLY ACCEPTABLE IN CASE A GOOD CONNECTION (RSSI), FROM THESE GST BOOSTER STATIONS IS NOT ESTABLISHED/ACHIEVED TO THE MASTER STATION. PROVIDE UNLICENSED RADIO PAIRS, ALL HARDWARE, RADIO CABLE, SURGE SUPPRESSION, POWER, ANTENNA, PROGRAMMING AND CONFIGURATION REQUIRED FOR A COMPLETE SOLUTION.

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PLC AO MODULE
8	PANEL SURGE PROTECTOR
9	120 VAC CIRCUIT BREAKERS
10	DISCRETE TERMINAL BLOCKS
11	SURGE CONTROLLER
12	SURGE PROTECTOR
13	TIMER / CONTROL RELAYS
14	INTERPOSING RELAYS
15	DIN RAIL
16	WHITE WIRE DUCT
17	GRAY WIRE DUCT
18	ETHERNET SWITCH
19	UPS
20	LOCAL OPERATOR INTERFACE
21	MDS RADIO
22	RADIO AMPLIFIER
23	24VDC POWER SUPPLIES
24	24VDC POWER SUPPLY REDUNDANCY MODULE
25	DIODE BRIDGE

REV	DATE	BY	DESCRIPTION

DESIGNED JH		<small>Digitally signed by Joseph J. Hanlon Contact info: Carollo Engineers Inc. Date: 2018.12.06 14:46:05-0500</small>
DRAWN ANW		
CHECKED NEA		
DATE DECEMBER 2018		

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
TYPICAL BOOSTER STATION CONTROL PANEL ELEVATION

VERIFY SCALES	JOB NO. 107161.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 02N11
0 1"	SHEET NO. 70 OF 84
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

Plot Date: 06-DEC-2018 11:49:07 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

A

B

C

D

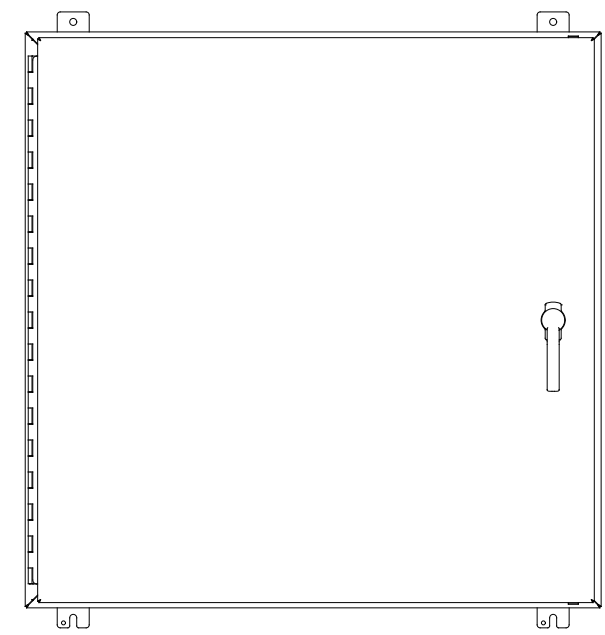
E

F

G

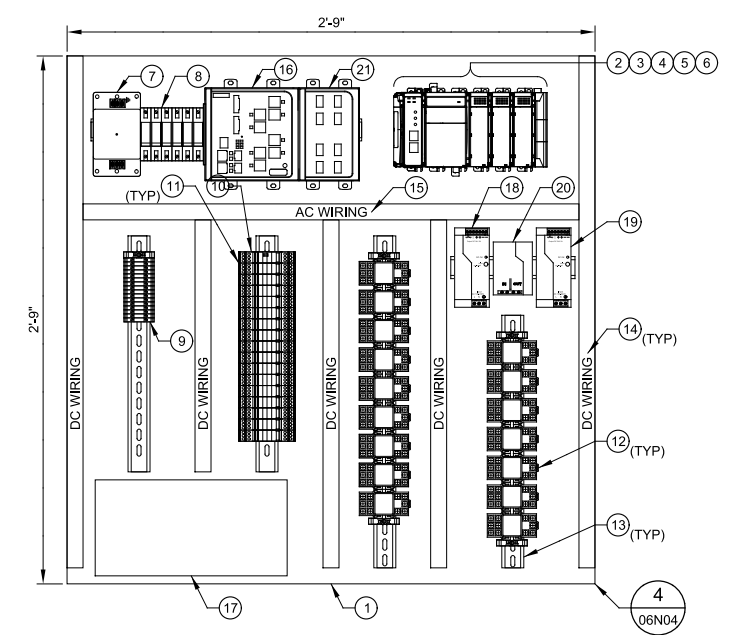
GENERAL NOTES:

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- DIMENSIONS AND LAYOUT SHOWN ON DRAWING FOR CONCEPTUAL DESIGN INTENT. ALL FINAL DIMENSIONS AND LAYOUT MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO SUBMITTAL AND FABRICATION OF EQUIPMENT.
- SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
- CONTRACTOR TO VISIT EACH SITE PRIOR TO BID TO REVIEW SITE CONDITIONS. CONTRACTOR TO INCLUDE ALL NECESSARY MATERIALS, EQUIPMENT, & SOFTWARE/PROGRAMMING FOR A FULLY FUNCTIONAL SYSTEM.
- UNLESS OTHERWISE NOTED, ENCLOSURE SHALL BE 316 STAINLESS STEEL NEMA 4X.
- DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.
- PREVENT A/C AND D/C WIRING FROM RUNNING IN PARALLEL IN WIRE DUCTS.



EXTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601



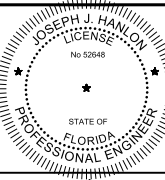
INTERNAL ELEVATION

SCALE: NO SCALE
FILE: 1071611002N601

MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR
3	PLC POWER SUPPLY
4	PLC DI MODULE
5	PLC DO MODULE
6	PLC AI MODULE
7	PANEL SURGE PROTECTOR
8	120 VAC CIRCUIT BREAKERS
9	DISCRETE TERMINAL BLOCKS
10	SURGE CONTROLLER
11	SURGE PROTECTOR
12	INTERPOSING RELAYS
13	DIN RAIL
14	WHITE WIRE DUCT
15	GRAY WIRE DUCT
16	ETHERNET SWITCH
17	UPS
18	24VDC POWER SUPPLIES
19	24VDC POWER SUPPLY REDUNDANCY MODULE
20	DIODE BRIDGE
21	ETHERNET SWITCH FIBER EXPANSION MODULE

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
JHJ
DRAWN
ANW
CHECKED
NEA
DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
TAINTER GATES
CONTROL PANEL ELEVATION

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

JOB NO.
107161.10
DRAWING NO.
02N12
SHEET NO.
71 OF 84

Plot Date: 06-DEC-2018 11:50:51 AM

User: svcPW

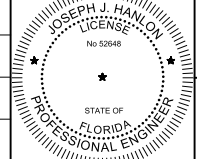
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LAST SAVED BY: AWillard

