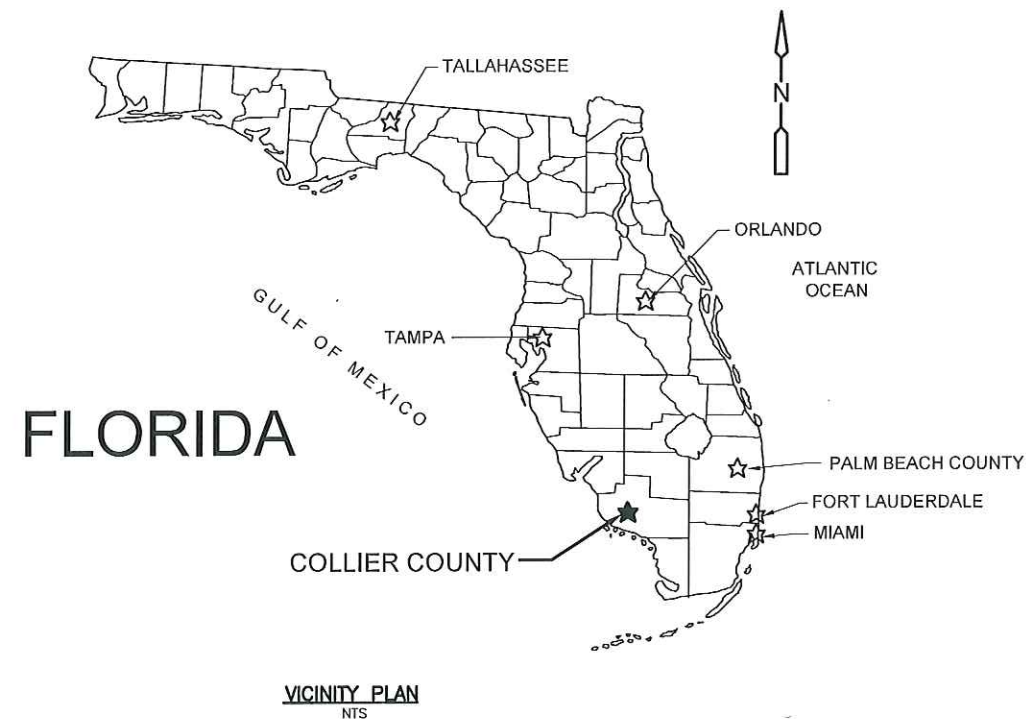


# COLLIER COUNTY, FLORIDA

## NRO WELLS 117N AND 119N IMPROVEMENTS



**VICINITY PLAN**  
NTS

COLLIER COUNTY COMMISSION:  
DISTRICT 1: RICK LOCASTRO  
DISTRICT 2: CHRIS HALL  
DISTRICT 3: BURT L. SAUNDERS  
DISTRICT 4: DAN KOWAL  
DISTRICT 5: WILLIAM L. MCDANIEL, JR.  
COUNTY MANAGER: AMY PATTERSON

