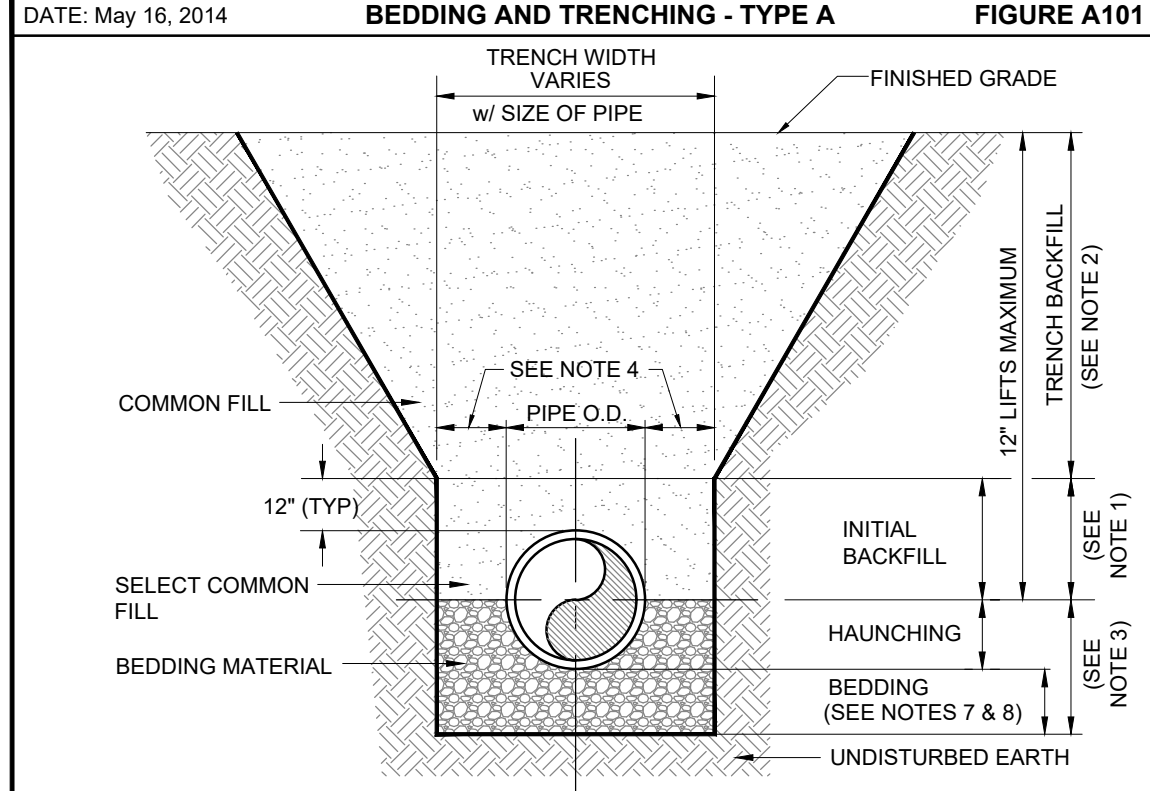
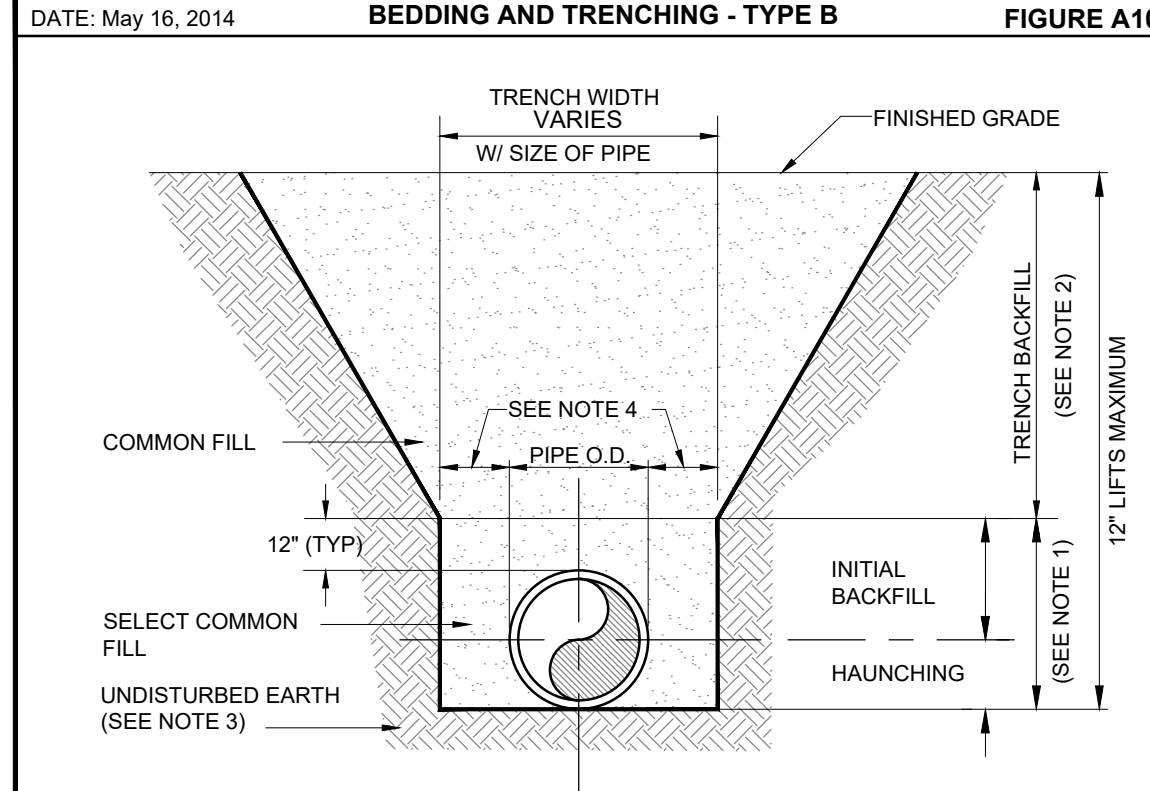


APPENDIX A STANDARD DRAWINGS GENERAL
BEDDING AND TRENCHING - TYPE A FIGURE A101



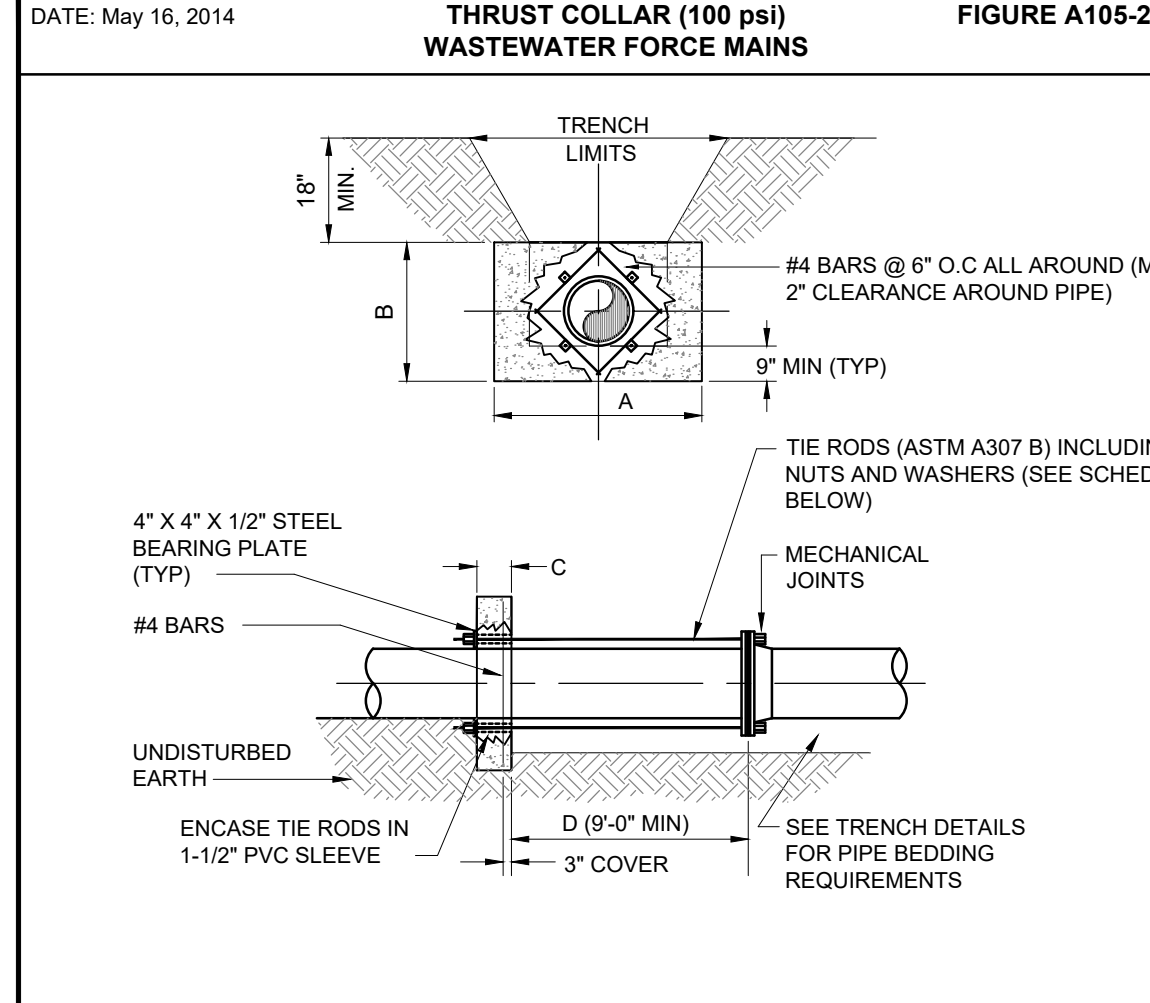
- NOTES:
- INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TYPE A BEDDING MATERIAL SHALL CONFORM TO FDOT NO. 57 AGGREGATE.
 - 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER UP TO 12" AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
 - DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. UTILITIES SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF R/W UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

APPENDIX A STANDARD DRAWINGS GENERAL
BEDDING AND TRENCHING - TYPE B FIGURE A102



- NOTES:
- INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY UTILITIES.
 - 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

APPENDIX A STANDARD DRAWINGS GENERAL
THRUST COLLAR (100 PSI)
WASTEWATER FORCE MAINS FIGURE A105-2



NOTES:

- ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
- MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
- BEDDING, BACKFILL, AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
- ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
- NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
- DESIGN PRESSURE: 100 PSI.
- REQUIRED FOR LINE STOPS.

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS REQD	
	A	B	C	D	DIA.	NO.
6	2.0	2.0	1.0		3/4	2
8	2.5	2.5	1.0		3/4	2
10	3.0	2.5	1.0		3/4	4
12	4.0	3.0	1.0		3/4	4
16	5.5	3.5	1.5		3/4	4
20	7.5	4.0	1.5		3/4	4
24	8.5	5.0	1.5		3/4	6

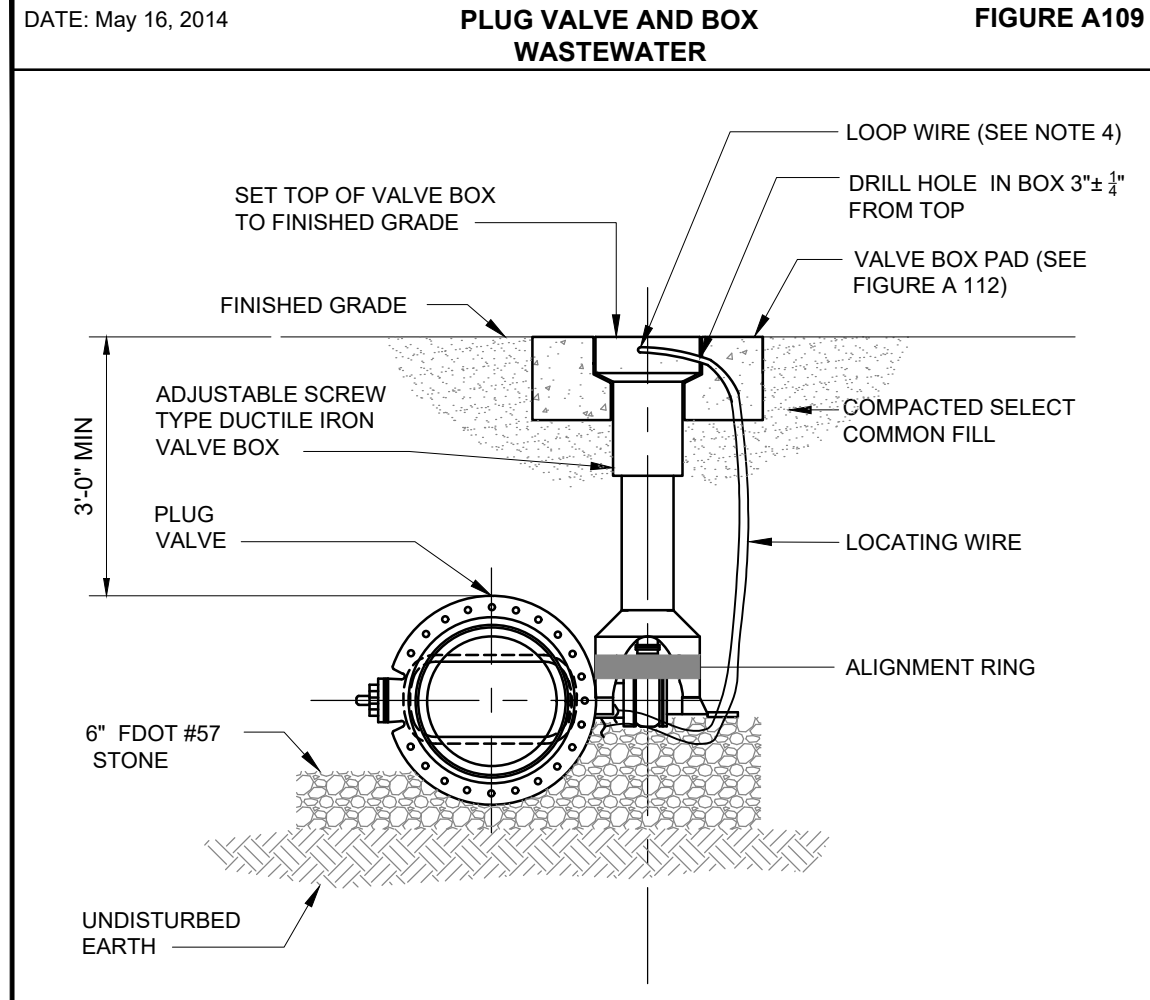
NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

APPENDIX A STANDARD DRAWINGS GENERAL
RESTRAINED PIPE TABLE
WASTEWATER FORCE MAINS FIGURE A104-2

TYPE	PVC PIPE SIZE									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	18	24	31	38	43	55	65	75	88	100
45° BEND	8	10	13	15	18	23	26	31	38	43
22-1/2° BEND	4	5	6	8	9	11	13	15	18	20
11-1/4° BEND	2	3	4	5	6	8	9	10	11	13
PLUG OR BRANCH OF TEE	38	50	65	79	90	117	139	163	194	223
VALVE	19	25	32	40	45	59	70	82	98	112
REDUCER	VARIES BY SIZE. TO BE DETERMINED BY THE DESIGN ENGINEER.									

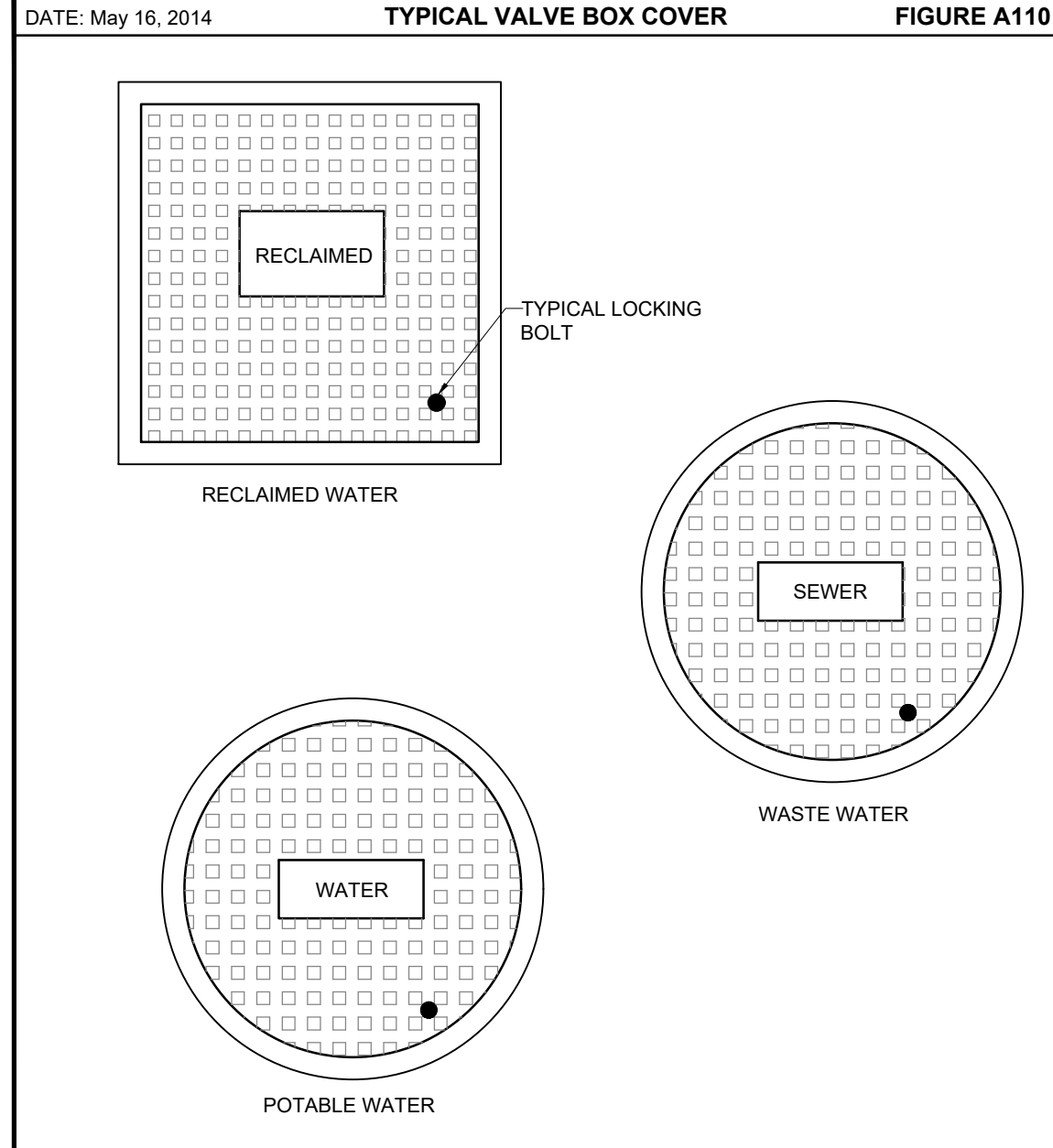
- NOTES:
- FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
 - INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
 - WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
 - ALL INLINE VALVES SHALL BE RESTRAINED.
 - WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
 - LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW.
- WORKING PRESSURE: 100 PSI
SOIL DESIGNATION: SM (SAND SILT)
LAYING CONDITIONS: 3
DEPTH OF COVER: 3 FT
SAFETY FACTOR: 1.5
CONVERSION FACTOR FOR PVC PIPE: 1.25
- THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.

APPENDIX A STANDARD DRAWINGS GENERAL
PLUG VALVE AND BOX
WASTEWATER FIGURE A109



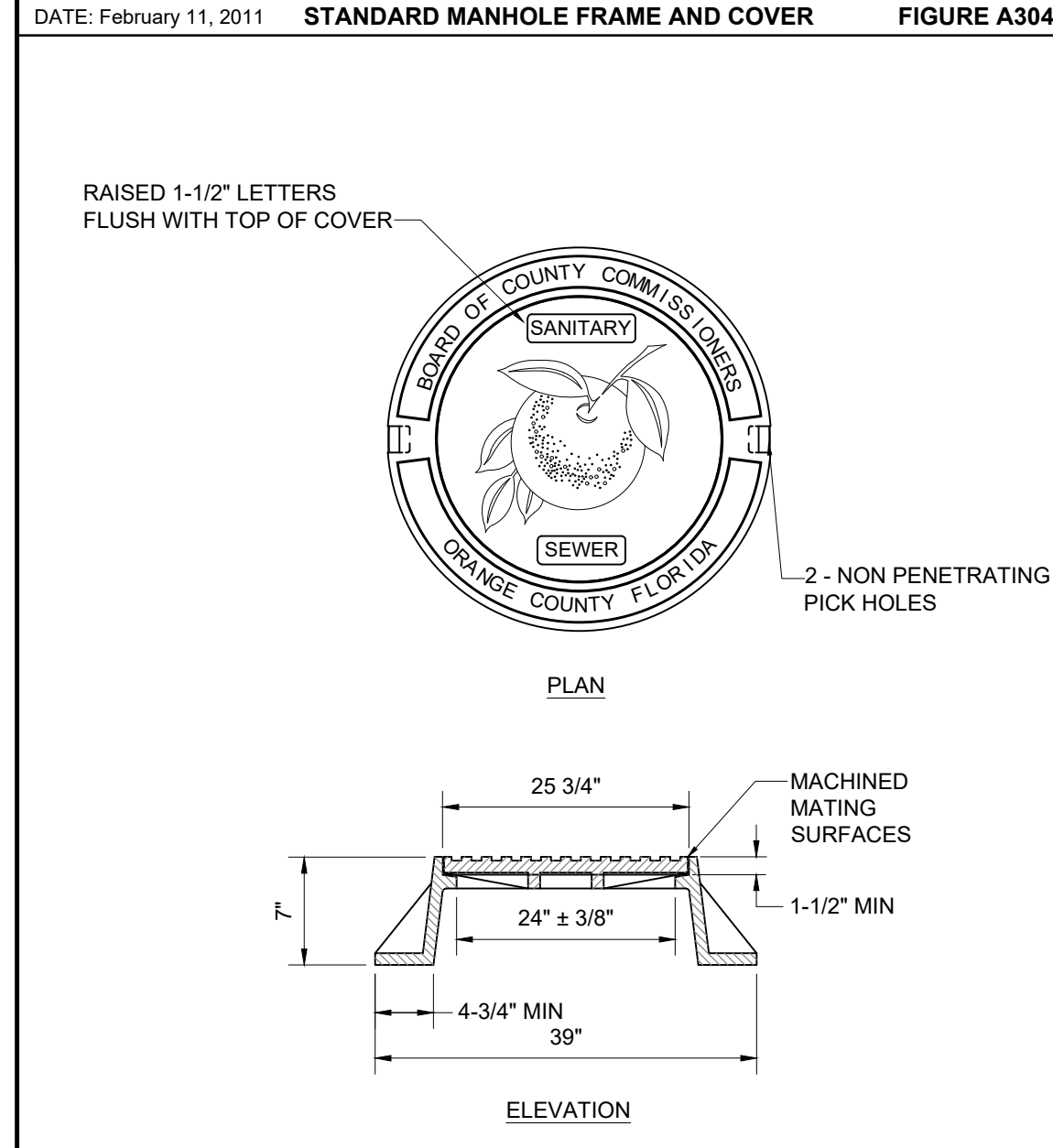
- NOTES:
- PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
 - THE VALVE ACTUATING NUT SHALL BE EXTENDED TO BE WITHIN 3" OF FINISHED GRADE.
 - PROVIDE A PLASTIC DEBRIS SHIELD / ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
 - LOCATING WIRE SHALL BE CONTINUOUS WITH NO SPLICES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR. WIRE SHALL BE COLOR CODED TO MATCH THE UTILITY INSTALLED.
 - FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
 - REFER TO FIGURE A111 FOR INSTALLATIONS AT A DEPTH OF 6' OR GREATER.

APPENDIX A STANDARD DRAWINGS GENERAL
TYPICAL VALVE BOX COVER FIGURE A110



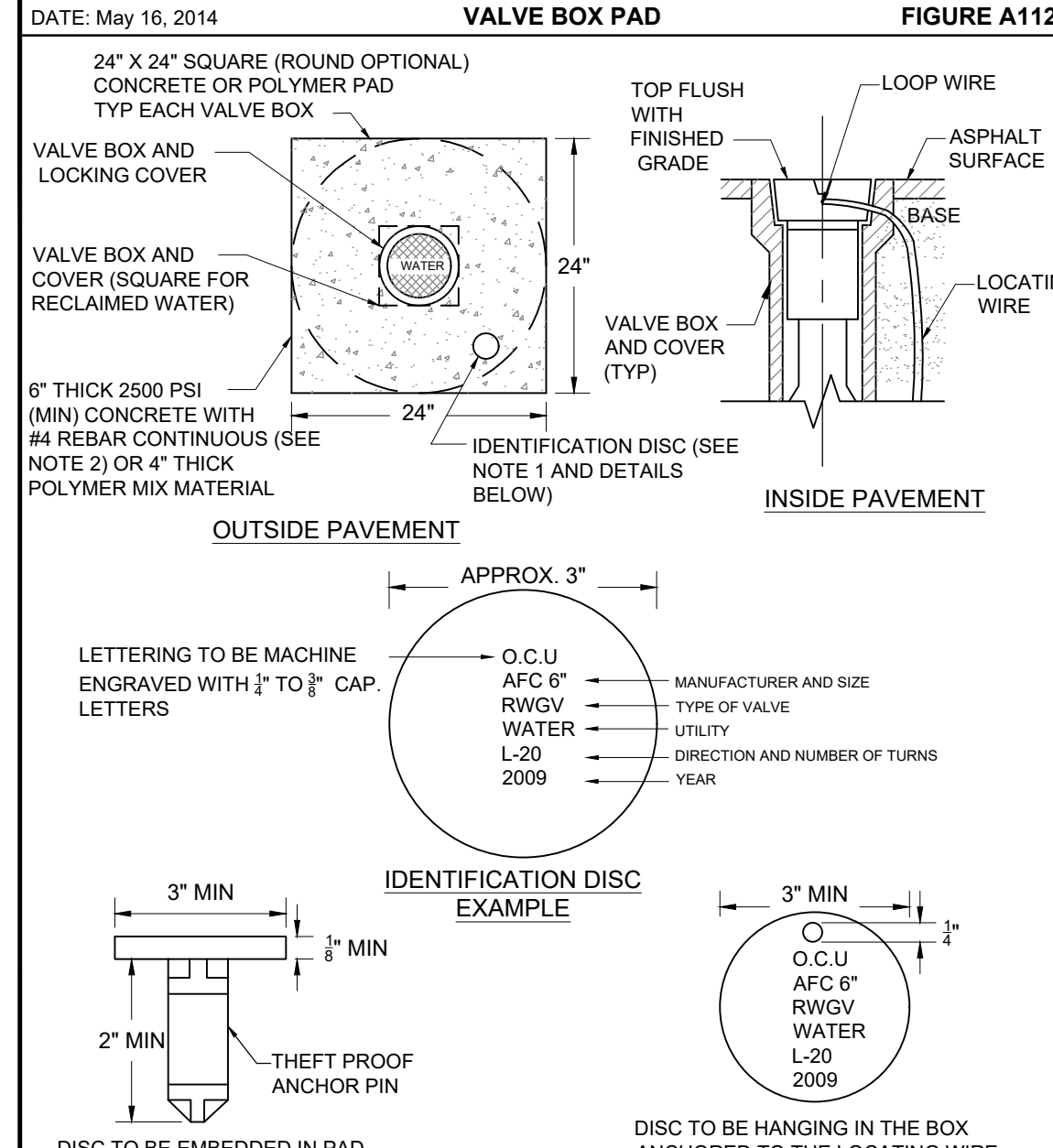
- NOTE:
- LOCKING LIDS ARE REQUIRED ON ALL VALVE BOXES.

APPENDIX A STANDARD DRAWINGS GENERAL
STANDARD MANHOLE FRAME AND COVER FIGURE A304



- NOTES:
- ONLY APPLIES TO UTILITIES OWNED AND MAINTAINED MANHOLES. "ORANGE COUNTY" SHALL NOT APPEAR ON PRIVATE MANHOLES.

APPENDIX A STANDARD DRAWINGS GENERAL
VALVE BOX PAD FIGURE A112



- NOTES:
- BRONZE (OR STAINLESS STEEL) IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES, EXCEPT HYDRANT VALVES.
 - IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD WITH TWO #4 REBAR AROUND PERIMETER MAY BE USED.

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

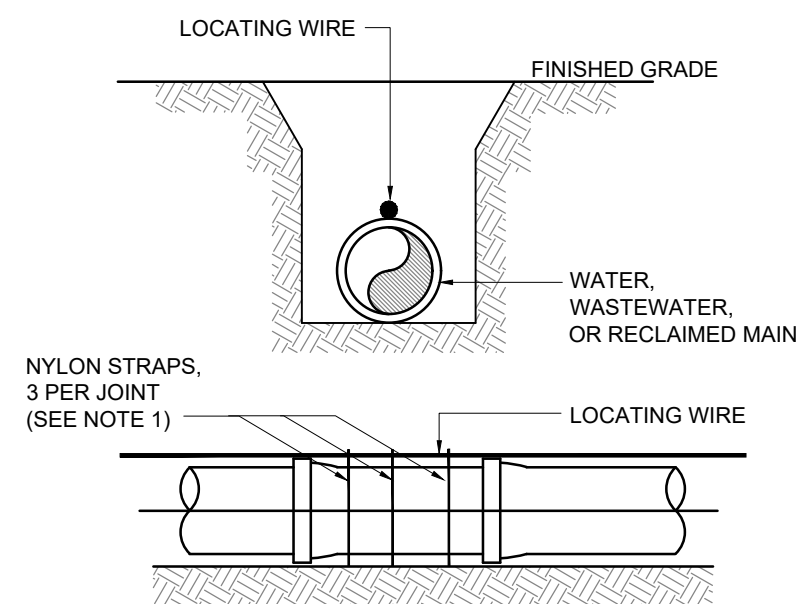
SNC-LAVALIN
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Member of the SNC-Lavalin Group

CIVIL DETAILS

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DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
CADD FILE: X

SCALE: N.T.S.
DRAWING NO.: D-100
SHEET: X OF X

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: May 16, 2014 PIPE LOCATING WIRE FIGURE A114



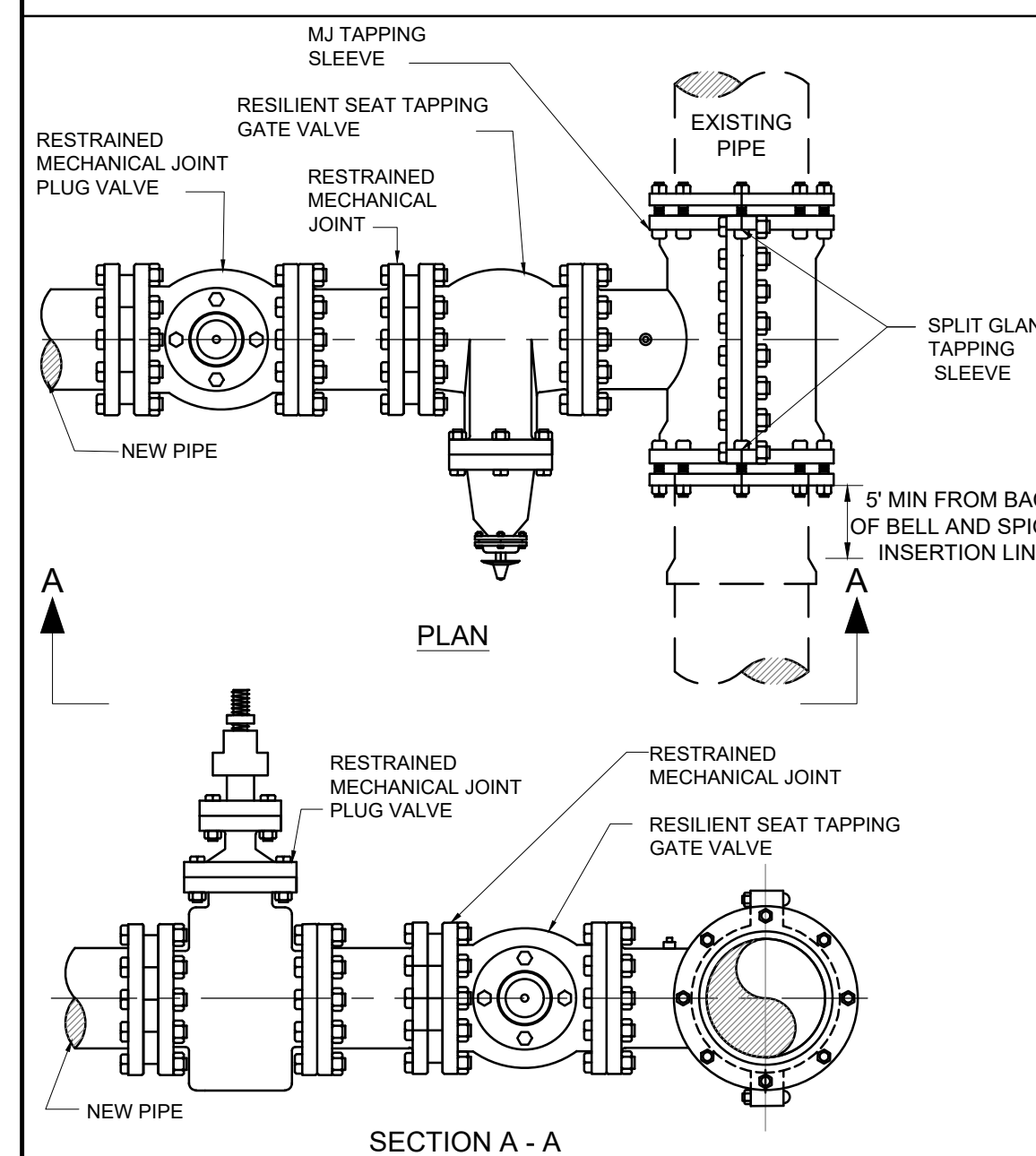
- NOTES:
1. ALL PIPE SHALL REQUIRE INSULATED LOCATING WIRE (10 GAUGE SOLID COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE WRAPPED WITH NYLON STRAPS TO TOP CENTERLINE OF THE PIPE.
 2. LOCATING WIRE SHALL BE CONTINUOUS INSIDE VALVE BOXES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR.
 3. WIRE INSULATION SHALL BE COLOR CODED FOR THE TYPE OF PIPE BEING INSTALLED.

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: May 16, 2014 SEPARATION REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER MAINS FIGURE A116

PROPOSED UTILITY	POTABLE WATER		RECLAIMED WATER		WASTEWATER (GRAVITY & FM)		STORM SEWER	
	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT
POTABLE WATER	3'	12"	3'	12"	6'	12"	3'	12"/18"
RECLAIMED WATER	3'	12"	3'	12"	3'	12"	3'	12"/18"
WASTEWATER (GRAVITY AND FM)	6'	12"	3'	12"	3'	12"	3'	12"/18"
RIGHT OF WAY	3'	N/A	3'	N/A	3'	N/A	N/A	N/A

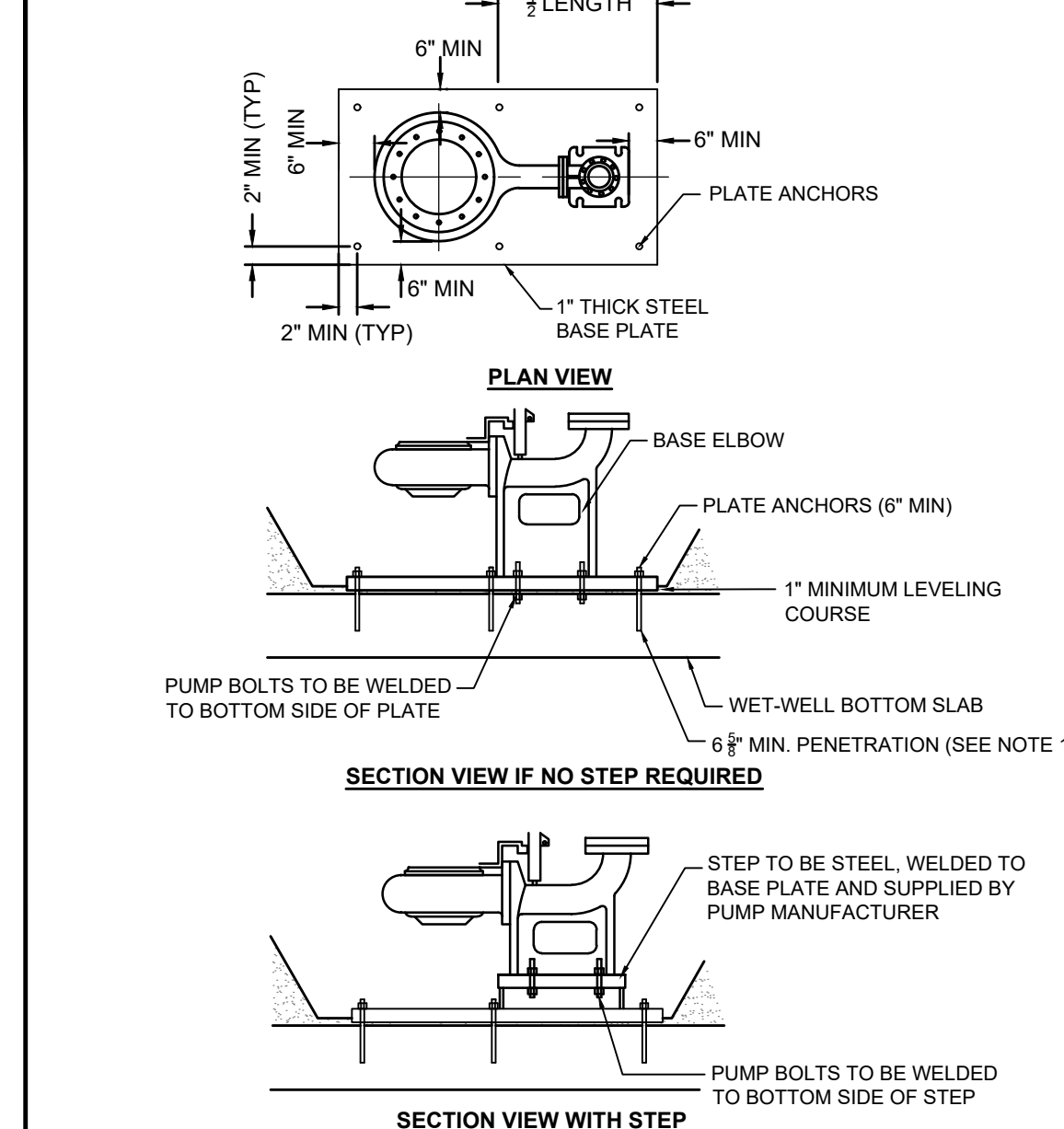
- NOTES:
1. THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTHS, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
 2. THE 18-INCH SEPARATION REQUIREMENT APPLIES WHEN THE STORM PIPE CROSSES ABOVE THE OCU MAIN, AND WHEN THE STORM PIPE HAS A DIAMETER EQUAL TO OR GREATER THAN 24 INCHES. OTHERWISE, THE REQUIRED SEPARATION IS 12 INCHES.
 3. THIS SEPARATION REQUIREMENT COMPLIES WITH MINIMUM FDEP SEPARATION REQUIREMENTS OUTLINED IN 62-555.314, FAC. VARIANCES FROM THE FDEP REQUIREMENTS MUST COMPLY WITH 62-555.314(5), FAC AND MUST BE APPROVED INDIVIDUALLY BY BOTH FDEP AND OCU.
 4. DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
 5. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURE.