RTU #	LOCATION	REPLACE ENCLOSURE	REPLACE TOWER	INSTALLATION	ELECTRICAL	ADDITIONAL NOTES
1	C-BASIN RAPID MIX	NO	NA	SEE DETAILS ON DRAWING 02N01.	REPLACE TERMINATION CABINETS.	
2	WTP-ELECTRICAL ROOM	NO	NA	SEE DETAILS ON DRAWING 02N02.	NONE	
3	A/B CHEMICAL	NO	NA	SEE DETAILS ON DRAWING 02N03.	REPLACE TERMINATION CABINETS.	
4	WTP-GROUND STORAGE	YES	NA	REMOVE EXISTING RTU ENCLOSURE, INSTALL NEW RTU/PLC.	NONE	
5	MAIN CONTROL ROOM	NO	NA	SEE DETAILS ON DRAWING 02N04.	NONE	
11	59TH ST. ELEVATED TANK	YES	NA	REMOVE EXISTING RTU, BATTERY CABINET, MODEM CABINET, RTU MOUNTING STRUCTURE, ANTENNA CABLE AND ANTENNA. CONSTRUCT NEW RTU MOUNTING STRUCTURE, PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER FEED AND GROUND TO RTU, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
12	NW ELEVATED TANK	YES	NA	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. RADIO SURVEY SHALL DETERMINE IF EXISTING RADIO EQUIPMENT IS REQUIRED. IF SO, EQUIPMENT SHOULD BE PLACED WITHIN AN ENCLOSURE, IF NOT, EQUIPMENT SHOULD BE REMOVED.	CONFIRM POWER AND GROUND TO RTU, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
13	PAMETTO ELEVATED TANK	YES	NA	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT. CONFIRM POWER AND GROUND TO RTU.	CONFIRM POWER AND GROUND TO RTU, PROVIDE CONDUIT, WIRE AND CABLE AS REQUIRED.	
14	SARASOTA METER STATION	NO	NO	REMOVE EXISTING RTU, ANTENNA, AND ANTENNA CABLE. PROVIDE AND INSTALL NEW RTU, ANTENNA, ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	SARASOTA COUNTY READS FLOW TOTALIZER SIGNAL FROM THIS RTU.
15	HOSPITAL BOOSTER STATION	YES	YES	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. REMOVE EXISTING TOWER. PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT. PROVIDE AND INSTALL NEW TOWER. TOWER HEIGHT SHALL BE DETERMINED BY RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
16	NORTH COUNTY ELEVATED TANK	YES	NA	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT. CONFIRM POWER AND GROUND TO RTU.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
17	ELWOOD PARK #2	YES	YES	REMOVE EXISTING RTU, TURBITROL ENCLOSURE, EXTERNAL RADIO PANEL, TOWER, ANTENNA AND ANTENNA CABLE. PROVIDE AND INSTALL NEW RTU, ANTENNA TOWER, ANTENNA AND ANTENNA CABLE IN CONDUIT. TOWER HEIGHT SHALL BE DETERMINED BY RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
18	WTP-RAW WATER #2	NO	NA	PROVIDE NEW FIBER OPTIC CONDUIT AND CABLE FROM CONTROL ROOM. REMOVE EXISTING RTU ANTENNA AND ANTENNA CABLE	PROVIDE CONDUIT, WIRE AND CABLES AS REQUIRED.	
19	PORT MANATEE ELEVATED TANK	YES	NA	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA CABLE AND ANTENNA. PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT.	PROVIDE CONDUIT AND WIRE FOR 120VAC POWER TO RTU, PROVIDE CONDUIT, WIRE AND CABLES AS REQUIRED.	
20	WTP-RAW WATER #1	YES	NA	REMOVE EXISTING RTU, FIBER OPTIC PATCH PANEL AND MISC. J-BOXES. PROVIDE AND INSTALL NEW RTU.	CONFIRM POWER AND GROUND TO RTU, PROVIDE CONDUIT, WIRE AND CABLE AS REQUIRED.	
21	RAIN GAUGE #1	YES	YES	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA, ANTENNA CABLE AND TOWER. PROVIDE AND INSTALL NEW RTU, ENCLOSURE, ANTENNA, ANTENNA CABLE IN CONDUIT AND TOWER. TOWER HEIGHT SHALL BE BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
23	RAIN GAUGE #3	YES	YES	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA, ANTENNA CABLE AND TOWER. PROVIDE AND INSTALL NEW RTU, ENCLOSURE, ANTENNA, ANTENNA CABLE IN CONDUIT AND TOWER. TOWER HEIGHT SHALL BE BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
24	RAIN GAUGE #4	YES	YES	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA, ANTENNA CABLE AND TOWER. PROVIDE AND INSTALL NEW RTU, ENCLOSURE, ANTENNA, ANTENNA CABLE IN CONDUIT AND TOWER. TOWER HEIGHT SHALL BE BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
26	RAIN GAUGE #6	YES	YES	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA, ANTENNA CABLE AND TOWER. PROVIDE AND INSTALL NEW RTU, ENCLOSURE, ANTENNA, ANTENNA CABLE IN CONDUIT AND TOWER. TOWER HEIGHT SHALL BE BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
27	RAIN GAUGE #7	YES	YES	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA, ANTENNA CABLE AND TOWER. PROVIDE AND INSTALL NEW RTU, ENCLOSURE, ANTENNA, ANTENNA CABLE IN CONDUIT AND TOWER. TOWER HEIGHT SHALL BE BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
28	RAIN GAUGE #8	YES	YES	REMOVE EXISTING RTU, BATTERY CABINET, ANTENNA, ANTENNA CABLE AND TOWER. PROVIDE AND INSTALL NEW RTU, ENCLOSURE, ANTENNA, ANTENNA CABLE IN CONDUIT AND TOWER. TOWER HEIGHT SHALL BE BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
30	ELWOOD PARK #1	NO	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
31	CORTEZ GROUND STORAGE & BOOSTER	YES	YES	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE AND INSTALL NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT. PROVIDE NEW TOWER IF REQUIRED, TOWER HEIGHT SHALL BE DETERMINED BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
32	WTP-CARBON SILO	NO	NA	REMOVE EXISTING RTU SUB-PANEL. REMOVE SLC PLC IN VENDOR CONTROL PANEL. PROVIDE AND INSTALL NEW TERMINAL BLOCKS & SURGE PROTECTION. PROVIDE NEW COMPACT LOGIX PLC IN VENDOR CONTROL PANEL.	CONFIRM POWER AND GROUND TO RTU, PROVIDE CONDUIT AND WIRE AS REQUIRED.	
40	MONITORING WELLS	YES	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
41	EAST COUNTY WELL #1	YES	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
42	EAST COUNTY WELL #2	YES	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
43	EAST COUNTY WELL #3	YES	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
44	EAST COUNTY WELL #4	YES	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
45	EAST COUNTY WELL #5	YES	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
46	NORTH WEST GROUND STORAGE TANK/BOOSTER STATION	YES	YES	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE AND INSTALL NEW PLC CONTROL PANEL. PROVIDE NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
47	LONG BOAT KEY METER STATION	NO	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU, TOWER, ANTENNA AND ANTENNA CABLE IN CONDUIT. TOWER HEIGHT TO BE DETERMINED BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
50	WTP-TRAIN A FILTER GALLERY	NO	N/A	REMOVE EXISTING HSQ EQUIPMENT. PROVIDE AND INSTALL NEW ALLEN BRADLEY PLC EQUIPMENT. PROVIDE NEW FIBER OPTIC CONDUIT AND CABLE FROM CONTROL ROOM.	CONFIRM POWER AND GROUND TO RTU, PROVIDE NEW CONDUIT, WIRE AND CABLES AS REQUIRED.	
51	WTP-TRAIN B FILTER GALLERY	NO	N/A	REMOVE EXISTING HSQ EQUIPMENT. PROVIDE AND INSTALL NEW ALLEN BRADLEY PLC EQUIPMENT. PROVIDE NEW FIBER OPTIC CONDUIT AND CABLE FROM CONTROL ROOM.	CONFIRM POWER AND GROUND TO RTU, PROVIDE NEW CONDUIT, WIRE AND CABLES AS REQUIRED.	
52	RYE BRIDGE - CONDUCTIVITY MON	YES	YES	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU & ENCLOSURE, TOWER, ANTENNA AND ANTENNA CABLE IN CONDUIT. TOWER HEIGHT TO BE DETERMINED BASED ON RADIO SURVEY.	CONFIRM POWER AND GROUND TO RTU AND TOWER, PROVIDE NEW CONDUIT AND WIRE AS REQUIRED.	
53	AQUIFER STORAGE & RECOVERY WELLS	NO	NO	REMOVE EXISTING RTU SUB-PANEL, ANTENNA, ANTENNA CABLE. TOWER MAY REQUIRE REPLACEMENT BASED ON RADIO SURVEY. PROVIDE AND INSTALL NEW RTU SUB-PANEL, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU AND ANTENNA TOWER IF REPLACED, PROVIDE CONDUIT, WIRE AND CABLE AS REQUIRED.	
54	SR 64 MONITORING WELL	NO	NO	REMOVE EXISTING RTU SUB-PANEL, ANTENNA, ANTENNA CABLE. TOWER MAY REQUIRE REPLACEMENT BASED ON RADIO SURVEY. PROVIDE AND INSTALL NEW RTU SUB-PANEL, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU, PROVIDE NEW CONDUIT, WIRE AND CABLES AS REQUIRED.	
55	FUTURE					
56	EAST COUNTY WELL #6	NO	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU, PROVIDE NEW CONDUIT, WIRE AND CABLES AS REQUIRED.	
57	EAST COUNTY WELL #7	NO	NO	REMOVE EXISTING RTU, ANTENNA AND ANTENNA CABLE. PROVIDE NEW RTU, ANTENNA AND ANTENNA CABLE IN CONDUIT.	CONFIRM POWER AND GROUND TO RTU, PROVIDE NEW CONDUIT, WIRE AND CABLES AS REQUIRED.	
60	FLUORIDE	YES	N/A	PROVIDE NEW PLC CONTROL PANEL.		
61	EQUALIZATION BACKWASH	NO	N/A	REMOVE EXISTING PLC, POWER SUPPLY, I/O MODULES, AND ETHERNET SWITCH. PROVIDE AND INSTALL NEW PLC, POWER SUPPLY, I/O MODULES, AND ETHERNET SWITCH.		
62	TANTER GATES	YES	N/A	PROVIDE AND INSTALL NEW RTU ENCLOSURE.		

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			

DESIGNED JHH
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018



Digitally signed by Joseph J. Hanlon
Contact info: Carollo Engineers Inc.
Date: 2018.12.18 14:05:05-0500

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RTU DETAILS

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

JOB NO. 10716L10
DRAWING NO. 02N13
SHEET NO. 72 OF 84

Plot Date: 06-DEC-2018 11:45:58 AM

User: svcPW

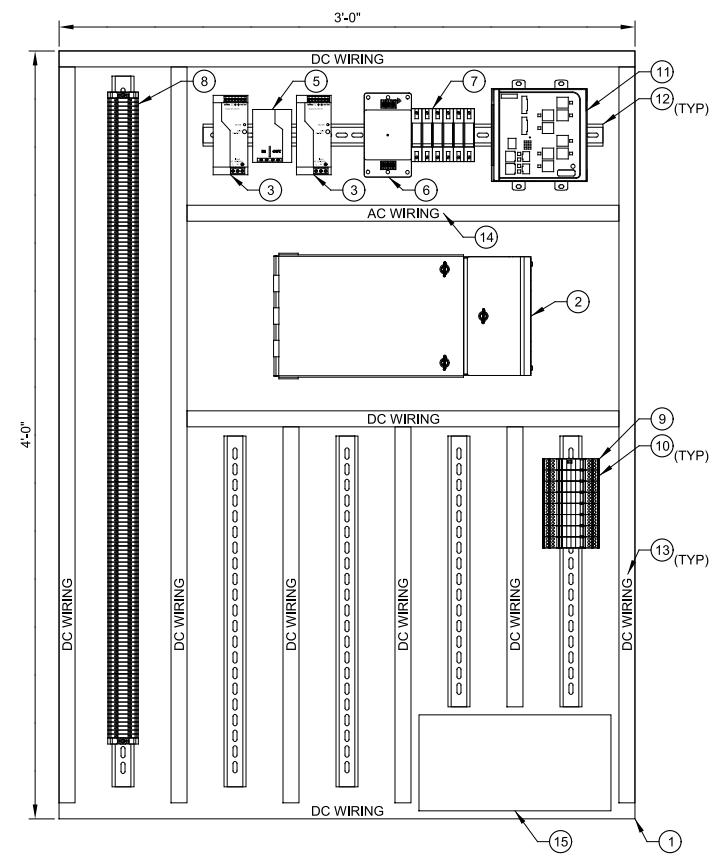
PlotScale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

LAST SAVED BY: AWillard

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
2. DIMENSIONS SHOWN ARE MINIMUM VALUES. FINAL DIMENSIONS DESIGNED BY CONTRACTOR MAY HAVE INCREASED DIMENSIONS. CONTRACTOR TO FIELD VERIFY ALL EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE AND PROPER INSTALLATION.