MARCH  
2024  
**CDM  
Smith**

4210 METRO PKWY, SUITE 230  
FT. MYERS, FLORIDA 33916  
TEL: 239-938-9600  
FL COA NO. EB-0000020



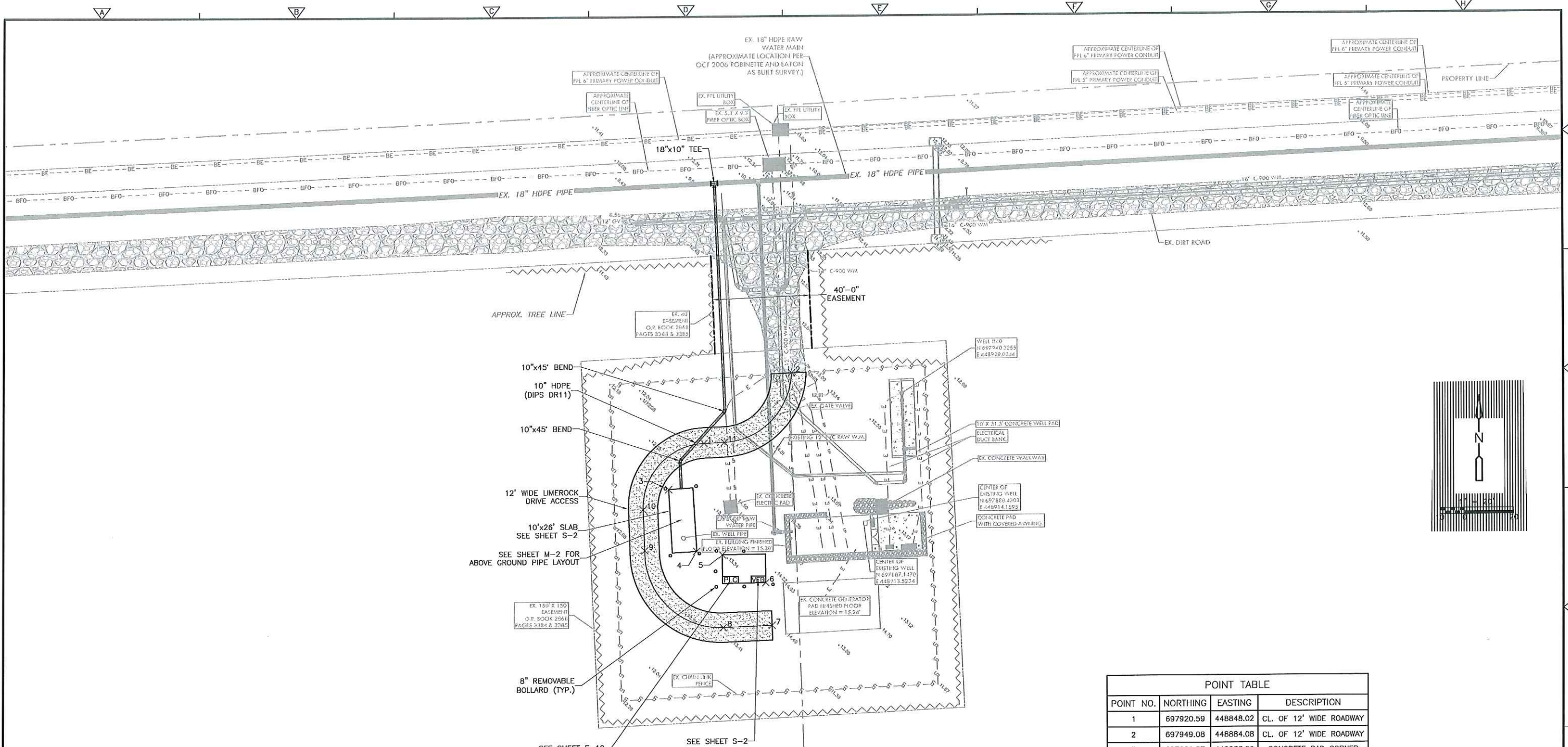
**LOCATION MAP**  
NTS

CDM SMITH PROJECT NUMBER: 6295-283550

BID SET



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POINT TABLE			
POINT NO.	NORTHING	EASTING	DESCRIPTION
1	697920.59	448848.02	CL. OF 12' WIDE ROADWAY
2	697949.08	448884.08	CL. OF 12' WIDE ROADWAY
3	697901.87	448833.50	CONCRETE PAD CORNER
4	697876.50	448845.01	CONCRETE PAD CORNER
5	697875.03	448855.42	CONCRETE PAD CORNER
6	697863.54	448873.39	CONCRETE PAD CORNER
7	697846.06	448875.99	CL. OF 12' WIDE ROADWAY
8	697845.33	448855.88	CL. OF 12' WIDE ROADWAY
9	697876.94	448823.73	CL. OF 12' WIDE ROADWAY
10	697893.66	448823.12	CL. OF 12' WIDE ROADWAY
11	697920.94	448856.33	CL. OF 12' WIDE ROADWAY

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REV. NO.	DATE	DRWN	CHKD	REMARKS