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: May 16, 2014 MJ TAPPING SLEEVE AND GATE VALVE WITH PLUG VALVE FOR WASTEWATER FIGURE A121-2



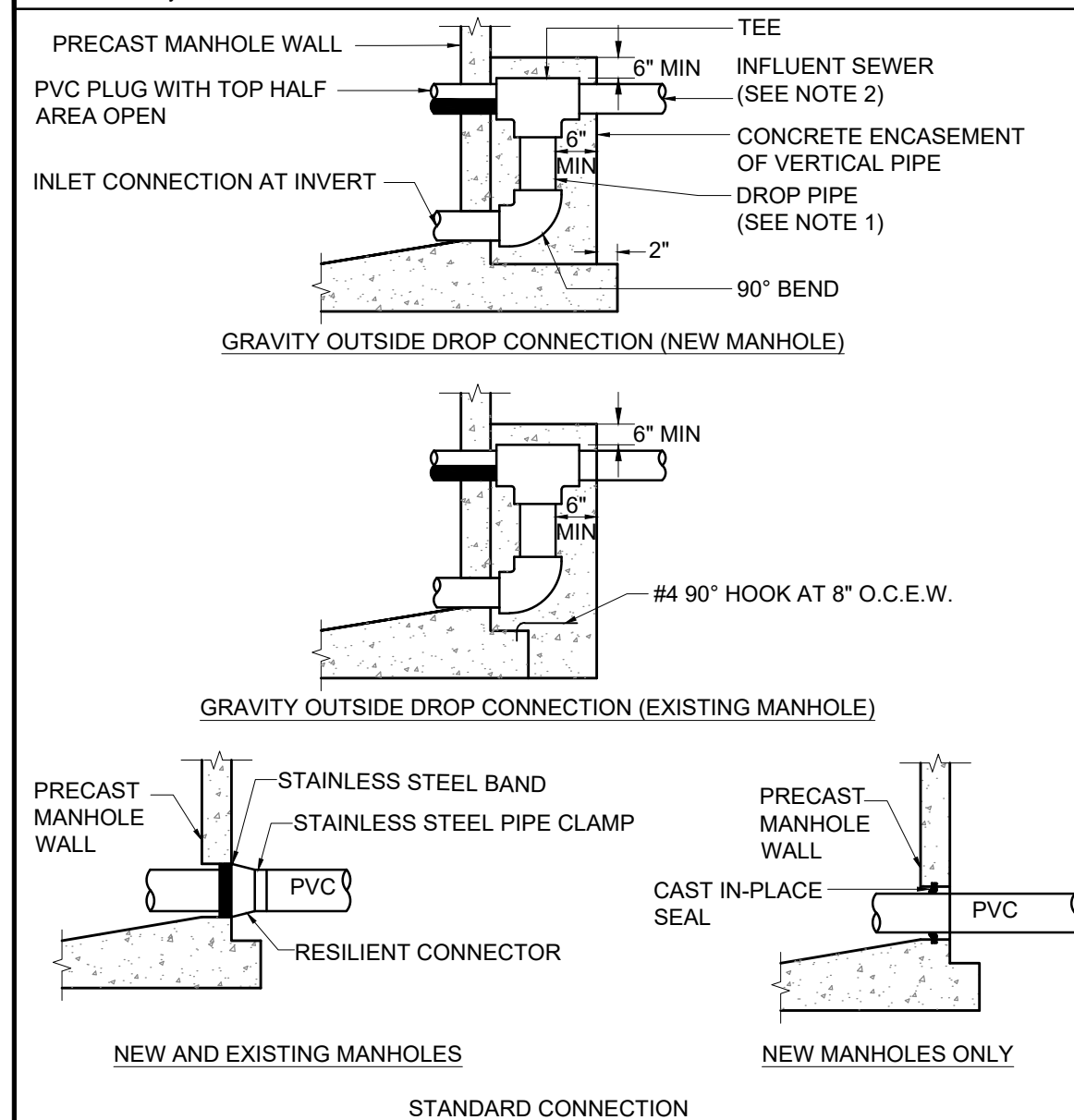
- NOTES:
1. PLUG VALVES GREATER THAN 4" SHALL BE GEAR ACTUATED.
 2. PLUG VALVE TO BE INSTALLED VERTICALLY, AND TAPPING GATE VALVE TO BE INSTALLED HORIZONTALLY AND ABANDONED IN THE OPEN POSITION.

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: February 11, 2011 PUMP BASE PLATE FIGURE A402-4



- NOTES:
1. PLATE ANCHORS TO BE 6" MIN, 3/4" DIAMETER, WITH EPOXY ADHESIVE CAPSULE PROVIDING A MINIMUM EMBEDMENT DEPTH OF 6.5".
 2. NO EXPANSION ANCHORS ALLOWED.
 3. PLATE SIZE: 6" LARGER THAN BASE ELBOW & PUMP VOLUTE TYP. ALL AROUND. BASE PLATE SHALL BE TRIMMED TO FIT, IF REQUIRED.
 4. BASE ELBOW BOLTS, PLATE ANCHORS, AND STUDS TO BE STEEL (MIN ASTM A307 GRADE B AND A563).

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: February 11, 2011 GRAVITY MANHOLE CONNECTION FIGURE A302



- NOTES:
1. DROP PIPE AND FITTINGS SHALL BE OF EQUAL SIZE AND MATERIAL AS THE INFLUENT SEWER.
 2. AN OUTSIDE DROP CONNECTION SHALL BE REQUIRED FOR ALL INFLUENT LINES WHICH HAVE AN INVERT 2' OR MORE ABOVE THE MANHOLE INVERT.
 3. CONTRACTOR TO COORDINATE THE PRESENCE OF UTILITIES INSPECTOR DURING CORING AND CONNECTIONS TO EXISTING MANHOLES.

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: May 16, 2014 RESTRAINED PIPE TABLE WATER AND RECLAIMED WATER MAINS FIGURE A104-1

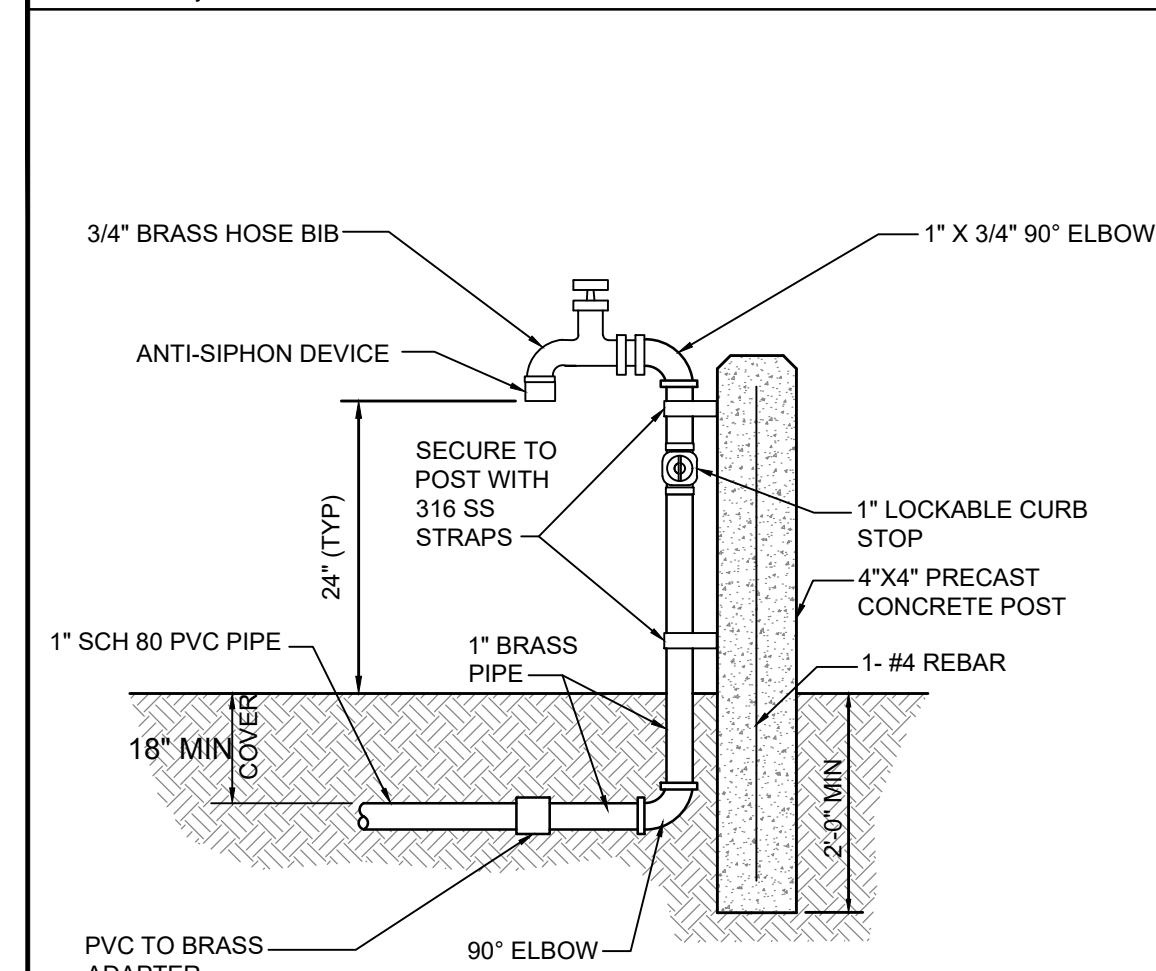
TYPE	PIPE SIZE									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	25	36	46	55	64	85	77	89	105	120
45° BEND	10	15	19	23	26	27	32	37	44	50
22-1/2° BEND	5	8	9	11	13	13	15	18	21	24
11-1/4° BEND	3	4	5	6	8	7	8	9	10	12
PLUG OR BRANCH OF TEE	53	74	97	117	135	138	166	194	231	265
VALVE	27	38	49	59	68	69	83	97	116	133
REDUCER	VARIES BY SIZE. TO BE DETERMINED BY THE DESIGN ENGINEER.									

- NOTES:
1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
 2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
 3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
 4. ALL IN-LINE VALVES SHALL BE RESTRAINED.
 5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
 6. LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:

WORKING PRESSURE: 150 PSI
SOIL DESIGNATION: SM (SAND SILT)
LAYING CONDITIONS: 3
DEPTH OF COVER: 3 FT
SAFETY FACTOR: 1.5
CONVERSION FACTOR FOR PVC PIPE: 1.25

THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC SOIL DESIGNATIONS, LAYING CONDITIONS, PIPE MATERIAL, ETC. FOR DIP ENCASED IN POLYETHYLENE, INCREASE THE GIVEN VALUE BY A FACTOR OF 1.25.

APPENDIX A STANDARD DRAWINGS GENERAL
DATE: February 11, 2011 HOSE BIBB FIGURE A408



REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



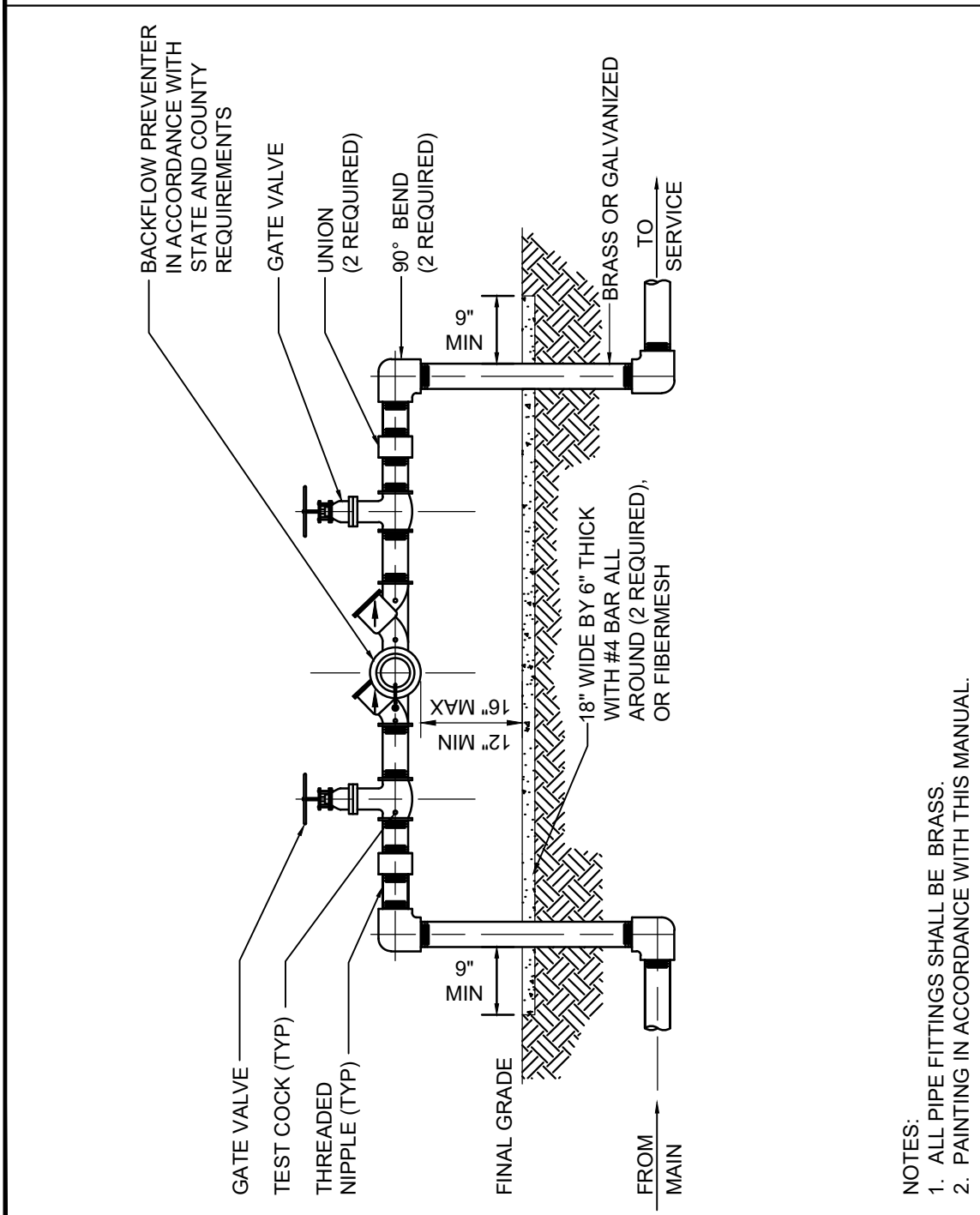
Member of the SNC-Lavalin Group

CIVIL DETAILS

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DRAWN BY: X
CHECKED BY: X
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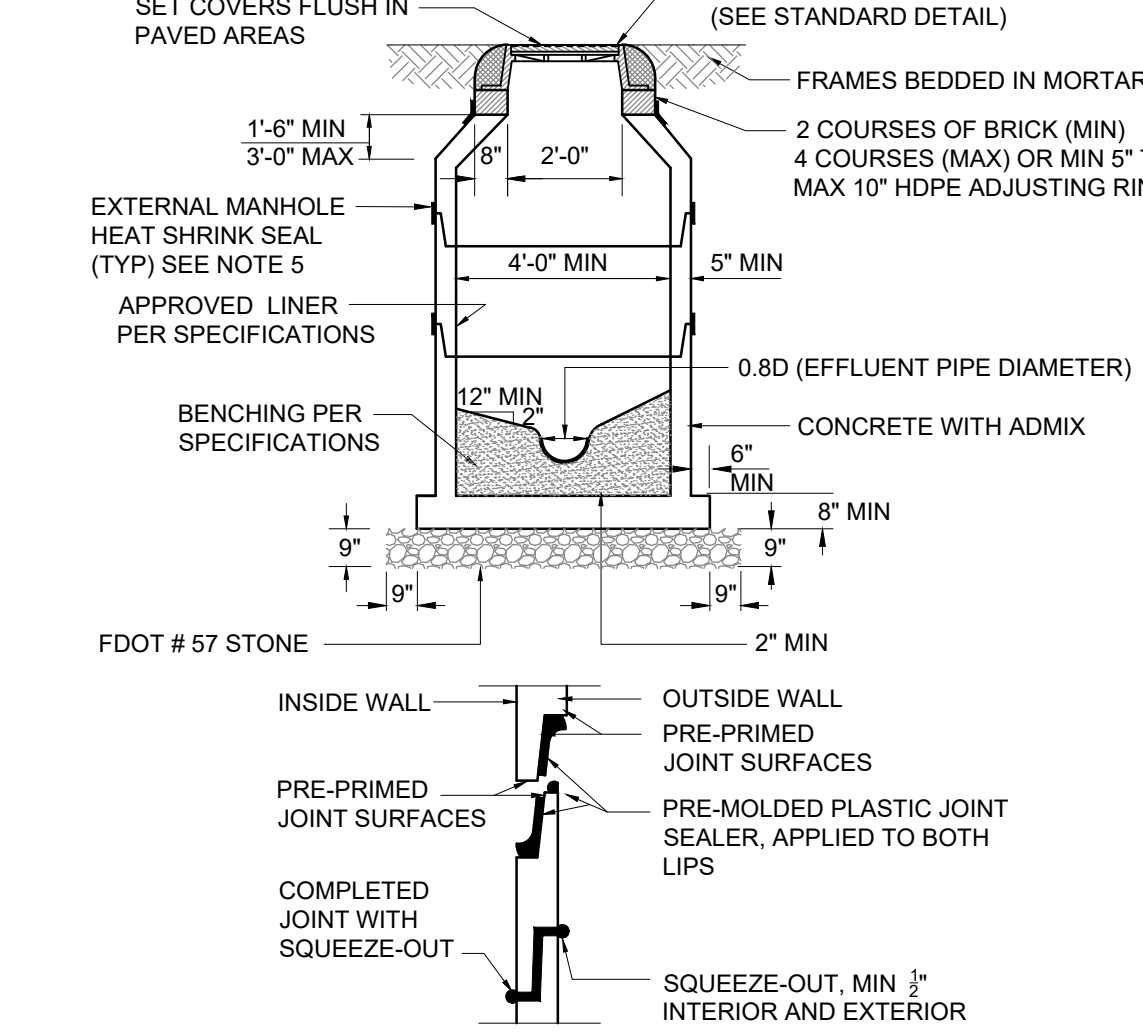
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DATE: February 11, 2011 **REDUCED PRESSURE BACKFLOW PREVENTER, 2 INCH AND SMALLER** FIGURE A409



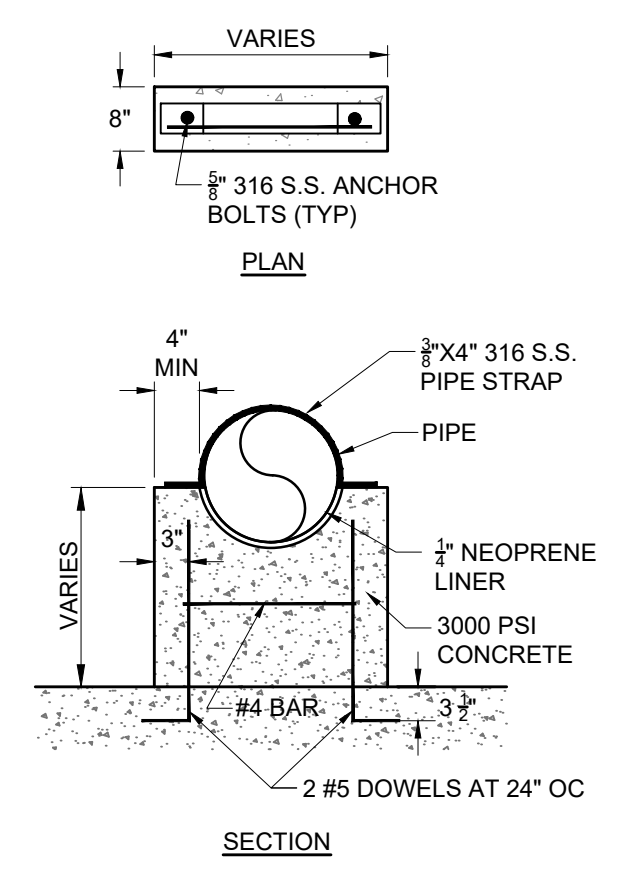
NOTES:
1. ALL PIPE FITTINGS SHALL BE BRASS.
2. PAINTING IN ACCORDANCE WITH THIS MANUAL.

DATE: February 11, 2011 **PRECAST CONCRETE MANHOLE** FIGURE A301



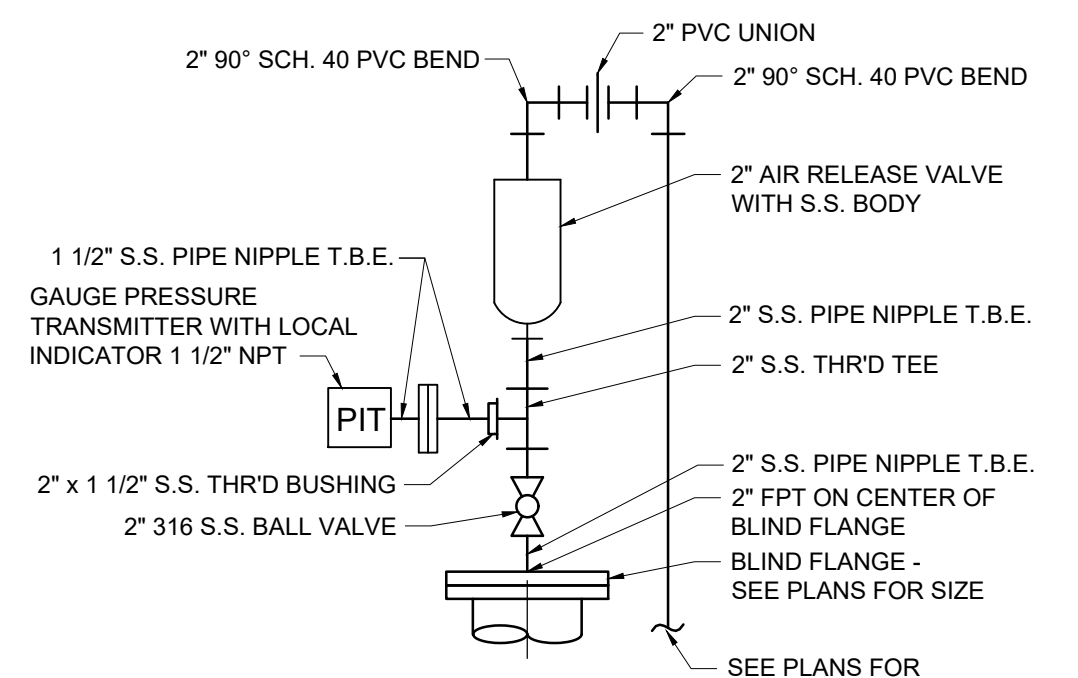
NOTES:
1. DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFLUENT SEWER IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE. SEE MANHOLE CONNECTION DETAIL.
2. ECCENTRIC CONE DESIGN MAY BE USED FOR CONFLICT RESOLUTION WITH OCU APPROVAL.
3. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
4. LIFT HOLES THROUGH STRUCTURE ARE NOT PERMITTED.
5. WRAP TIGHTLY AROUND CASTING JOINTS AND APPLY HIGH INTENSITY PROPANE TORCH TO EFFECTIVELY SEAL THEM FROM GROUND WATER INFILTRATION.
6. HDPE ADJUSTING RINGS MAY BE SUBSTITUTED FOR BRICK RISERS.
7. SECTION HEIGHTS VARY AS REQUIRED, AND AS AVAILABLE, FROM APPROVED MANUFACTURERS LISTED IN APPENDIX D.

CONCRETE PIPE SUPPORT



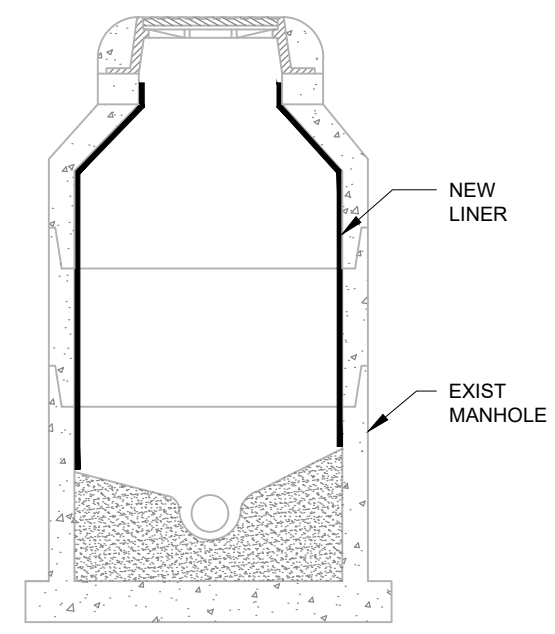
ABOVE GROUND CONCRETE PIPE SUPPORT
N.T.S.

ARV VALVE AND PRESSURE TRANSMITTER WITH LOCAL INDICATOR



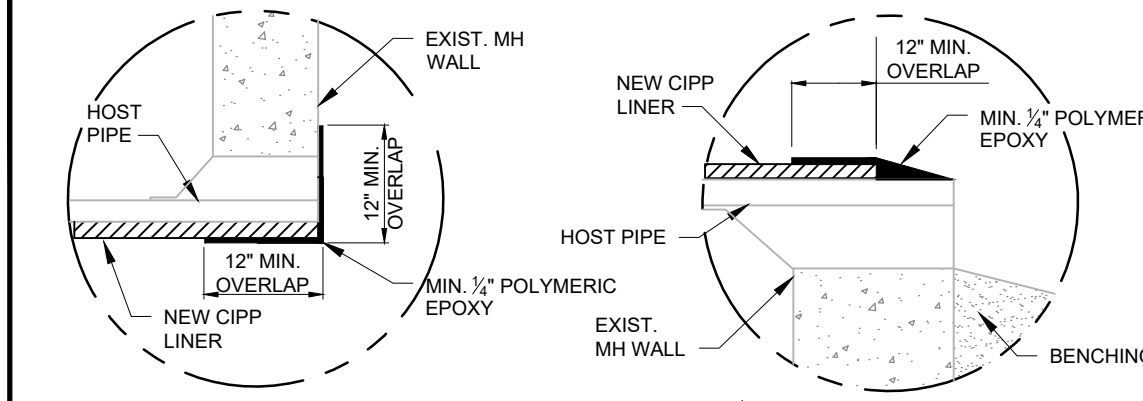
ARV VALVE AND PRESSURE TRANSMITTER WITH LOCAL INDICATOR
N.T.S.

DATE: January 20, 2012 **MANHOLE LINING** FIGURE RR-03

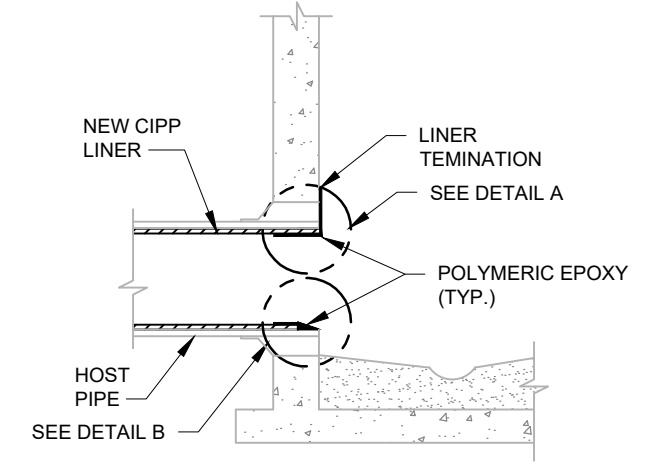


NOTES:
1. LINERS SHALL BE FIBERGLASS, HDPE, OR REINFORCED PLASTIC AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
2. PREPARE STRUCTURE INTERIOR, PRESSURE WASH OR SANDBLAST TO REMOVE ALL SCALE, LOOSE MATERIAL, GREASE AND SLUDGE BUILD UP.
3. ACTIVE LEAKS SHALL BE REPAIRED WITH HYDRAULIC MORTAR. ALL OTHER STRUCTURAL REPAIRS DEEMED NECESSARY SHALL BE PERFORMED.

DATE: January 20, 2012 **LINER TERMINATION AT MANHOLE** FIGURE RR-04



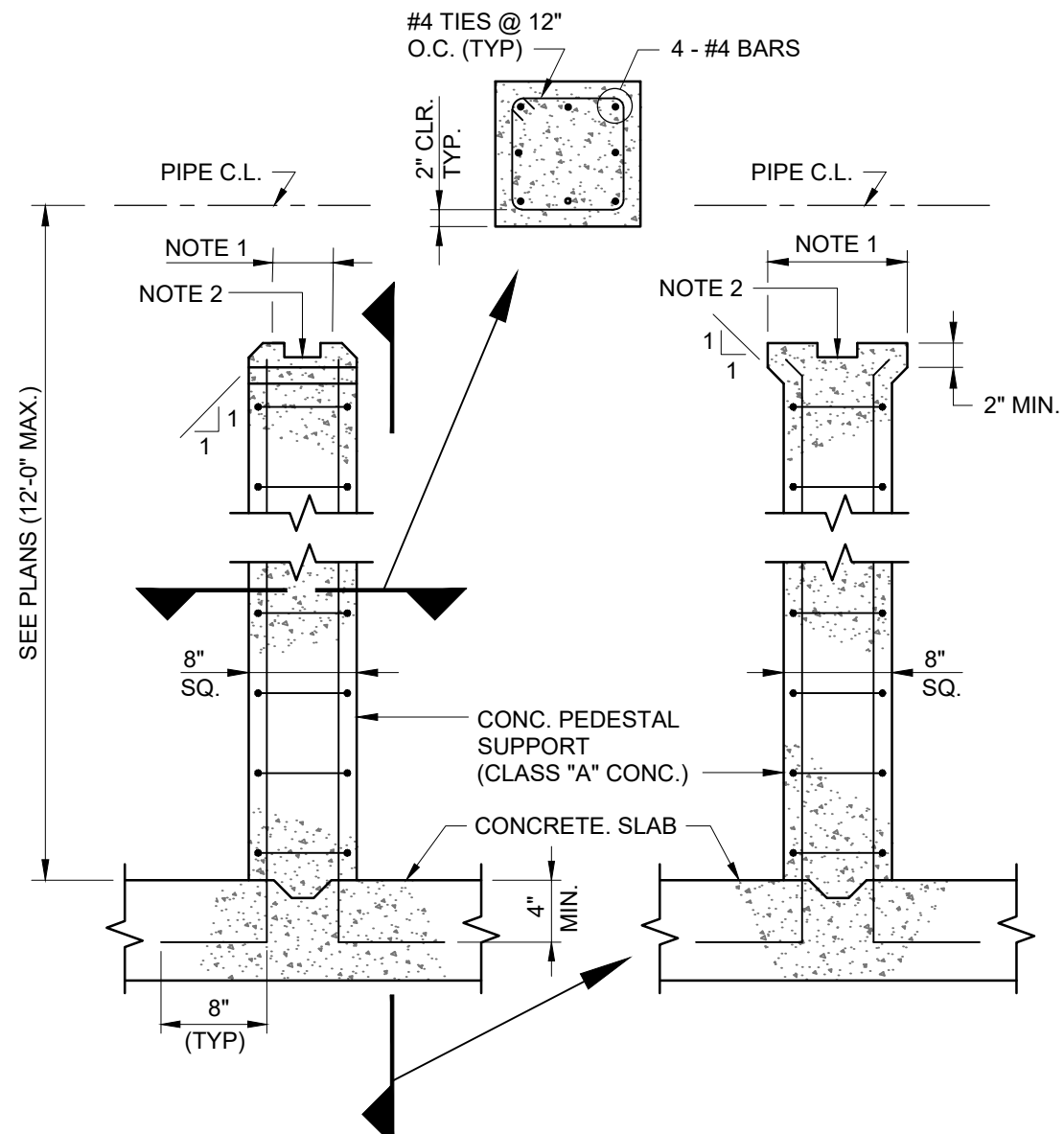
DETAIL A - AT MH OPENING DETAIL B - IN PIPE OR AT MH INVERT



TYPICAL CIPP LINER END

NOTES:
1. CONTRACTOR SHALL REPAIR DETERIORATION ON INSIDE CIRCUMFERENCE OF PIPE WALL TO FORM A SMOOTH SURFACE FOR THE END OF CIPP LINER.
2. POLYMERIC EPOXY SHALL BE RAVEN 405 OR AQUATOPOXY A-6 EPOXY MORTAR SYSTEMS, BY RAVEN LINING SYSTEMS OR APPROVED EQUIVALENT.
3. IF POLYETHYLENE IS USED FOR INTERIOR OF LINING, CONTRACTOR SHALL ABRASIVE THE POLYETHYLENE LAYER PRIOR TO APPLYING THE EPOXY.

CONCRETE VALVE SUPPORT



NOTES:
1. WIDTH AS REQUIRED TO SUPPORT VALVE AT BASE WITHOUT OBSTRUCTING VALVE FLANGES OR VALVE OPERATION.
2. DO NOT SUPPORT VALVE AT VALVE BEARING SEAT. PROVIDE POCKET AS SHOWN FOR SIZE AND SHAPE REQUIRED. PROVIDE NEOPRENE PAD AT BASE OF POCKET BELOW VALVE BEARING SEAT.
3. THIS DETAIL FOR METAL PLUG, CHECK, AND GATE VALVES, 18" DIA. OR LESS. DO NOT USE FOR BUTTERFLY VALVES.