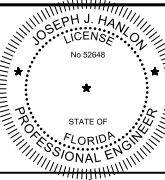
MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	FIBER OPTIC PATCH PANEL
3	24VDC POWER SUPPLIES
4	24VDC POWER SUPPLY REDUNDANCY MODULE
5	DIODE BRIDGE
6	PANEL SURGE PROTECTOR
7	120 VAC CIRCUIT BREAKERS
8	DISCRETE TERMINAL BLOCKS
9	SURGE CONTROLLER
10	SURGE PROTECTOR
11	ETHERNET SWITCH
12	DIN RAIL
13	WHITE WIRE DUCT
14	GRAY WIRE DUCT
15	UPS

INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 107161002N601

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			

DESIGNED
JHJ
DRAWN
ANW
CHECKED
NEA
DATE
DECEMBER 2018



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Contact info: Carollo Engineers Inc.
Date: 2018.12.06 14:46:05-0500
Joseph J. Hanlon
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
CARBON SILO TERMINATION CABINET ELEVATION

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

JOB NO.
107161.10
DRAWING NO.
02N14
SHEET NO.
73 OF 84

Plot Date: 06-DEC-2018 11:45:45 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

A

B

C

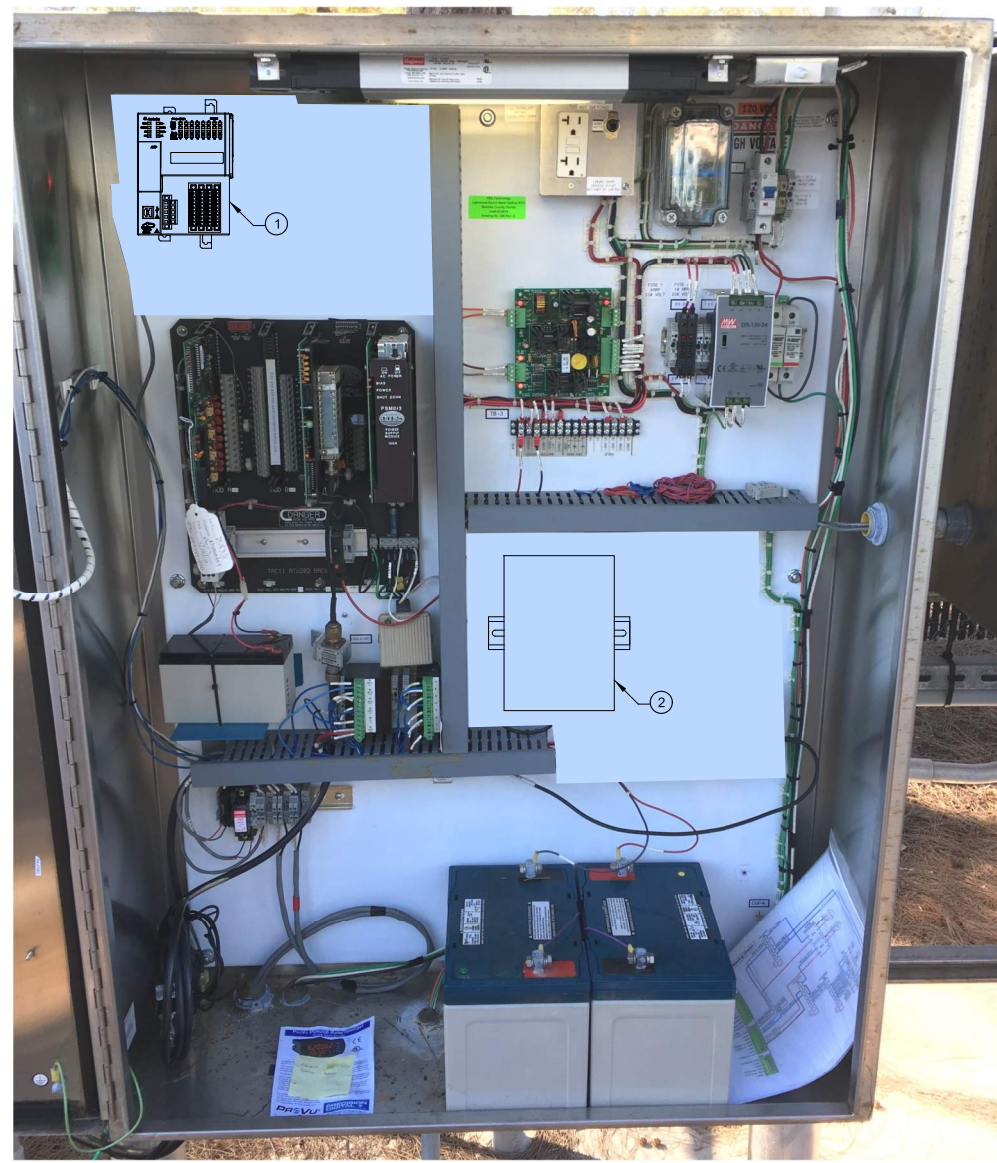
D

E

F

G

GENERAL NOTES:
1. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.

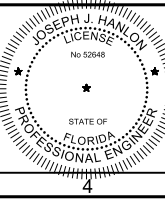


MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	PLC PROCESSOR AND I/O CARDS
2	MDS RADIO AND AMPLIFIER
3	PANEL SURGE PROTECTOR
4	120 VAC CIRCUIT BREAKERS
5	SURGE CONTROLLER
6	SURGE PROTECTOR
7	DIN RAIL

1 FRONT
FILE: 1071611002N014A

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
JHJ
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DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
LONG BOAT KEY PANEL ELEVATION

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

JOB NO.
107161.10
DRAWING NO.
02N15
SHEET NO.
74 OF 84

Plot Date: 06-DEC-2018 11:45:19 AM

User: svcPW

Plot Scale: 1:1

Model: Layout1

ColorTable: gshade.ctb

LAST SAVED BY: AWillard

1 2 3 4 5 6 7 8 9 10 11 12 13

A

B

C

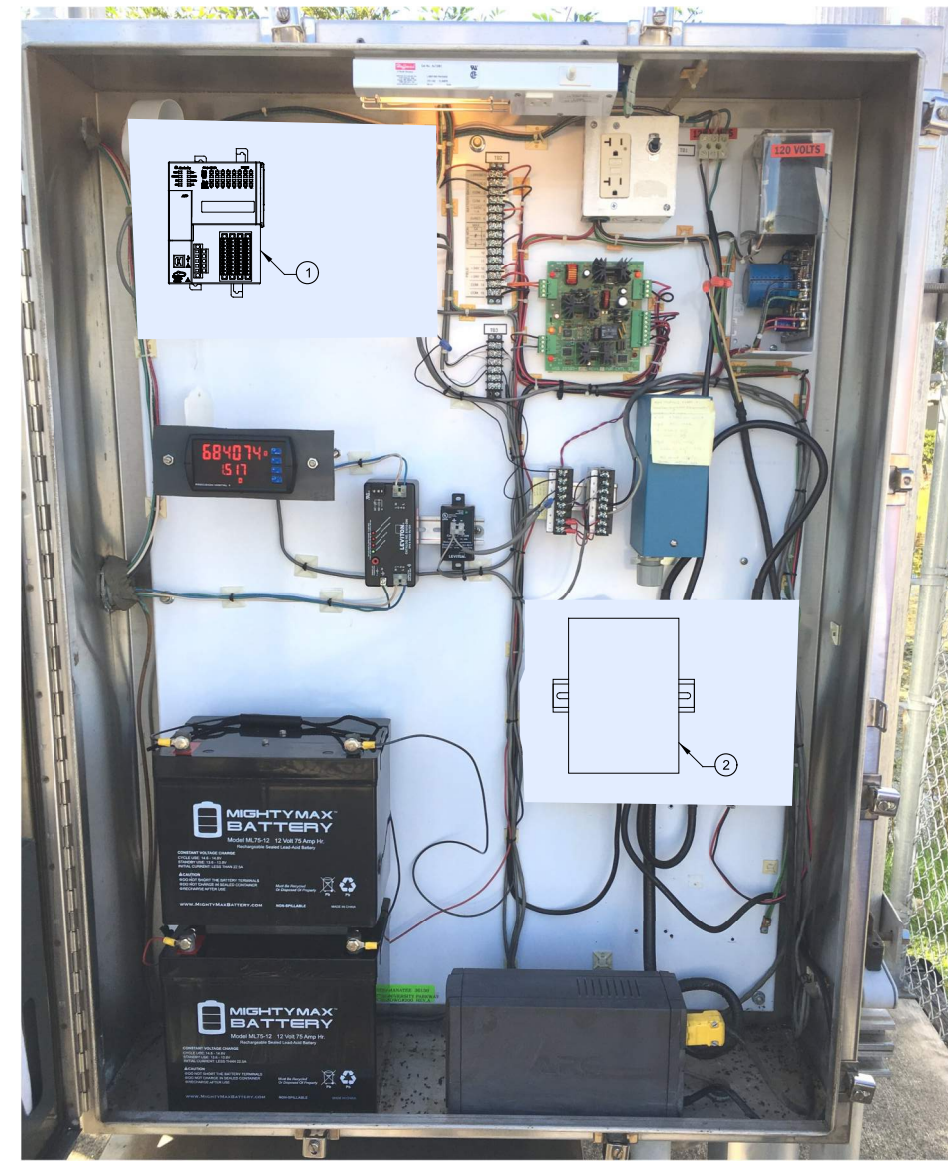
D

E

F

G

GENERAL NOTES:
1. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.

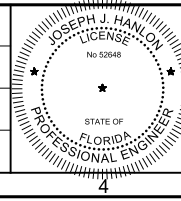


MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	PLC PROCESSOR AND I/O CARDS
2	MDS RADIO AND AMPLIFIER
3	PANEL SURGE PROTECTOR
4	120 VAC CIRCUIT BREAKERS
5	SURGE CONTROLLER
6	SURGE PROTECTOR
7	DIN RAIL

1 FRONT
FILE: 1071611002N015A

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SARASOTA METER STATION PANEL ELEVATION

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

JOB NO.
107161.10
DRAWING NO.
02N16
SHEET NO.
75 OF 84

Plot Date: 06-DEC-2018 11:48:53 AM

User: svcPW

PlotScale: 1:1

DesignScript: Carollo_Sig_Pen_v0905.pen

ColorTable: gshade.ctb

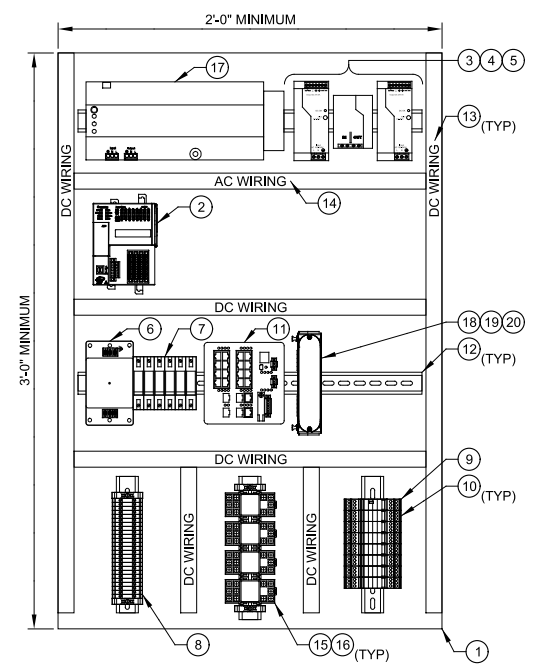
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1

LAST_SAVED BY: AWillard

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR DETAILED I/O LIST FOR EACH RTU.
2. PREVENT A/C AND D/C WIRING FROM RUNNING IN PARALLEL IN WIRE DUCTS.