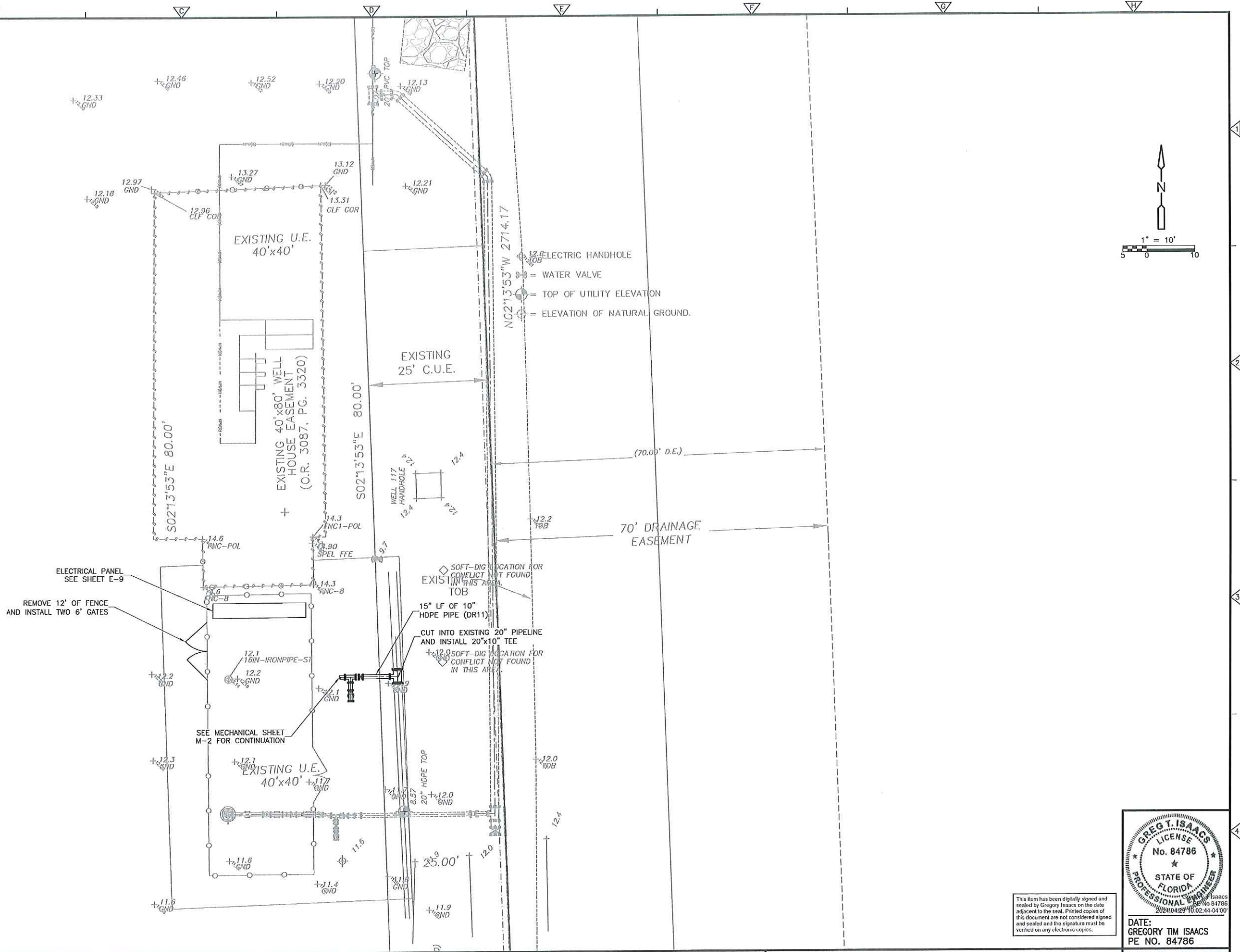
DESIGNED BY: GREG ISAACS	<b>CDM Smith</b> 4210 Metro Pkwy., Suite 230 Fort Myers, FL 33916 Tel: (239) 936-8600 FL CEA No. EB-0000020
DRAWN BY: D. AUST	
SHEET CHK'D BY: M. STONEHOUSE	
CROSS CHK'D BY: M. SUNYAK	
APPROVED BY: G. ISAACS	
DATE: MARCH 2024	

COLLIER COUNTY, FLORIDA	
NRO WELLS 117N AND 119N IMPROVEMENTS	

PROPOSED NRO WELL 119N	
------------------------	--

PROJECT NO. 6295-283550
FILE NAME: C001STPL.DWG
SHEET NO. C-1

XREFS: [CWP00001, CDMS\_2234, CDM\_VBRX\_topo\_3-8-23, 12390 - ASB - FO\_119 record, CEP00001, CEP00001\_117 record, CWP00001\_117 record, Images: []]  
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DATE: GREGORY TIM ISAACS  
PE NO. 84786

PROJECT NO. 6295-283550  
FILE NAME: CO02STPL.DWG

SHEET NO.