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

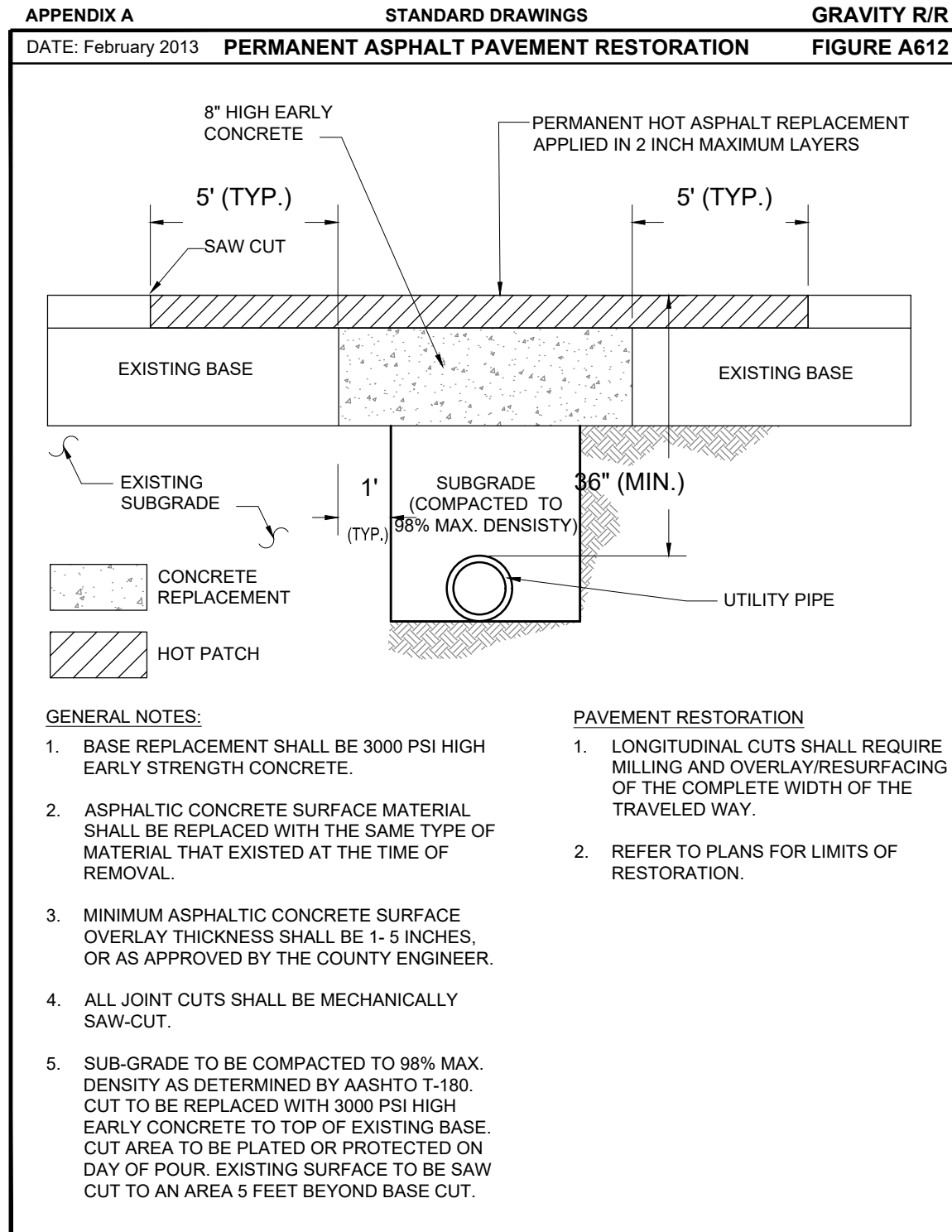
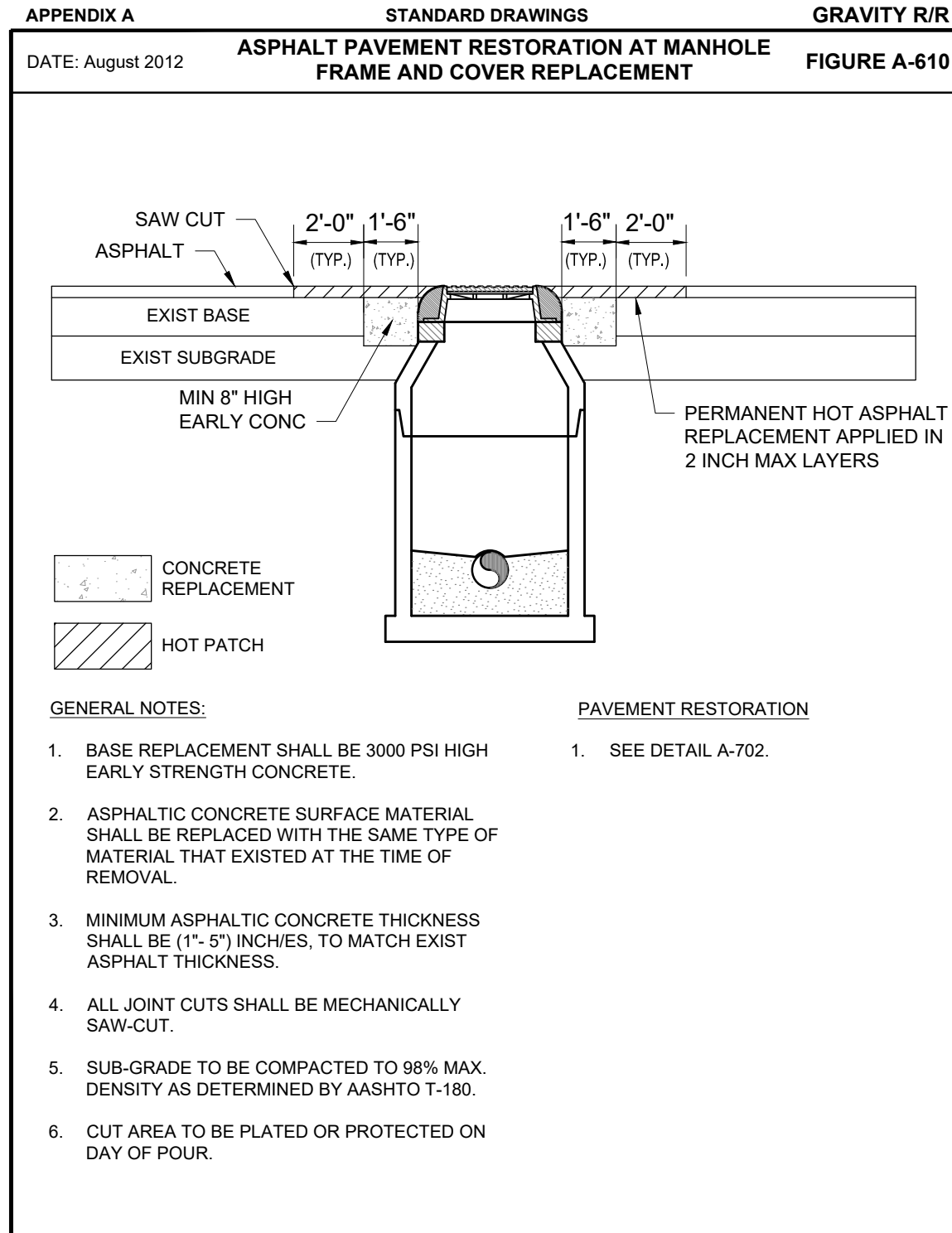
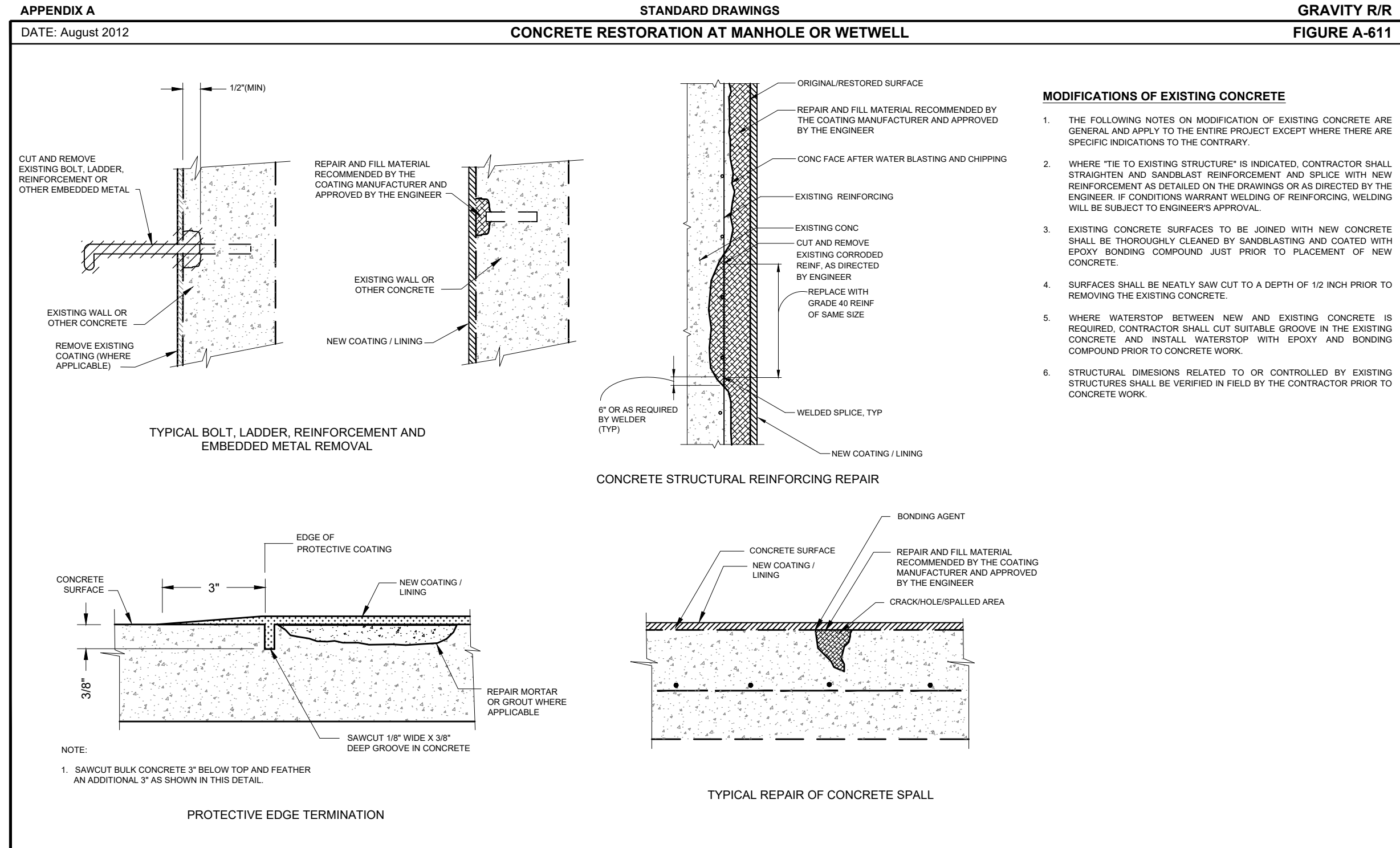
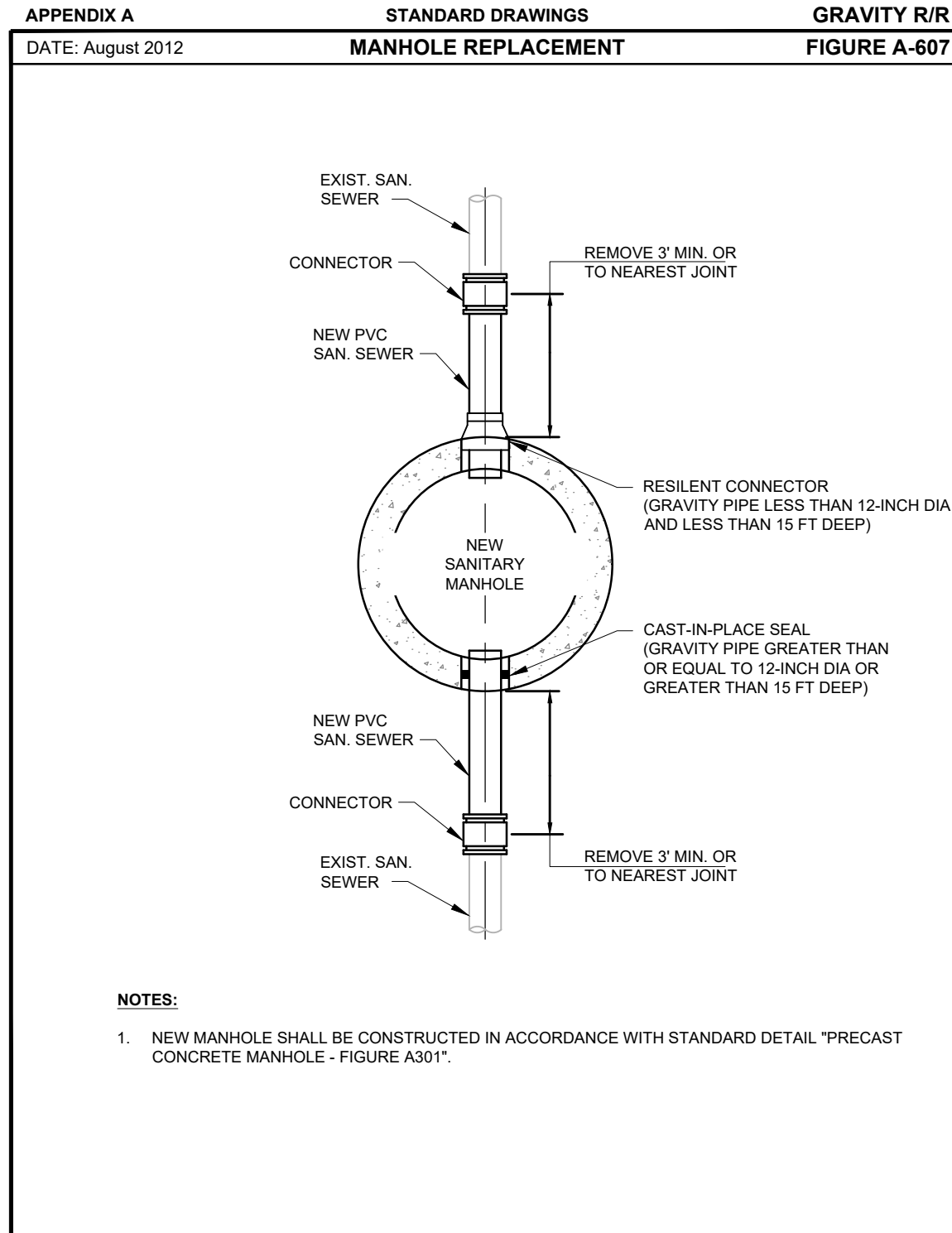
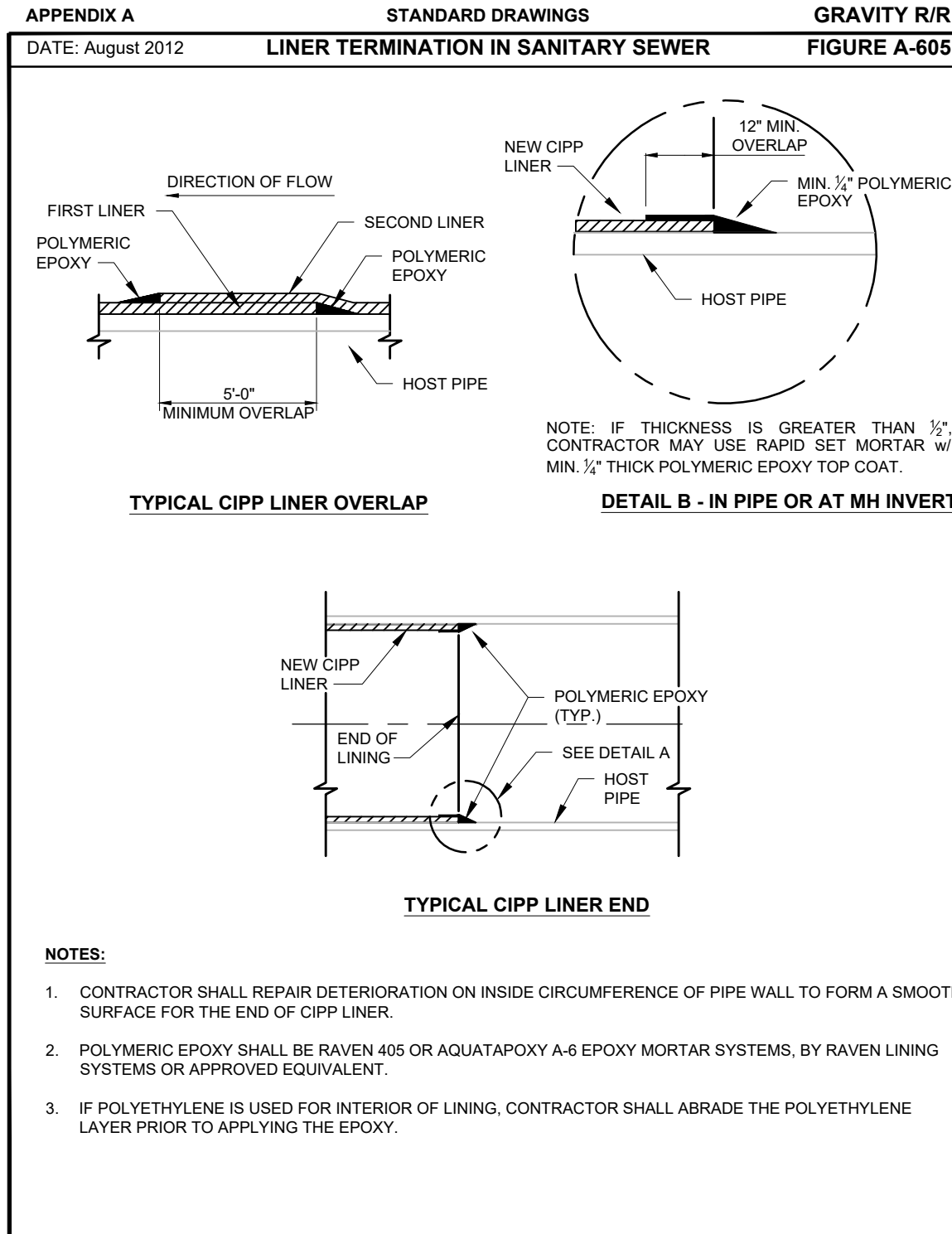
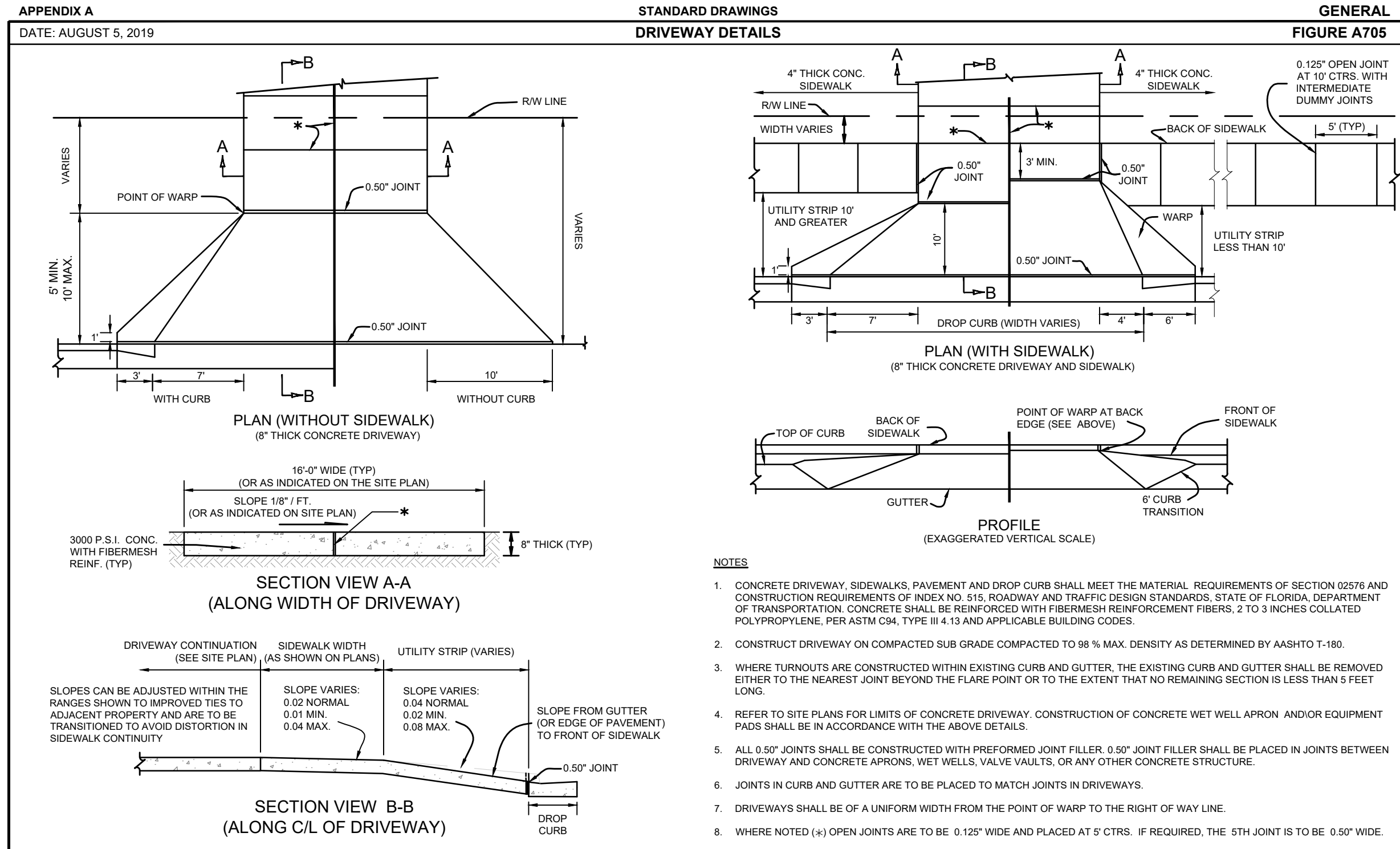
SNC-LAVALIN

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Member of the SNC-Lavalin Group

CIVIL DETAILS

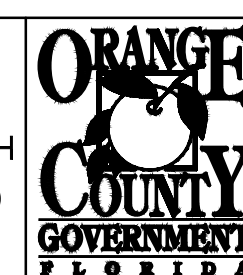
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SHEET: X OF X



REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY)



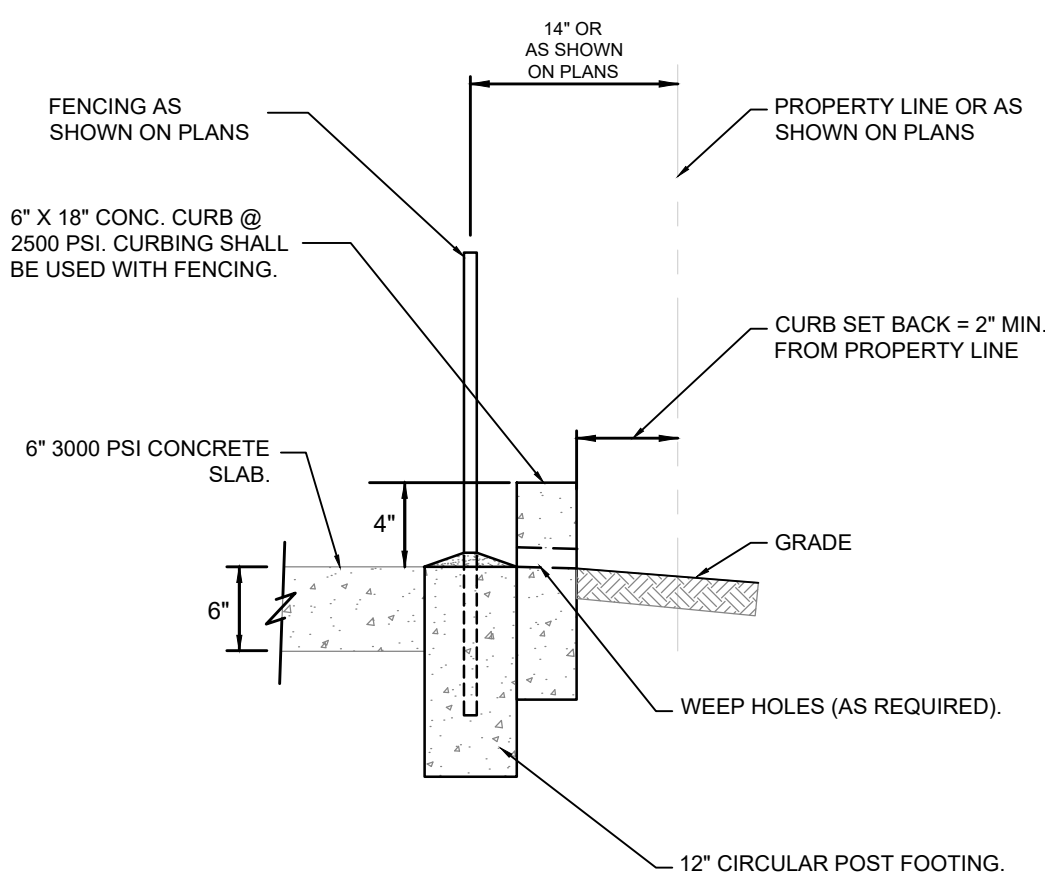
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
 9150 CURRY FORD ROAD ORLANDO, FL. 32825



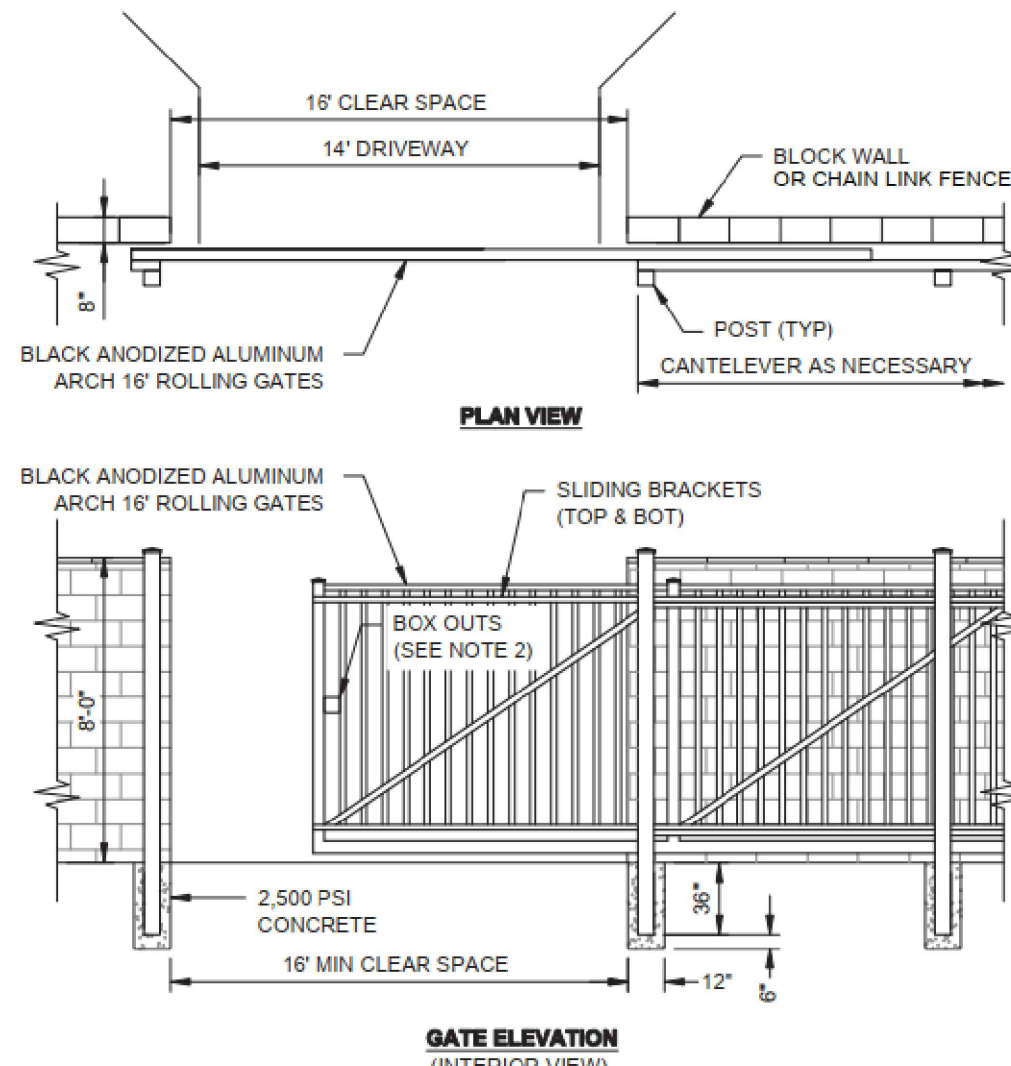
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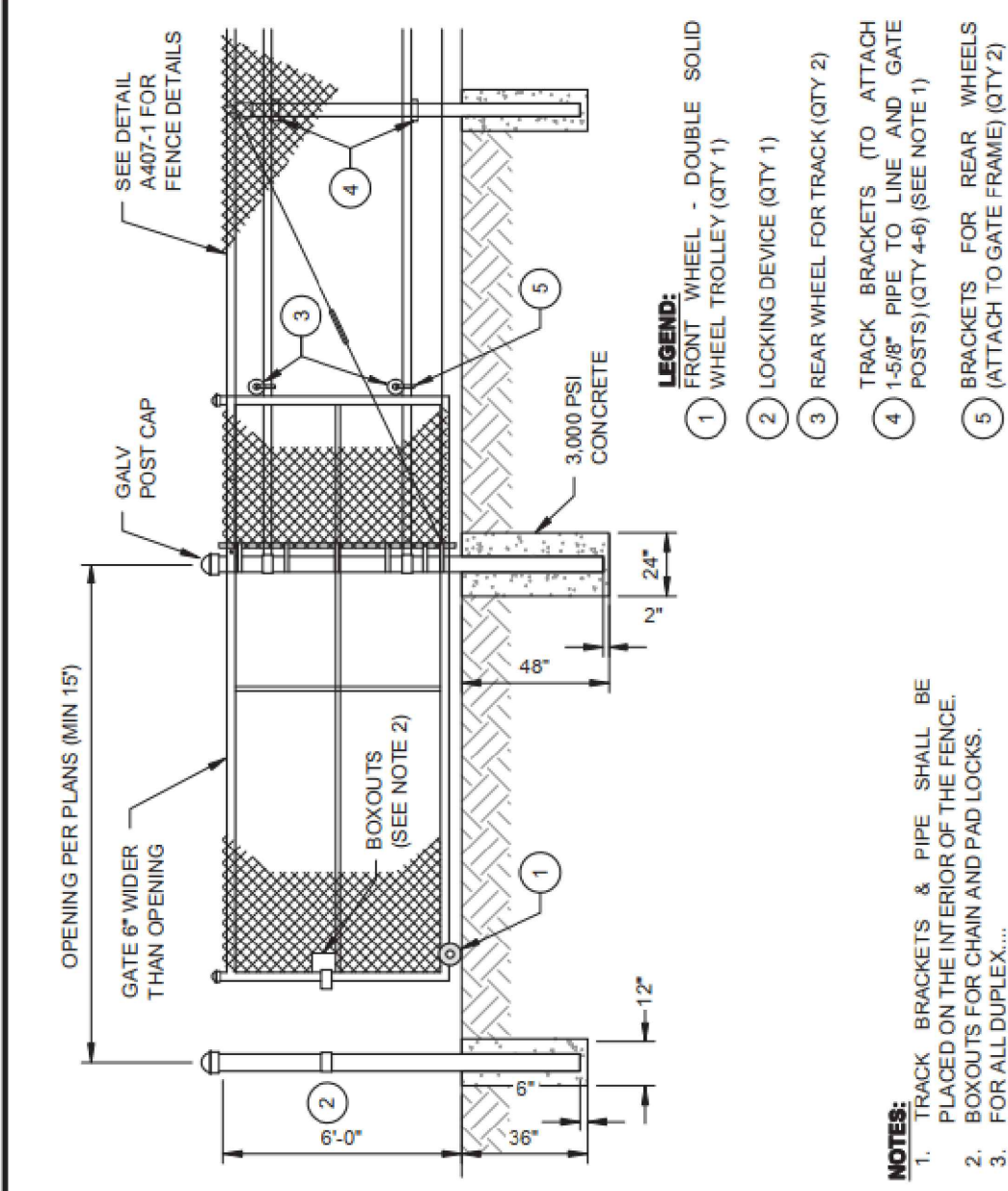
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DRAWING NO.: D-103
SHEET: X OF X



- NOTES:
- SEE PUMP STATION SITE PLAN FOR LOCATION AND LIMITS OF CURB SHOWN AS EDGING FOR ROCK BEDS.
 - CURBING IS REQUIRED WHERE SHOWN ON PLANS.

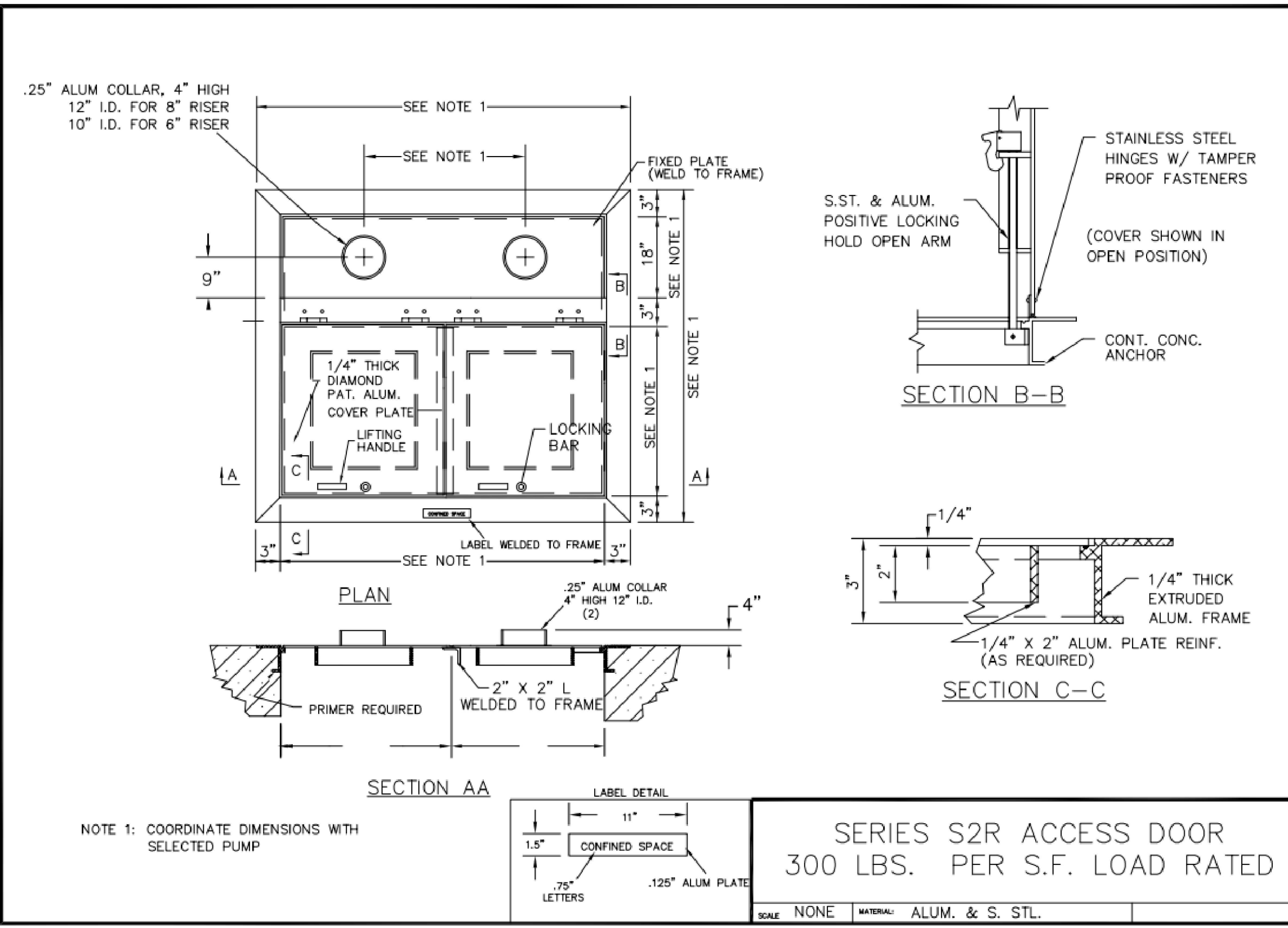


- NOTES:
- GATE POSTS SHALL NOT BE ATTACHED TO THE WALL AND SHALL BE PLACED ON THE INTERIOR SIDE OF THE WALL.
 - BOX OUTS FOR CHAIN & PAD LOCKS, TO BE WELDED.
 - FOR ALL TRIPLEX PUMP STATIONS



- LEGEND:
- FRONT WHEEL - DOUBLE SOLID WHEEL TROLLEY (QTY 1)
 - LOCKING DEVICE (QTY 1)
 - REAR WHEEL FOR TRACK (QTY 2)
 - TRACK BRACKETS (TO ATTACH 1-1/2" PIPE TO LINE AND GATE POSTS) (QTY 4-6) (SEE NOTE 1)
 - BRACKETS FOR REAR WHEELS (ATTACH TO GATE FRAME) (QTY 2)

- NOTES:
- TRACK BRACKETS & PIPE SHALL BE WELDED TO LINE AND GATE POSTS FOR CHAIN AND PAD LOCKS.
 - BOX OUTS FOR CHAIN AND PAD LOCKS.
 - FOR ALL DUPLEX...



NOTE 1: COORDINATE DIMENSIONS WITH SELECTED PUMP

SERIES S2R ACCESS DOOR
300 LBS. PER S.F. LOAD RATED

SCALE: NONE MATERIAL: ALUM. & S. STL.

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY
UTILITIES DEPARTMENT
ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

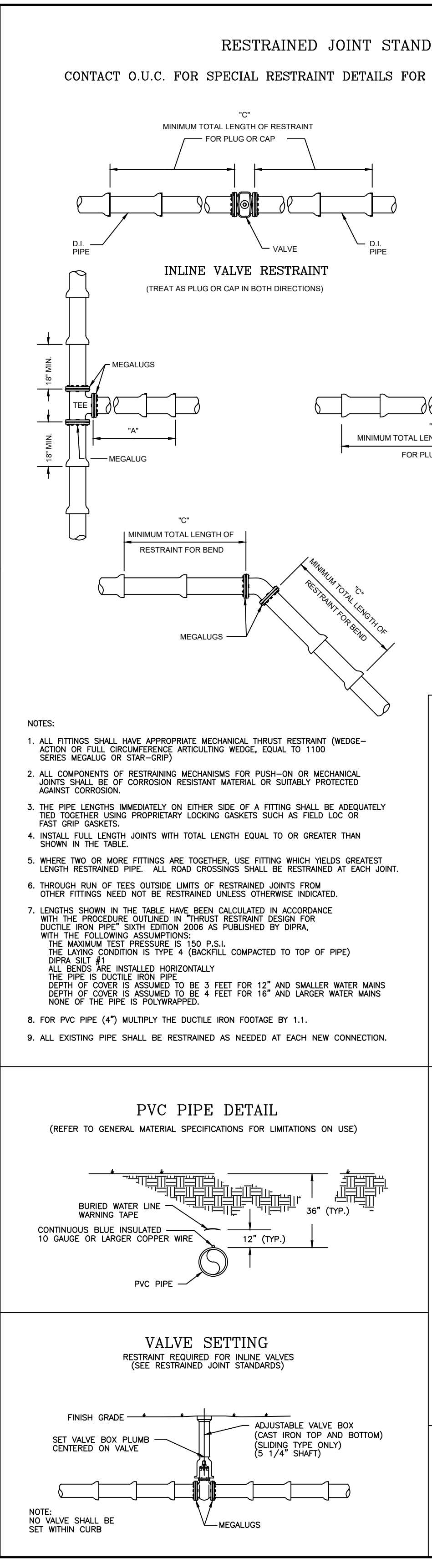
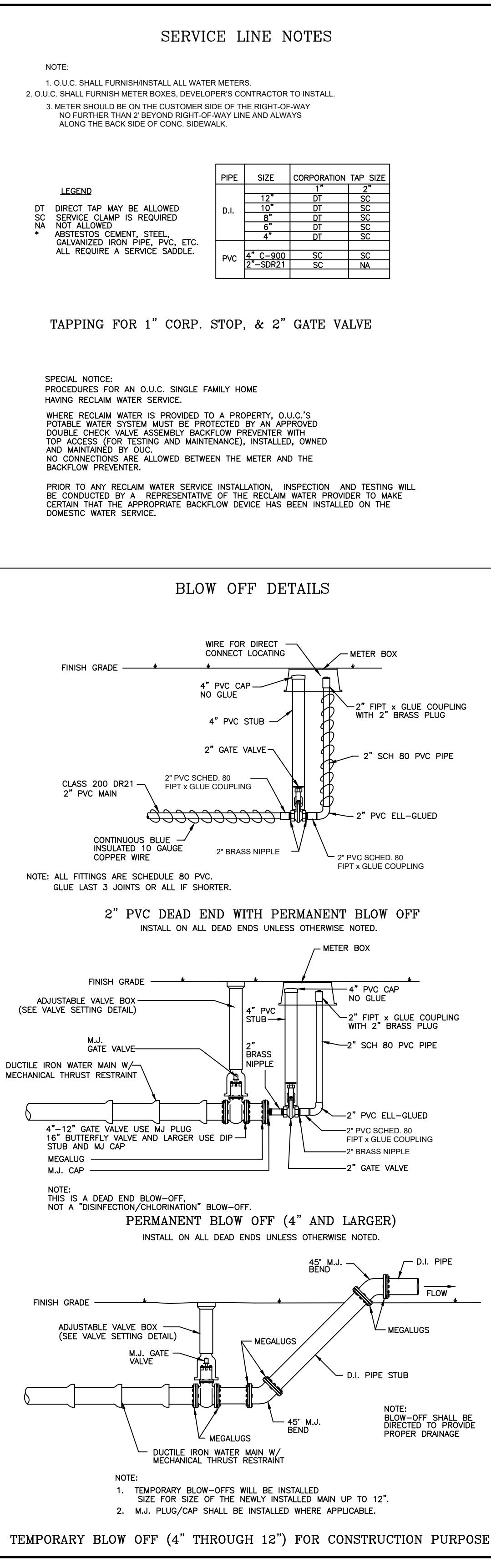
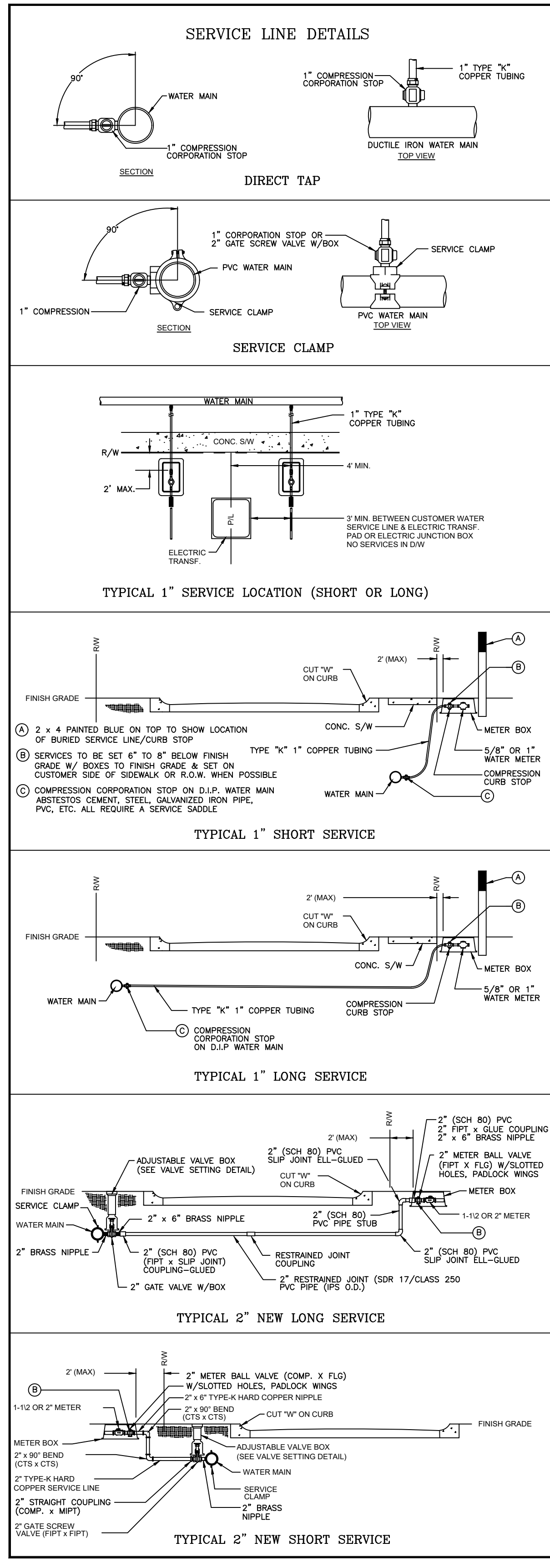


ATKINS
Member of the SNC-Lavalin Group

CIVIL DETAILS

OCU FILE NO.: X
DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
CADD FILE: X

SCALE: N.T.S.
DRAWING NO.:
D-104
SHEET: X OF X



2" PVC - PIPE RESTRAINT (LF)

FITTING SIZE -	TEE "A"	REDUCER "B"
2 x 2	11	
4 x 2	8	USE LARGE PIPE HEAD
6 x 2	5	END/PLUG/CAP FOOTAGE
8 x 2	3	
10 x 2	0	

D.I. PIPE RESTRAINT - (LF)

FITTING SIZE -	TEE "A"	REDUCER "B"
4 x 4	39	0
6 x 4	36	32
8 x 4	29	2
10 x 4	34	58
12 x 4	55	34
14 x 4	76	0
16 x 4	91	0
18 x 4	104	0
20 x 4	117	0
22 x 4	129	0
24 x 4	139	0
26 x 4	148	0
28 x 4	156	0
30 x 4	163	0
32 x 4	169	0
34 x 4	174	0
36 x 4	179	0
38 x 4	183	0
40 x 4	187	0
42 x 4	190	0
44 x 4	193	0
46 x 4	196	0
48 x 4	198	0
50 x 4	200	0
52 x 4	202	0
54 x 4	204	0
56 x 4	206	0
58 x 4	208	0
60 x 4	210	0
62 x 4	212	0
64 x 4	214	0
66 x 4	216	0
68 x 4	218	0
70 x 4	220	0
72 x 4	222	0
74 x 4	224	0
76 x 4	226	0
78 x 4	228	0
80 x 4	230	0
82 x 4	232	0
84 x 4	234	0
86 x 4	236	0
88 x 4	238	0
90 x 4	240	0
92 x 4	242	0
94 x 4	244	0
96 x 4	246	0
98 x 4	248	0
100 x 4	250	0

MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED.

DUCTILE IRON PIPE RESTRAINT "C" (LF)

FITTING	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"	2'
11-1/4"	2	3	4	4	5	5	6	7	9	10	1'
22-1/2"	4	6	8	9	11	11	13	15	18	20	1'
45' OFFSET	9	12	16	19	22	22	26	31	36	42	3
90'	21	29	38	46	53	53	64	74	88	101	6
VALVE/PLUG/CAP	44	61	80	98	113	113	136	159	191	221	13

MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED.

PVC PIPE RESTRAINT "C" (LF)

FITTING	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"	2'
11-1/4"	2	3	4	4	5	5	6	7	9	10	1'
22-1/2"	4	6	8	9	11	11	13	15	18	20	1'
45' OFFSET	9	12	16	19	22	22	26	31	36	42	3
90'	21	29	38	46	53	53	64	74	88	101	6
VALVE/PLUG/CAP	44	61	80	98	113	113	136	159	191	221	13

MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED.

FIRE HYDRANT ASSEMBLY

NOTE:

- A 6" ELL IS REQUIRED BETWEEN THE VALVE AND HYDRANT PARALLEL TO WATER MAIN WHEN:
 - TEE FACES TOWARD ROADWAY.
 - TEE FACES TOWARD BUILDING.
 - THE MAIN IS 12" OR LARGER.
- LONG HYDRANT LATERALS OVER 20' MAY REQUIRE 2 VALVES
- HYDRANT BURIED LINE TO BE WITHIN 2" OF FINISH GRADE.

NO HYDRANT RISERS WILL BE PERMITTED ON NEWLY INSTALLED FIRE HYDRANTS.

MAXIMUM ALLOWABLE LEAKAGE

NOTE: 150 PSI TESTING, 2 HOUR LEAKAGE TESTS. MAXIMUM LEAKAGE ALLOWED PER 100 LF OF PIPE.

PIPE SIZE	GALLONS PER TWO (2) HOUR	
	DUCTILE IRON PIPE	PVC PIPE
2"	0.42	0.38
4"	0.72	0.65
6"	1.10	
8"	1.48	
10"	1.84	
12"	2.20	
16"	2.94	
20"	3.68	
24"	4.42	
30"	5.52	
36"	6.62	
42"	7.73	
48"	8.83	

NOTE: ANY PIPE LENGTH EQUAL TO OR LESS THEN 300' SHALL HAVE 0 LEAKAGE

GENERAL SPECIFICATIONS

IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR TO ENSURE THAT ALL REQUIRED PERMITS ARE IN HAND BEFORE BEGINNING ANY CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY REDUCTION, TEMPORARY DISRUPTION OF SERVICE, OR CLARIFICATION OF ACTIVITY REGARDING SAID UTILITIES. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN LOCATING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING STRUCTURES OR UTILITIES FROM CONSTRUCTION OF WATER FACILITIES. CONTRACTOR SHALL COORDINATE ANY NECESSARY ADJUSTMENTS AND COOPERATE WITH THE OWNER.