RTU LIST	
RTU	DESCRIPTION
20	WTP - RAW WATER NO. 1
60	FLUORIDE



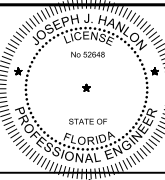
MAJOR EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	BACK PANEL
2	PLC PROCESSOR/REMOTE I/O
3	24VDC POWER SUPPLIES
4	24VDC POWER SUPPLY REDUNDANCY MODULE
5	DIODE BRIDGE
6	PANEL SURGE PROTECTOR
7	120 VAC CIRCUIT BREAKERS
8	DISCRETE TERMINAL BLOCKS
9	SURGE CONTROLLER
10	SURGE PROTECTOR
11	ETHERNET SWITCH
12	DIN RAIL
13	WHITE WIRE DUCT
14	GRAY WIRE DUCT
15	TIMER / CONTROL RELAYS
16	INTERPOSING RELAYS
17	UPS WITH RELAY CARD
18	FIBER CONNECTOR HOUSING
19	CLOSET CONNECTOR ASSEMBLY
20	DIN RAIL BRACKET FOR SINGLE-PANEL HOUSING

INTERNAL ELEVATION - FRONT

SCALE: NO SCALE
FILE: 1071611002N601

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			

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ANW
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NEA
DATE
DECEMBER 2018



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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
RAW WATER 1 AND FLUORIDE
BACK PANEL ELEVATION

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

JOB NO.
107161.10
DRAWING NO.
02N17
SHEET NO.
76 OF 84

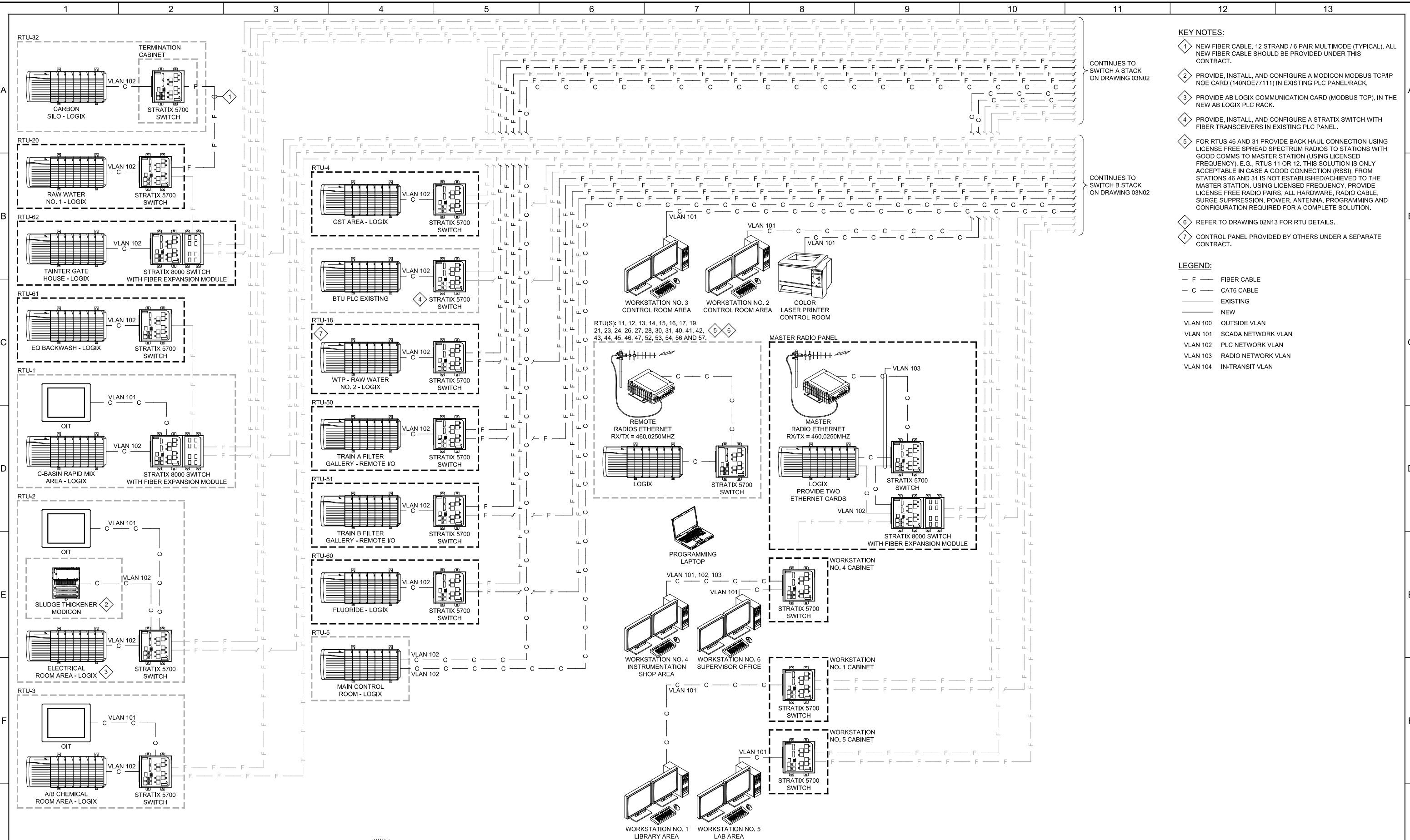
Plot Date: 06-DEC-2018 11:51:10 AM

User: svcPW

Model: Layout1

ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWI/ward



- KEY NOTES:**
- NEW FIBER CABLE, 12 STRAND / 6 PAIR MULTIMODE (TYPICAL). ALL NEW FIBER CABLE SHOULD BE PROVIDED UNDER THIS CONTRACT.
 - PROVIDE, INSTALL, AND CONFIGURE A MODICON MODBUS TCP/IP NOE CARD (146NOE7111) IN EXISTING PLC PANEL/RACK.
 - PROVIDE AB LOGIX COMMUNICATION CARD (MODBUS TCP), IN THE NEW AB LOGIX PLC RACK.
 - PROVIDE, INSTALL, AND CONFIGURE A STRATIX SWITCH WITH FIBER TRANSCEIVERS IN EXISTING PLC PANEL.
 - FOR RTUS 46 AND 31 PROVIDE BACK HAUL CONNECTION USING LICENSE FREE SPREAD SPECTRUM RADIOS TO STATIONS WITH GOOD COMMS TO MASTER STATION (USING LICENSED FREQUENCY), E.G., RTUS 11 OR 12. THIS SOLUTION IS ONLY ACCEPTABLE IN CASE A GOOD CONNECTION (RSSI), FROM STATIONS 46 AND 31 IS NOT ESTABLISHED/ACHIEVED TO THE MASTER STATION. USING LICENSED FREQUENCY, PROVIDE LICENSE FREE RADIO PAIRS, ALL HARDWARE, RADIO CABLE, SURGE SUPPRESSION, POWER, ANTENNA, PROGRAMMING AND CONFIGURATION REQUIRED FOR A COMPLETE SOLUTION.
 - REFER TO DRAWING 02N13 FOR RTU DETAILS.
 - CONTROL PANEL PROVIDED BY OTHERS UNDER A SEPARATE CONTRACT.

- LEGEND:**
- F — FIBER CABLE
 - C — CAT6 CABLE
 - EXISTING
 - NEW
 - VLAN 100 OUTSIDE VLAN
 - VLAN 101 SCADA NETWORK VLAN
 - VLAN 102 PLC NETWORK VLAN
 - VLAN 103 RADIO NETWORK VLAN
 - VLAN 104 IN-TRANSIT VLAN