C-2

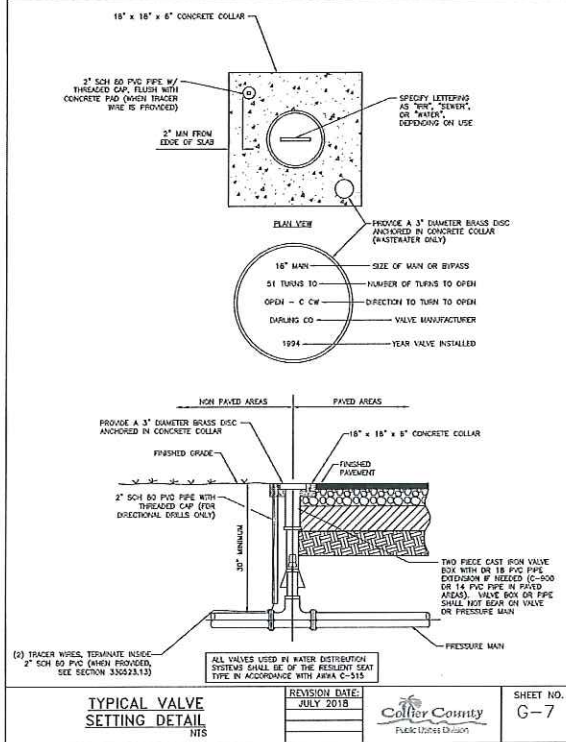
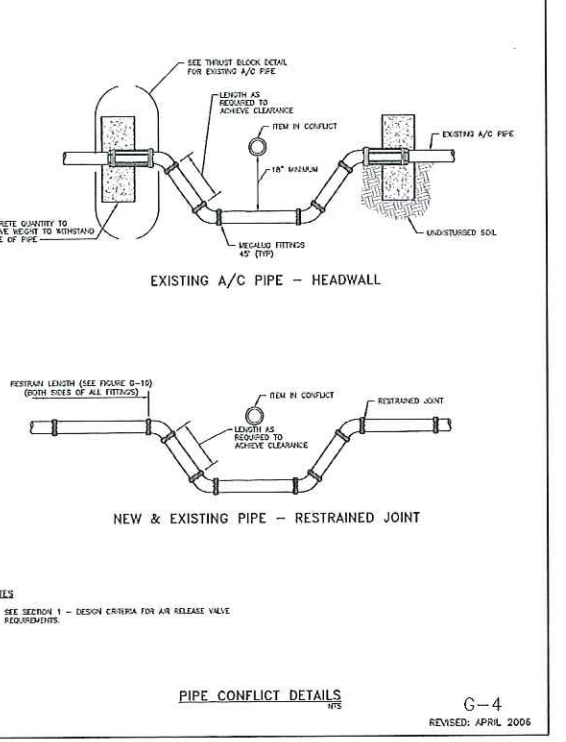
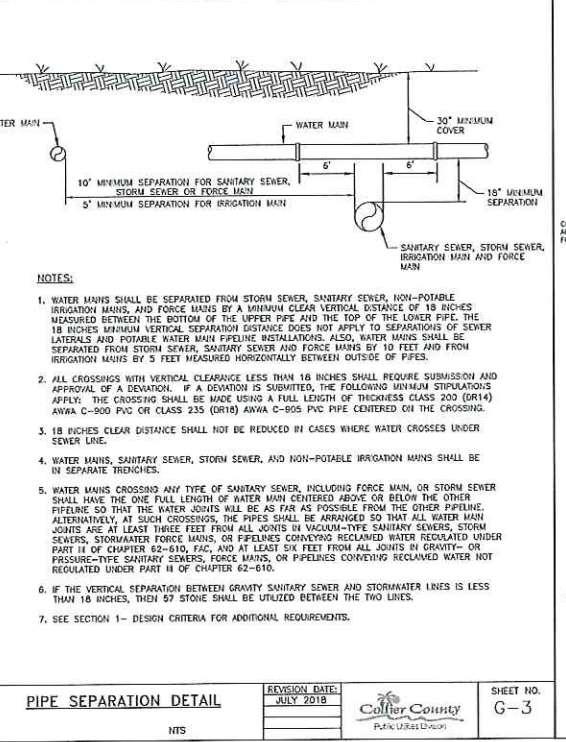
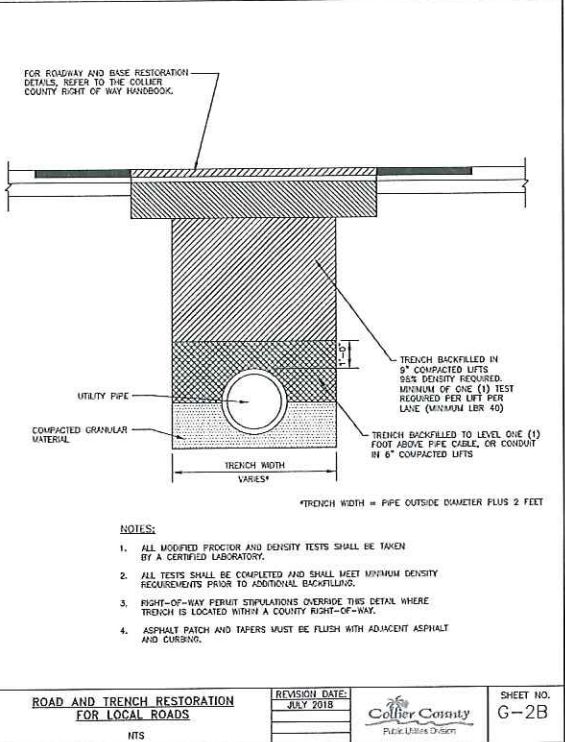
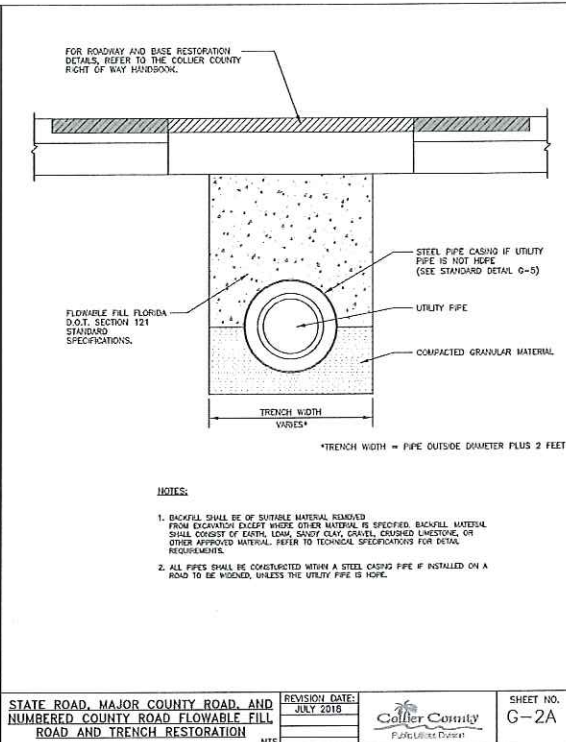
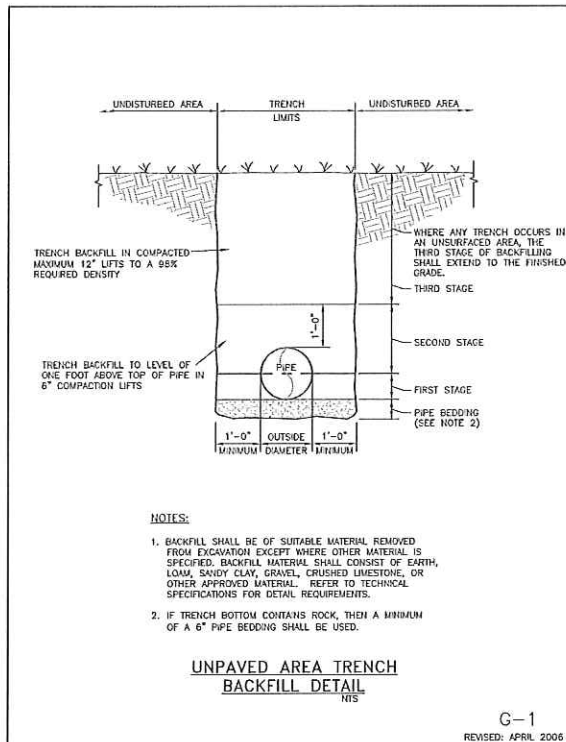
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: G. ISAACS  
DRAWN BY: D. AUST  
SHEET CHK'D BY: M. STONEHOUSE  
CROSS CHK'D BY: M. SUNYAK  
APPROVED BY: G. ISAACS  
DATE: MARCH 2024