ANY DELAY OR INCONVENIENCE OF THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE PROJECT AND NO EXTRA COMPENSATION WILL BE ALLOWED.

ALL CONSTRUCTION OF THE WATER DISTRIBUTION SYSTEM SHALL MEET CURRENT ORLANDO UTILITIES COMMISSION SPECIFICATIONS FOR MATERIAL, INSTALLATION, AND DISINFECTION. ALL MATERIAL AND EQUIPMENT SHALL BE STORED, INSTALLED, AND USED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. ALL WATER FACILITIES WILL BE IN COMPLIANCE WITH THE CONDITIONS OF FDEP PERMIT FOR THE PROJECT.

WATER MAIN SEPARATION FROM SEWER, STORM, AND RECLAIM LINES WILL BE IN COMPLIANCE WITH FDEP GUIDELINES.

THE MINIMUM SEPARATION REQUIREMENTS FROM SANITARY FORCE MAINS, AT LEAST A 6" HORIZONTAL AND AN 12" VERTICAL SEPARATION AT CROSSINGS, MUST BE OBSERVED WITH NO STANDARD MITIGATION ALLOWED.

A MINIMUM OF 18" SEPARATION FROM BUILDINGS AND STRUCTURES IS REQUIRED. ALL CONDUIT TO BE A MINIMUM 2" FROM ALL WATER MAINS, AND APPURTENANCES.

THE RECLAIMED WATER MAIN SHALL BE ON THE OPPOSITE SIDE OF THE STREET FROM THE POTABLE WATER MAIN WHERE PRACTICAL. IF IT IS NOT PRACTICAL, THE RECLAIMED WATER MAIN SHALL BE INSTALLED AT A MINIMUM HORIZONTAL DISTANCE OF 3 FEET (EDGE TO EDGE) FROM THE POTABLE WATER MAIN. RECLAIMED WATER MAINS SHALL BE BELOW POTABLE WATER MAINS WITH A MINIMUM VERTICAL SEPARATION OF 12".

ALL HYDROSTATIC TESTING SHALL BE IN ACCORDANCE WITH ANSII/AWWA C500 FOR D.I. PIPE AND ANSII/AWWA C900 FOR PVC PIPE.

PROVISIONS ARE REQUIRED TO PROTECT EXISTING ACTIVE WATER MAINS FROM BACKFLOW CONTAMINATION DURING FILLING, FLUSHING, TESTING, AND MAINTAINING A PRESSURE IN THE NEW PIPING UNTIL A FDEP LETTER OF CLEARANCE IS OBTAINED.

THE DISINFECTION OF WATER MAINS SHALL BE IN COMPLIANCE WITH RULES OF THE DEPARTMENT OF ENVIRONMENTAL REGULATION - CHAPTER 62S PERMITTING AND CONSTRUCTION OF PUBLIC WATER SYSTEMS. THE PROCEDURE WILL MEET AND EXCEED THE REQUIREMENTS SET FORTH IN ANSII/AWWA STANDARDS C551 - CHLORINATION AS A DAY PROCESS, STARTING ON MONDAYS UNLESS APPROVED BY O.U.C.

CROSS CONNECTION CONTROL SHALL BE IN ACCORDANCE WITH RULES AND REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION - CHAPTER 62S PERMITTING AND CONSTRUCTION OF PUBLIC WATER SYSTEMS.

BACKFLOW PREVENTERS SHALL BE LOCATED NO MORE THAN 10 FEET FROM POINT OF SERVICE UNLESS PRIOR APPROVAL HAS BEEN RECEIVED FROM OUC CROSS CONNECTION DEPT.

ALL PIPE WITH DIAMETER OF 12" OR LESS SHALL HAVE A MINIMUM BURIAL DEPTH OF 36" AND NOT TO EXCEED 48". ALL PIPE WITH DIAMETER OF 18" OR GREATER SHALL HAVE A MINIMUM BURIAL DEPTH OF 48" AND NOT TO EXCEED 72" UNLESS APPROVED BY O.U.C.

A PRE-CONSTRUCTION MEETING FOR THE INSTALLATION OF WATER FACILITIES IS REQUIRED. CONTACT OUC WATER CONSTRUCTION 407-436-2535.

ON NEWLY INSTALLED PIPE, ONLY ONE (1) REPAIR EVERY EIGHT-HUNDRED (800)' FEET WILL BE PERMITTED. IF MORE THAN ONE REPAIR IS NECESSARY, THE PIPE WILL NEED TO BE REINSTALLED PER OUC STANDARDS. REPAIRS ARE TO BE MADE USING A MECHANICALLY RESTRAINED SLEEVE. BELL CLAMPS ARE NOT TO BE USED. ANY OTHER METHODS MUST BE APPROVED BY THE OUC ENGINEER.

ALL TAPS ON ACTIVE WATER MAINS SHALL BE PERFORMED BY AN OUC APPROVED TAPPING CONTRACTOR.

ALL OUC OWNED SERVICES ASSEMBLIES SHALL HAVE A MINIMUM OF 10' SEPARATION FROM STRUCTURES AND TREES.

THE CONNECTION OF GROUNDING SYSTEMS FOR NEW OR RENOVATION CONSTRUCTION TO OUC WATER SYSTEM FACILITIES IS PROHIBITED.

GENERAL MATERIAL SPECIFICATIONS

MATERIAL USED IN THE CONSTRUCTION OF THE WATER DISTRIBUTION SYSTEM SHALL ADHERE TO THE REQUIREMENTS OUTLINED IN THE OUC WATER DISTRIBUTION SPECIFICATION STANDARDS MANUAL. THE FOLLOWING INFORMATION IS TO PROVIDE GENERAL GUIDANCE IN THE PREPARATION OF CONSTRUCTION PLANS AND SPECIFICATIONS, AND IN NO WAY LIMITS OUC'S RIGHTS TO APPROVE OR DISAPPROVE ANY SPECIFICATIONS OF INSTALLATIONS. MOST CENTRAL FLORIDA UTILITY SUPPLY COMPANIES HAVE A COPY OF OUC'S SPECIFICATION STANDARDS MANUAL.

THE TYPICAL O.U.C. DISTRIBUTION SYSTEM PIPE SIZES AND MATERIAL USED ARE:

- TWO INCH (2") WATER MAINS SHALL BE ASTM 2241 CLASS 200 SDR21 POLYVINYL CHLORIDE (PVC) PIPE.
- TWO INCH (2") WATER MAIN UNDER ROADWAY REQUIRE 2" RESTRAINT JOINT SDR 17/CLASS 250 PIPE.
- FOUR INCH (4") WATER MAINS SHALL BE EITHER PRESSURE CLASS 350 DUCTILE IRON (D.I.) IN ACCORDANCE WITH ANSII/AWWA C500/A21.50-96 AND ANSII/AWWA C151/A21.51 OR, AS CONDITIONS WARRANT, C300 SDR18 CLASS 150 PVC PIPE.
- SIX INCH (6") THROUGH TWENTY FOUR INCH (24") WATER MAINS SHALL BE PRESSURE CLASS 350 D.I. PIPE IN ACCORDANCE WITH ANSII/AWWA C150/A21.50 AND ANSII/AWWA C151/A21.51.
- THIRTY INCH (30") AND LARGER WATER MAINS SHALL BE PRESSURE CLASS 250 D.I. PIPE IN ACCORDANCE WITH ANSII/AWWA C150/A21.50 AND ANSII/AWWA C151/A21.51.

NOTE:

- THE USE OF 2" AND/OR 4" PVC PIPE MUST BE APPROVED BY O.U.C. WATER ENGINEERING.
- PVC PIPE MUST BE BLUE IN COLOR OR HAVING CONTINUOUS BLUE MARKINGS TO CONFORM TO AWWA COLORS WITH NSF LOGO FOR POTABLE WATER USE.
- DUCTILE IRON POTABLE WATER MAINS REQUIRE SPECIAL IDENTIFICATION. SUCH IDENTIFICATION SHALL INCLUDE A MINIMUM OF 4 CONTINUOUS STRIPES SPACED AT NO MORE THAN 90° AROUND THE PIPE. THE STRIPES SHALL BE MINIMUM TWO INCHES IN WIDTH FOR PIPE 4-12 INCH IN DIAMETER AND FOUR (4) INCHES IN WIDTH FOR LARGER PIPE, AND SHALL BE BLUE IN COLOR. BACKFILL SHALL NOT BE PLACED FOR AT LEAST 30 MINUTES FOLLOWING PAINT APPLICATION.
- ALL PIPE FITTINGS 4" UP TO 30" SHALL BE GEMENT OR EPOXY LINED (CLASS 300) AWWA C935 COMPACT DUCTILE IRON WITH MECHANICAL JOINT ENDS. ALL PIPE FITTINGS 30" OR LARGER SHALL BE CEMENT LINED (CLASS 250) DUCTILE IRON WITH MECHANICAL JOINT ENDS.
- A SERVICE MATERIAL FOR AND 1" SHALL INCLUDE SOFT ANNEALED TYPE-K COPPER TUBING.
- SERVICE MATERIAL FOR 2" SHORT SIDE SERVICES SHALL INCLUDE 2" CTS TYPE-K HARD COPPER PIPE.
- SERVICE MATERIAL FOR 2" LONG SIDE SERVICES SHALL INCLUDE 2" RESTRAINED JOINT (SDR 17/CLASS 250) PVC PIPE (IPS C.D.).
- SERVICE MATERIAL (CORP. STOPS, CURB STOPS, ETC) FOR 1" AND 2" SERVICES SHALL BE BRASS COMPRESSION FITTINGS IN ACCORDANCE WITH AWWA C900. FLARED FITTINGS ARE ACCEPTABLE UNDER CONTROLLED CONDITIONS. AN AWWA (C) THREADING IS REQUIRED ON ALL 1" CORPORATION STOPS USED WITH DIRECT PIPE TAPPING ON DUCTILE IRON PIPE OR WITH SERVICE CLAMPS ON PVC PIPE. INSTALLATION OF 2" SERVICES REQUIRE SERVICE CLAMPS AND TO ACCOMMODATE 1 1/2" OR 2" METERS, 2" BALL ANGLE METER VALVES (CTS X FLANGE) WITH SLOTTED HOLES ON THE FLANGE FACE ARE REQUIRED. PADLOCK WINGS MUST BE INCLUDED ON EACH CURB STOP OR BALL METER VALVE.
- FIRE HYDRANTS SHALL BE TRAFFIC DRY BARREL TYPE AND MEET OUC SPECIFICATIONS.
- ALL VALVES 4" THROUGH 12" SHALL BE RESILIENT SEATWEDGE GATE VALVES WITH EPOXY COATING INTERNALY EXTERNALLY AND CONFORM TO ANSII/AWWA STANDARD C500 OR LATEST REVISION. ALL VALVES 16" AND LARGER SHALL BE BUTTERFLY. HAVE EPOXY COATING AND CONFORM TO ANSII/AWWA C504 OR LATEST REVISION.
- ALL VALVE BOXES SHALL BE CAST IRON SLIDING TYPE ONLY.
- FOR VALVES OVER 8" DEEP A PIECE OF 6" SCH 40 BLUE PVC PIPE SHALL BE INSTALLED BETWEEN THE VALVE BOX TOP AND BOTTOM.

SPECIAL NOTICE:

OUC'S SPECIFICATIONS OFTEN ADD TO THE MANUFACTURER'S SPECIFICATIONS. IF YOU HAVE ANY QUESTIONS REGARDING MATERIAL SPECIFICATIONS OR CONSTRUCTION STANDARDS SPECIFICATIONS, PLEASE CONTACT OUC'S WATER DELIVERY DEPARTMENT AT 407-434-2535 OR VISIT OUR WEB SITE AT http://www.ouc.com/en/commercial/water/manuals_reports.aspx

PLAN SYMBOLS

	HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.
	POLE MOUNTED LIGHTING FIXTURE.
	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
	ELECTRIC HEATER
	FLOW ELEMENT
	LEVEL ELEMENT
	LIMIT SWITCH
	PRESSURE SWITCH
	SOLENOID VALVE
	LIQUID LEVEL SWITCH
	FLOAT SWITCH
	FLOW INDICATING TRANSMITTER
	LEVEL INDICATING TRANSMITTER
	PRESSURE INDICATING TRANSMITTER

RISER & CONTROL DIAGRAM SYMBOLS

	VOLTMETER
	AMMETER
	THREE PHASE VOLT SWITCH
	THREE PHASE AMP SWITCH
	GROUND FAULT INTERRUPTER
	FUSE
	MOLDED CASE CIRCUIT BREAKER
	SERVICE OR EQUIPMENT GROUND.
	NON-FUSED DISCONNECT SWITCH
	CURRENT TRANSFORMERS
	POTENTIAL TRANSFORMERS
	DUPLEX RECEPTACLE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	FLOAT SWITCH, NORMALLY OPEN
	FLOAT SWITCH, NORMALLY CLOSED
	FLOW SWITCH, NORMALLY OPEN
	FLOW SWITCH, NORMALLY CLOSED
	TEMPERATURE SWITCH, NORMALLY OPEN
	TEMPERATURE SWITCH, NORMALLY CLOSED

RISER & CONTROL DIAGRAM SYMBOLS

	NORMALLY OPEN, TIMED TO CLOSE CONTACT
	NORMALLY CLOSED, TIMED TO OPEN CONTACT
	NORMALLY CLOSED, TIMED TO CLOSE CONTACT
	NORMALLY OPEN, TIMED TO OPEN CONTACT
	LIMIT SWITCH
	TORQUE SWITCH
	PRESSURE SWITCH
	ZERO SPEED SWITCH
	SOLENOID VALVE
	LIQUID LEVEL SWITCH
	VIBRATION SWITCH
	ALARM RELAY
	ALARM TIMER
	CONTROL RELAY
	MOTOR STARTER
	TIMING RELAY
	ALARM INDICATING LIGHT
	RUN INDICATING LIGHT
	MOMENTARY CONTACT PUSHBUTTON
	MOMENTARY BREAK PUSHBUTTON OR RESET
	KEYED SWITCH
	MAINTAINED CONTACT ON-OFF SWITCH
	START/STOP(S/S) CONTROL SWITCH MAINTAINED CONTACT
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
	CONTROL POWER TRANSFORMER
	REMOTE TERMINAL BLOCK POINT
	MINI-POWER ZONE

ABBREVIATIONS

A	AMPERES
AFF	ABOVE FINISHED FLOOR
AH	ALARM HORN
AIC	AMPS INTERRUPTING CURRENT
AL	ALARM LIGHT
ATS	AUTOMATIC TRANSFER SWITCH
ASB	ALTERNATOR TEST SWITCH
BKR	BREAKER
CCB	CONTROL CIRCUIT BREAKER
CCT	CONTROL CIRCUIT TRANSFORMER
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CU	COPPER
DE	DUKE ENERGY
DH	DATA HIGHWAY
DISC	DISCONNECT
DR	DUPLEX RECEPTACLE
ELEC	ELECTRICAL
ELR	EMERGENCY LOCK-OUT RELAY
EM	EMERGENCY
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ESB	ENERGY SAVING BALLAST
ETM	ELAPSED TIME METER
EXH	EXHAUST
EXIST	EXISTING
F	FUSE
FL	FLASHER
FVNR	FULL VOLTAGE NON-REVERSING GENERATOR
GEN	GENERATOR
GFR	GROUND FAULT RECEPTACLE
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTOMATIC
HOLR	HAND-OFF-LOCAL-REMOTE
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HSS	HORN SILENCE SWITCH
HWY	HIGHWAY
KVA	KILO VOLT-AMPERES
KW	KILOWATT
LA	LIGHTNING ARRESTOR
LF	LINEAR FEET
LTG	LIGHTING
MAX	MAXIMUM
MB	MOTOR BREAKER
MCB	MAIN CIRCUIT BREAKER
MPZ	MINI POWER ZONE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MS	MOTOR STARTER
NEC	NATIONAL ELECTRICAL CODE
N	NEUTRAL
NTS	NOT TO SCALE
OCU	ORANGE COUNTY UTILITIES
OUC	ORLANDO UTILITIES COMMISSION
OH	OVERHEAD
OL	OVERLOAD HEATER
P	POLE
PA	POWER AVAILABLE LIGHT
PCP	PUMP CONTROL PANEL
PL	PILOT LIGHT
PM	PHASE MONITOR
PNL	PANEL
PRI	PRIMARY
PVC	POLYVINYL CHLORIDE
R	RELAY
RL	RUNNING LIGHT
PRI	PRIMARY
SC	SURGE CAPACITOR
SEC	SECONDARY
SH	SHIELDED
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
STR	STARTER
SUPP	SUPPRESSOR
SW	SWITCH
TBR	TO BE REMOVED
TC	TIME CLOCK
TLS	TROUBLE LIGHT SWITCH
TS	TERMINAL STRIP
TTS	THERMAL TERMINAL STRIP
TYP	TYPICAL
UG	UNDERGROUND
V	VOLT
W	WATT
W/	WITH
WP	WEATHERPROOF
ø	PHASE

NOTES

- ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED.
- ELECTRICAL CONTRACTOR SHALL VISIT JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. EXISTING CONDITIONS OF ELECTRICAL EQUIPMENT, LIGHT FIXTURES, ETC... THAT ARE PART OF THE FINAL SYSTEM SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING HIS BID.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 6TH EDITION (2017) (F.B.C.), THE NFPA 70, 2014 NATIONAL ELECTRICAL CODE (N.E.C.) (F.B.C. ADOPTED DECEMBER 31,2017), ORANGE COUNTY STANDARDS AND SHALL COMPLY WITH ALL LOCAL RULES AND ORDINANCES.
- MINIMUM WIRE SIZE SHALL BE #12 A.W.G. EXCLUDING CONTROL WIRING, UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE COPPER.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
- ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE 2014 EDITION OF THE N.E.C. OR LOCAL CODES. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250.122 OF THE NATIONAL ELECTRICAL CODE.
- ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.
- ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/OWNER.
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN TWO YEARS FROM DATE OF ACCEPTANCE.
- CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED.
- THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND THE FLORIDA BUILDING CODE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED OF HIS WORK.
- ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS W/ TYPEWRITTEN DIRECTORIES (NEW & EXISTING).
- ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE MECHANICAL DRAWINGS & THE APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT.
- SHADED TEXT DENOTES EXISTING EQUIPMENT OR STRUCTURES. NON-SHADED TEXT DENOTES NEW EQUIPMENT, STRUCTURES AND WORK. *SLANTED TEXT (NOT SHADED)* DENOTES FUTURE EQUIPMENT, STRUCTURES AND WORK.

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



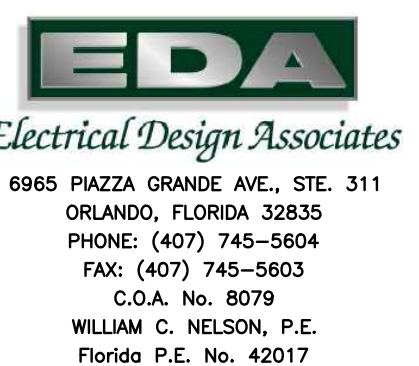
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



SYMBOLS, NOTES & ABBREVIATIONS

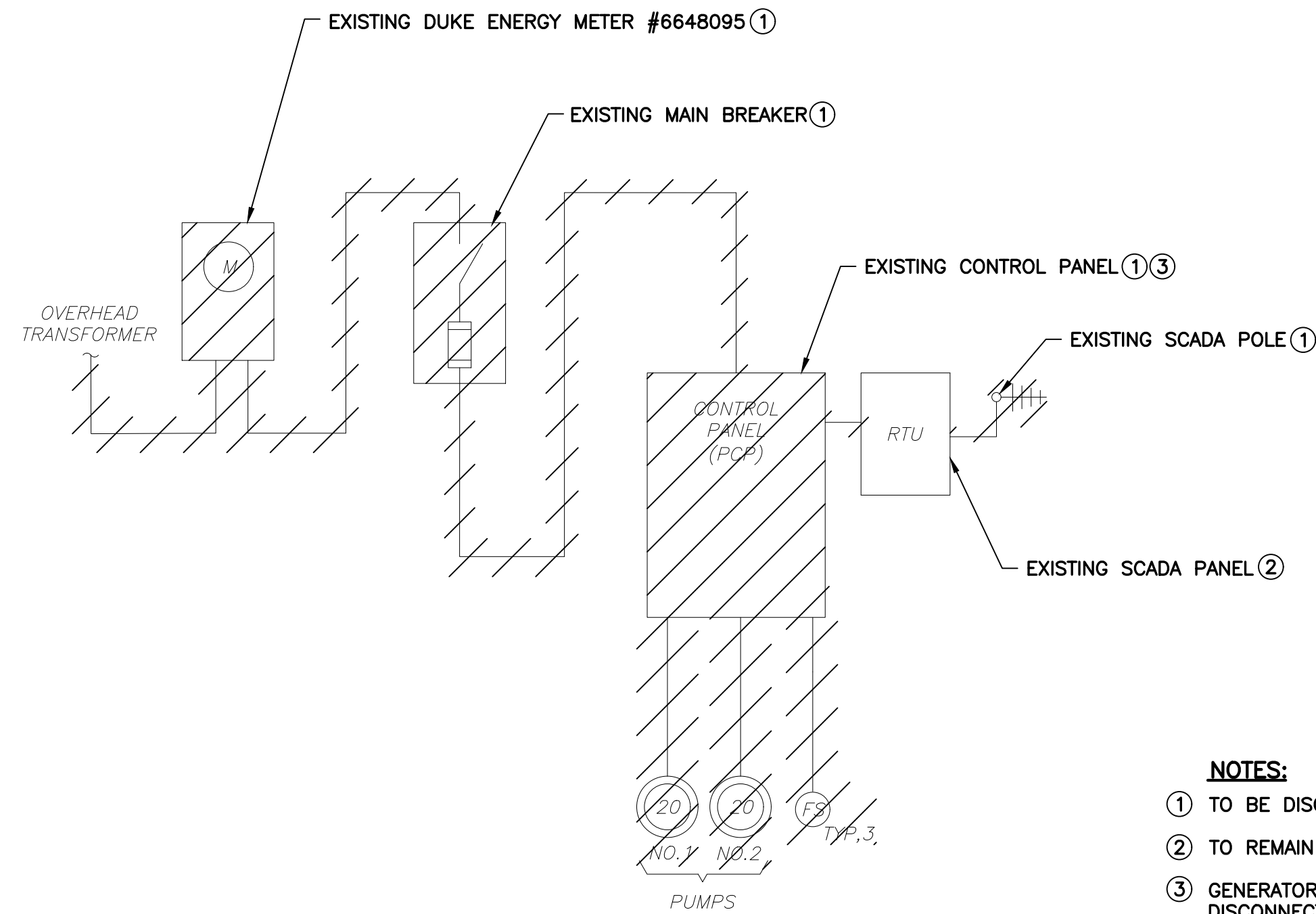
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DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E001
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: E001 NOTES	

WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017



OCU ADDRESS:
PUMP STATION #3138
1253 LA QUINTA DRIVE

DUKE ADDRESS:
PUMP STATION #3138
1253 LA QUINTA DRIVE
DUKE ENERGY CONTACT:
LATOYA JAMES
LATOYA.JAMES@DUKE-ENERGY.COM



**PUMP STATION 3138 DEMOLITION
SINGLE LINE DIAGRAM**

SCALE: N.T.S.

NOTES:

- ① TO BE DISCONNECTED AND REMOVED.
- ② TO REMAIN AND BE RELOCATED.
- ③ GENERATOR RECEPTACLE TO BE DISCONNECTED AND RETURNED TO OWNER.

LOAD TABULATION – PUMP STATION 3138

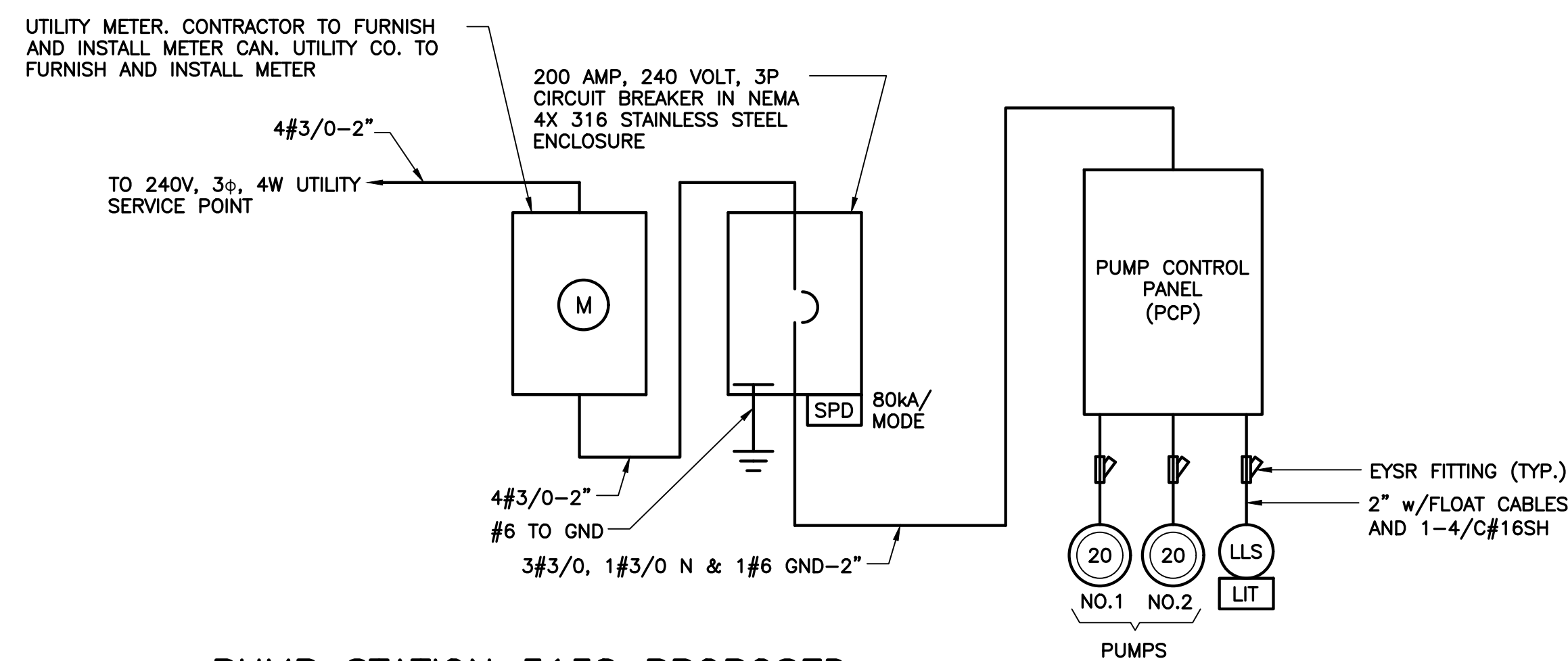
SERVICE VOLTAGE: 240V-3φ

DESCRIPTION	LOAD	AMPACITY
PUMPS	2 @ 20 HP EACH	= 108.00 AMPS
MISCELLANEOUS LOADS		= 5.00 AMPS
CONNECTED LOAD		= 113.00 AMPS

② SERVICE ENTRANCE = 113.0 AMPS + (.25)(54.0) = 126.50 AMPS

NOTES:

- ① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE FOR ORANGE COUNTY IS 100 AMPS.



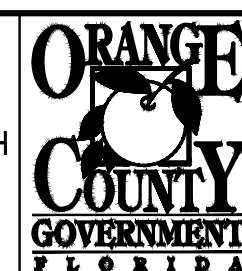
**PUMP STATION 3138 PROPOSED
SINGLE LINE DIAGRAM**

SCALE: N.T.S.

EDA
Electrical Design Associates
6965 PIAZZA GRANDE AVE., STE. 311
ORLANDO, FLORIDA 32835
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FAX: (407) 745-5603
C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



**PUMP STATION 3138
DUPLEX PUMP CONTROL PANEL
SINGLE LINE DIAGRAM**

WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

OCU FILE NO.: 94626
DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: E100 PS 3138 SLD

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DRAWING NO.:
E100
SHEET: X OF X

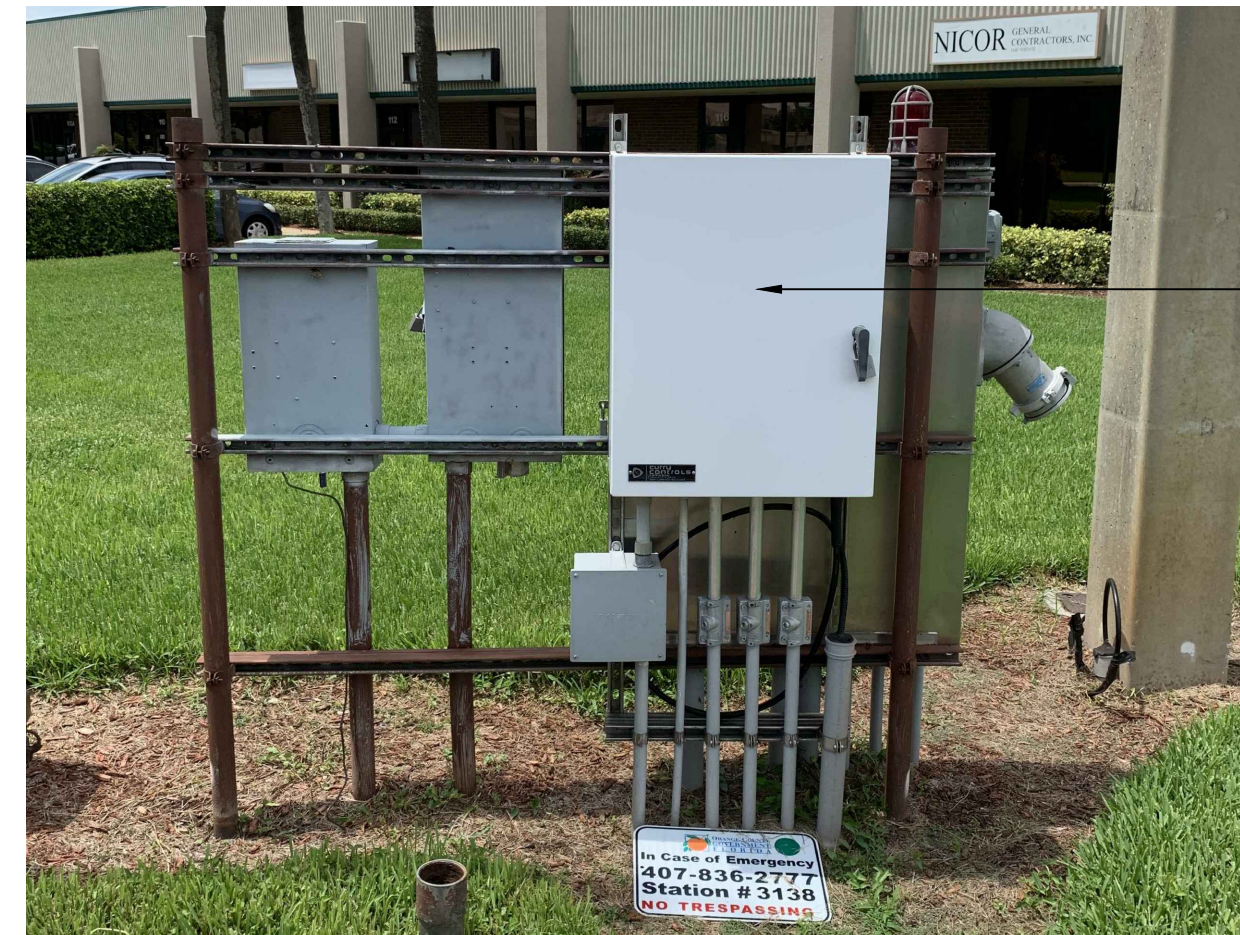
OCU ADDRESS:
PUMP STATION #3138
1253 LA QUINTA DRIVE

DUKE ADDRESS:
PUMP STATION #3138
1253 LA QUINTA DRIVE
DUKE ENERGY CONTACT:
LATOYA JAMES
LATOYA.JAMES@DUKE-ENERGY.COM



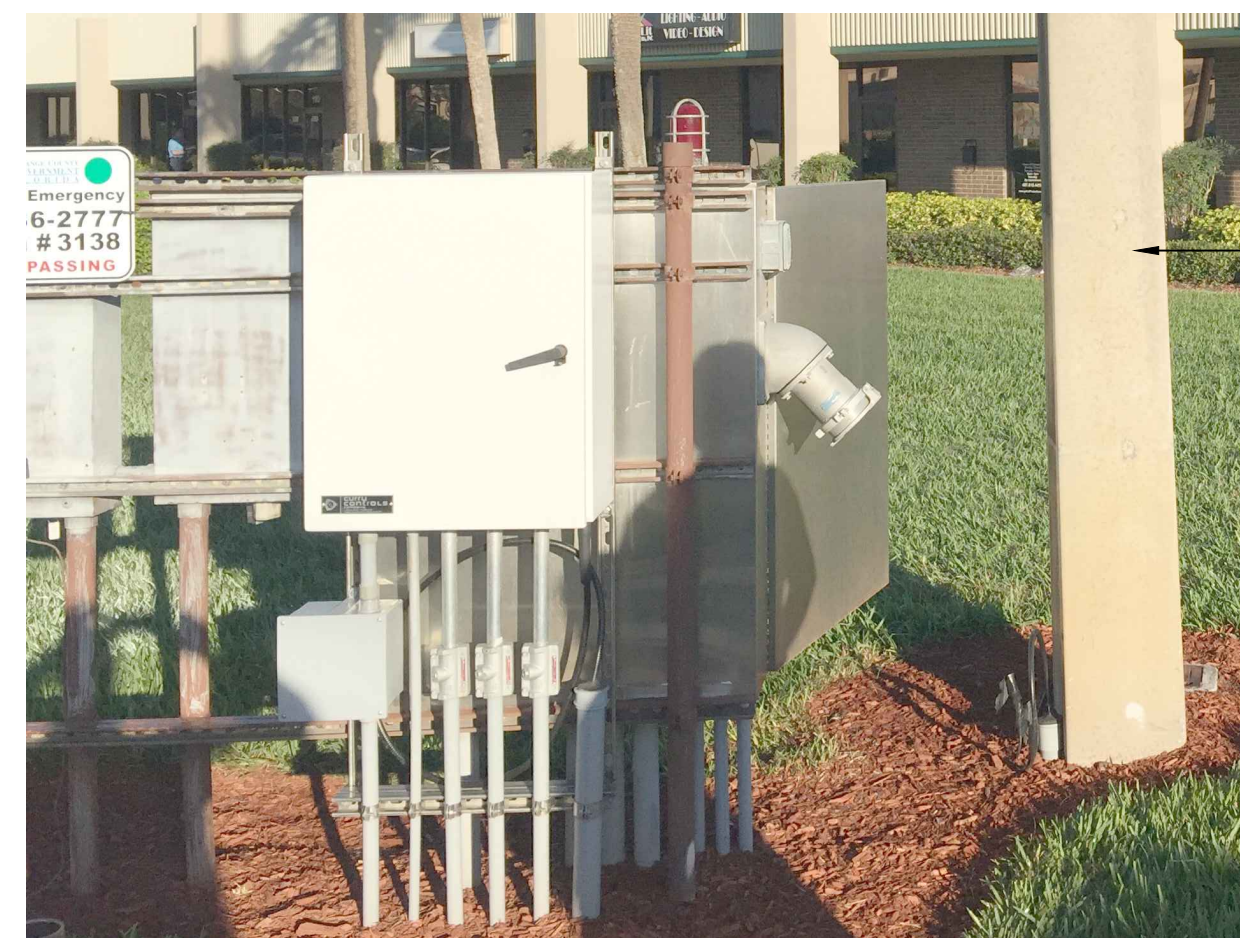
EXISTING PUMP CONTROL PANEL
EXISTING DISCONNECT
EXISTING UTILITY METER

PUMP STATION 3138 FIGURE NO. 1



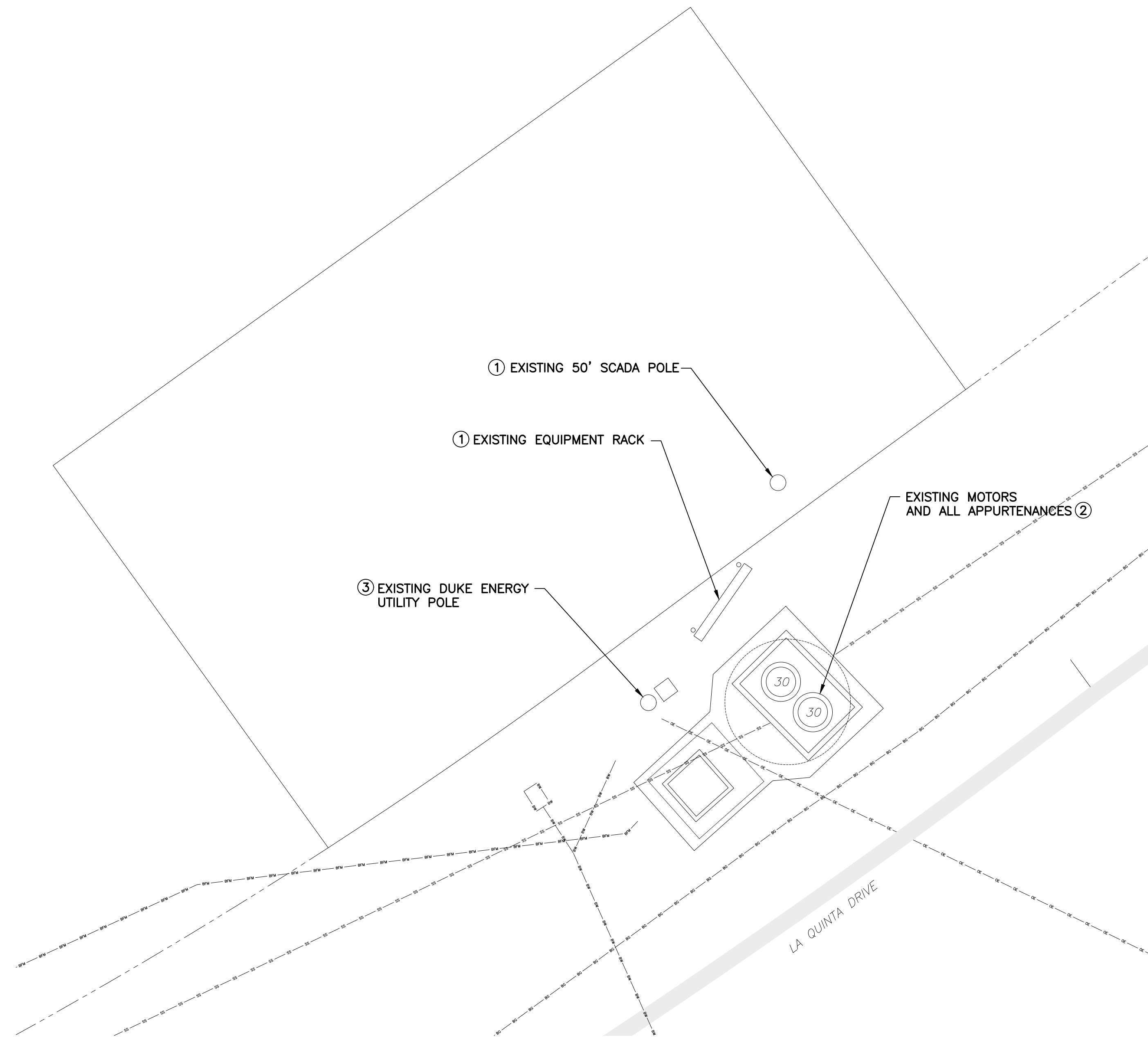
EXISTING SCADA PANEL

PUMP STATION 3138 FIGURE NO. 2



EXISTING SCADA POLE

PUMP STATION 3138 FIGURE NO. 3



- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.
 - ③ TO REMAIN.