REV	DATE	BY	DESCRIPTION
1			
2			
3			

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AMA

DRAWN
ANW

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NEA

DATE
DECEMBER 2018

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SCADA ARCHITECTURE - I

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
10716L10

DRAWING NO.
03N01

SHEET NO.
77 OF 84

Plot Date: 06-DEC-2018 11:49:55 AM

User: svcPW

PlotScale: 1:1

DesignScript: Carollo_Sld_Pen_v0905.pen

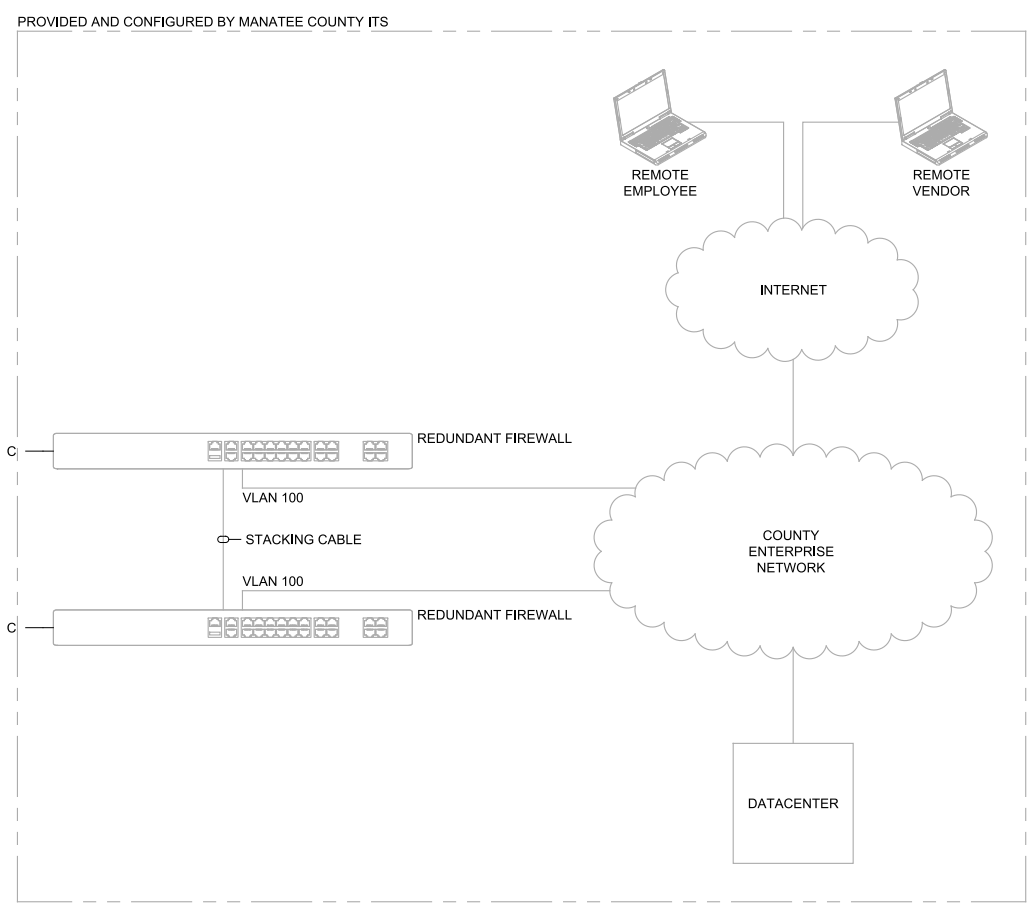
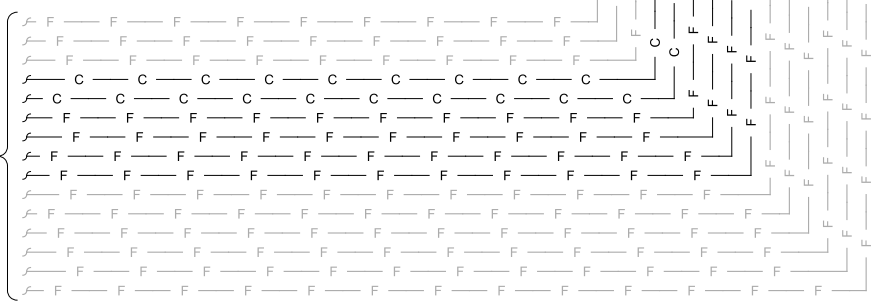
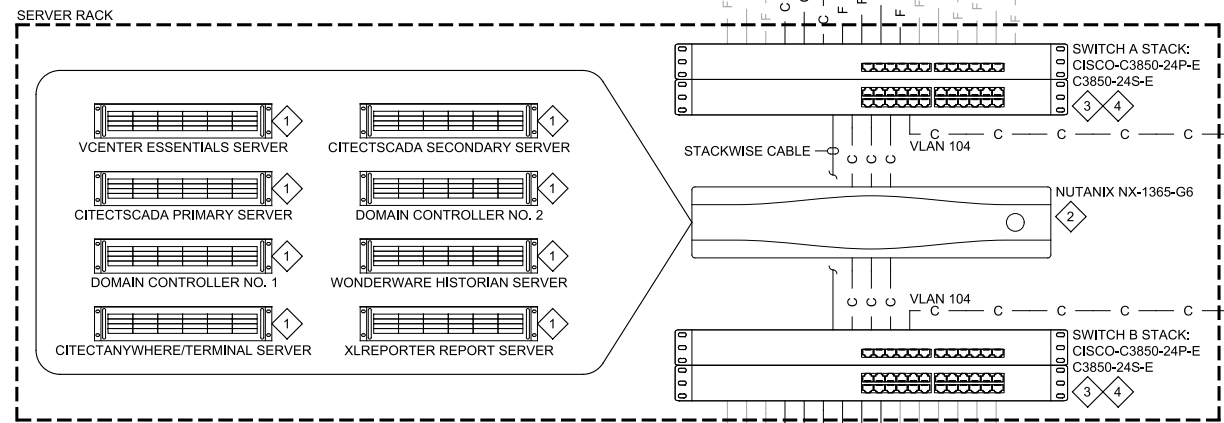
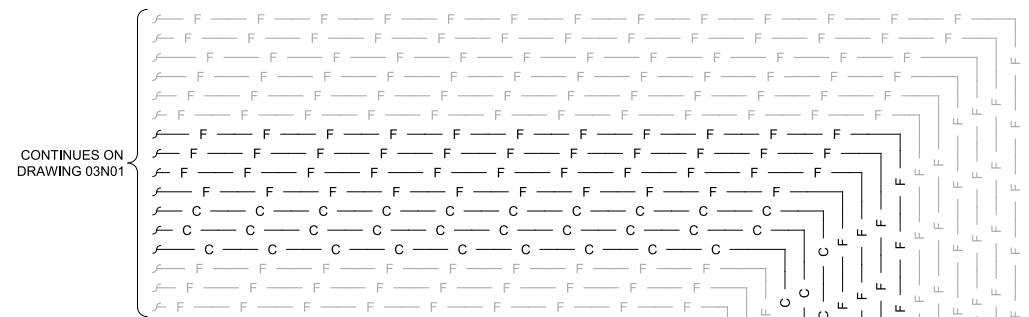
ColorTable: gshade.ctb

Model: Layout1 ColorTable: gshade.ctb

LAST SAVED BY: AWillard

- KEY NOTES:**
- 1 VIRTUALIZED SERVERS HOSTED ON NUTANIX SERVER.
 - 2 REFER TO TABLE ON LOWER RIGHT FOR SOFTWARE REQUIREMENTS. REFER TO SPECIFICATION 11730 FOR NUTANIX SOFTWARE REQUIREMENTS.
 - 3 PROVIDE 24 PORT COPPER PATCH PANEL, ONE EACH FOR SWITCH A AND SWITCH B.
 - 4 PROVIDE 96 PORT FIBER PATCH PANEL, TERMINATE ALL SCADA AND PLC NETWORK FIBER CABLES.

- LEGEND:**
- F - FIBER CABLE
 - C - CAT6 CABLE
 - - - - - EXISTING
 - - - - - NEW
 - VLAN 100 OUTSIDE VLAN
 - VLAN 101 SCADA NETWORK VLAN
 - VLAN 102 PLC NETWORK VLAN
 - VLAN 103 RADIO NETWORK VLAN
 - VLAN 104 IN-TRANSIT VLAN



NUTANIX NX-1365-G6	VIRTUALIZED SERVER	SOFTWARE	LICENSE	NUMBER OF LICENSES
VMWARE VSPHERE ESSENTIALS PLUS KIT ESXI	VCENTER ESSENTIALS SERVER	VCENTER ESSENTIALS SERVER RUNNING ON WINDOWS 2016 SERVER	WINDOWS 2016 STANDARD (MINIMUM FOR SPECIFIED 3 NODE NUTANIX HARDWARE) (1) ONE WINDOWS 2016 STANDARD (16 CORE) LICENSE, (17) SEVENTEEN WINDOWS 2016 STANDARD ADDITIONAL APOS (16 CORE) LICENSES, AND (3) THREE WINDOWS 2016 STANDARD ADDITIONAL APOS (4 CORE) LICENSES.	
	PRIMARY SCADA SERVER	CITECTSCADA 2016 SERVER RUNNING ON WINDOWS 2016 SERVER	5000 POINT SERVER, 10 CONTROL CLIENTS, WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	1 SERVER AND 10 CLIENTS
	DOMAIN CONTROLLER 1	WINDOWS 2016 SERVER	WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	
	CITECTANYWHERE SERVER	CITECTANYWHERE, WINDOWS 2016 SERVER	CITECTANYWHERE SERVER (5 USER PACK), WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	5 CITECTANYWHERE USER PACKS
	SECONDARY SCADA SERVER	CITECTSCADA 2016 SERVER RUNNING ON WINDOWS 2016 SERVER	5000 POINT REDUNDANT SERVER, 10 REDUNDANT CONTROL CLIENTS, WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	1 SERVER AND 10 CLIENTS
	DOMAIN CONTROLLER 2	WINDOWS 2016 SERVER	WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	
	HISTORIAN SERVER	WONDERWARE HISTORIAN 2017, WINDOWS 2016 SERVER	WONDERWARE HISTORIAN 2017, 5000 POINTS, 10 CLIENTS, WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	5000 POINTS AND 10 CLIENTS
	REPORT SERVER	XLREPORTER, WINDOWS 2016 SERVER	SYTECH XLREPORTER TEAM EDITION, 10 CLIENTS, WINDOWS 2016 (STANDARD, 10 CALS MINIMUM)	10 CLIENTS

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED
AMA

DRAWN
ANW

CHECKED
NEA

DATE
DECEMBER 2018

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SCADA ARCHITECTURE - II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
10716L10