**CDM Smith**  
4210 Metro Pkwy., Suite 230  
Fort Myers, FL 33916  
Tel: (239) 938-9800  
FL COA No. EB-0000020

COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N  
IMPROVEMENTS

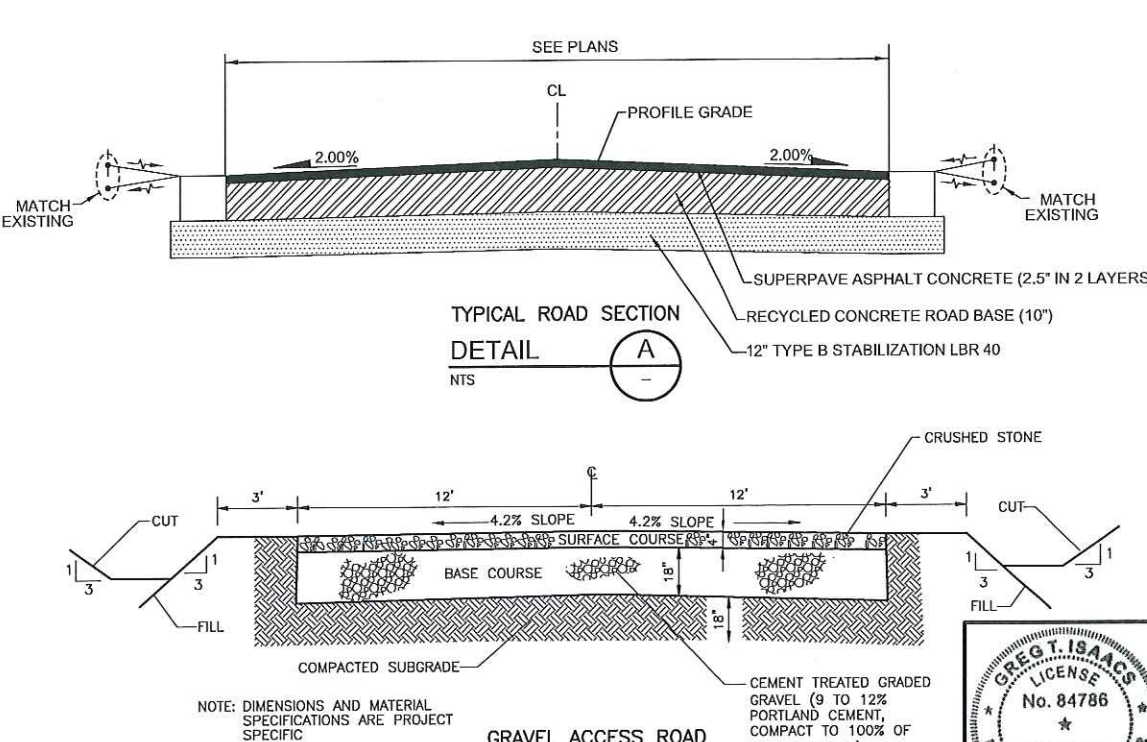
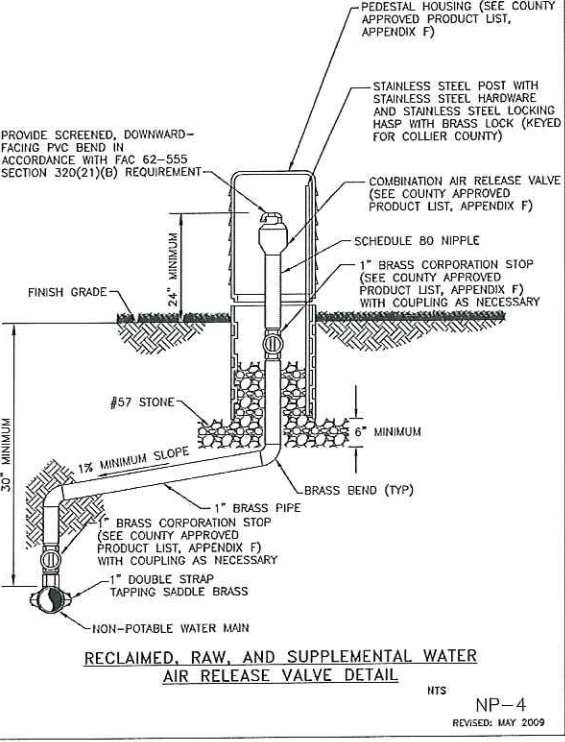
PROPOSED NRO WELL 117N