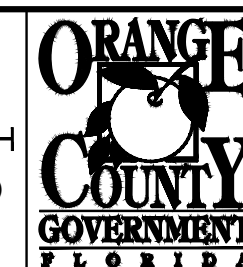
PUMP STATION 3138 ELECTRICAL DEMOLITION PLAN

SCALE: 1"=5'-0"
5 2.5 0 5'

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REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



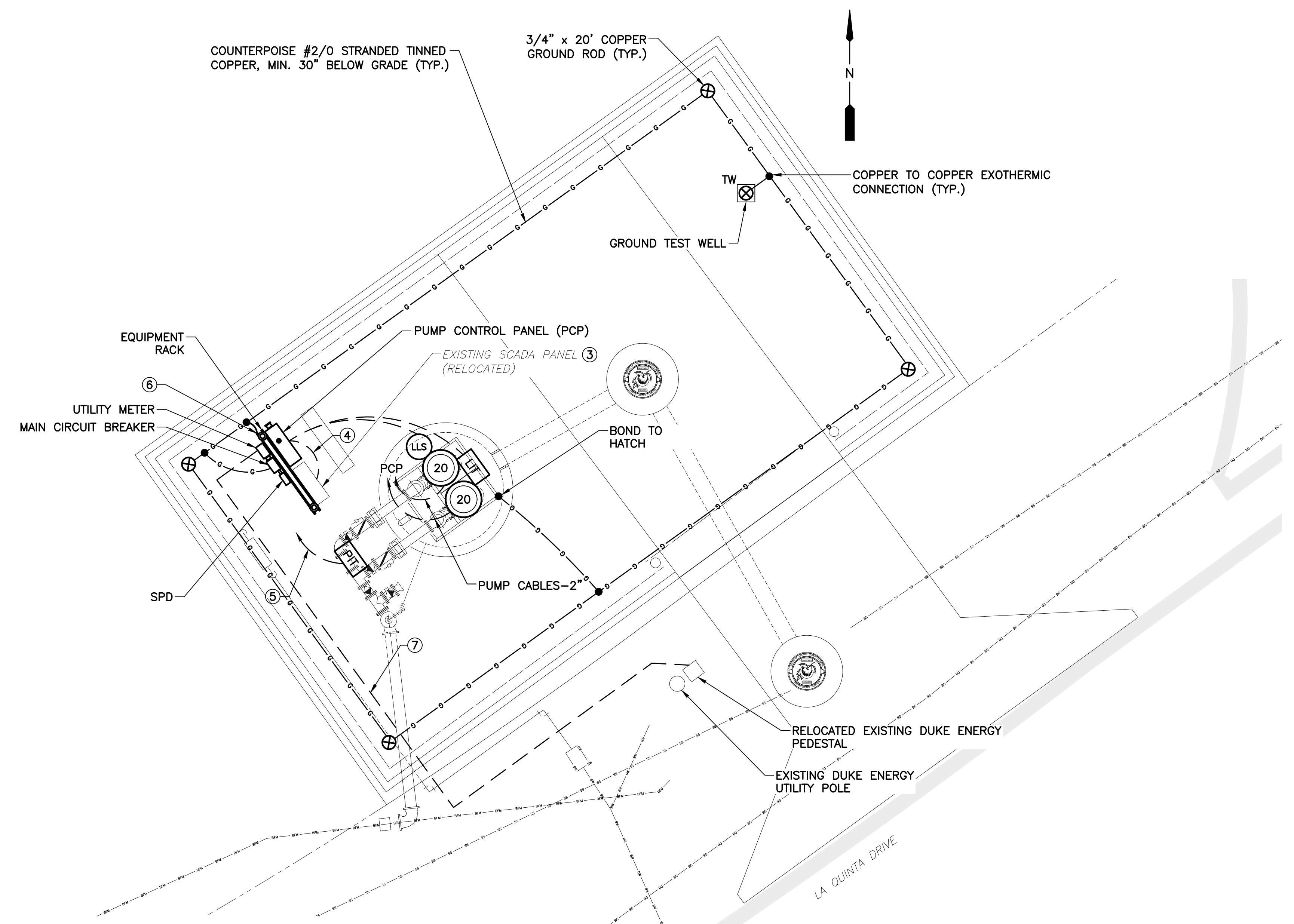
PUMP STATION 3138 ELECTRICAL DEMOLITION PLAN

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E101
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: E101 PS 3138 DEMO	

WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

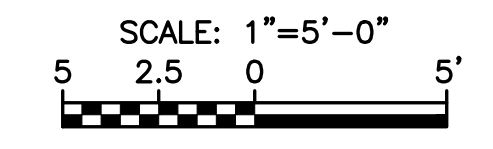
OCU ADDRESS:
PUMP STATION #3138
1253 LA QUINTA DRIVE

DUKE ADDRESS:
PUMP STATION #3138
1253 LA QUINTA DRIVE
DUKE ENERGY CONTACT:
LATOYA JAMES
LATOYA.JAMES@DUKE-ENERGY.COM



- NOTES:**
- ① REFER TO SHEET E001 FOR ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
 - ② REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - ③ CONTRACTOR TO REUSE EXISTING SCADA PANEL. CONTRACTOR TO PROVIDE THE INTERCONNECTION BETWEEN THE PCP AND THE SCADA PANEL.
 - ④ CONTRACTOR TO FURNISH AND INSTALL THREE (3) 1" CONDUITS WITH CABLING FROM THE SCADA PANEL TO THE PCP.
 - ⑤ 1" WITH CABLING TO SCADA PANEL.
 - ⑥ BOND EQUIPMENT RACK TO GROUND GRID.
 - ⑦ TO 240V-3 ϕ SERVICE POINT.

PUMP STATION 3138 ELECTRICAL PLAN



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WILLIAM C. NELSON, P.E.
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REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT FLORIDA
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

SNC-LAVALIN
Member of the SNC-Lavalin Group

ATKINS
Member of the SNC-Lavalin Group

PUMP STATION 3138 ELECTRICAL PLAN

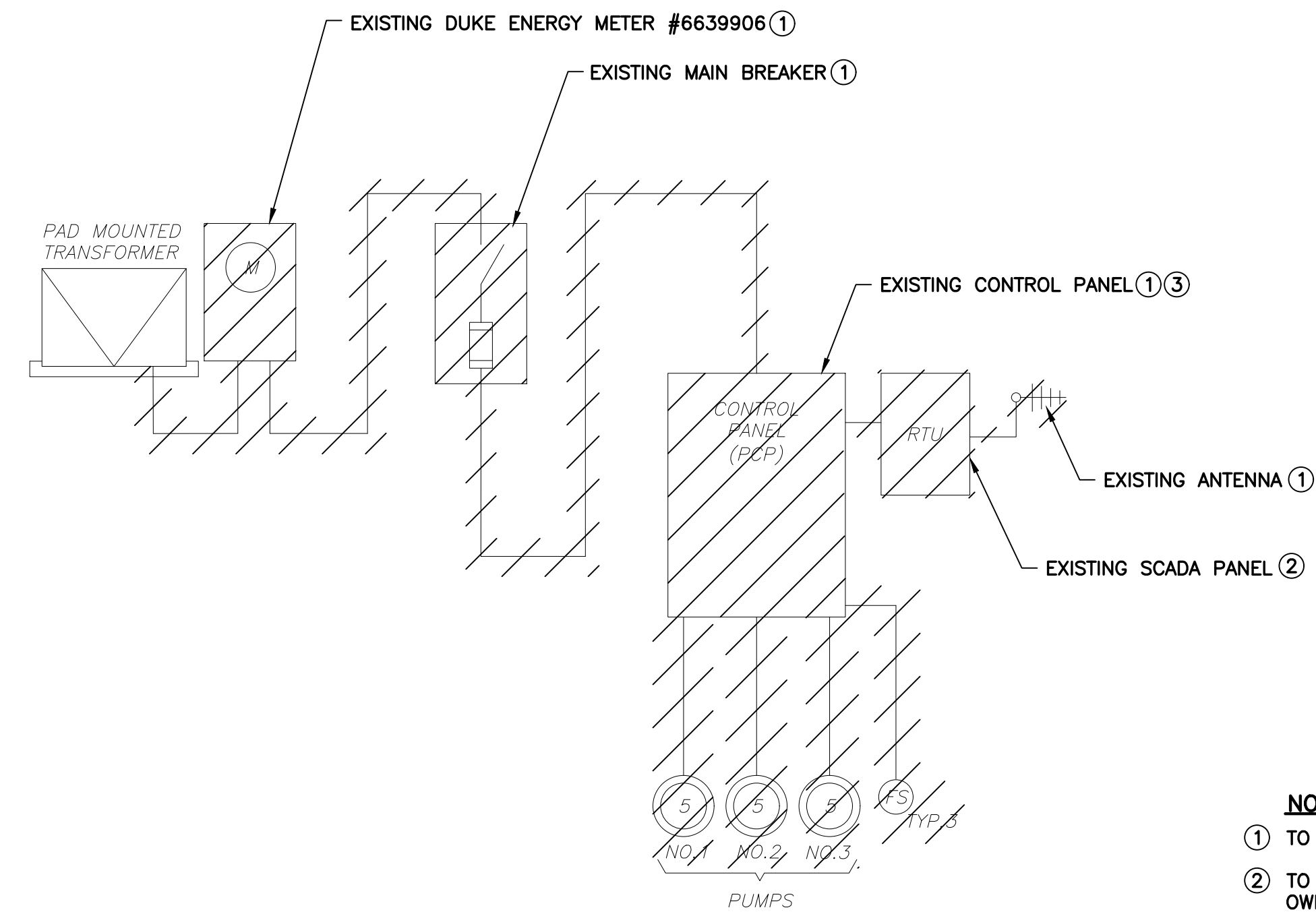
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DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: E102 PS 3138 PROP

SCALE:
DRAWING NO.:
E102
SHEET: X OF X

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DUKE ADDRESS:
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DUKE ENERGY CONTACT:
RICHARD MORALES
RICHARD.MORALESRIVERA@DUKE-ENERGY.COM



**PUMP STATION 3283 DEMOLITION
SINGLE LINE DIAGRAM**

SCALE: N.T.S.

NOTES:

- ① TO BE DISCONNECTED AND REMOVED.
- ② TO BE DISCONNECTED AND RETURNED TO OWNER.
- ③ GENERATOR RECEPTACLE TO BE DISCONNECTED AND RETURNED TO OWNER.

LOAD TABULATION — PUMP STATION 3283

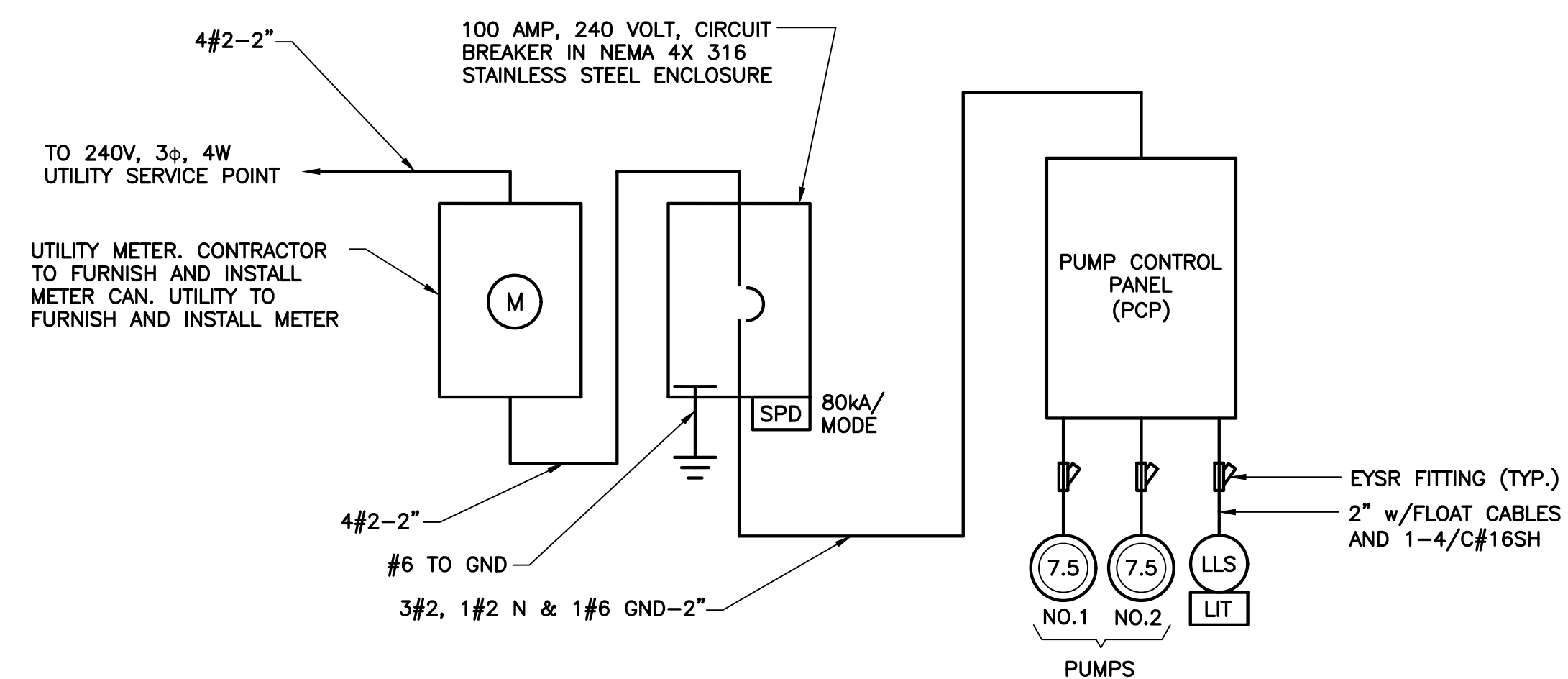
SERVICE VOLTAGE: 240V-3 ϕ

DESCRIPTION	LOAD	CAPACITY
PUMPS	2 @ 7.5 HP EACH	= 44.00 AMPS
MISCELLANEOUS LOADS	—	= 5.00 AMPS
CONNECTED LOAD		= 49.00 AMPS

①② SERVICE ENTRANCE = 49.00 AMPS + (.25)(22.00) = 54.50 AMPS

NOTES:

- ① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE FOR ORANGE COUNTY IS 100 AMPS.



**PUMP STATION 3283 PROPOSED
SINGLE LINE DIAGRAM**

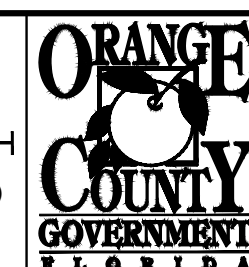
SCALE: N.T.S.



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WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



**ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION**
9150 CURRY FORD ROAD ORLANDO, FL. 32825



**PUMP STATION 3283
DUPLEX PUMP CONTROL PANEL
SINGLE LINE DIAGRAM**

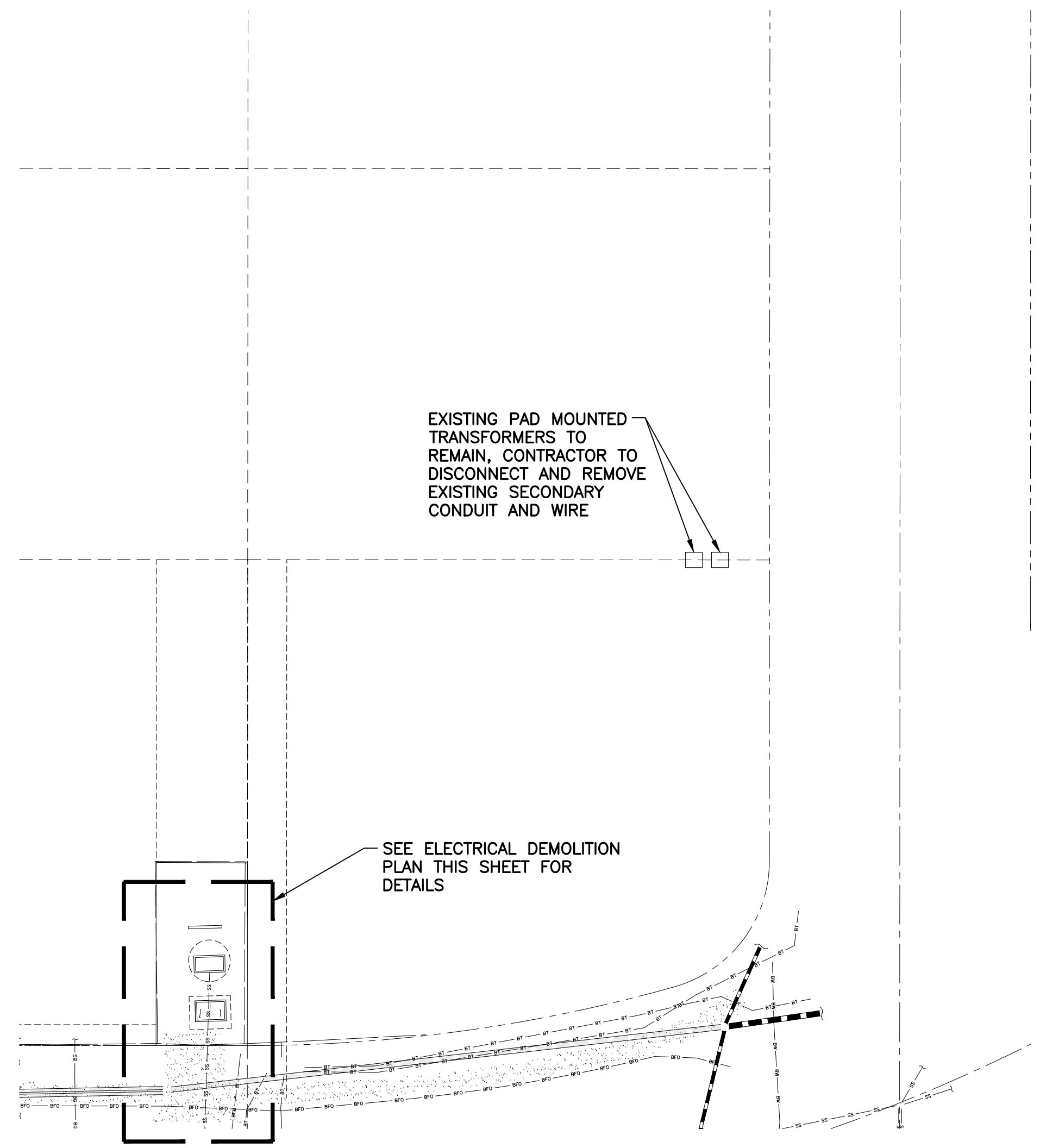
WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

OCU FILE NO.: 94626
DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: E200 PS 3283 SLD

SCALE:
DRAWING NO.:
E200
SHEET: X OF X

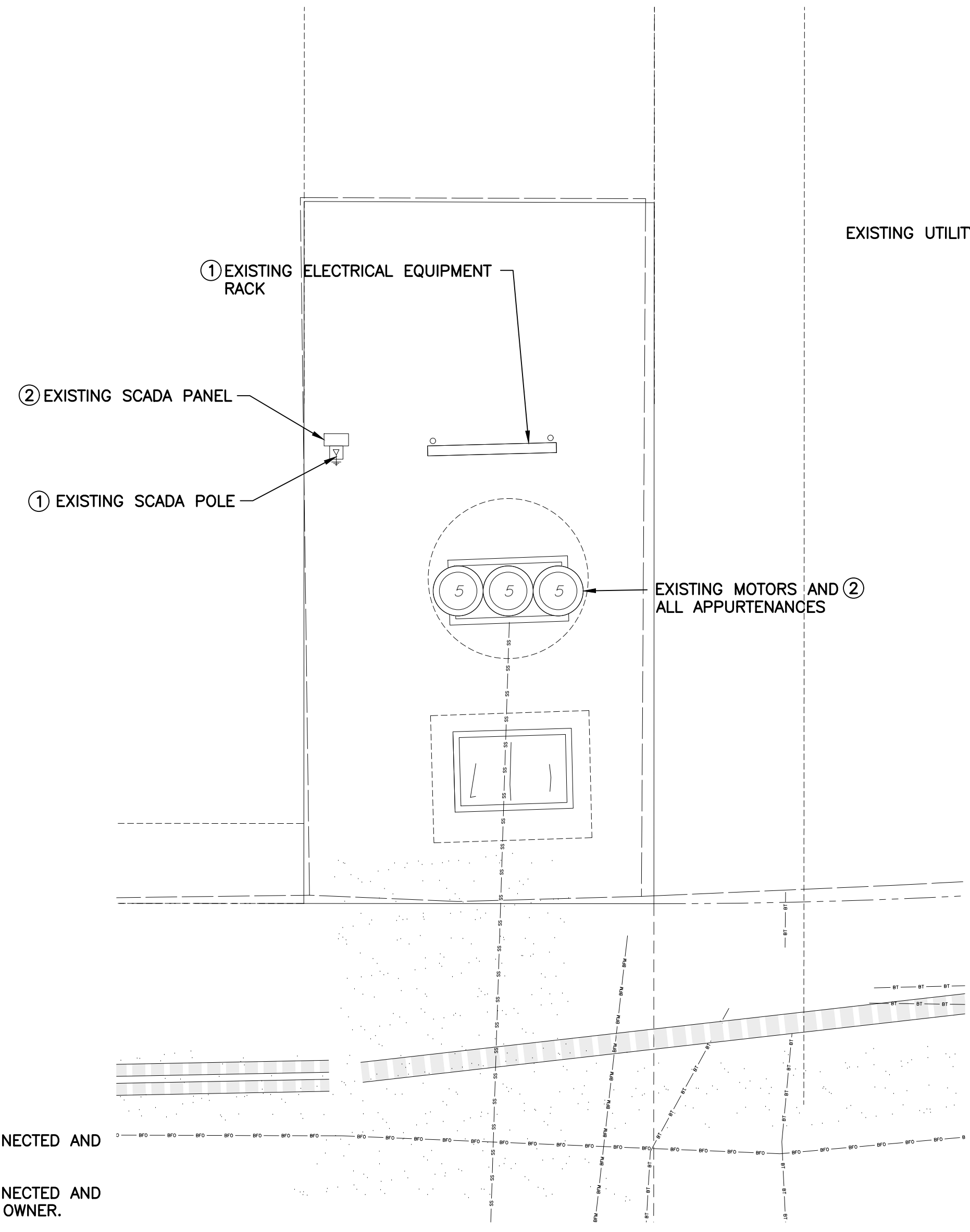
OCU ADDRESS:
PUMP STATION #3283
2100 PEPPER MILL BLVD.

DUKE ADDRESS:
PUMP STATION #3283
2100 PEPPER MILL BLVD.
DUKE ENERGY CONTACT:
RICHARD MORALES
RICHARD.MORALESRIVERA@DUKE-ENERGY.COM



PUMP STATION 3283 ELECTRICAL DEMOLITION SITE PLAN

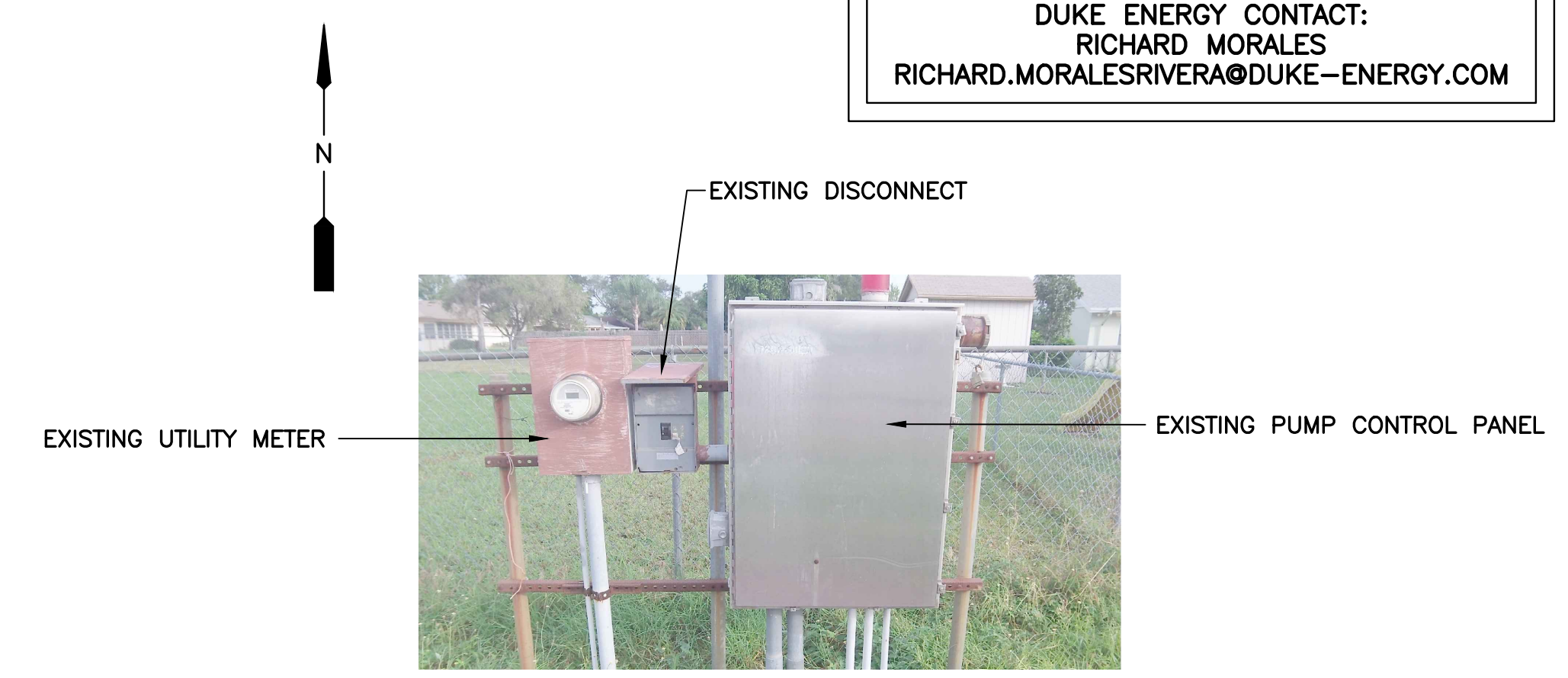
SCALE: 1"=20'-0"
20 10 0 20'



PUMP STATION 3283 ELECTRICAL DEMOLITION PLAN

SCALE: 1"=5'-0"
5 2.5 0 5'

- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.



PUMP STATION 3283 FIGURE NO. 1



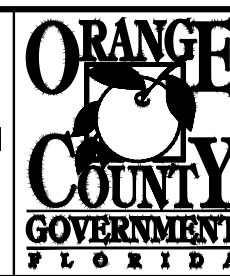
PUMP STATION 3283 FIGURE NO. 2



PUMP STATION 3283 FIGURE NO. 3

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



PUMP STATION 3283 ELECTRICAL DEMOLITION PLAN

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E201
CHECKED BY: WCN	SHEET: X OF X
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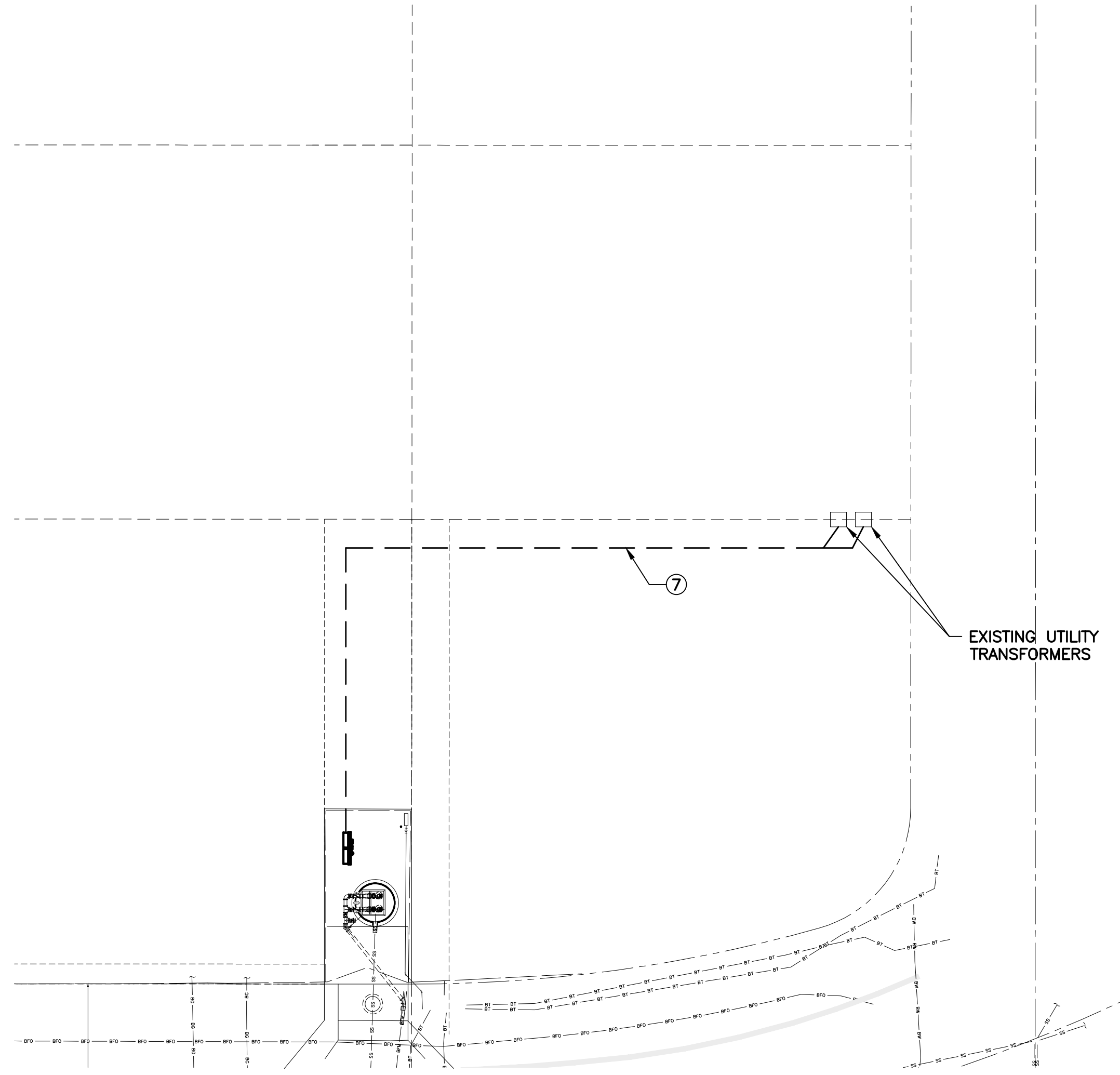
EDA
Electrical Design Associates
6965 PIAZZA GRANDE AVE., STE. 311
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FAX: (407) 745-5603
C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

Y:\Atkins\Orange County\Y17-901\OCU-PS Package 234_100 Submittal\dwg\201 PS 3283 DEMO.dwg, 11/27/2019 1:22:29 PM, AutoCAD PDF (General Documentation).pc3

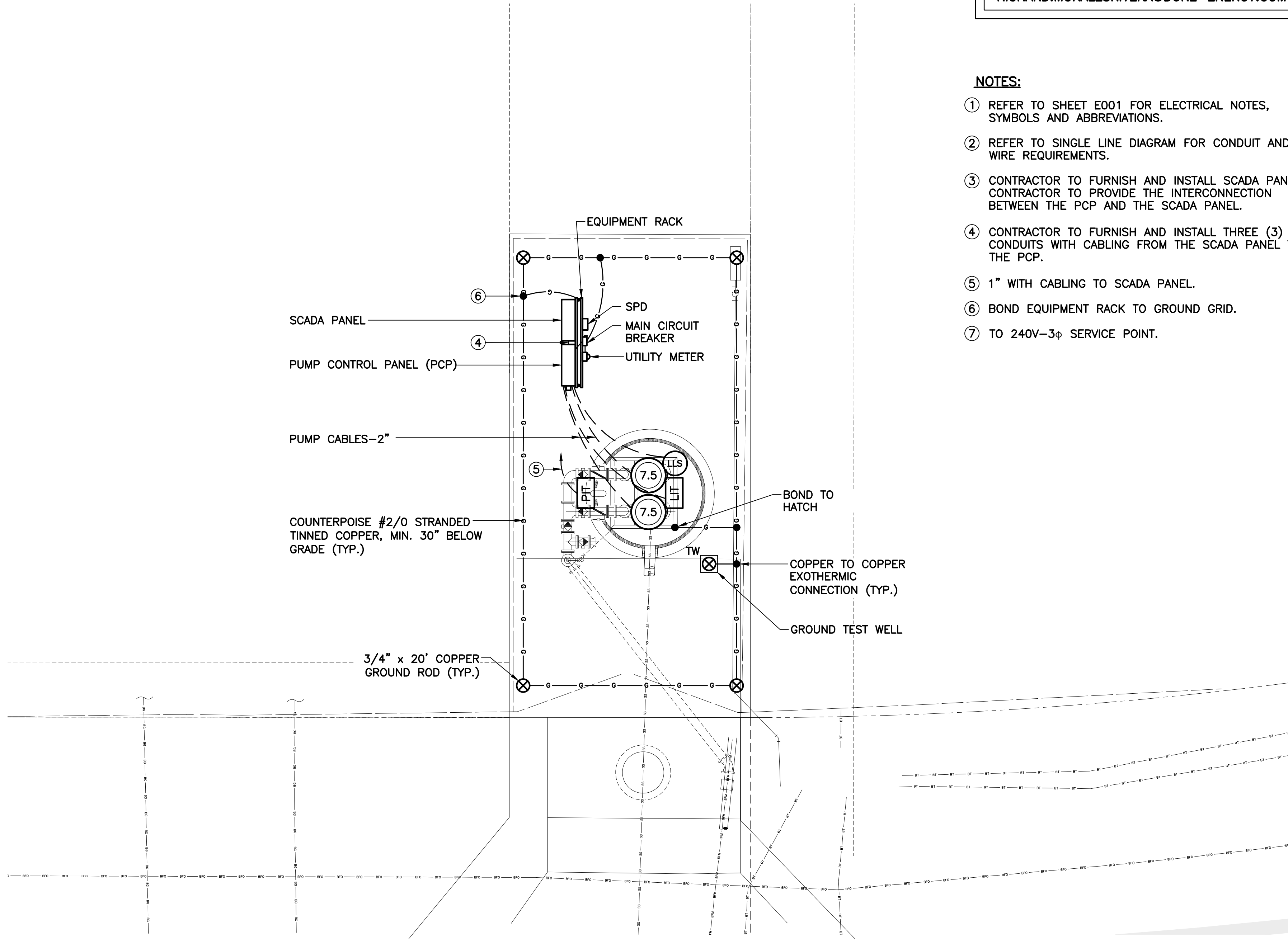
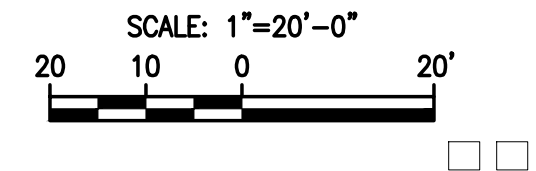
OCU ADDRESS:
PUMP STATION #3283
2100 PEPPER MILL BLVD.

DUKE ADDRESS:
PUMP STATION #3283
2100 PEPPER MILL BLVD.
DUKE ENERGY CONTACT:
RICHARD MORALES
RICHARD.MORALESRIVERA@DUKE-ENERGY.COM

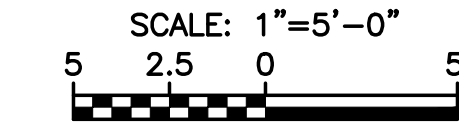
- NOTES:**
- ① REFER TO SHEET E001 FOR ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
 - ② REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - ③ CONTRACTOR TO FURNISH AND INSTALL SCADA PANEL. CONTRACTOR TO PROVIDE THE INTERCONNECTION BETWEEN THE PCP AND THE SCADA PANEL.
 - ④ CONTRACTOR TO FURNISH AND INSTALL THREE (3) 1" CONDUITS WITH CABLING FROM THE SCADA PANEL TO THE PCP.
 - ⑤ 1" WITH CABLING TO SCADA PANEL.
 - ⑥ BOND EQUIPMENT RACK TO GROUND GRID.
 - ⑦ TO 240V-3 ϕ SERVICE POINT.



PUMP STATION 3283 SITE PLAN



PUMP STATION 3283 ELECTRICAL PLAN



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C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT
ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



PUMP STATION 3283 ELECTRICAL PLAN

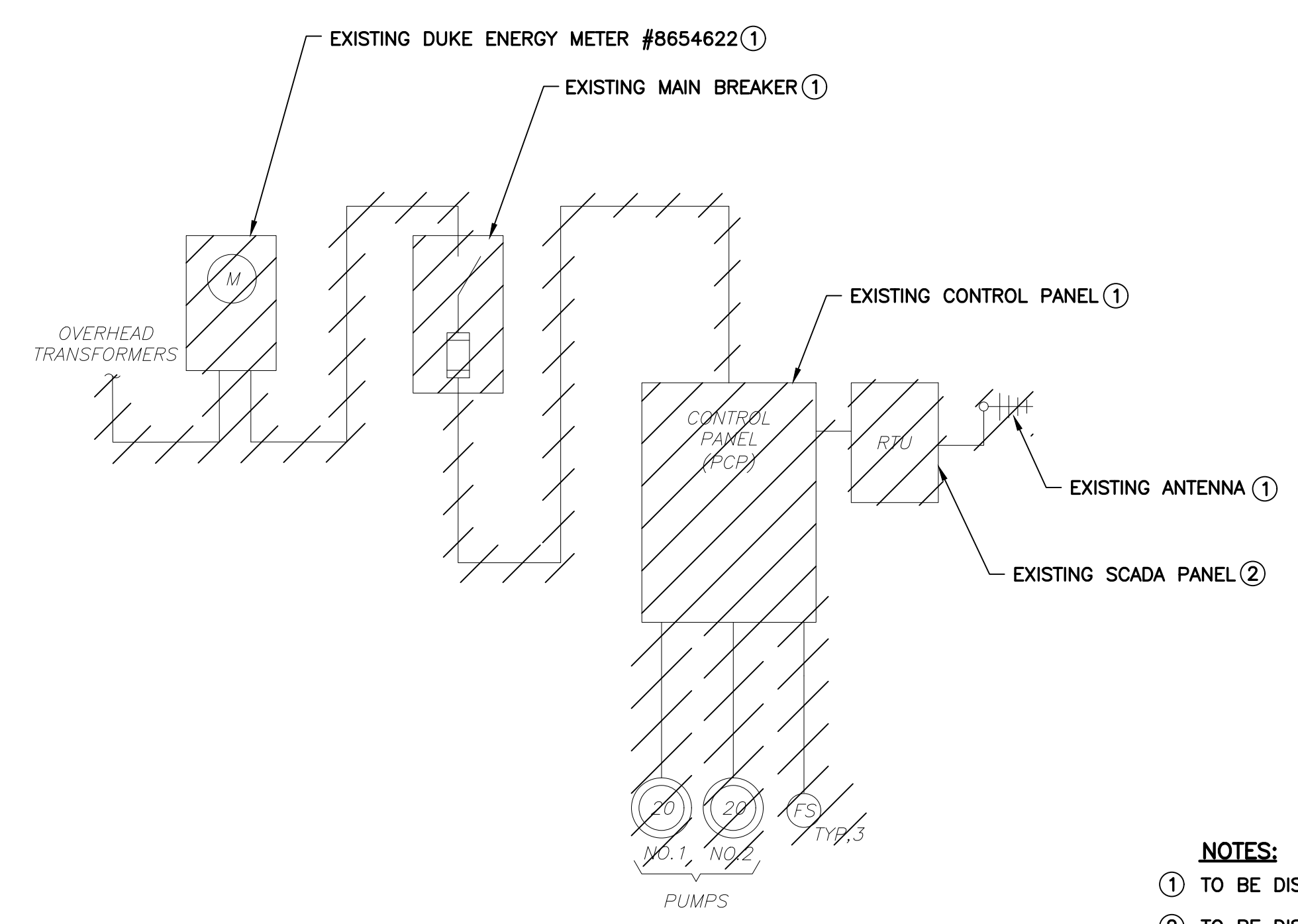
WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

OCU FILE NO.: 94626
DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: E202 PS 3283 PROP

SCALE:
DRAWING NO.:
E202
SHEET: X OF X

OCU ADDRESS:
 PUMP STATION #3315
 4996 WILLIAMSBURG DRIVE

DUKE ADDRESS:
 PUMP STATION #3315
 4996 WILLIAMSBURG DRIVE
 DUKE ENERGY CONTACT:
 RICHARD MORALES
 RICHARD.MORALESRIVERA@DUKE-ENERGY.COM



**PUMP STATION 3315 DEMOLITION
 SINGLE LINE DIAGRAM**
 SCALE: N.T.S.

- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.