DRAWING NO.
03N02

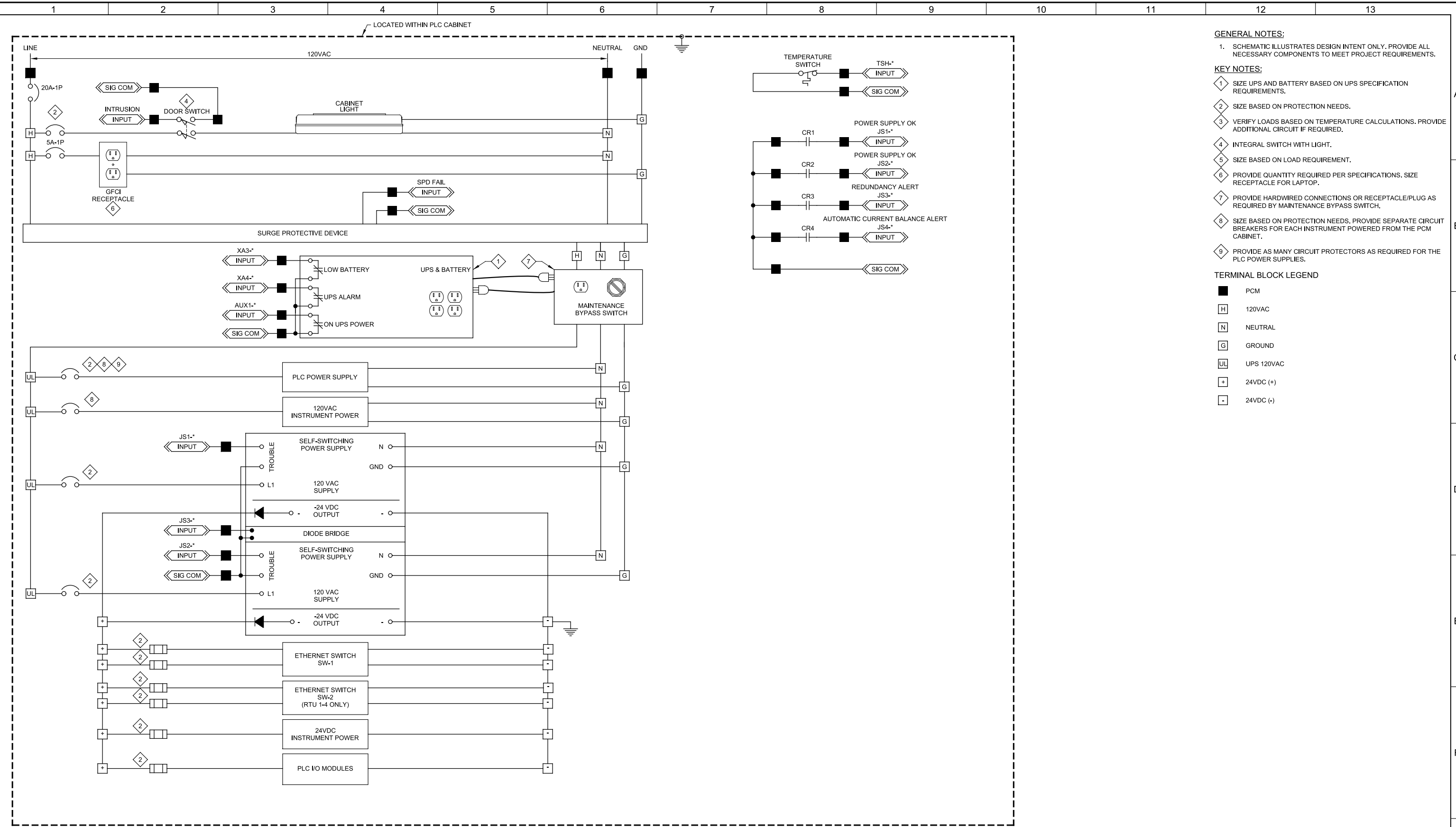
SHEET NO.
78 OF 84

Plot Date: 06-DEC-2018 11:50:16 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

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1 CABINET POWER DISTRIBUTION PANEL
 02N01, 02N02, 02N03, 02N04, 02N05

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			

DESIGNED: JHJ
 DRAWN: ANW
 CHECKED: NEA
 DATE: DECEMBER 2018

JOSEPH J. HANON
 LICENSE No. 52848
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

Digitally signed by Joseph J. Hanon
 Contact info: Carollo Engineers Inc.
 Date: 2018.12.18 14:59:46 -0500

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MANATEE COUNTY
 LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
 RTU NO. 1-5 CONTROL SCHEMATIC

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 10716L10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 06N01
	SHEET NO. 79 OF 84

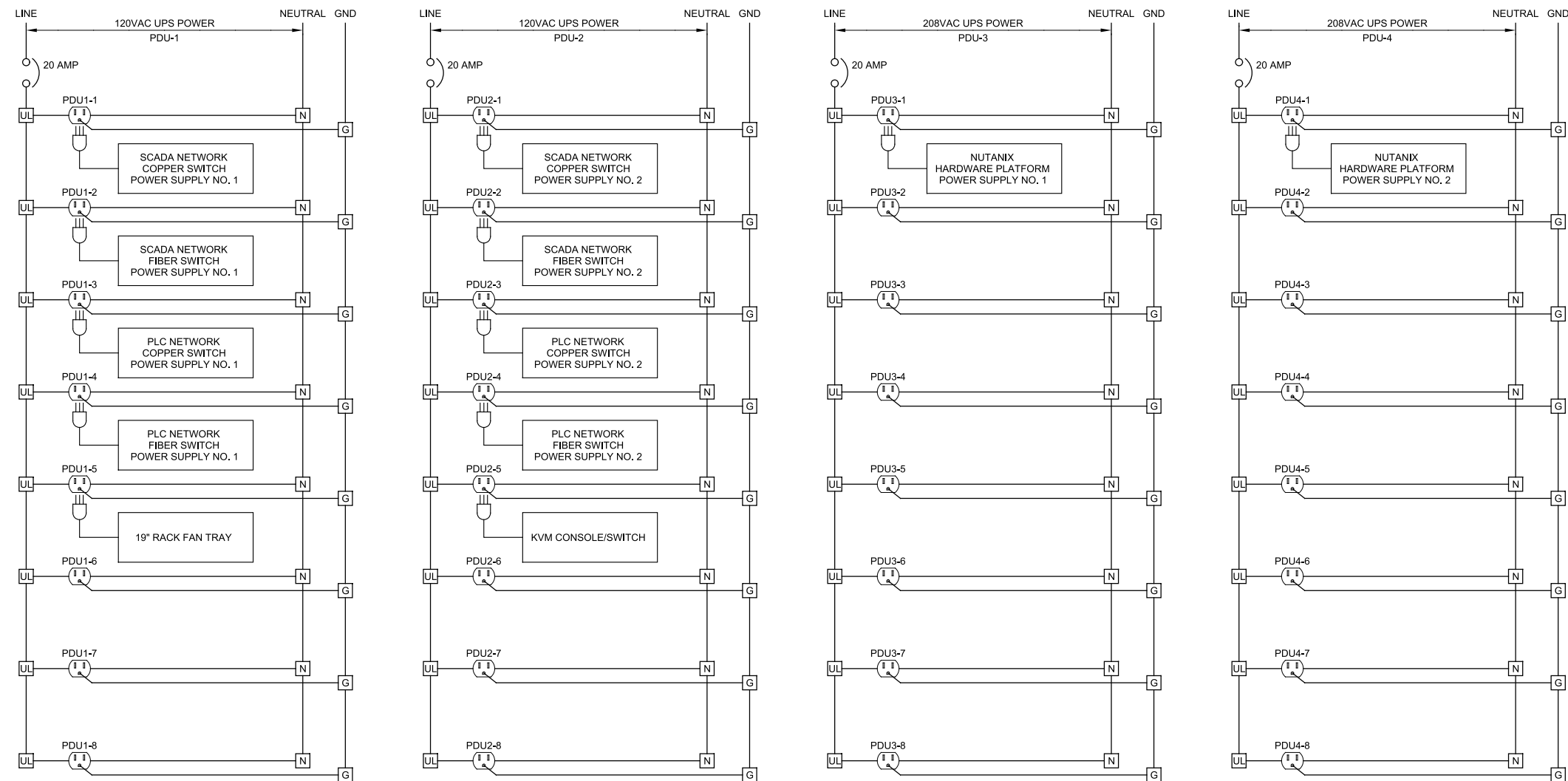
Pldt Date: 06-DEC-2018 11:49:41 AM

User: svcPW

PldtScale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen

LAST SAVED BY: AWillard



TERMINAL BLOCK LEGEND

- N NEUTRAL
- G GROUND
- UL UPS 120/208VAC

2 PDU-1 AND PDU-2 POWER
02N08

REV	DATE	BY	DESCRIPTION

DESIGNED
AMA

DRAWN
ANW

CHECKED
NEA

DATE
DECEMBER 2018

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
SERVER RACK CONTROL SCHEMATIC

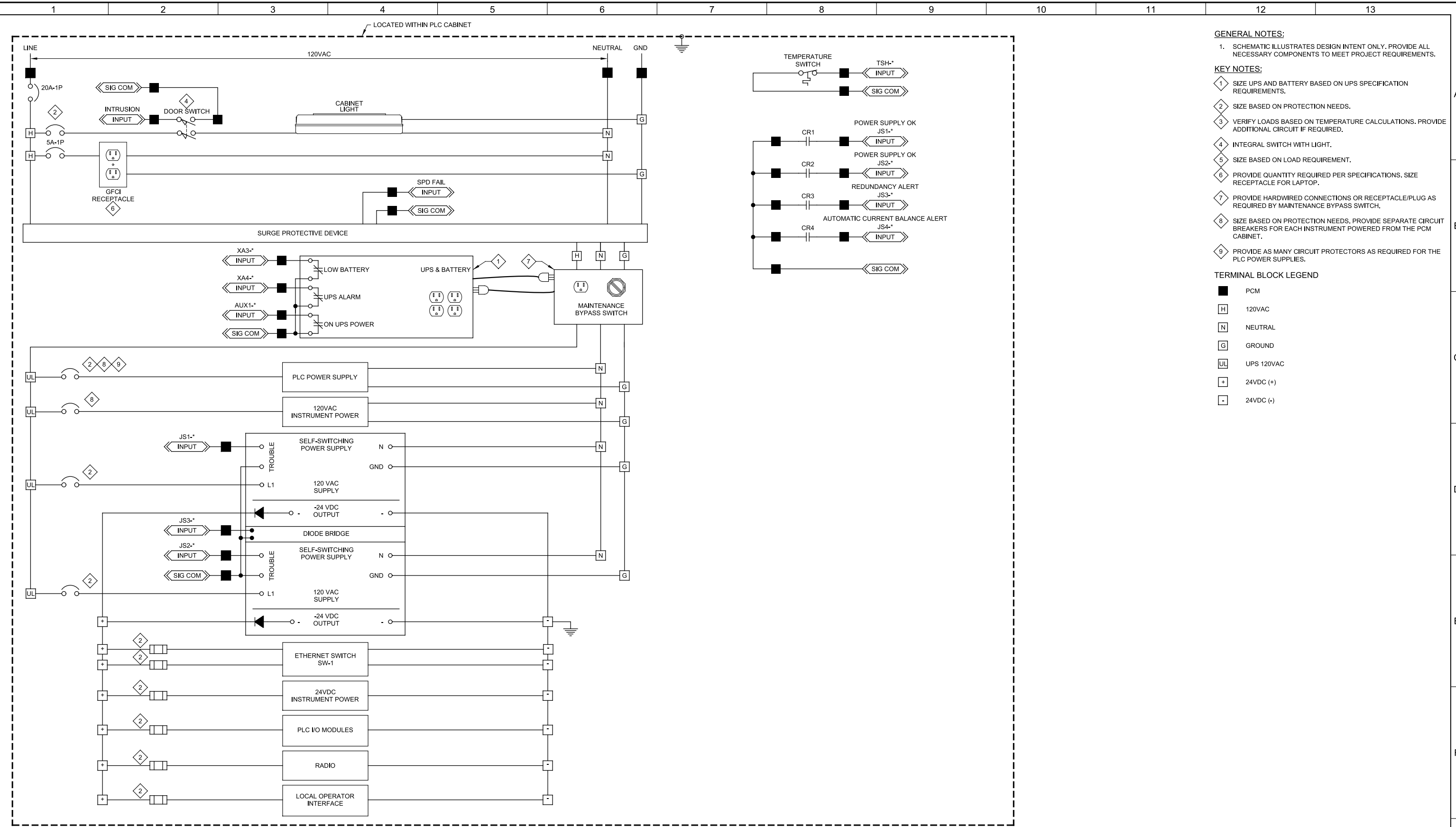
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 10716L10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 06N02
	SHEET NO. 80 OF 84