PIPE SIZE IN INCHES	RESTRAINED PIPE LENGTH IN FEET (1)					
	90°	45°	22-1/2°	11-1/4°	DEAD ENDS (2)	45° VERTICAL BENDS UPPER LOWER
4 x 6	23	9	5	2	55	23 8
6 x 8	32	13	6	3	77	32 11
8 x 10	40	17	8	4	100	40 14
10 x 12	48	20	10	5	120	50 17
12 x 14	56	23	11	6	141	58 20
14 x 16	71	29	14	7	181	72 25
16 x 18	77	32	15	8	209	83 28
18 x 20	84	35	17	9	218	90 30
20 x 22	96	40	19	10	253	100 35
22 x 24	112	47	22	11	303	125 41
24 x 26	127	53	25	13	350	145 47

**PIPE RESTRAINT SCHEDULE**  
NTS

REVISION DATE: JULY 2018  
SHEET NO. G-10  
REVISED: APRIL 2006



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: G. ISAACS	<b>CDM Smith</b> 4210 Metro Pkwy., Suite 230 Fort Myers, FL 33916 Tel: (239) 938-8600 FL CCA No. EB-000020
DRAWN BY: D. AUST	
SHEET CHK'D BY: M. STONEHOUSE	
CROSS CHK'D BY: M. SUNYAK	
APPROVED BY: G. ISAACS	
DATE: MARCH 2024	

COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

CIVIL DETAILS

**GREG T. ISAACS**  
LICENSE  
No. 84786  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

DATE: GREGORY TIM ISAACS  
PE NO. 84786

PROJECT NO. 6295-283550  
FILE NAME: CD01STPL.DWG  
SHEET NO. CD-1

XREFs: [CDWS\_2234] Images:   
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GENERAL NOTES

DESIGN CRITERIA:

CODES:

- FLORIDA BUILDING CODE EIGHTH EDITION (2023)
- OTHER STRUCTURES: ACI 318-19 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

DESIGN LOADS:

LIVE LOADS:

- PROCESS SLABS ON GRADE 200 PSF

SUPERIMPOSED DEAD LOADS:

- ROOFS AS NOTED
- FLOORS AS NOTED

WIND DESIGN DATA:

- ULTIMATE DESIGN WIND SPEED,  $V_{ult}$  (3-SECOND GUST): ASCE 7-22 171 MPH
- NOMINAL DESIGN WIND SPEED,  $V_{nom}$ : 133 MPH
- RISK CATEGORY: III
- WIND EXPOSURE CATEGORY: C
- ENCLOSURE CLASSIFICATION: OPEN-CLEAR
- INTERNAL PRESSURE COEFFICIENT:  $\pm 0.00$

FLOOD DESIGN DATA:

- 1% ANNUAL CHANCE FLOOD BASE FLOOD ELEVATION ZONE AH NAVD 88 EL 13.00'

CONCRETE 28-DAY STRENGTH:

- SLABS 4000 PSI

REINFORCING STEEL:

- ALL BARS ASTM A615, GRADE 60

FOUNDATIONS:

- ALLOWABLE BEARING PRESSURE FOR SPREAD FOOTINGS OVER SUBSURFACE PREPARED AS PER SPECIFICATIONS: 2500 PSF

GENERAL CONDITIONS:

ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, HVAC, PLUMBING, MECHANICAL, CIVIL, ELECTRICAL AND SHOP DRAWINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FACILITY, SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.