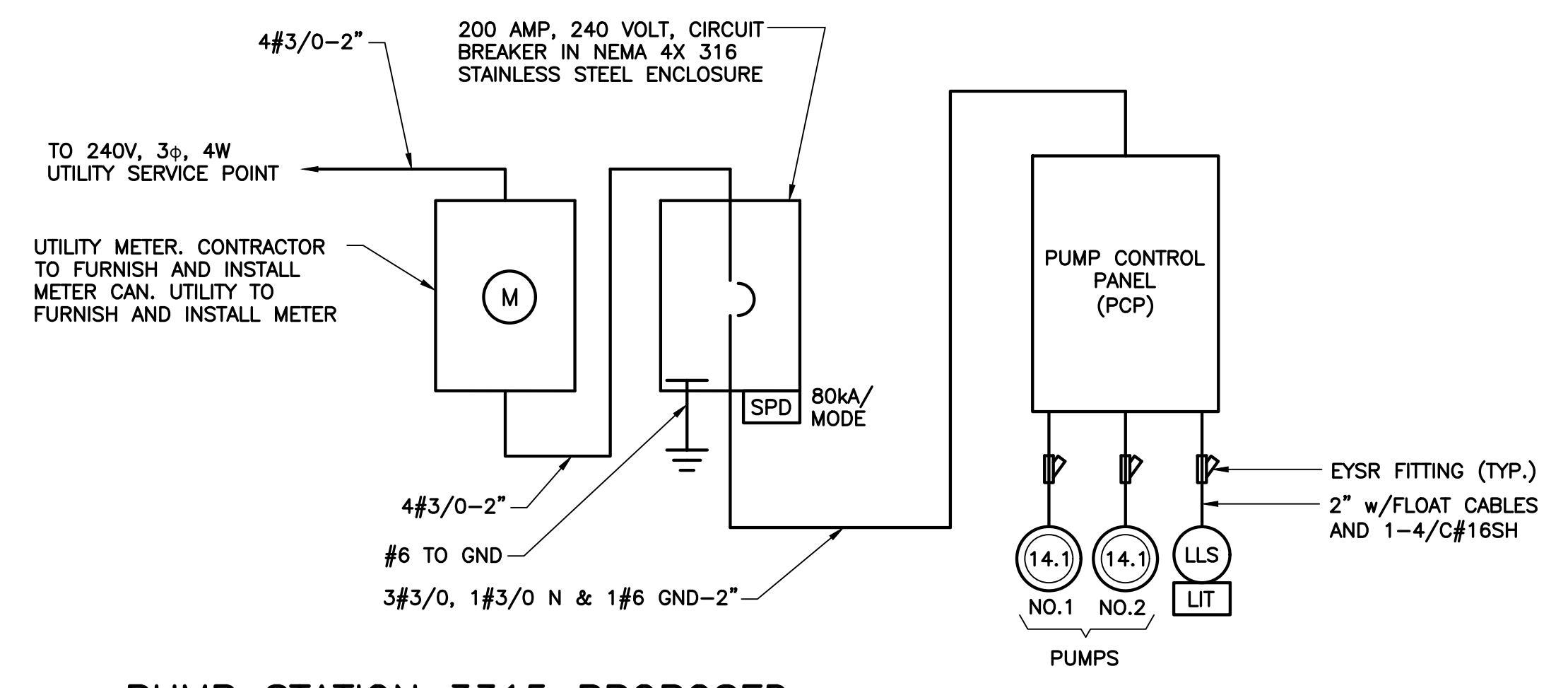
LOAD TABULATION – PUMP STATION 3315
 SERVICE VOLTAGE: 240V-3 ϕ

DESCRIPTION	LOAD	AMPACITY
PUMPS	2 @ 14.1 HP	= 84.00 AMPS
MISCELLANEOUS LOADS		= 5.00 AMPS
CONNECTED LOAD		= 89.00 AMPS

③ SERVICE ENTRANCE = 89.00 AMPS+(.25)(42.00) = **99.50 AMPS**

NOTES:

- ① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE FOR ORANGE COUNTY IS 100 AMPS.



**PUMP STATION 3315 PROPOSED
 SINGLE LINE DIAGRAM**
 SCALE: N.T.S.

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 WILLIAM C. NELSON, P.E.
 Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

SNC-LAVALIN
 Member of the SNC-Lavalin Group

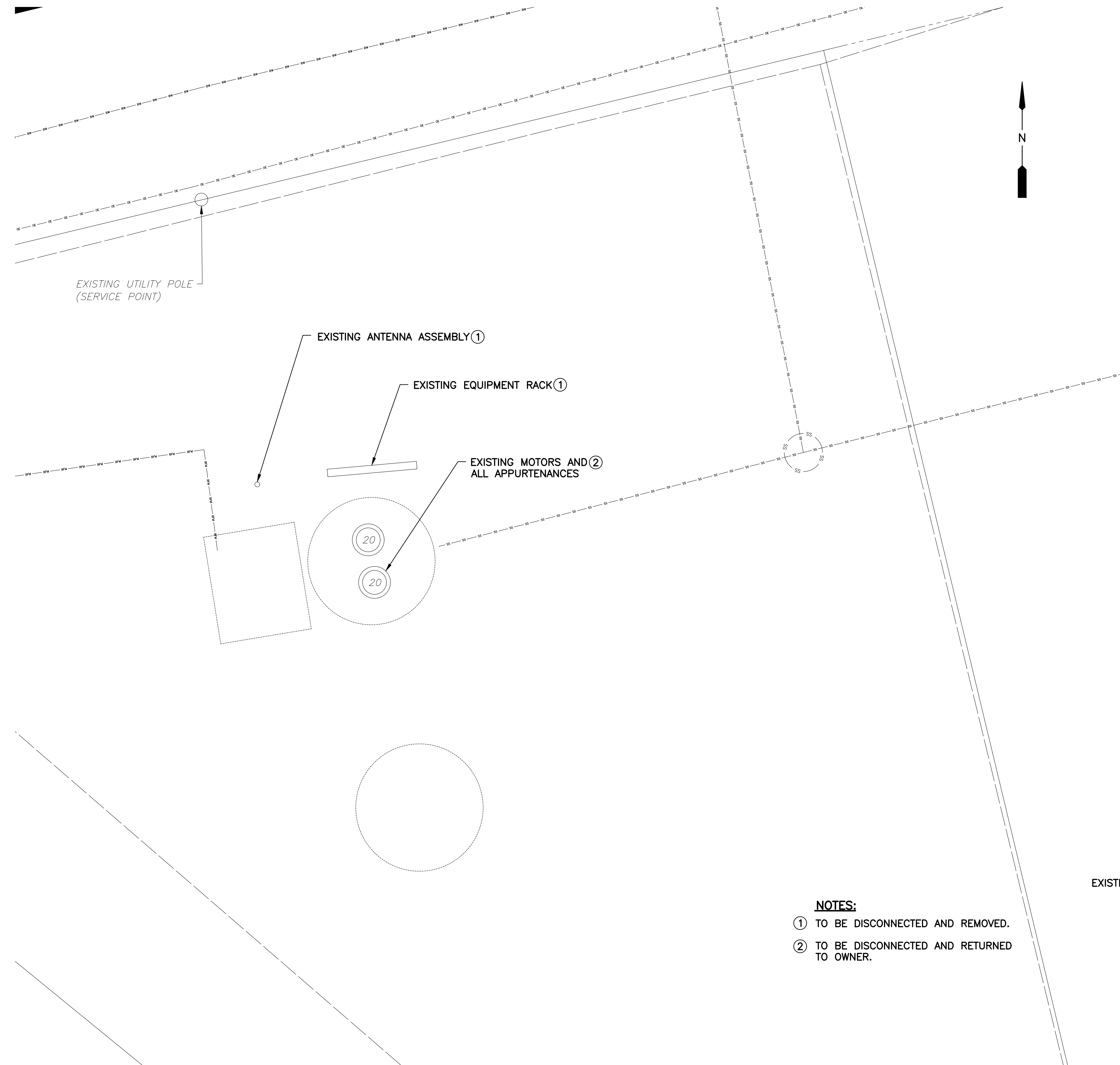
ATKINS
 Member of the SNC-Lavalin Group

**PUMP STATION 3315
 DUPLEX PUMP CONTROL PANEL
 SINGLE LINE DIAGRAM**

OCU FILE NO.: 94626
 DESIGNED BY: AHH
 DRAWN BY: SDV
 CHECKED BY: WCN
 CADD FILE: E300 PS 3315 SLD

SCALE:
 DRAWING NO.:
E300
 SHEET: X OF X

WILLIAM C. NELSON
 PROFESSIONAL ENGINEER
 FLORIDA LICENSE #42017



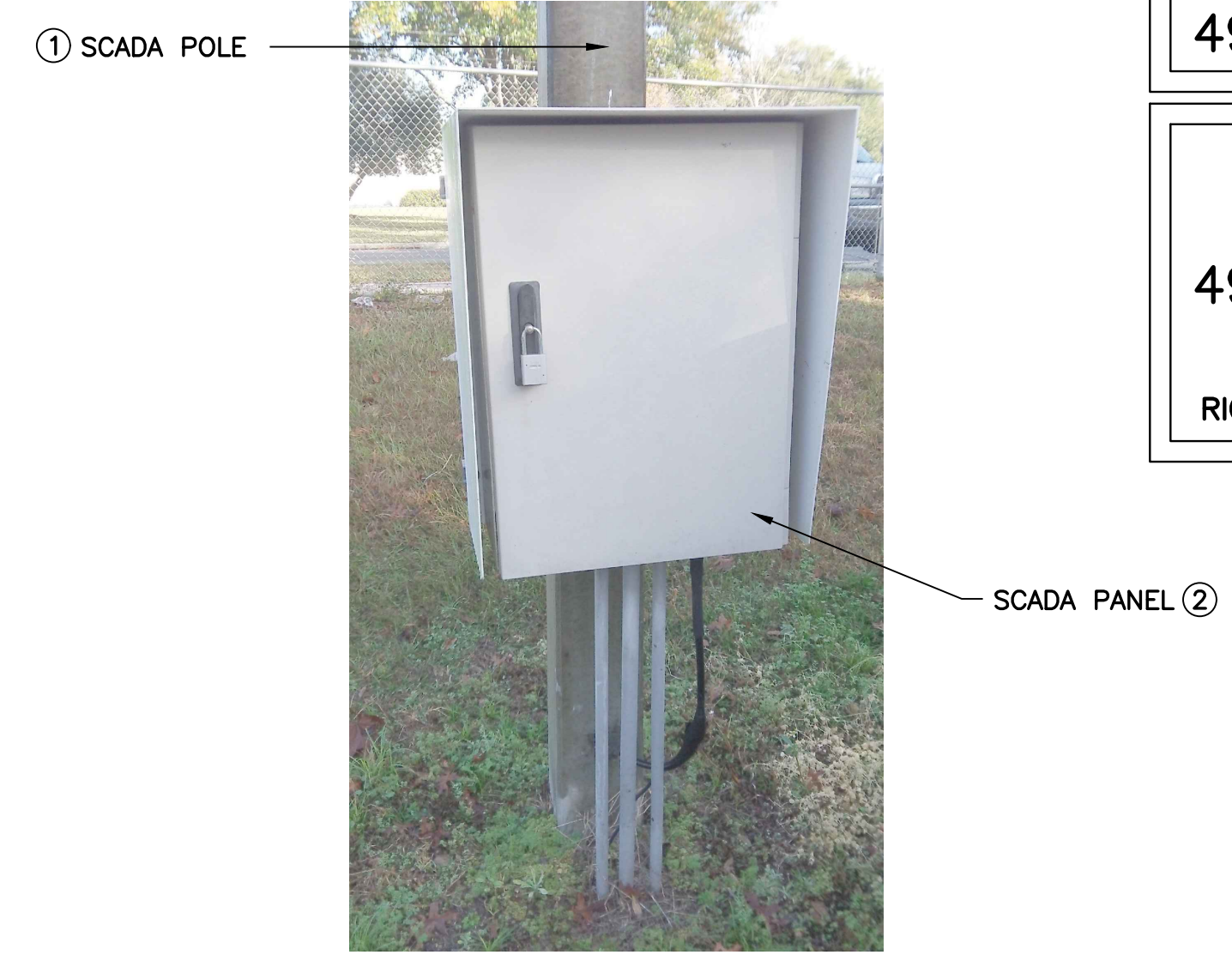
PUMP STATION 3315 ELECTRICAL DEMOLITION PLAN

SCALE: 1"=5'-0"
 5 2.5 0 5'

- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.

OCU ADDRESS:
 PUMP STATION #3315
 4996 WILLIAMSBURG DRIVE

DUKE ADDRESS:
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 DUKE ENERGY CONTACT:
 RICHARD MORALES
 RICHARD.MORALESRIVERA@DUKE-ENERGY.COM



PUMP STATION 3315 FIGURE NO. 1



PUMP STATION 3315 FIGURE NO. 2

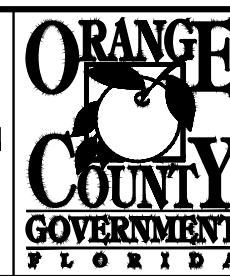


PUMP STATION 3315 FIGURE NO. 3

EDA
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 PHONE: (407) 745-5604
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REV	DATE	DESCRIPTION

LINE IS 2 INCHES
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ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
 9150 CURRY FORD ROAD ORLANDO, FL. 32825



ATKINS
 Member of the SNC-Lavalin Group

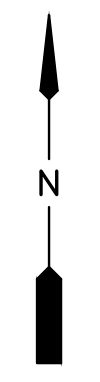
PUMP STATION 3315 ELECTRICAL DEMOLITION PLAN

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E301
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: E301 PS 3315 DEMO	

WILLIAM C. NELSON
 PROFESSIONAL ENGINEER
 FLORIDA LICENSE #42017

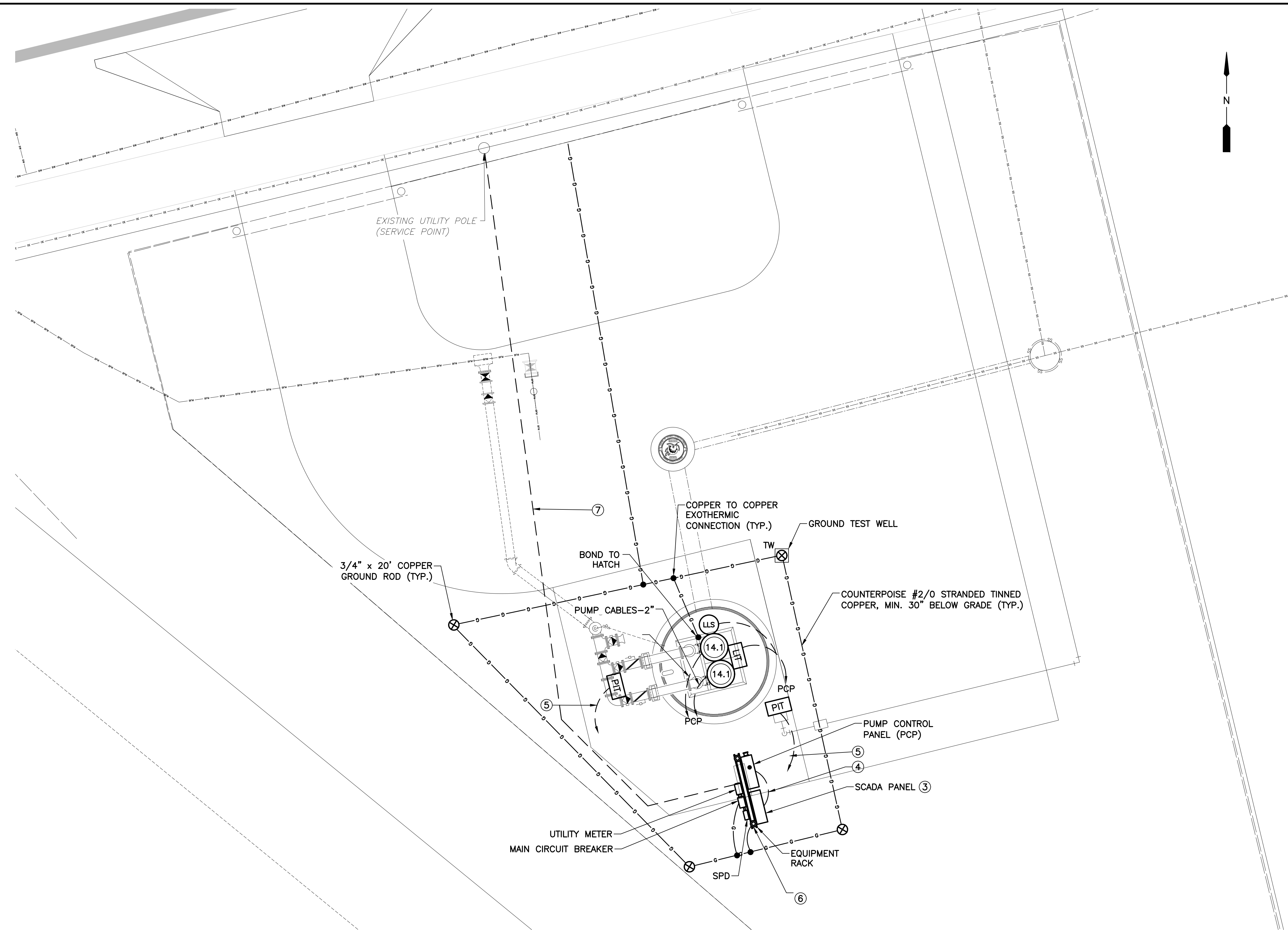
OCU ADDRESS:
PUMP STATION #3315
4996 WILLIAMSBURG DRIVE

DUKE ADDRESS:
PUMP STATION #3315
4996 WILLIAMSBURG DRIVE
DUKE ENERGY CONTACT:
RICHARD MORALES
RICHARD.MORALESRIVERA@DUKE-ENERGY.COM

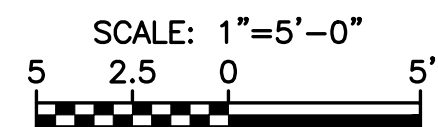


NOTES:

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- ② REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
- ③ CONTRACTOR TO FURNISH AND INSTALL SCADA PANEL. CONTRACTOR TO PROVIDE THE INTERCONNECTION BETWEEN THE PCP AND THE SCADA PANEL.
- ④ CONTRACTOR TO FURNISH AND INSTALL THREE (3) 1" CONDUITS WITH CABLING FROM THE SCADA PANEL TO THE PCP.
- ⑤ 1" WITH CABLING TO SCADA PANEL.
- ⑥ BOND EQUIPMENT RACK TO GROUND GRID.
- ⑦ TO 240V-3 ϕ SERVICE POINT.



PUMP STATION 3315 ELECTRICAL PLAN



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FAX: (407) 745-5603
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Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

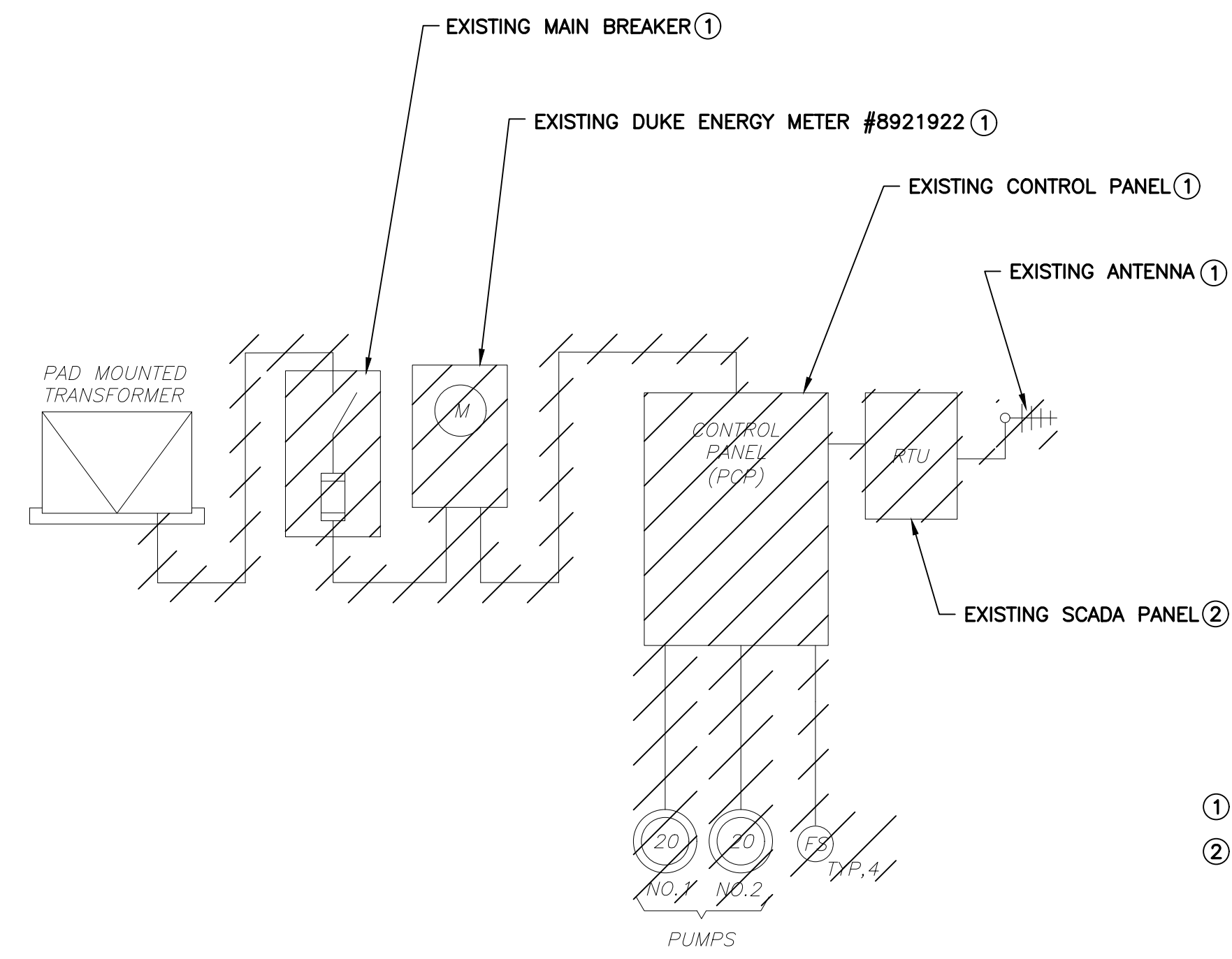


PUMP STATION 3315 ELECTRICAL PLAN

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E302
CHECKED BY: WCN	SHEET: X OF X
WILLIAM C. NELSON PROFESSIONAL ENGINEER FLORIDA LICENSE #42017	CADD FILE: E302 PS 3315 PROP

OCU ADDRESS:
PUMP STATION #3363
8541 SOUTH PARK CIRCLE

DUKE ADDRESS:
PUMP STATION #3363
3024 SOUTH PARK PLACE
DUKE ENERGY CONTACT:
RICHARD MORALES
RICHARD.MORALESRIVERA@DUKE-ENERGY.COM



- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.

**PUMP STATION 3363 DEMOLITION
SINGLE LINE DIAGRAM**
SCALE: N.T.S.

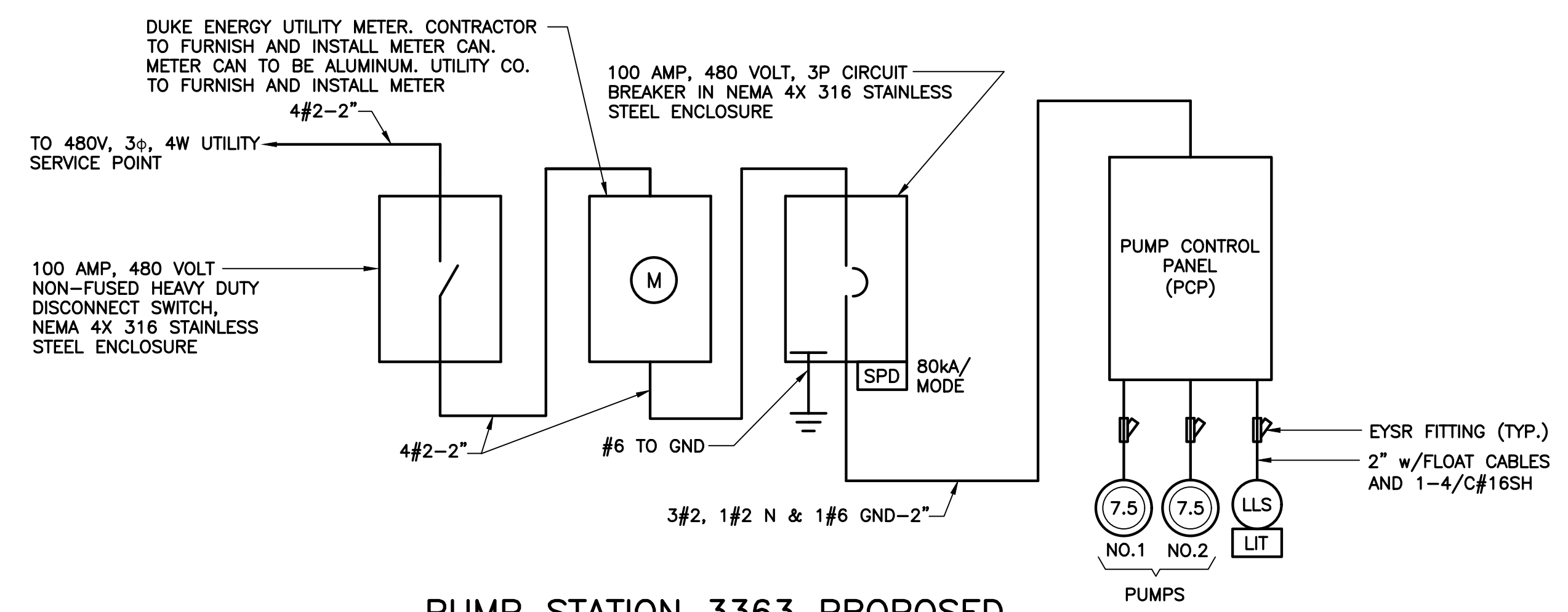
LOAD TABULATION – PUMP STATION 3363
SERVICE VOLTAGE: 480V-3φ

DESCRIPTION	LOAD	AMPACITY
PUMPS	2 @ 7.5 HP EACH	= 22.00 AMPS
MISCELLANEOUS LOADS	—	= 5.00 AMPS
CONNECTED LOAD		= 27.00 AMPS

①② SERVICE ENTRANCE = 27.00 AMPS + (.25)(11.00) = **29.75 AMPS**

NOTES:

- ① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE FOR ORANGE COUNTY IS 100 AMPS.

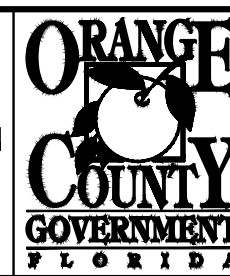


**PUMP STATION 3363 PROPOSED
SINGLE LINE DIAGRAM**
SCALE: N.T.S.

EDA
Electrical Design Associates
6965 PIAZZA GRANDE AVE., STE. 311
ORLANDO, FLORIDA 32835
PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

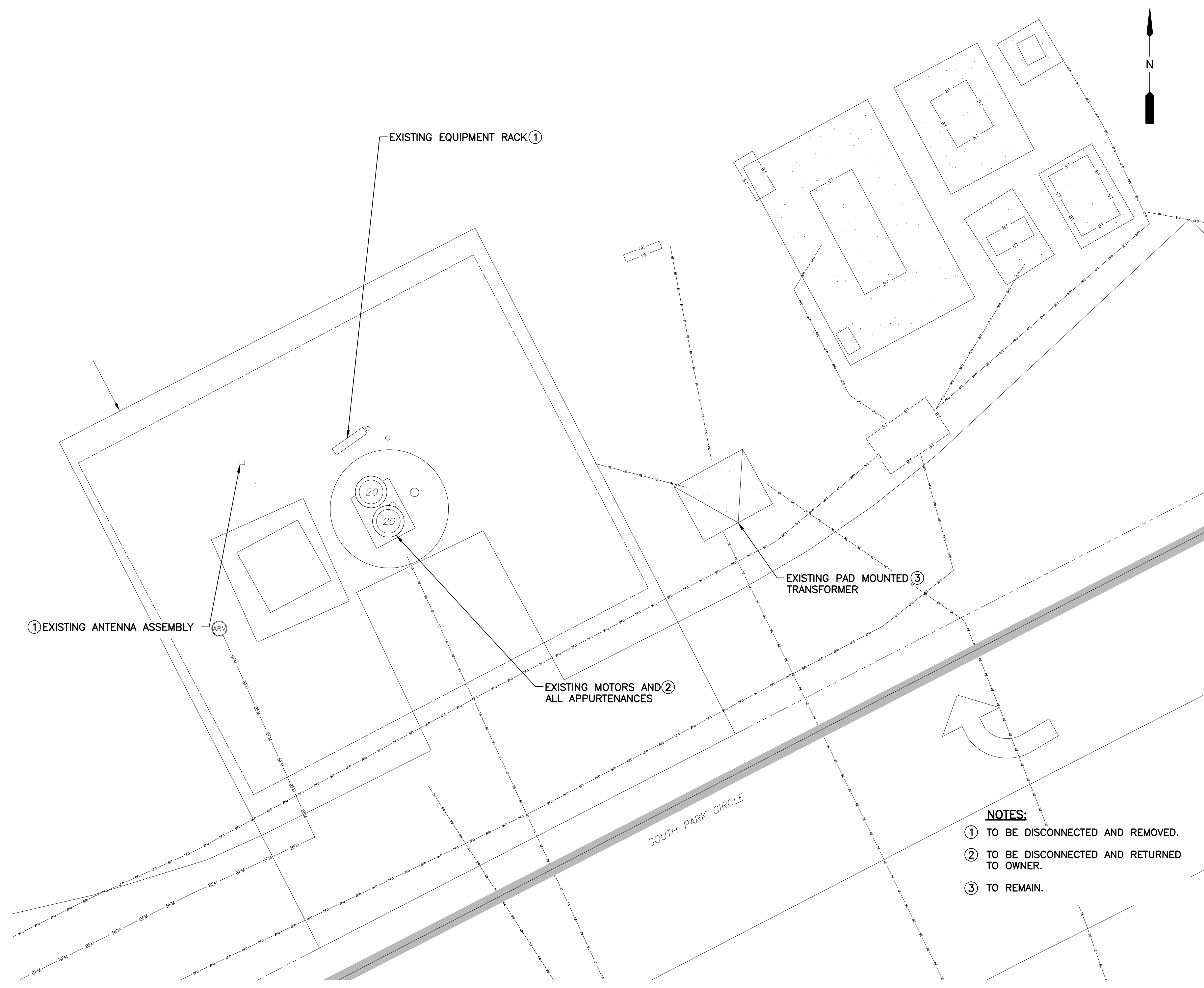


**ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION**
9150 CURRY FORD ROAD ORLANDO, FL. 32825



**PUMP STATION 3363
DUPLEX PUMP CONTROL PANEL
SINGLE LINE DIAGRAM**

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E400
CHECKED BY: WCN	SHEET: X OF X
WILLIAM C. NELSON PROFESSIONAL ENGINEER FLORIDA LICENSE #42017	CADD FILE: E400 PS 3363 SLD



PUMP STATION 3363 ELECTRICAL DEMOLITION PLAN

SCALE: 1"=5'-0"
 5 2.5 0 5'

- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.
 - ③ TO REMAIN.



PUMP STATION 3363 FIGURE NO. 1

OCU ADDRESS:
 PUMP STATION #3363
 8541 SOUTH PARK CIRCLE

DUKE ADDRESS:
 PUMP STATION #3363
 3024 SOUTH PARK PLACE
 DUKE ENERGY CONTACT:
 RICHARD MORALES
 RICHARD.MORALESRIVERA@DUKE-ENERGY.COM

EXISTING PUMP CONTROL PANEL



PUMP STATION 3363 FIGURE NO. 2

EXISTING UTILITY METER

EXISTING MAIN DISCONNECT



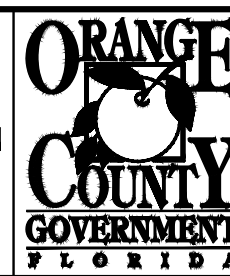
PUMP STATION 3363 FIGURE NO. 3

EXISTING SCADA PANEL

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 FAX: (407) 745-5603
 C.O.A. No. 8079
 WILLIAM C. NELSON, P.E.
 Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
 9150 CURRY FORD ROAD ORLANDO, FL. 32825



ATKINS
 Member of the SNC-Lavalin Group

PUMP STATION 3363 ELECTRICAL DEMOLITION PLAN

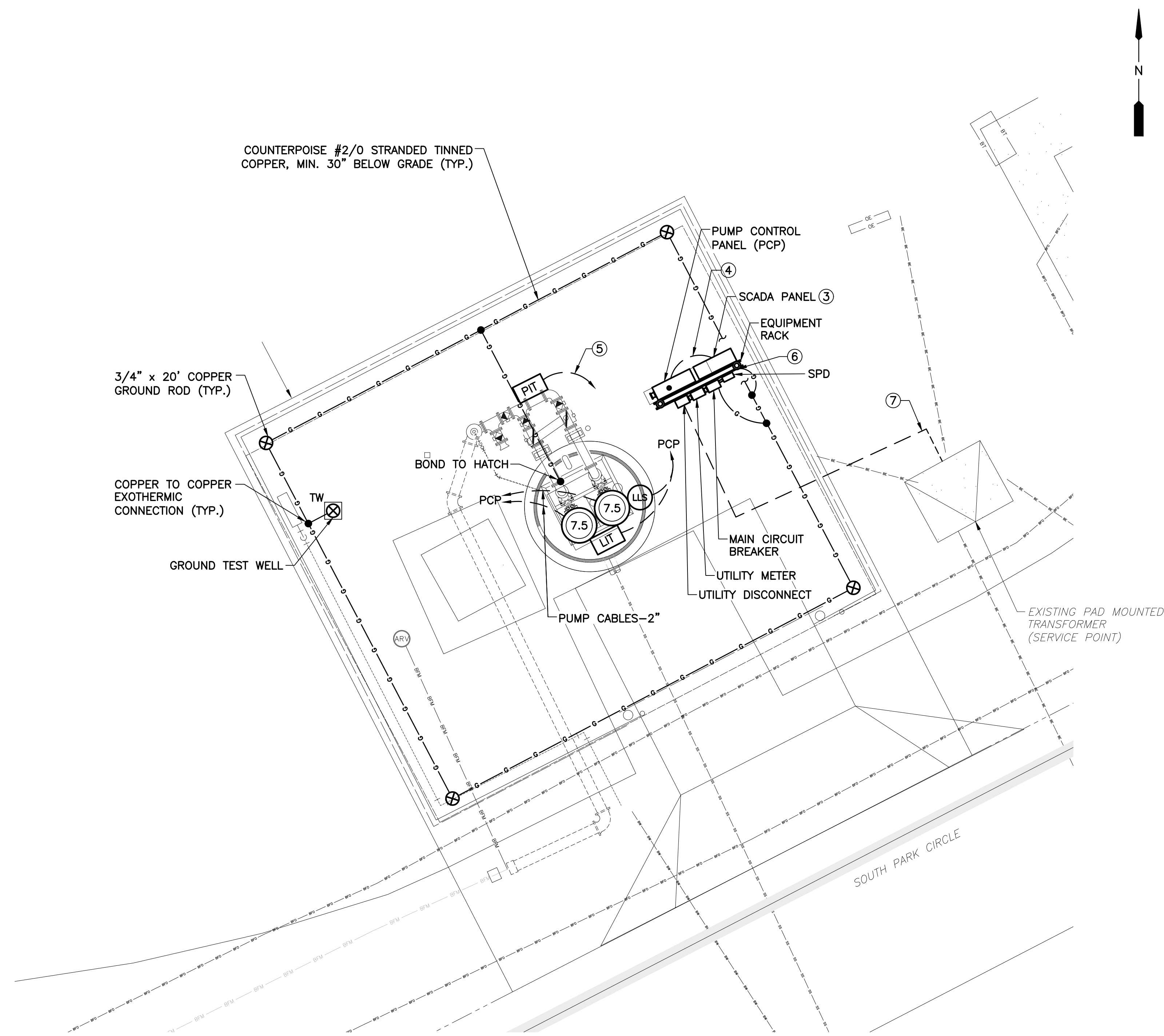
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 DESIGNED BY: AHH
 DRAWN BY: SDV
 WILLIAM C. NELSON
 PROFESSIONAL ENGINEER
 FLORIDA LICENSE #42017

CHECKED BY: WCN
 CADD FILE: E401 PS 3363 DEMO

SCALE:
 DRAWING NO.:
E401
 SHEET: X OF X

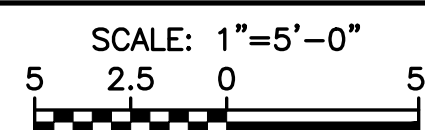
OCU ADDRESS:
PUMP STATION #3363
8541 SOUTH PARK CIRCLE

DUKE ADDRESS:
PUMP STATION #3363
3024 SOUTH PARK PLACE
DUKE ENERGY CONTACT:
RICHARD MORALES
RICHARD.MORALESRIVERA@DUKE-ENERGY.COM



- NOTES:**
- REFER TO SHEET E001 FOR ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
 - REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - CONTRACTOR TO FURNISH AND INSTALL SCADA PANEL. CONTRACTOR TO PROVIDE THE INTERCONNECTION BETWEEN THE PCP AND THE SCADA PANEL.
 - CONTRACTOR TO FURNISH AND INSTALL THREE (3) 1" CONDUITS WITH CABLING FROM THE SCADA PANEL TO THE PCP.
 - 1" WITH CABLING TO SCADA PANEL.
 - BOND EQUIPMENT RACK TO GROUND GRID.
 - TO 480V-3 ϕ SERVICE POINT.

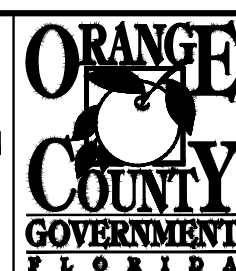
PUMP STATION 3363 ELECTRICAL PLAN



6965 PIAZZA GRANDE AVE., STE. 311
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FAX: (407) 745-5603
C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



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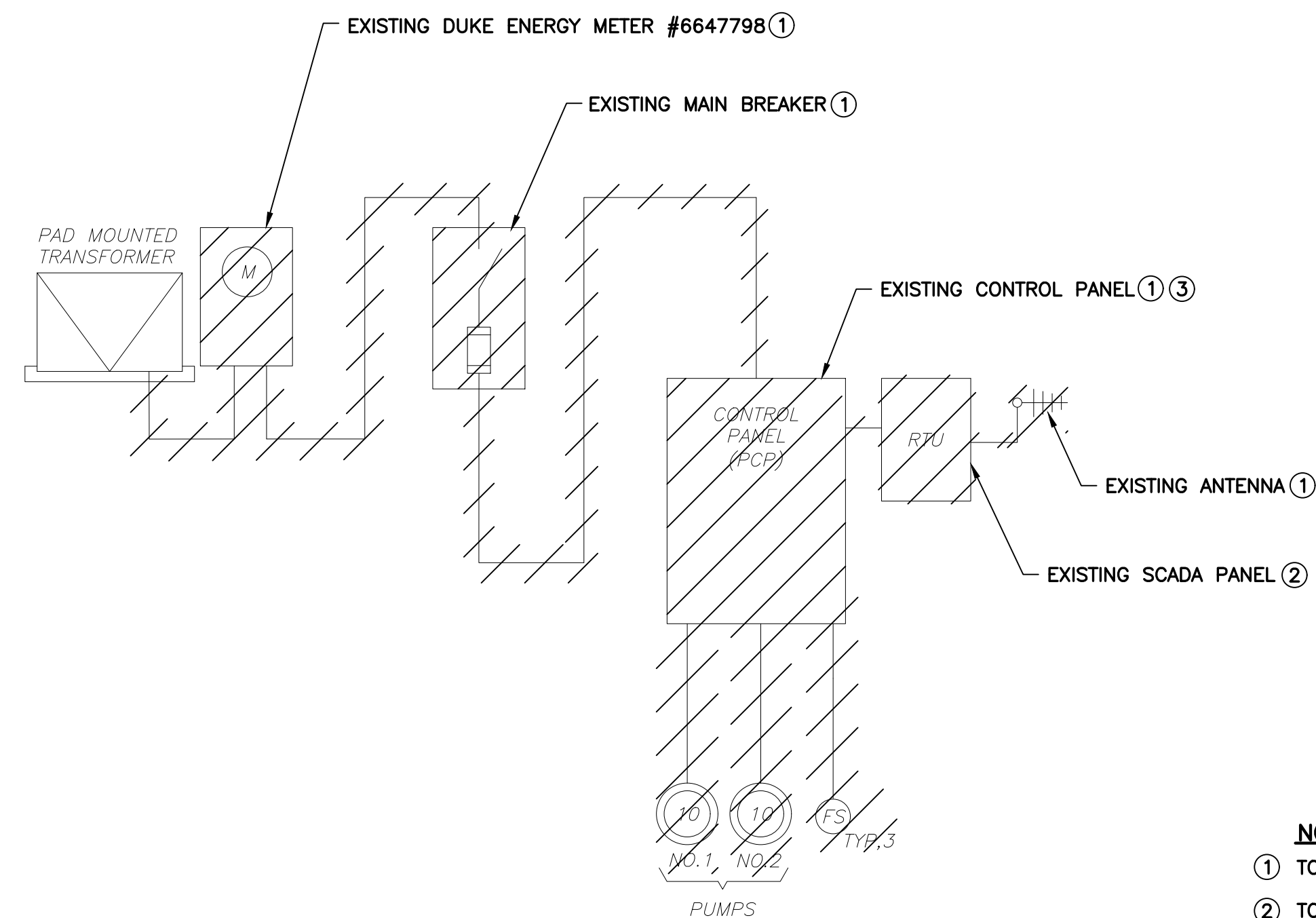
PUMP STATION 3363 ELECTRICAL PLAN

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E402
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: E402 PS 3363 PROP	

WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

OCU ADDRESS:
PUMP STATION #3852
1320 LAKE TRAIL DRIVE

DUKE ADDRESS:
PUMP STATION #3852
1350 LAKE TRAIL DRIVE
DUKE ENERGY CONTACT:
LATOYA JAMES
LATOYA.JAMES@DUKE-ENERGY.COM



**PUMP STATION 3852 DEMOLITION
SINGLE LINE DIAGRAM**

SCALE: N.T.S.