Plot Date: 06-DEC-2018 11:47:49 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWillard



- GENERAL NOTES:**
1. SCHEMATIC ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
- KEY NOTES:**
- 1 SIZE UPS AND BATTERY BASED ON UPS SPECIFICATION REQUIREMENTS.
 - 2 SIZE BASED ON PROTECTION NEEDS.
 - 3 VERIFY LOADS BASED ON TEMPERATURE CALCULATIONS. PROVIDE ADDITIONAL CIRCUIT IF REQUIRED.
 - 4 INTEGRAL SWITCH WITH LIGHT.
 - 5 SIZE BASED ON LOAD REQUIREMENT.
 - 6 PROVIDE QUANTITY REQUIRED PER SPECIFICATIONS. SIZE RECEPTACLE FOR LAPTOP.
 - 7 PROVIDE HARDWIRED CONNECTIONS OR RECEPTACLE/PLUG AS REQUIRED BY MAINTENANCE BYPASS SWITCH.
 - 8 SIZE BASED ON PROTECTION NEEDS. PROVIDE SEPARATE CIRCUIT BREAKERS FOR EACH INSTRUMENT POWERED FROM THE PCM CABINET.
 - 9 PROVIDE AS MANY CIRCUIT PROTECTORS AS REQUIRED FOR THE PLC POWER SUPPLIES.
- TERMINAL BLOCK LEGEND**
- PCM
 - [H] 120VAC
 - [N] NEUTRAL
 - [G] GROUND
 - [UL] UPS 120VAC
 - [+] 24VDC (+)
 - [-] 24VDC (-)

3 CABINET POWER DISTRIBUTION PANEL
02N11

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED JHJ
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANON
LICENSE
No. 52848
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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Contact info: Carollo Engineers Inc.
Date: 2018.12.18 14:52:06 -0500
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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
TYPICAL BOOSTER STATION RTU CONTROL SCHEMATIC

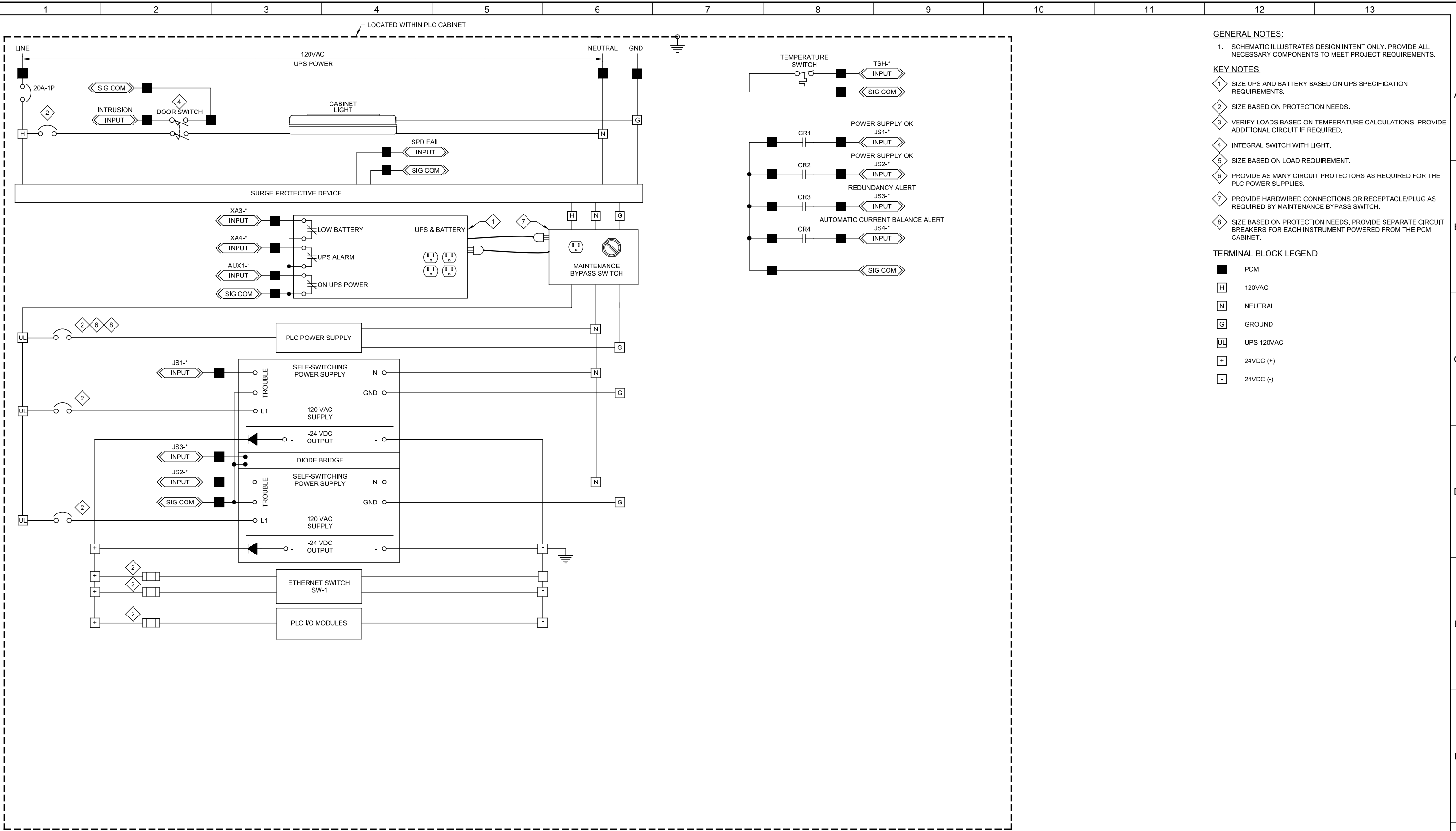
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 10716L10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 06N03
	SHEET NO. 81 OF 84

Plot Date: 06-DEC-2018 11:48:11 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: AWillard



- GENERAL NOTES:**
1. SCHEMATIC ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
- KEY NOTES:**
- 1 SIZE UPS AND BATTERY BASED ON UPS SPECIFICATION REQUIREMENTS.
 - 2 SIZE BASED ON PROTECTION NEEDS.
 - 3 VERIFY LOADS BASED ON TEMPERATURE CALCULATIONS. PROVIDE ADDITIONAL CIRCUIT IF REQUIRED.
 - 4 INTEGRAL SWITCH WITH LIGHT.
 - 5 SIZE BASED ON LOAD REQUIREMENT.
 - 6 PROVIDE AS MANY CIRCUIT PROTECTORS AS REQUIRED FOR THE PLC POWER SUPPLIES.
 - 7 PROVIDE HARDWIRED CONNECTIONS OR RECEPTACLE/PLUG AS REQUIRED BY MAINTENANCE BYPASS SWITCH.
 - 8 SIZE BASED ON PROTECTION NEEDS. PROVIDE SEPARATE CIRCUIT BREAKERS FOR EACH INSTRUMENT POWERED FROM THE PCM CABINET.
- TERMINAL BLOCK LEGEND**
- PCM
 - H 120VAC
 - N NEUTRAL
 - G GROUND
 - UL UPS 120VAC
 - + 24VDC (+)
 - 24VDC (-)

4 CABINET POWER DISTRIBUTION PANEL
02N12

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED JHJ
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANLON
LICENSE
No. 52848
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Joseph J. Hanlon
Contact info: Carollo Engineers Inc.
Date: 2018.12.18 14:56:45-0500

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
TANTIER GATES CONTROL PANEL
CONTROL SCHEMATIC

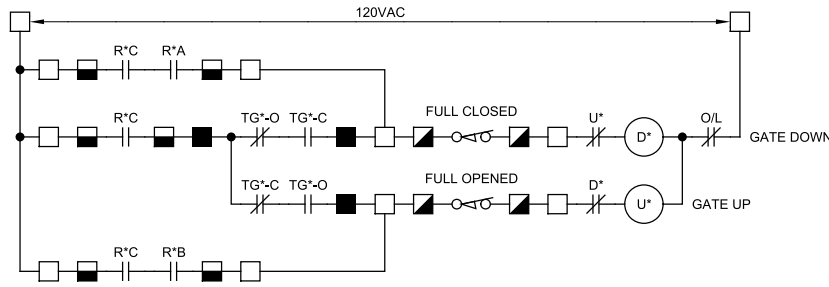
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 10716L10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 06N04
	SHEET NO. 82 OF 84

Plot Date: 06-DEC-2018 11:45:48 AM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sld_Pen_v0905.pen PlotScale: 1:1