FOR ALL ITEMS EMBEDDED IN OR PASSED THROUGH CONCRETE, THE CONTRACTOR SHALL INITIALLY REFER TO MECHANICAL, HEATING AND VENTILATION DRAWINGS FOR TYPE, SIZE, LOCATION AND SPECIAL INSTALLATION REQUIREMENTS FOR THESE ITEMS.

THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT EXISTING STRUCTURES FROM DAMAGE WHEN WORKING IN AND AROUND EXISTING STRUCTURES PERFORMING WORK SUCH AS DEMOLITION, FOUNDATION EXCAVATION AND OTHERS.

SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.

ANY EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURES.

ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

UNLESS OTHERWISE NOTED, ALL PIPES UNDER SOIL SUPPORTED STRUCTURAL SLABS AND FOOTINGS SHALL BE ENCASED IN REINFORCED CONCRETE AS SHOWN ON THE STRUCTURAL DRAWINGS. PIPES SHALL BE PRESSURE TESTED BEFORE ENCASING. NOT ALL PIPING SHOWN ON STRUCTURAL DRAWINGS. REFER TO CIVIL, PROCESS MECHANICAL, HVAC AND PLUMBING DRAWINGS FOR PIPING SIZE AND LOCATIONS.

CONCRETE:

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

ALL CONCRETE SHALL BE AIR-ENTRAINED UNLESS OTHERWISE NOTED.

WATER REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494.

ALL CONCRETE SURFACES EXPOSED TO AIR, UNLESS OTHERWISE NOTED IN SPECIFICATIONS, SHALL BE TREATED WITH AN APPROPRIATE CURING COMPOUND AS SOON AS CEMENT FINISHING IS COMPLETED OR FORMS ARE REMOVED.

ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE A MINIMUM CHAMFER OF  $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATION OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWING.

REINFORCING STEEL:

REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS.

ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:

- CONCRETE CAST AGAINST EARTH 3"
- FORMED SURFACES IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER 2"
- FORMED SURFACES NOT EXPOSED TO WEATHER OR IN CONTACT WITH SOIL:
- SLABS 1"

LAP SPLICES SHALL BE AS SHOWN ON THE DRAWINGS. FOR LAP SPLICES NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL.

THE CONTRACTOR SHALL PREPARE PLACING DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI 315 REQUIREMENTS.

FLOTATION CONSIDERATION:

STRUCTURES WERE DESIGNED TO BE NON-BUOYANT AFTER THE STRUCTURE IS PLACED INTO SERVICE. THEREFORE, THE STRUCTURE MAY BE BUOYANT DURING CONSTRUCTION. THE GENERAL CONTRACTOR SHALL PROTECT ALL STRUCTURES (NEW AND EXISTING) FROM FLOTATION DURING CONSTRUCTION, REGARDLESS OF GROUNDWATER LEVELS, UNTIL STRUCTURES ARE PLACED IN OPERATION.

GEOTECHNICAL REPORT:

GEOTECHNICAL ENGINEERING REPORT ENTITLED, "REPORT OF GEOTECHNICAL EXPLORATION PROPOSED TAMAMI WELL SITE NO. 40", DATED MARCH 2020

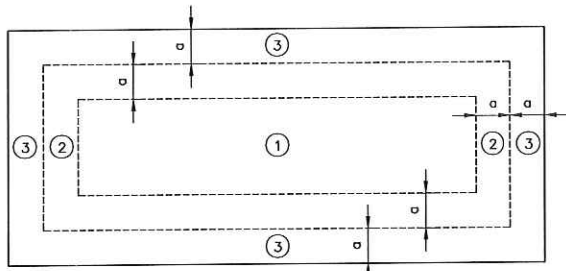
DELEGATED SUBMITTALS

- THE FOLLOWING PORTIONS OF THE PROJECT ARE DELEGATED SUBMITTAL ITEMS AND HAVE NOT BEEN DESIGNED BY THE ENGINEER OF RECORD:
  - EQUIPMENT AND PIPE SUPPORT ANCHORAGE
  - GUARDRAIL AND HANDRAIL
  - PRE-ENGINEERED METAL CANOPY
- SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS FOR DELEGATED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW DURING THE CONSTRUCTION PHASE OF THE PROJECT.
- DELEGATED SUBMITTAL ITEMS SHALL BE SIGNED AND SEALED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
- DELEGATED SUBMITTAL ITEMS SHALL NOT BE ERECTED OR INSTALLED UNTIL THE ENGINEER OF RECORD HAS REVIEWED THE SUBMITTAL DOCUMENTS AND INDICATED THAT THEY HAVE BEEN REVIEWED AND FOUND TO BE IN CONFORMANCE WITH THE SPECIFICATIONS AND DESIGN CRITERIA.