NOTES:

- ① TO BE DISCONNECTED AND REMOVED.
- ② TO BE DISCONNECTED AND RETURNED TO OWNER.
- ③ GENERATOR RECEPTACLE TO BE DISCONNECTED AND RETURNED TO OWNER.

LOAD TABULATION – PUMP STATION 3852

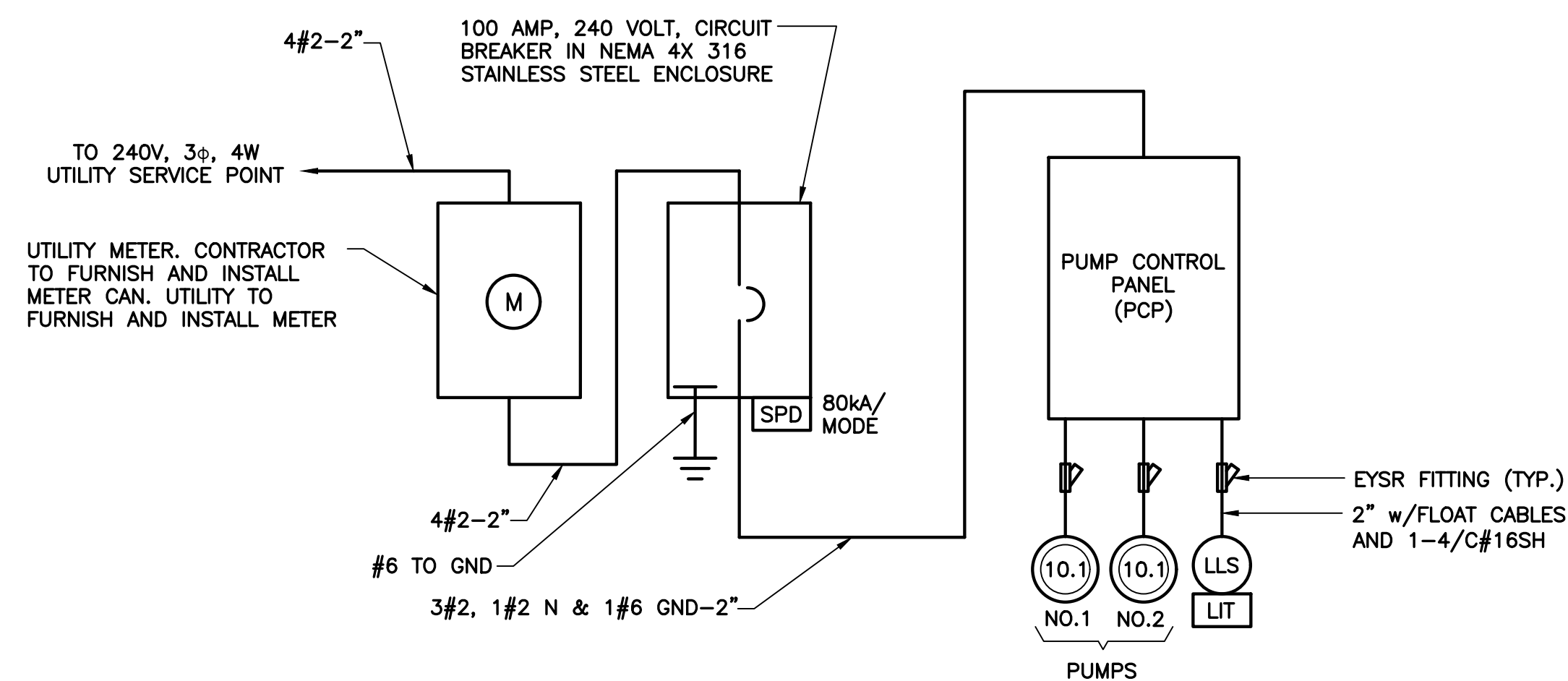
SERVICE VOLTAGE: 240V-3φ

DESCRIPTION	LOAD	AMPACITY
PUMPS	2 @10.1 HP EACH	= 56.00 AMPS
MISCELLANEOUS LOADS	—	= 5.00 AMPS
CONNECTED LOAD		= 61.00 AMPS

①② SERVICE ENTRANCE = 61.0 AMPS + (.25)(28.0) = **68.00** AMPS

NOTES:

- ① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE FOR ORANGE COUNTY IS 100 AMPS.



**PUMP STATION 3852 PROPOSED
SINGLE LINE DIAGRAM**

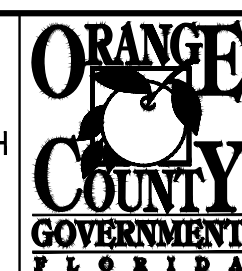
SCALE: N.T.S.



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C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



**ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION**
9150 CURRY FORD ROAD ORLANDO, FL. 32825



ATKINS
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**PUMP STATION 3852
DUPLIX PUMP CONTROL PANEL
SINGLE LINE DIAGRAM**

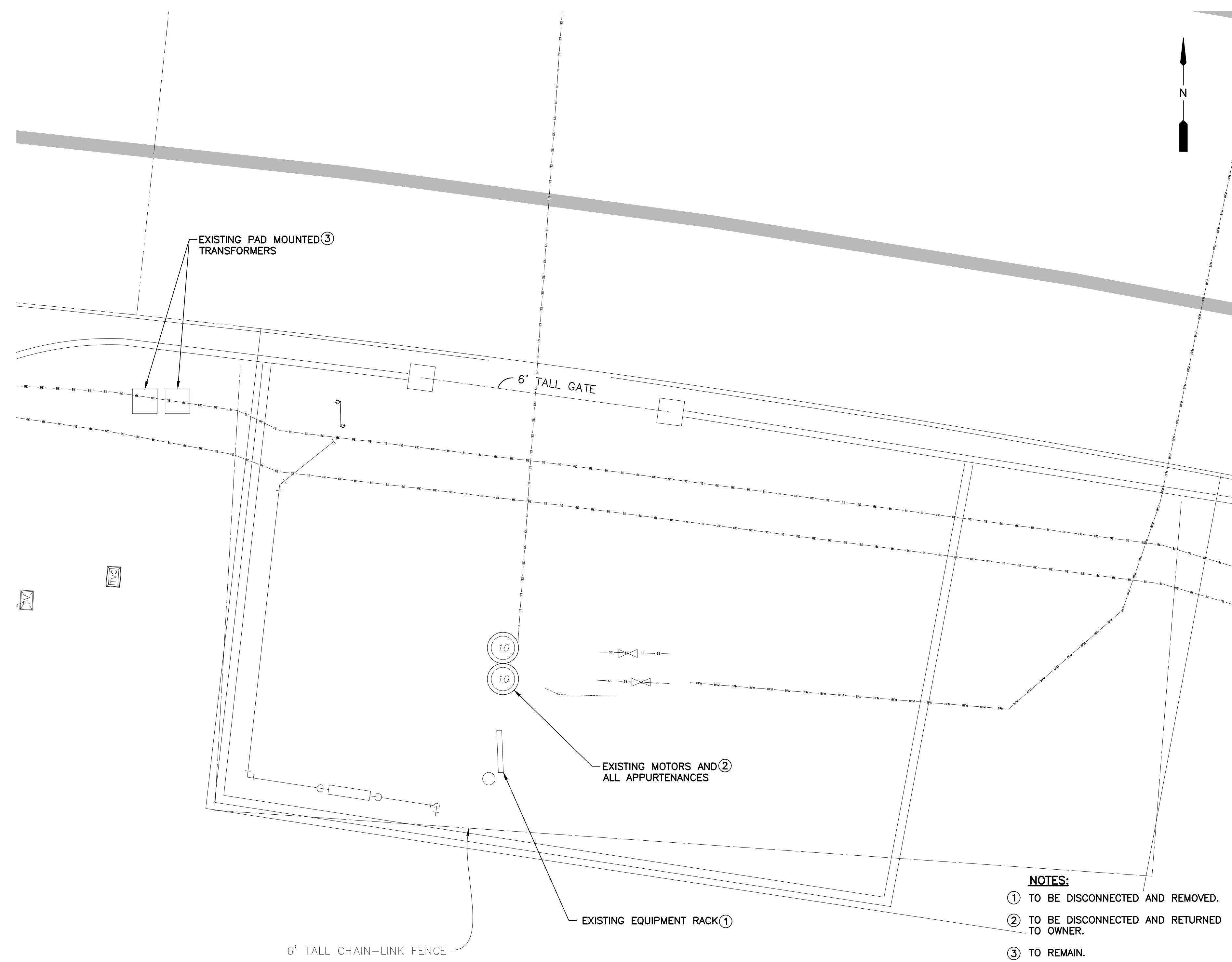
WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

OCU FILE NO.: 94626
DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: E500 PS 3852 SLD

SCALE:
DRAWING NO.:
E500
SHEET: X OF X

OCU ADDRESS:
PUMP STATION #3852
1320 LAKE TRAIL DRIVE

DUKE ADDRESS:
PUMP STATION #3852
1350 LAKE TRAIL DRIVE
DUKE ENERGY CONTACT:
LATOYA JAMES
LATOYA.JAMES@DUKE-ENERGY.COM



EXISTING PUMP CONTROL PANEL

PUMP STATION 3852 FIGURE NO. 1



EXISTING UTILITY METER
EXISTING DISCONNECT

PUMP STATION 3852 FIGURE NO. 2

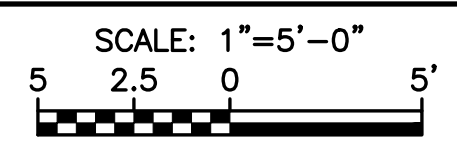


EXISTING SCADA PANEL

PUMP STATION 3852 FIGURE NO. 3

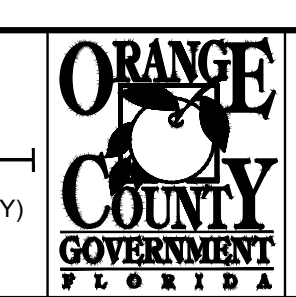
- NOTES:**
- ① TO BE DISCONNECTED AND REMOVED.
 - ② TO BE DISCONNECTED AND RETURNED TO OWNER.
 - ③ TO REMAIN.

PUMP STATION 3852 ELECTRICAL DEMOLITION PLAN



REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



PUMP STATION 3852 ELECTRICAL DEMOLITION PLAN

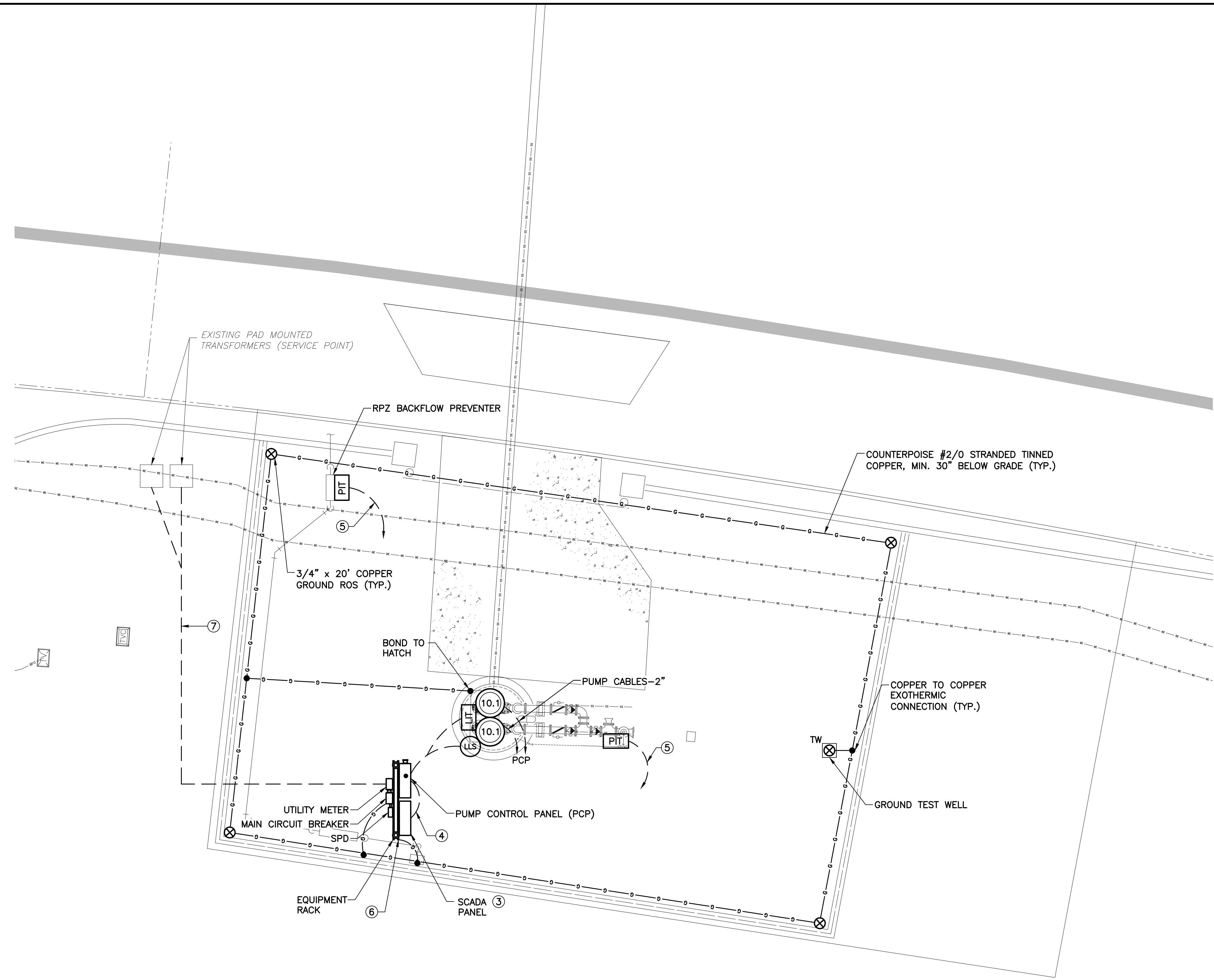
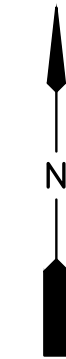
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DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E501
CHECKED BY: WCN	SHEET: X OF X
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C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

Y:\Atkins\Orange County\17-901\OCU-PS Package 234_100 Submittal\dwg\501 PS 3852 DEMO.dwg, 11/27/2019 12:25 PM, AutoCAD PDF (General Documentation).pc3

OCU ADDRESS:
PUMP STATION #3852
1320 LAKE TRAIL DRIVE

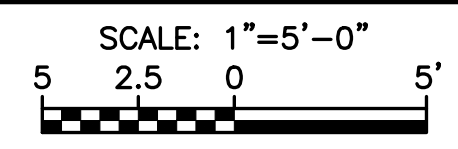
DUKE ADDRESS:
PUMP STATION #3852
1350 LAKE TRAIL DRIVE
DUKE ENERGY CONTACT:
LATOYA JAMES
LATOYA.JAMES@DUKE-ENERGY.COM



NOTES:

- ① REFER TO SHEET E001 FOR ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- ② REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
- ③ CONTRACTOR TO FURNISH AND INSTALL SCADA PANEL. CONTRACTOR TO PROVIDE THE INTERCONNECTION BETWEEN THE PCP AND THE SCADA PANEL.
- ④ CONTRACTOR TO FURNISH AND INSTALL THREE (3) 1" CONDUITS WITH CABLING FROM THE SCADA PANEL TO THE PCP.
- ⑤ 1" WITH CABLING TO SCADA PANEL.
- ⑥ BOND EQUIPMENT RACK TO GROUND GRID.
- ⑦ TO 240V-3 ϕ SERVICE POINT.

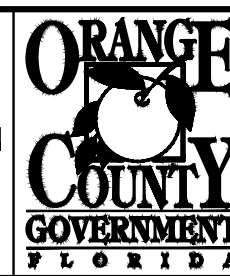
PUMP STATION 3852 ELECTRICAL PLAN



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C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



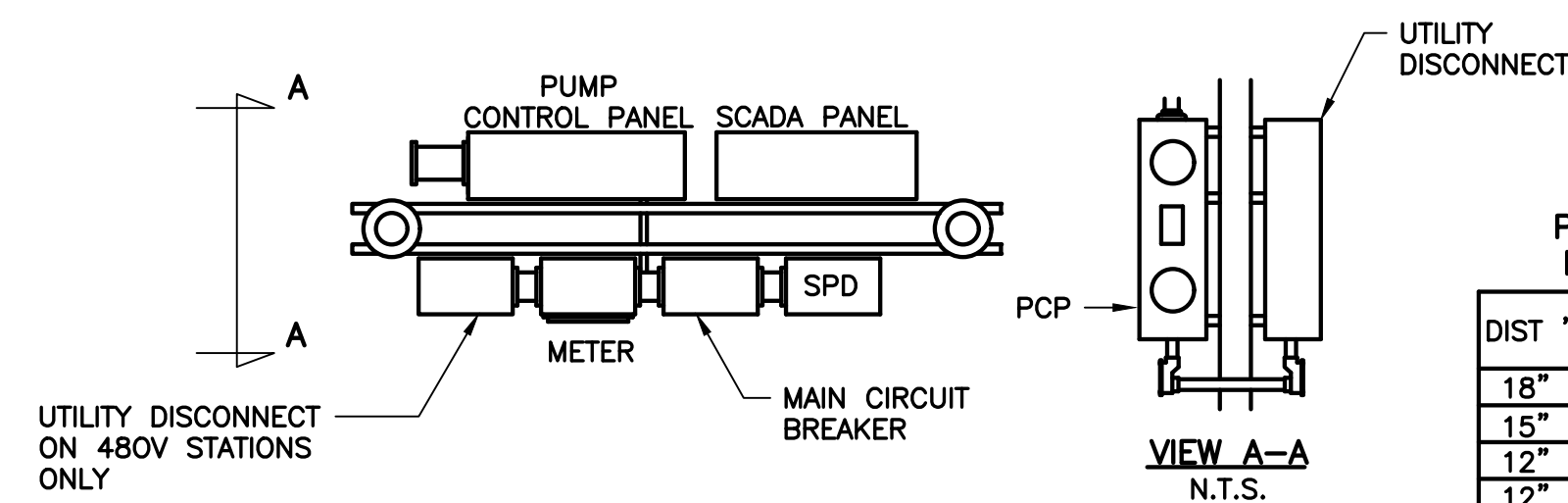
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



PUMP STATION 3852 ELECTRICAL PLAN

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	E502
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: E502 PS 3852 PROP	

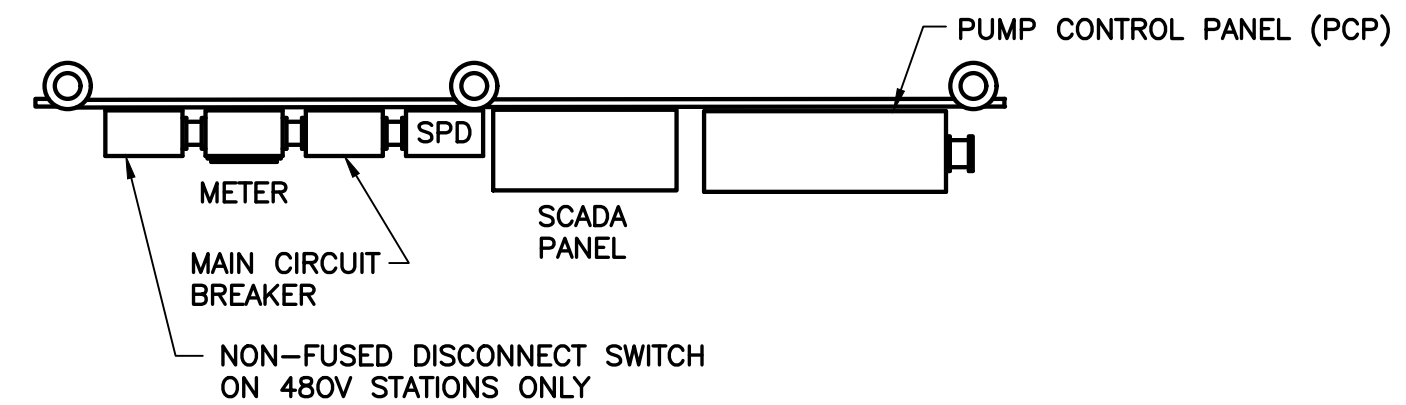
WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017



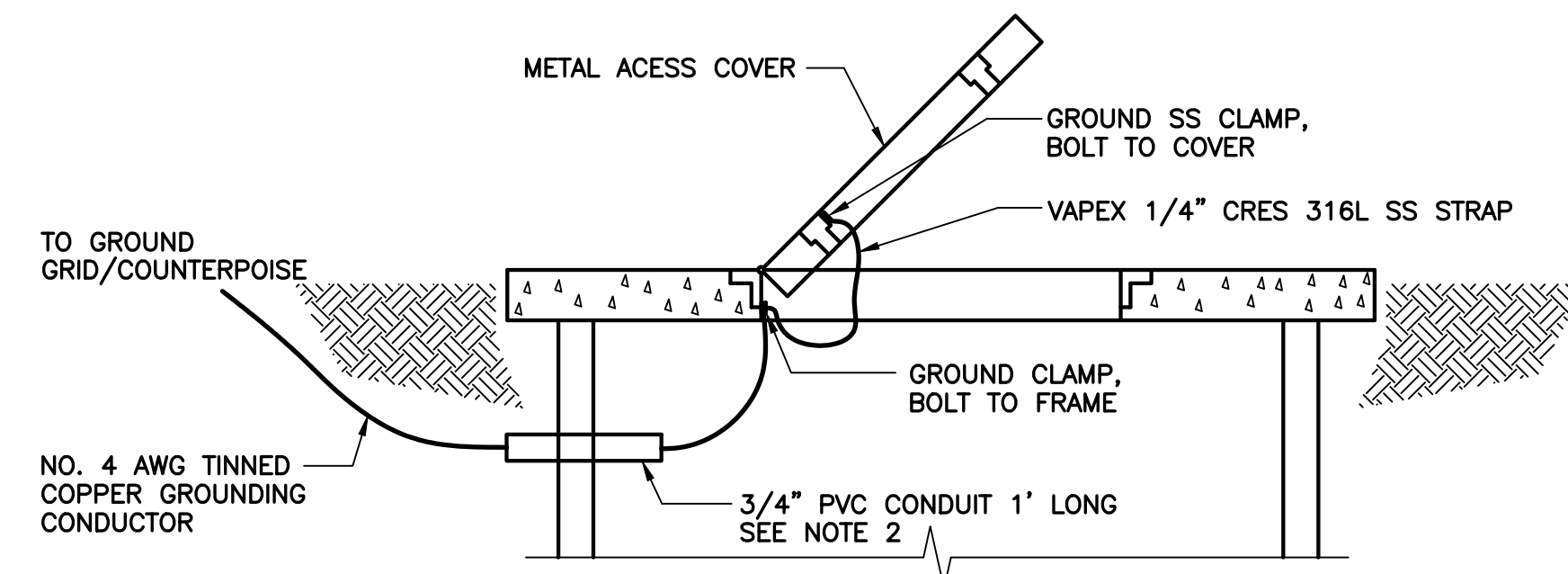
PANEL & SEAL-OFF MOUNTING HEIGHTS

DIST "Y"	DIST "X"	PANEL HEIGHT
18"	36"	36"
15"	30"	42"
12"	24"	48"
12"	24"	60"

FOR PANELS NOT LISTED ADJUST MOUNTING HEIGHTS ACCORDINGLY

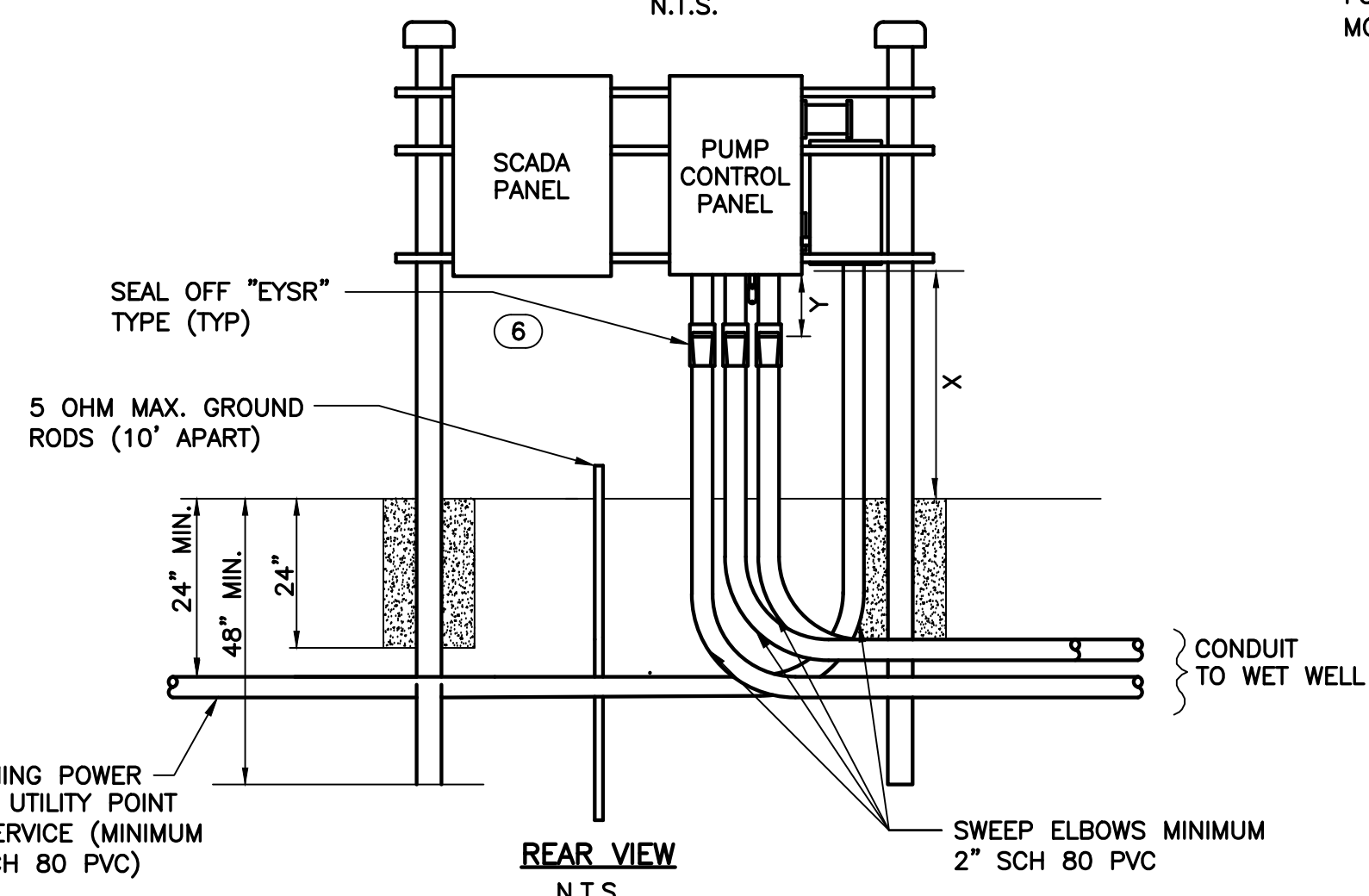


PLAN VIEW
N.T.S.

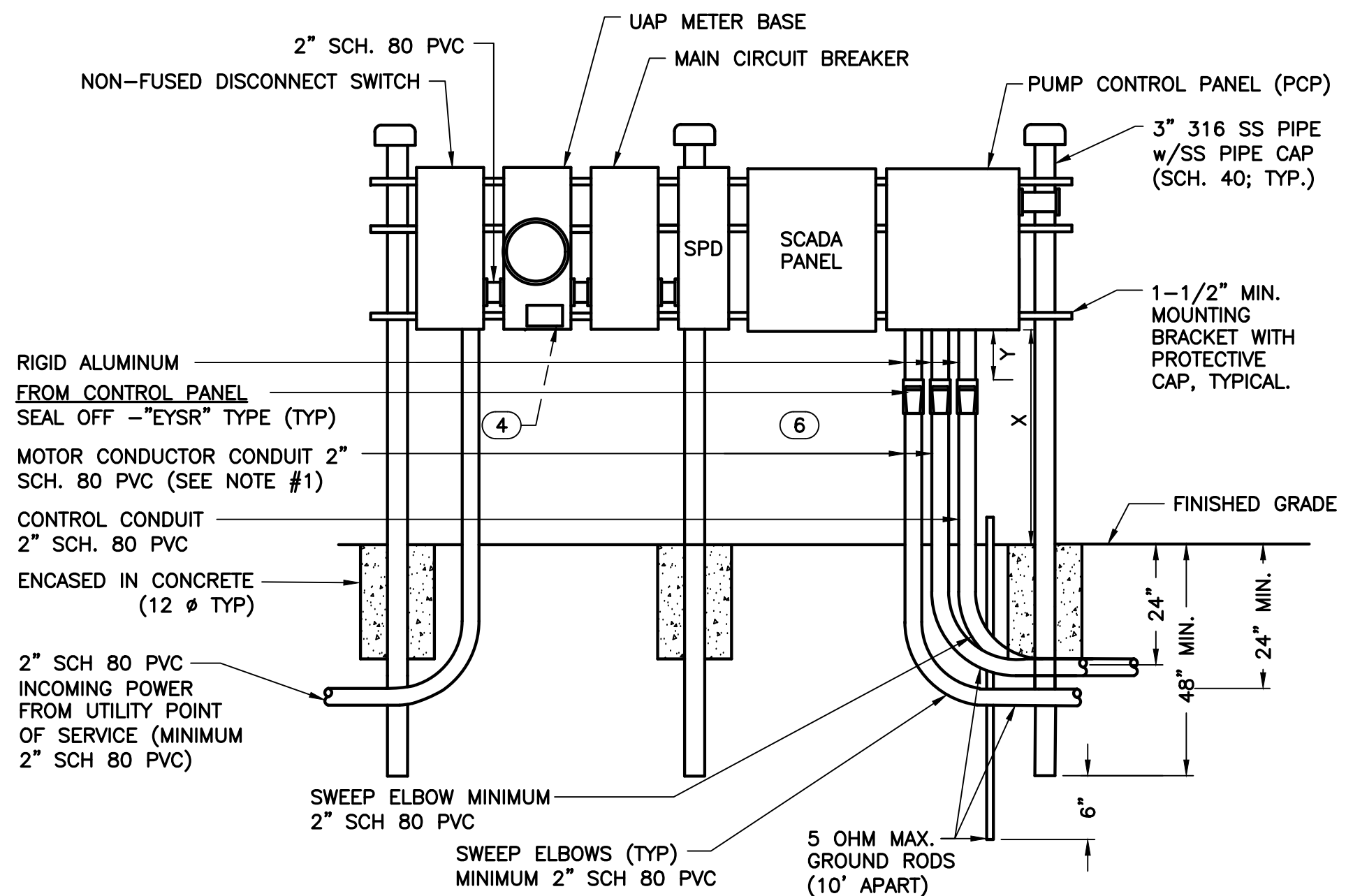


- ON COVERS WITH MULTIPLE DOORS, PROVIDE BRAID FROM FRAME TO DOOR ON EACH DOOR
- PROVIDE WATERPROOF CAULKING WHERE GROUND CABLE AND CONDUIT PENETRATES WETWELL TO PREVENT INTRUSION OF GROUND WATER AND ESCAPE OF VAPORS FROM WETWELL.
- INSTALL GROUND WIRE SO THAT IT WILL NOT CROSS CLEAR OPENING OR PREVENT OR IMPEDE NORMAL METHOD OF REMOVING FLOATS OR PUMPS.

A419-2
COVER & DOOR GROUNDING DETAIL
N.T.S.

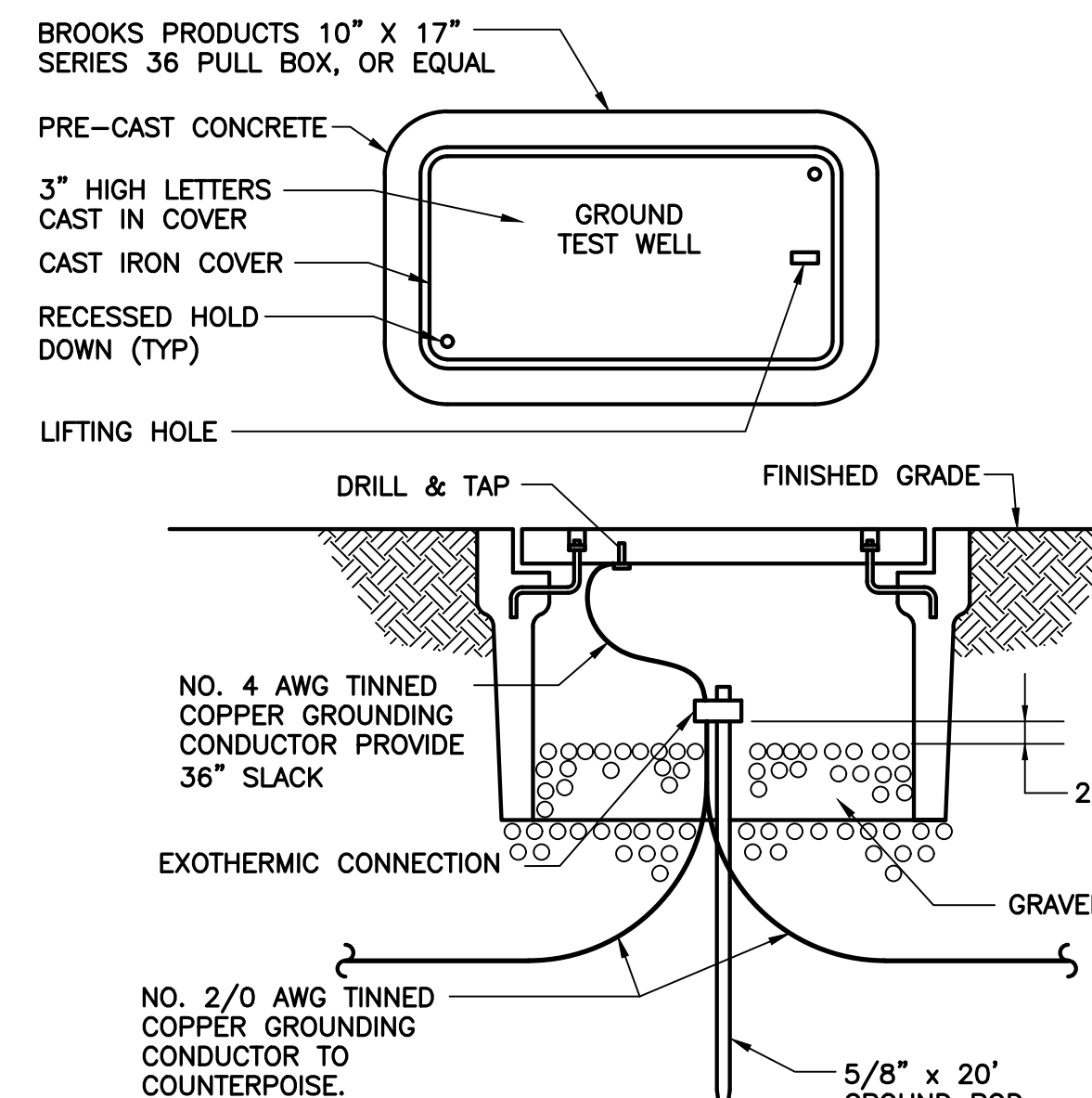


REAR VIEW
N.T.S.

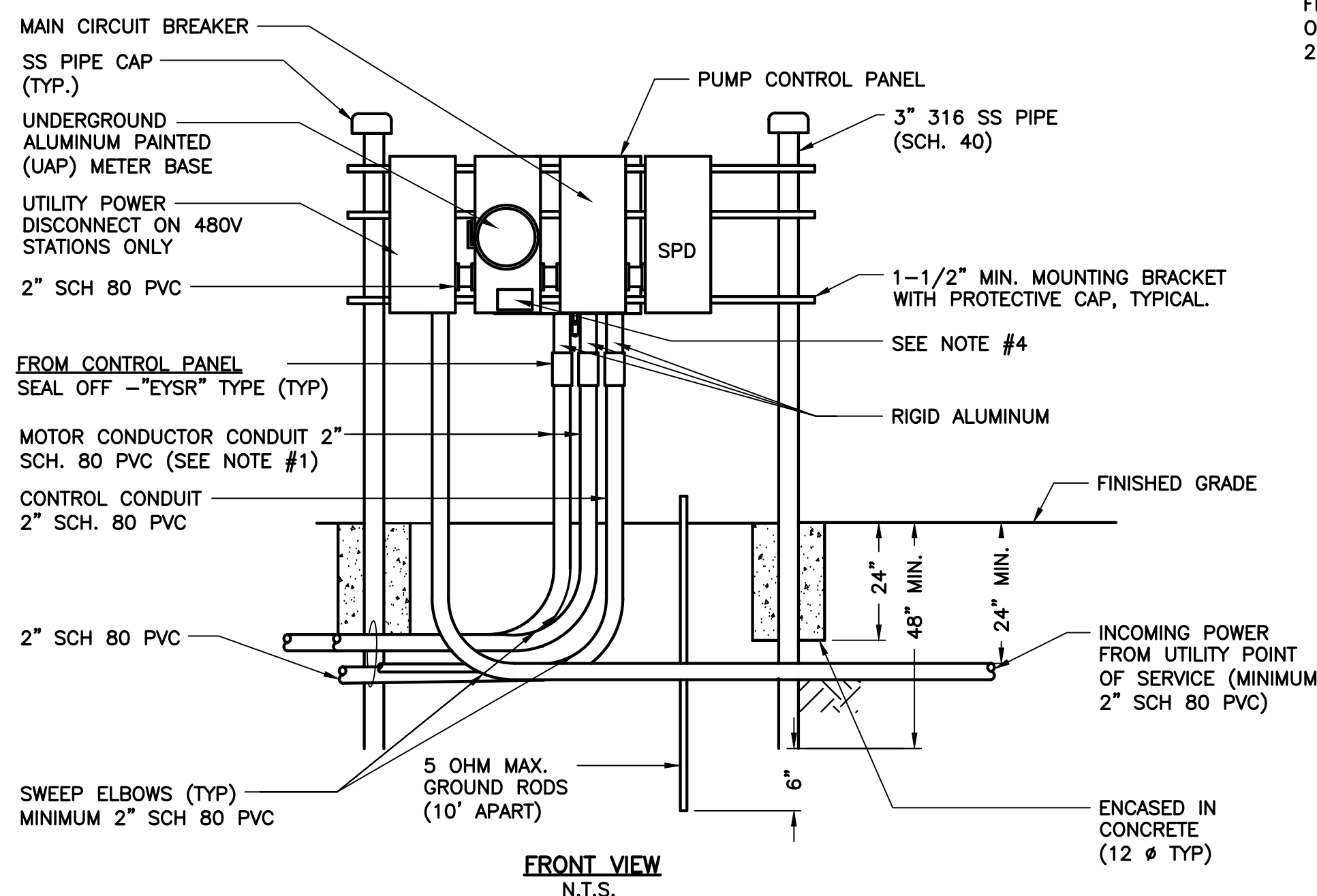


FRONT VIEW
N.T.S.

SIDE BY SIDE EQUIPMENT RACK
N.T.S.



A419-3
GROUND TEST WELL
N.T.S.



FRONT VIEW
N.T.S.

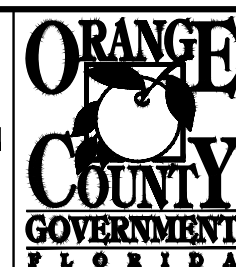
A413-1 & A413-2
BACK TO BACK EQUIPMENT RACK
N.T.S.

PANEL INSTALLATION NOTES:

- PUMP MOTOR CONDUIT SHALL BE SIZED TO ACCOMMODATE 40% CONDUIT FILL. MINIMUM CONDUIT SIZE TO BE 2" SCH 80 PVC.
- POWER SUPPLY SHALL BE UNDERGROUND ON THE LIFT STATION SITE AND SHALL BE 3-PHASE, FROM A 3-PHASE SOURCE ONLY.
- AN ELECTRICAL GROUNDING SYSTEM SHALL BE INSTALLED AS PER THE NATIONAL ELECTRICAL CODE, LOCAL CODES AND ORDINANCES. AN UNDERGROUND PERIMETER CABLE GROUNDING SYSTEM SHALL BE INSTALLED WITH CONNECTIONS TO AT LEAST WET WELL COVER, VALVE VAULT COVER, CONTROL PANELS, UTILITY COMPANY TRANSFORMER, MANUAL DISCONNECT SWITCH AND METAL FENCE. REFER TO GROUNDING DETAILS.
- THE STATION NAME, ORANGE COUNTY I.D. NUMBER, AND ADDRESS SHALL BE AFFIXED TO THE FRONT OF THE METER CABINET.
- ALL MOUNTING HARDWARE, BRACKETS AND ELECTRICAL ENCLOSURES SHALL BE 316 STAINLESS STEEL.
- REFER TO SCADA PANEL DETAIL FOR CONDUIT REQUIREMENTS.
- REFER TO OCU APPENDIX A, FIGURE A419-1 FOR ADDITIONAL REQUIREMENTS.