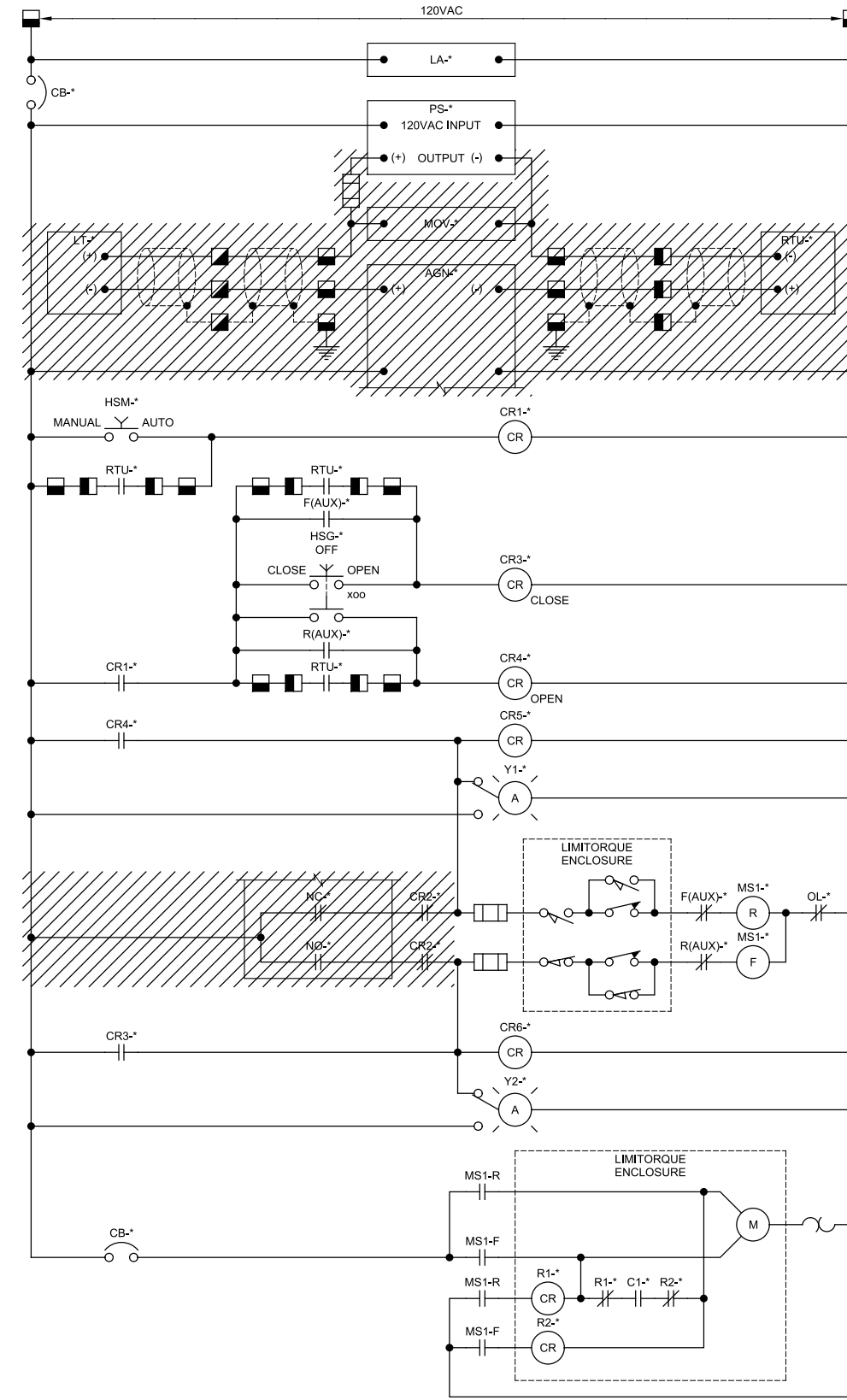
LAST SAVED BY: AWillard



GENERAL NOTES:

1. SCHEMATIC ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
2. R*A, B, C LOCATED IN RELAY PANEL ON OPPOSITE WALL OF NEW PLC/RTU.
3. TG*-O AND TG*-C LOCATED IN NEW PLC/RTU PANEL IN GATE CONTROL/MCC BUILDING.
4. * = GATE 1, 2, AND 3 RESPECTIVELY.
5. R*1, R*2, AND R*3 ARE EXISTING RELAYS.

5 TAITNER GATES



GENERAL NOTES:

1. REMOVE EXISTING AGM AND ASSOCIATED WIRING.
2. RTU CONTACTS SHOWN BELOW FOR OPEN AND CLOSE WILL BE FROM THE NEW RTU INSTALLED IN AN ADJACENT ENCLOSURE.

6 ELEVATED TANK VALVE CONTROL

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			

DESIGNED: JH
 DRAWN: ANW
 CHECKED: NEA
 DATE: DECEMBER 2018

JOSEPH J. HANLON
 LICENSE No. 52848
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

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MANATEE COUNTY
 LAKE MANATEE WTP SCADA UPGRADE
 INSTRUMENTATION
 CONTROL SCHEMATICS

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 10716L10
 DRAWING NO. 06N05
 SHEET NO. 83 OF 84

Plot Date: 06-DEC-2018 11:49:26 AM

User: svcPW

Model: Layout1

ColorTable: gshade.ctb

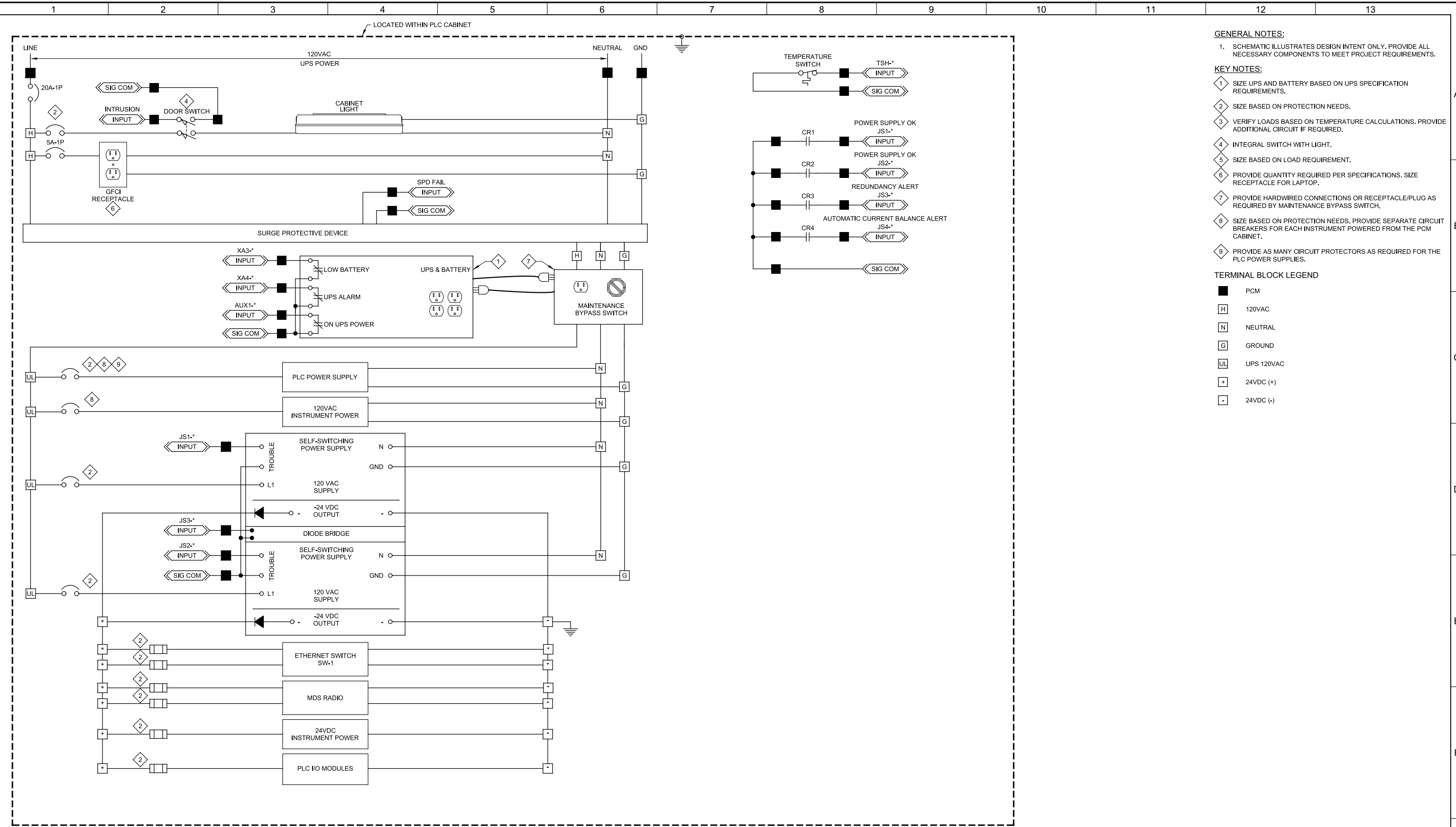
DesignScript: Carollo_Sld_Pen_v0905.pen

PlotScale: 1:1

LAST_SAVED BY: AWillard

PROJECT NO. 10716110

FILE NAME: 1071611006N006.dgn



- GENERAL NOTES:**
1. SCHEMATIC ILLUSTRATES DESIGN INTENT ONLY. PROVIDE ALL NECESSARY COMPONENTS TO MEET PROJECT REQUIREMENTS.
- KEY NOTES:**
- 1 SIZE UPS AND BATTERY BASED ON UPS SPECIFICATION REQUIREMENTS.
 - 2 SIZE BASED ON PROTECTION NEEDS.
 - 3 VERIFY LOADS BASED ON TEMPERATURE CALCULATIONS. PROVIDE ADDITIONAL CIRCUIT IF REQUIRED.
 - 4 INTEGRAL SWITCH WITH LIGHT.
 - 5 SIZE BASED ON LOAD REQUIREMENT.
 - 6 PROVIDE QUANTITY REQUIRED PER SPECIFICATIONS. SIZE RECEPTACLE FOR LAPTOP.
 - 7 PROVIDE HARDWIRED CONNECTIONS OR RECEPTACLE/PLUG AS REQUIRED BY MAINTENANCE BYPASS SWITCH.
 - 8 SIZE BASED ON PROTECTION NEEDS. PROVIDE SEPARATE CIRCUIT BREAKERS FOR EACH INSTRUMENT POWERED FROM THE PCM CABINET.
 - 9 PROVIDE AS MANY CIRCUIT PROTECTORS AS REQUIRED FOR THE PLC POWER SUPPLIES.
- TERMINAL BLOCK LEGEND**
- PCM
 - [H] 120VAC
 - [N] NEUTRAL
 - [G] GROUND
 - [UL] UPS 120VAC
 - [+] 24VDC (+)
 - [-] 24VDC (-)

7 CABINET POWER DISTRIBUTION PANEL
02N06

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED JHJ
DRAWN ANW
CHECKED NEA
DATE DECEMBER 2018

JOSEPH J. HANON
LICENSE
No. 52848
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Joseph J. Hanon
Contact info: Carollo Engineers Inc.
Date: 2018.12.18 14:54:40 -0500
Joseph J. Hanon

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MANATEE COUNTY
LAKE MANATEE WTP SCADA UPGRADE
INSTRUMENTATION
TYPICAL RTU CONTROL SCHEMATIC

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 10716110
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 06N06
	SHEET NO. 84 OF 84