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



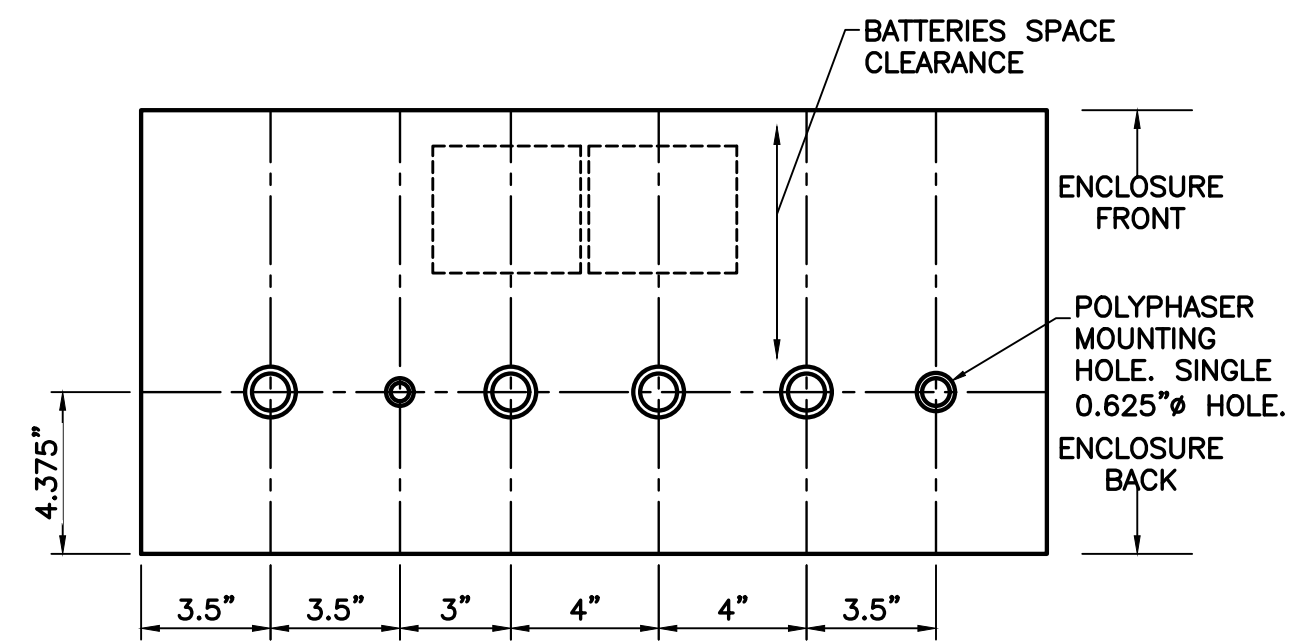
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



ELECTRICAL DETAILS-1

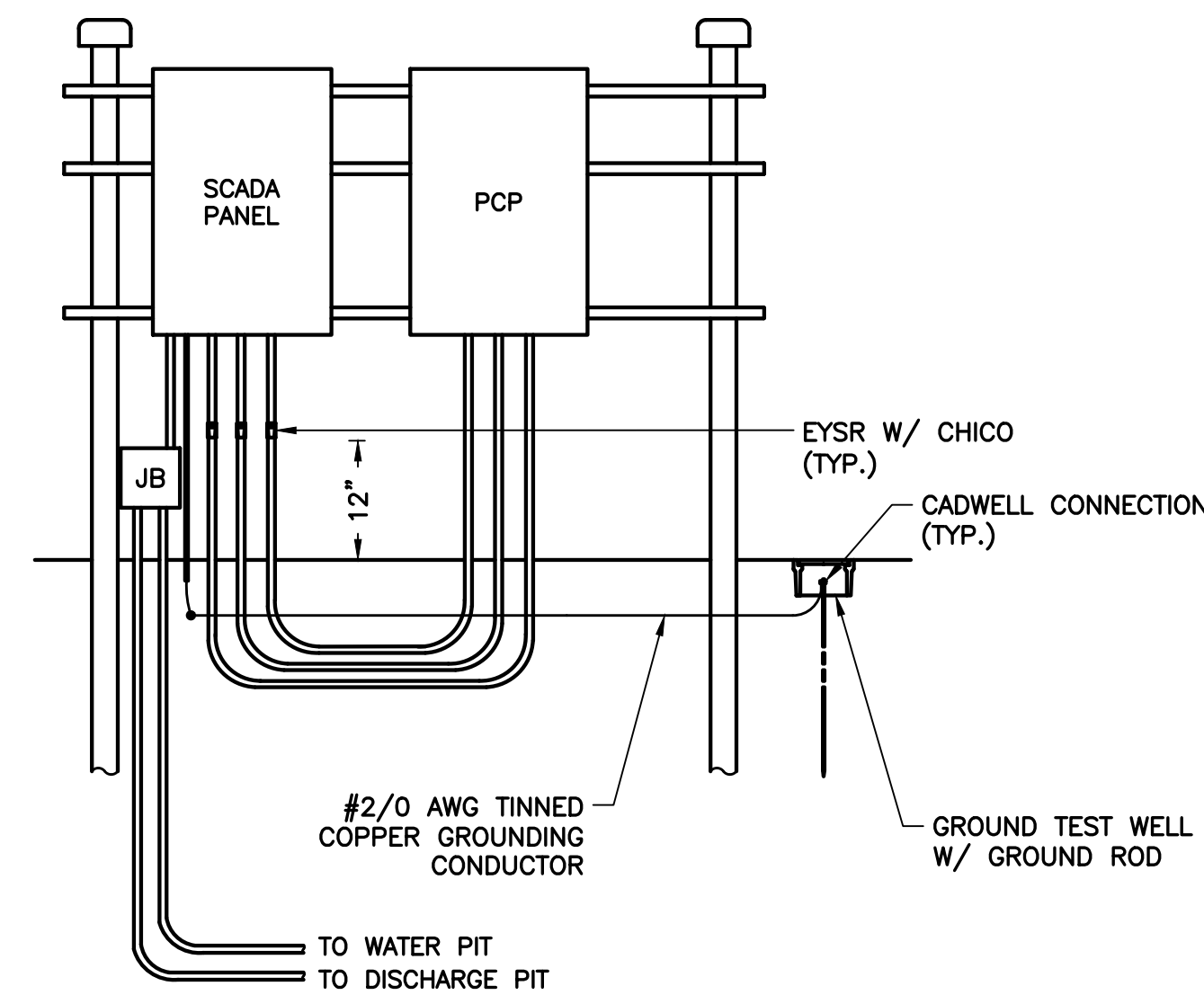
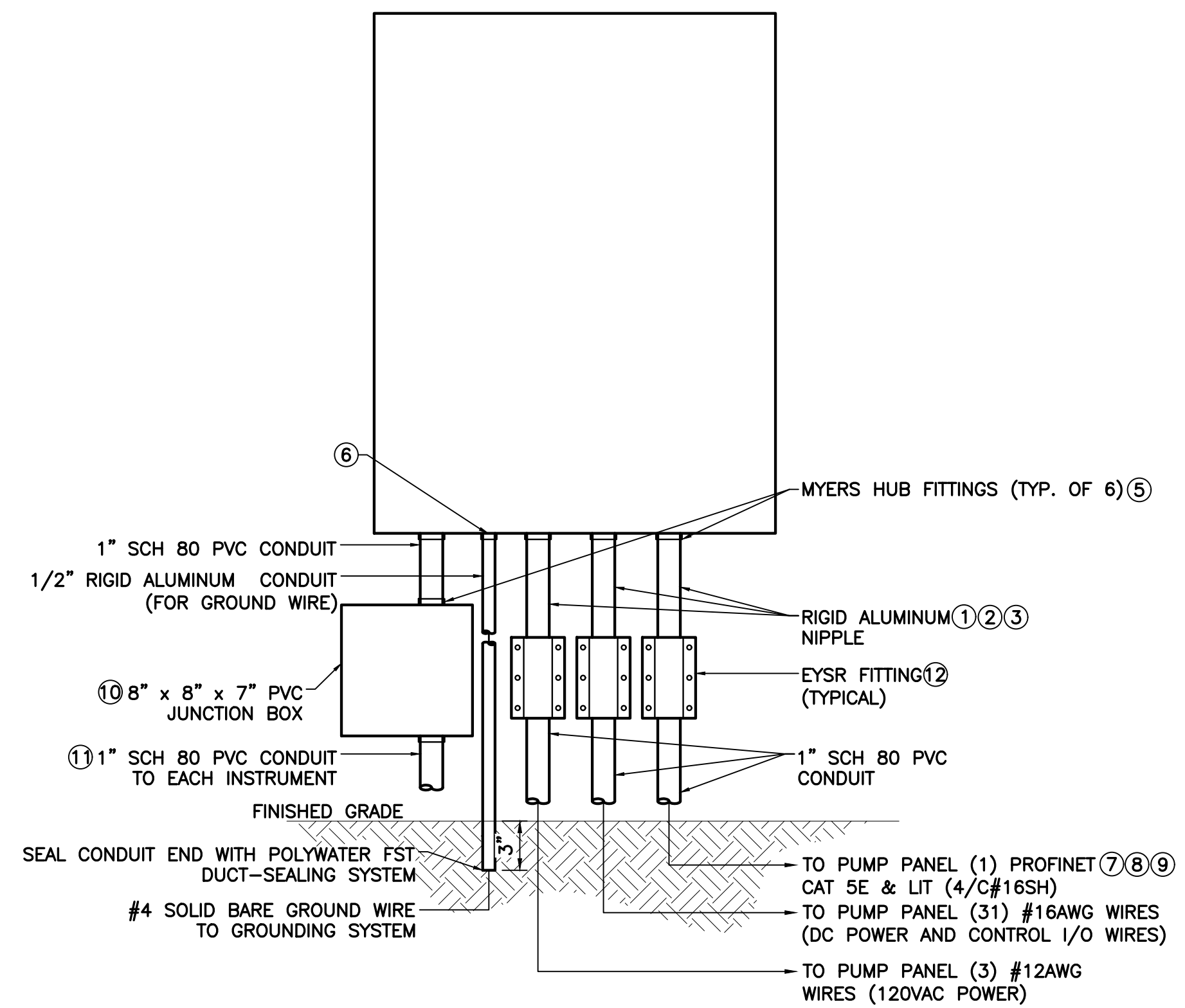
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DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	ED100
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: ED100 DTLS 1	

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Electrical Design Associates
6965 PIAZZA GRANDE AVE., STE. 311
ORLANDO, FLORIDA 32835
PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017



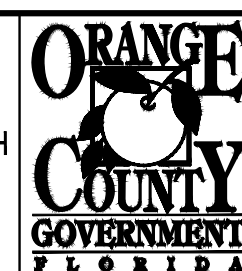
BOTTOM OF ENCLOSURE KNOCKOUT DETAILS

NOTES		
ITEM	DESCRIPTION	QTY
①	1" x 12" LONG RIGID ALUMINUM NIPPLE - (FOR POWER WIRES)	1
②	1" x 12" LONG RIGID ALUMINUM NIPPLE - (FOR SIGNAL WIRES)	1
③	1" x 12" LONG RIGID ALUMINUM NIPPLE - (FOR PROFINET CABLE)	1
④	1/2" RIGID ALUMINUM CONDUIT - (FOR GROUND WIRE)	5 Ft
⑤	MYERS HUB FITTING WITH GROUND LOCK-NUT, 1"	6
⑥	MYERS HUB FITTING WITH GROUND LOCK-NUT, 1/2"	1
⑦	PROFINET CABLE	1
⑧	RJ45 PROFINET 90° CONNECTOR	1
⑨	RJ45 PROFINET 180° CONNECTOR	1
⑩	INSTRUMENTATION PVC JUNCTION BOX 8"x8"x7"	1
⑪	SEPARATE 1" SCH 80 PVC CONDUIT TO EACH INSTRUMENT	-
⑫	EYSR FITTING SEALOFF	3



REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



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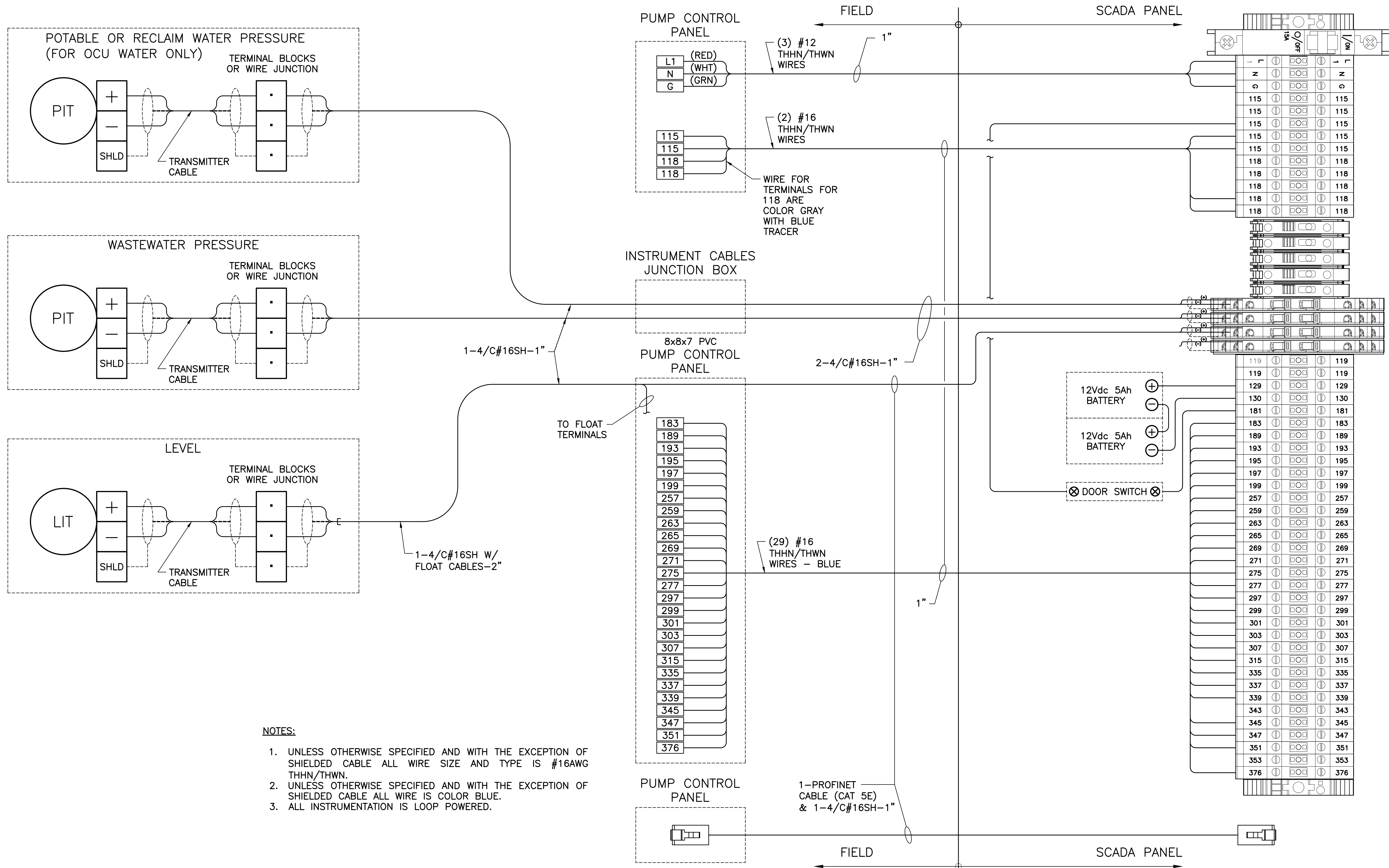
ELECTRICAL DETAILS-2

WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

OCU FILE NO.: 94626
DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: ED101 DTLS 2

EDA
Electrical Design Associates
6965 PIAZZA GRANDE AVE., STE. 311
ORLANDO, FLORIDA 32835
PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

SCALE:
DRAWING NO.:
ED101
SHEET: X OF X



- NOTES:**
1. UNLESS OTHERWISE SPECIFIED AND WITH THE EXCEPTION OF SHIELDED CABLE ALL WIRE SIZE AND TYPE IS #16AWG THHN/THWN.
 2. UNLESS OTHERWISE SPECIFIED AND WITH THE EXCEPTION OF SHIELDED CABLE ALL WIRE IS COLOR BLUE.
 3. ALL INSTRUMENTATION IS LOOP POWERED.

DUPLEX PUMP STATION SCADA PANEL FIELD WIRING DIAGRAM
N.T.S.

EDA
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WILLIAM C. NELSON, P.E.
Florida P.E. No. 42017

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT FLORIDA
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

SNC-LAVALIN

ATKINS
Member of the SNC-Lavalin Group

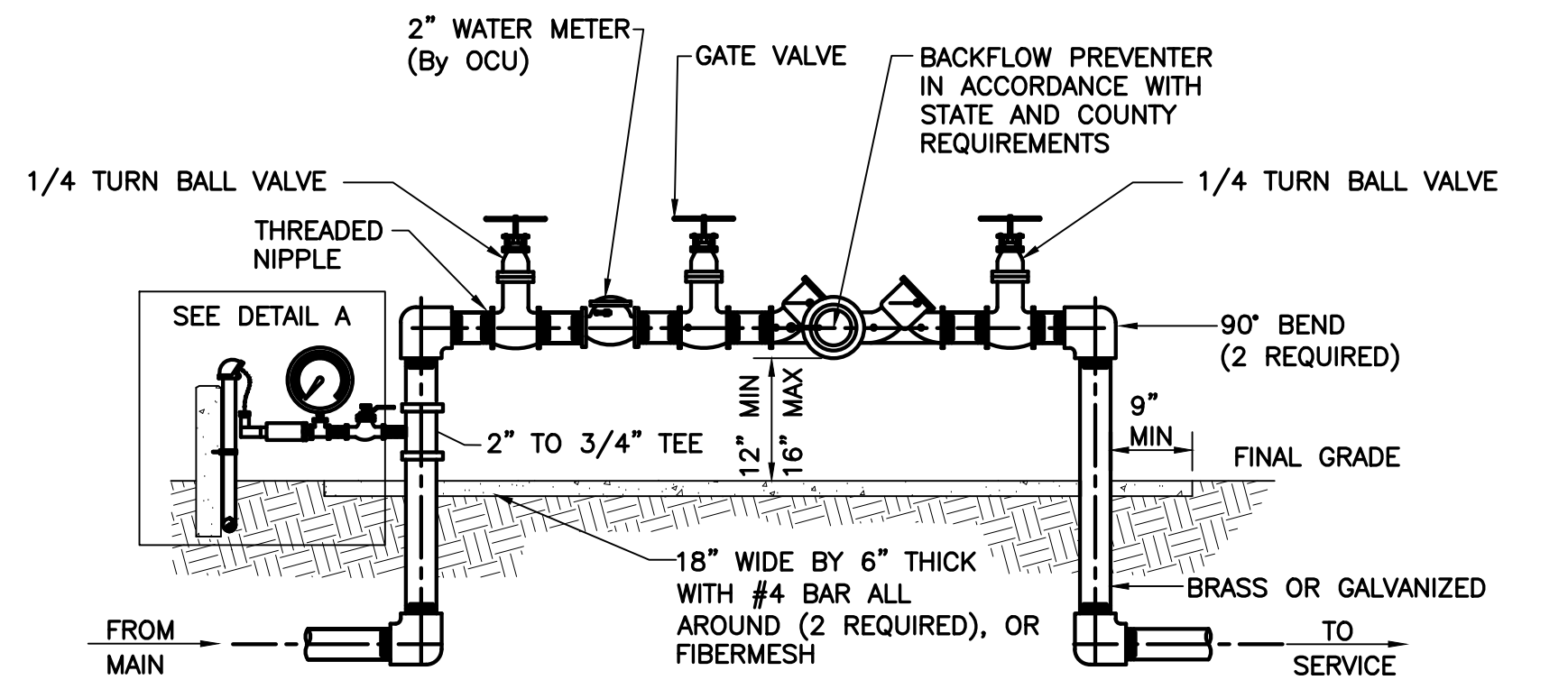
ELECTRICAL DETAILS-3

WILLIAM C. NELSON
PROFESSIONAL ENGINEER
FLORIDA LICENSE #42017

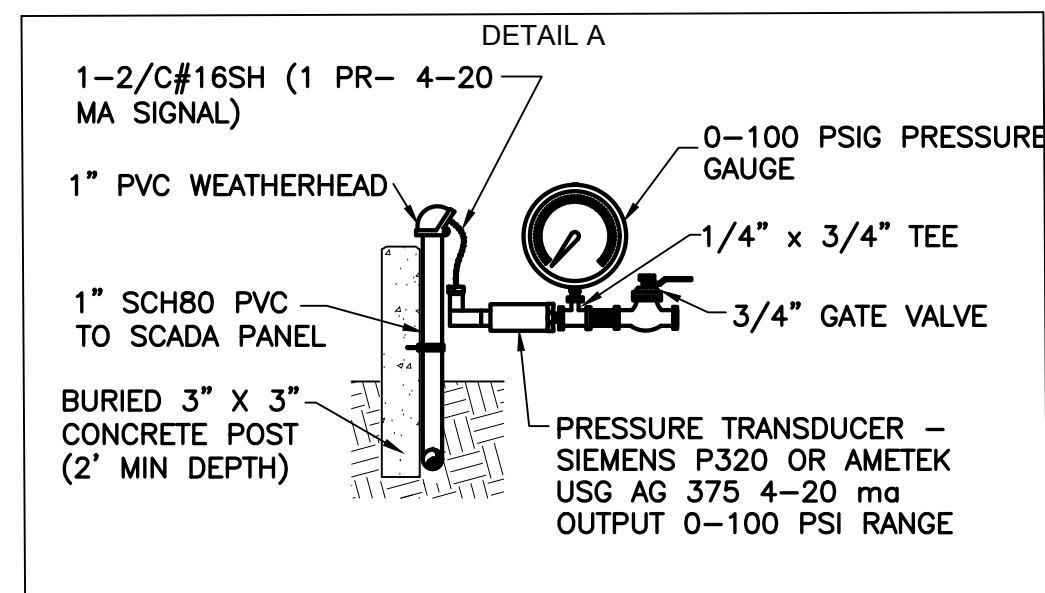
OCU FILE NO.: 94626
DESIGNED BY: AHH
DRAWN BY: SDV
CHECKED BY: WCN
CADD FILE: ED102 DTL3

SCALE:
DRAWING NO.:
ED102
SHEET: X OF X

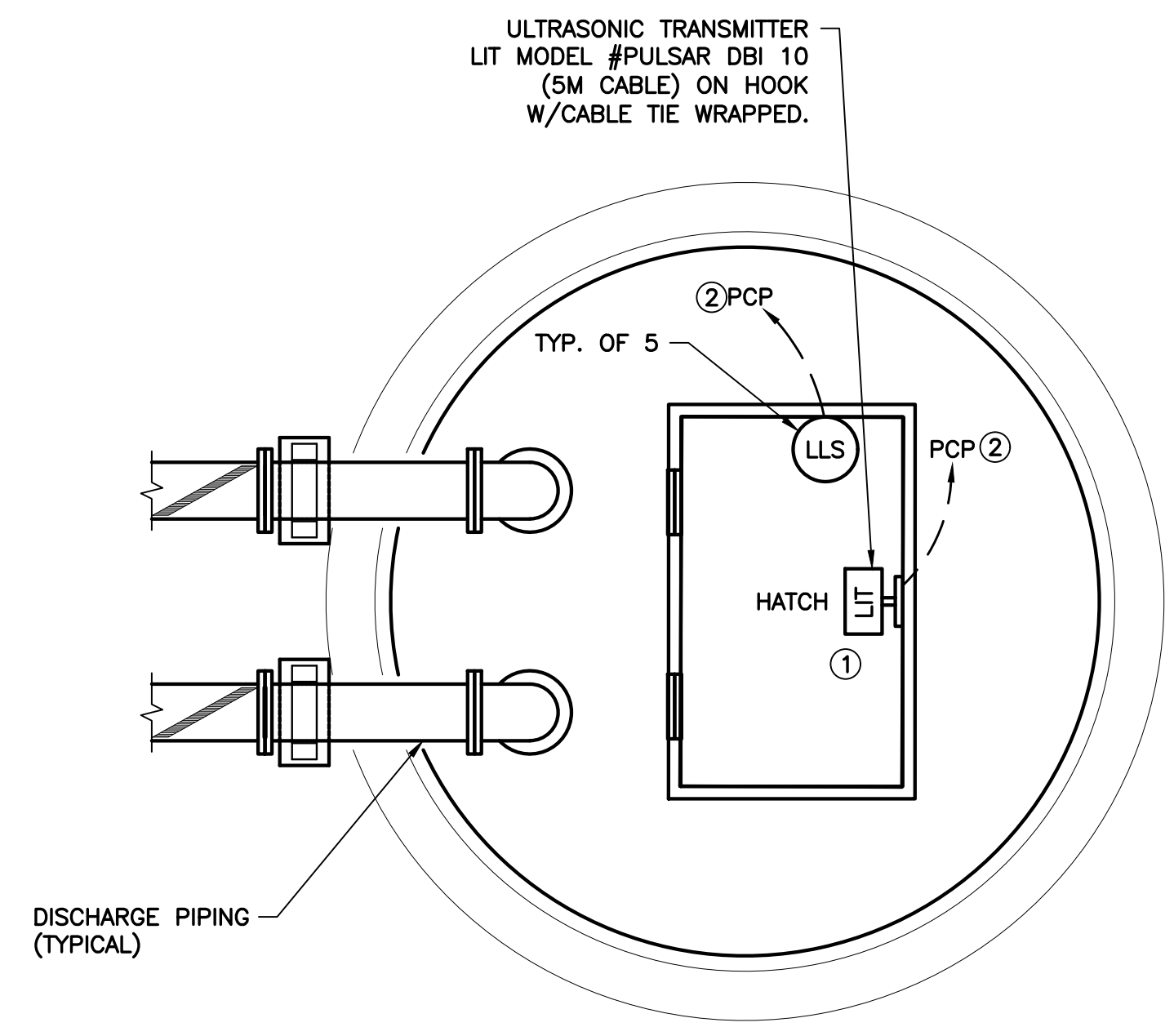
Y:\Atkins\Orange County\17-901\OCU-PF Package 234_100 Submittal\dwg\ED102 DTL3.dwg, 11/27/2019 12:34:55 PM, AutoCAD PDF (General Documentation).pc3



NOTES:
 1. ALL PIPE FITTINGS SHALL BE BRASS.
 2. PAINTING IN ACCORDANCE WITH THIS MANUAL.
 3. PRESSURE TRANSDUCER AND WATER METER ONLY REQUIRED FOR WATER SUPPLIED BY OCU

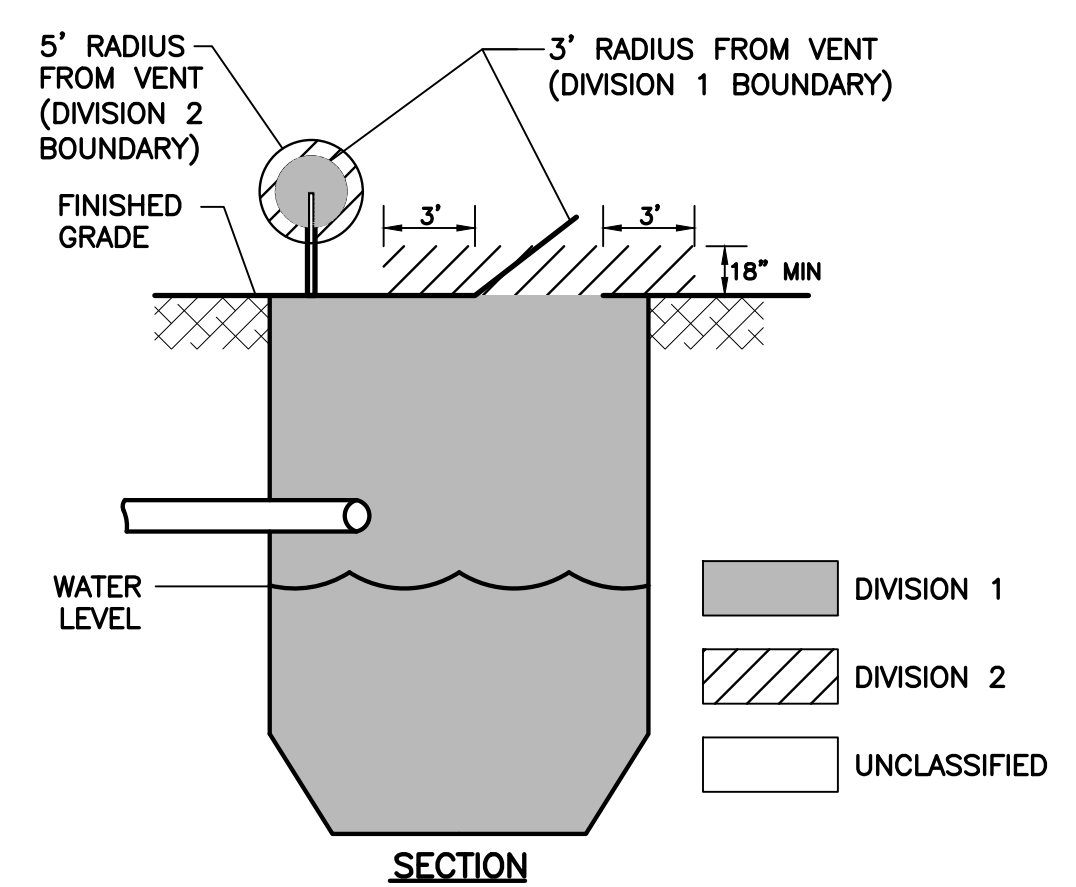


OCU WATER PRESSURE INSTRUMENT INSTALLATION
 N.T.S.



LEVEL INSTRUMENT INSTALLATION
 N.T.S.

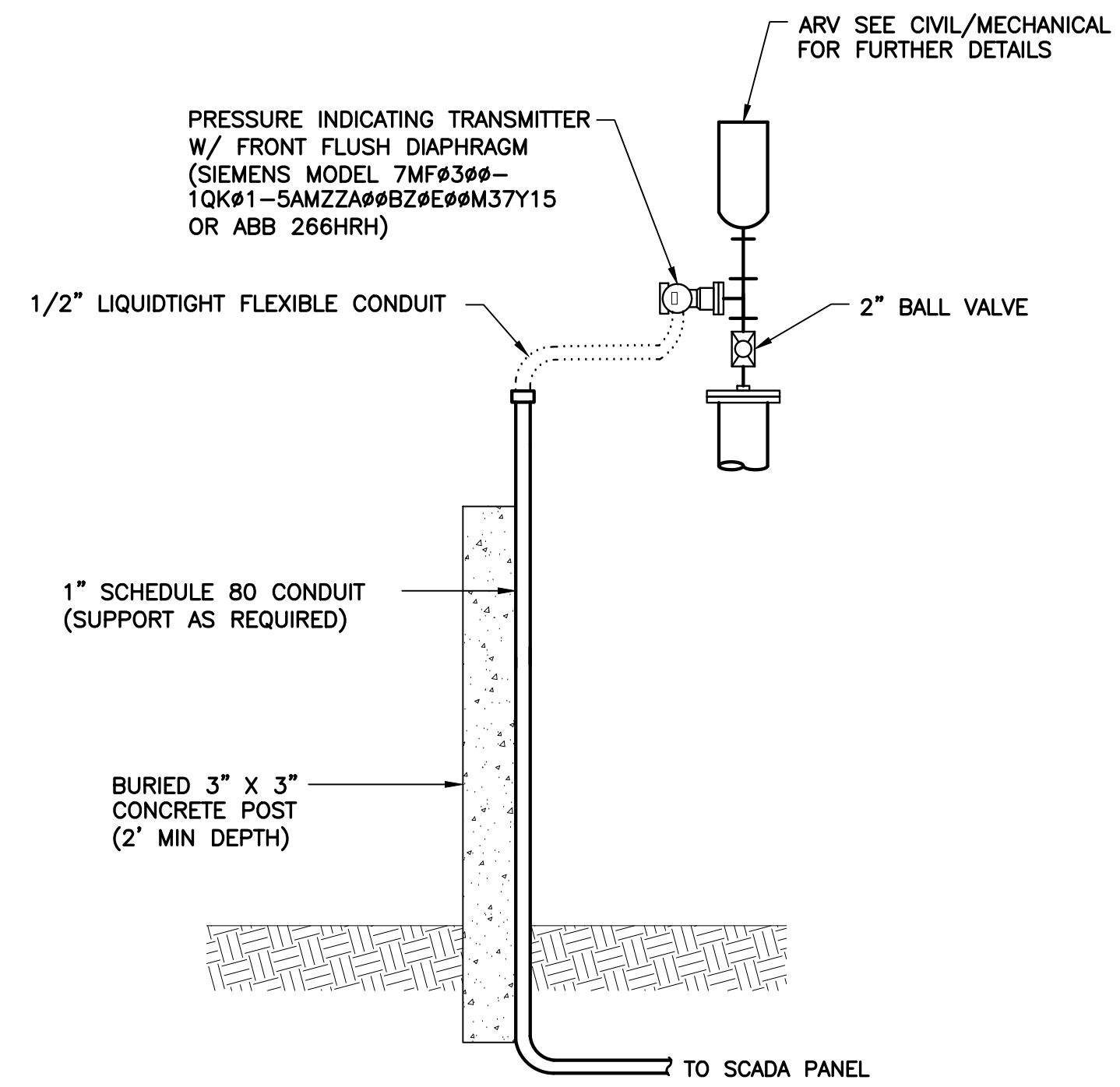
NOTES:
 ① ULTRASONIC LEVEL TRANSMITTER TO HANG DOWN 16" FROM TOP OF THE SLAB MOUNTED IN THE MIDDLE OF THE HATCH ON A 3/8" 316 SS 3/8" HOOK (OPPOSITE OF HINGES).
 ② FLOAT CABLES AND LIT CABLE IN SINGLE CONDUIT TO PCP.



NFPA 820 BOUNDARY CLASSIFICATION
 N.T.S.

NFPA NOTES:

- 1 THE AREA INSIDE THE WET WELL IS A HAZARDOUS, CLASS 1, DIV. 1 LOCATION.
- 2 THE AREA WITHIN 3 FEET FROM THIS HATCH AND 1.5 FEET ABOVE THE WET WELL SLAB IS A HAZARDOUS, CLASS 1, DIV. 2 LOCATION.
- 3 THE AREA WITHIN A 3 FOOT RADIUS FROM THE VENT OPENING IS A HAZARDOUS, CLASS 1, DIV. 2 LOCATION.
- 4 PROVIDE WIRING METHODS AND MATERIALS SUITABLE FOR A CLASS 1, DIVISION 1 AREA WITHIN ALL HAZARDOUS AREAS. USE CROUSE-HINDS MODEL EYSR SEALING FITTING.



DISCHARGE PRESSURE INSTRUMENT INSTALLATION
 N.T.S.

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT
ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

SNC-LAVALIN

ATKINS
 Member of the SNC-Lavalin Group

ELECTRICAL DETAILS-4

OCU FILE NO.: 94626	SCALE:
DESIGNED BY: AHH	DRAWING NO.:
DRAWN BY: SDV	ED103
CHECKED BY: WCN	SHEET: X OF X
CADD FILE: ED103 DTLS 4	

EDA
Electrical Design Associates
 6965 PIAZZA GRANDE AVE., STE. 311
 ORLANDO, FLORIDA 32835
 PHONE: (407) 745-5604
 FAX: (407) 745-5603
 C.O.A. No. 8079
 WILLIAM C. NELSON, P.E.
 Florida P.E. No. 42017

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VALVES														
I.D. NUMBER	PLAN NUMBER #	EASTING	NORTHING	VALVE TYPE	MAIN TYPE	SIZE	VALVE MANUFACTURER	VALVE MODEL NUMBER #	# OF TURNS TO CLOSE	GEAR ACTUATOR	GEAR RATIO	SIDE ACTUATOR	ACTUATOR MANUFACTURER	COMMENTS
LS-1	C-101			LINE STOP	FORCE MAIN	8"								
LS-2	C-201			LINE STOP	FORCE MAIN	6"								
LS-3	C-301			LINE STOP	FORCE MAIN	8"								
LS-4	C-401			LINE STOP	FORCE MAIN	6"								

SANITARY MANHOLES														
I.D. NUMBER	PLAN NUMBER #	EASTING	NORTHING	RIM ELEVATION	INVERT ELEV. N	INVERT ELEV. NE	INVERT ELEV. E	INVERT ELEV. SE	INVERT ELEV. S	INVERT ELEV. SW	INVERT ELEV. W	INVERT ELEV. NW	MANUFACTURER	COMMENTS
31380001	C-101													
31380002	C-101													
32830002	C-201													
33150002	C-301													
33630002	C-401													

PS CORNERS						
I.D. NUMBER	PLAN NUMBER #	EASTING	NORTHING	ELEVATION	BOUNDRY CORNER TYPE	COMMENTS
PSC-1					PUMP STATION TRACK	PS-3138
PSC-2					PUMP STATION TRACK	PS-3138
PSC-3					PUMP STATION TRACK	PS-3138
PSC-4					PUMP STATION TRACK	PS-3138
PSC-5					PUMP STATION TRACK	PS-3283
PSC-6					PUMP STATION TRACK	PS-3283
PSC-7					PUMP STATION TRACK	PS-3283
PSC-8					PUMP STATION TRACK	PS-3283
PSC-9					PUMP STATION TRACK	PS-3315
PSC-10					PUMP STATION TRACK	PS-3315
PSC-11					PUMP STATION TRACK	PS-3315
PSC-12					PUMP STATION TRACK	PS-3315
PSC-13					PUMP STATION TRACK	PS-3363
PSC-14					PUMP STATION TRACK	PS-3363
PSC-15					PUMP STATION TRACK	PS-3363
PSC-16					PUMP STATION TRACK	PS-3363
PSC-17					PUMP STATION TRACK	PS-3852
PSC-18					PUMP STATION TRACK	PS-3852
PSC-19					PUMP STATION TRACK	PS-3852
PSC-20					PUMP STATION TRACK	PS-3852

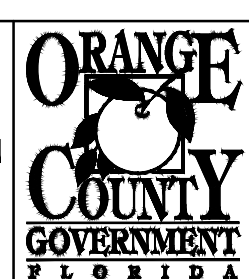
BOUNDRY CORNERS						
I.D. NUMBER	PLAN NUMBER #	EASTING	NORTHING	ELEVATION	BOUNDRY CORNER TYPE	COMMENTS
BC-1	C-101	528654.14	1493246.95	98.32	BOUNDRY CORNER	PS-3138
BC-2	C-101				BOUNDRY CORNER	PS-3138
BC-3	C-101				BOUNDRY CORNER	PS-3138
BC-4	C-101				BOUNDRY CORNER	PS-3138
BC-5	C-201				BOUNDRY CORNER	PS-3283
BC-6	C-201				BOUNDRY CORNER	PS-3283
BC-7	C-201				BOUNDRY CORNER	PS-3283
BC-8	C-201				BOUNDRY CORNER	PS-3283
BC-9	C-301				BOUNDRY CORNER	PS-3315
BC-10	C-301				BOUNDRY CORNER	PS-3315
BC-11	C-301				BOUNDRY CORNER	PS-3315
BC-12	C-301				BOUNDRY CORNER	PS-3315
BC-13	C-401				BOUNDRY CORNER	PS-3363
BC-14	C-401				BOUNDRY CORNER	PS-3363
BC-15	C-401				BOUNDRY CORNER	PS-3363
BC-16	C-401				BOUNDRY CORNER	PS-3363
BC-17	C-501				BOUNDRY CORNER	PS-3852
BC-18	C-501				BOUNDRY CORNER	PS-3852
BC-19	C-501				BOUNDRY CORNER	PS-3852
BC-20	C-501				BOUNDRY CORNER	PS-3852

PUMP STATION						
I.D. NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MANUFACTURER	COMMENTS
PS-3138	C-101					
PS-3283	C-201					
PS-3315	C-301					
PS-3363	C-401					
PS-3852	C-501					

METERS						
I.D. NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MAIN TYPE	COMMENTS
MM-3183-1	C-101				WATER LINE	
MM						
MM						
MM						
MM						

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825



PS3138, PS3283, PS3315, PS3363, PS3852
COORDINATE ASSET TABLES

X
PROFESSIONAL ENGINEER
FLORIDA LICENSE #X

OCU FILE NO.: X
DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
CADD FILE: X

SCALE: X
DRAWING NO.:
X100
SHEET: X OF X