ABBREVIATIONS:

AL	ALUMINUM	MAX	MAXIMUM
BLDG	BUILDING	MIN	MINIMUM
BOT	BOTTOM	MISC	MISCELLANEOUS
CC	CENTER TO CENTER	NF	NEAR FACE
CJ	CONTROL JOINT	NTS	NOT TO SCALE
CONC	CONCRETE	OC	ON CENTER
CONST JT	CONSTRUCTION JOINT	PCJ	PARTIAL CONTRACTION JOINT
CONT	CONTINUOUS	PL	PLATE
DIA	DIAMETER	PLF	POUNDS PER LINEAR FOOT
DWG	DRAWING	PROJ	PROJECTION
EF	EACH FACE	PSF	POUNDS PER SQUARE FOOT
EJ	EXPANSION JOINT	PSI	POUNDS PER SQUARE INCH
EL	ELEVATION	REINF	REINFORCEMENT
EW	EACH WAY	SPECS	SPECIFICATIONS
FF	FAR FACE	SS	STAINLESS STEEL
FTG	FOOTING	STD	STANDARD
HORIZ	HORIZONTAL	T&B	TOP AND BOTTOM
HP	HIGH POINT	T/STRUCTURE	TOP OF STRUCTURE
ID	INSIDE DIAMETER	TYP	TYPICAL
LP	LOW POINT	UN	UNLESS OTHERWISE NOTED
MAT'L	MATERIAL	VERT	VERTICAL

NOTE: THESE ABBREVIATIONS ARE FOR USE ON STRUCTURAL DRAWINGS ONLY.



COMPONENTS AND CLADDING  
WIND PRESSURE ZONE DIAGRAM

NTS

WIND PRESSURE (PSF) FOR COMPONENTS AND CLADDING

EFFECTIVE WIND AREA (SQ. FT.)	PRESSURE (+) / SUCTION (-)					
	ROOF (PSF)					
	ZONE 1	ZONE 2	ZONE 2	ZONE 2	ZONE 3	ZONE 3
≤ 10.00	61.4	-55.8	92.1	-85.7	123	-167
10 TO 20	61.4	-55.8	92.1	-85.7	92.1	-85.7
20 TO 50	61.4	-55.8	92.1	-85.7	92.1	-85.7
50 TO 100	61.4	-55.8	61.4	-55.8	61.4	-55.8
≥ 100	61.4	-55.8	61.4	-55.8	61.4	-55.8

NOTES:

- FOR NOMINAL ASD WIND PRESSURES, APPLY A FACTOR OF 0.6 TO THE LISTED PRESSURES CORRESPONDING TO  $V_{ult}$ .
- DIMENSION  $a = 3'-0"$ .

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DATE: KEVIN M FRANCOFORTE  
PE NO. 73949

PROJECT NO. 6295-283550  
FILE NAME: S001STNT.DWG

SHEET NO.

S-1

DESIGNED BY: K. FRANCOFORTE  
DRAWN BY: P. SCHIARO  
SHEET CHK'D BY: P. KALARIA  
CROSS CHK'D BY: M. TRAPP  
APPROVED BY: K. FRANCOFORTE  
DATE: MARCH 2024

**CDM Smith**  
4210 Metro Pkwy., Suite 230  
Fort Myers, FL 33918  
Tel. (239) 938-9000  
FL CDA No. EB-0000020

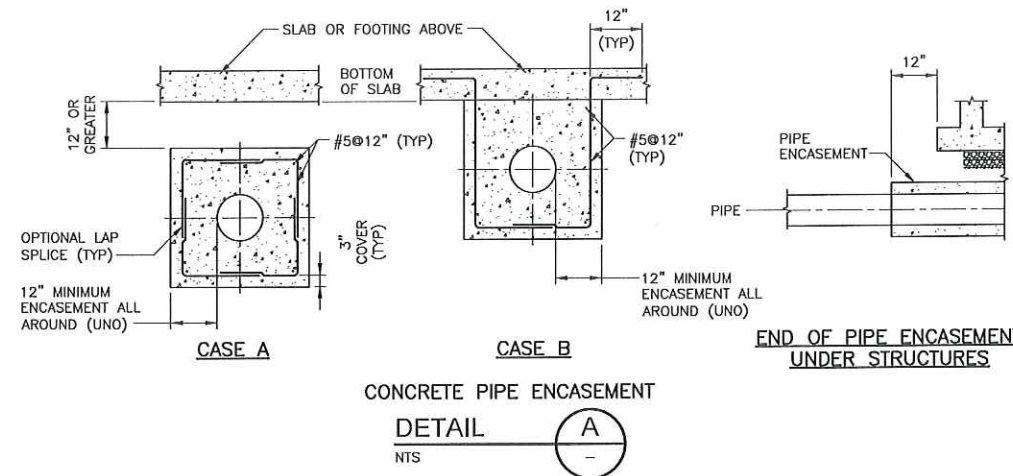
COLLIER COUNTY, FLORIDA

NRO WELLS 117N AND 119N IMPROVEMENTS

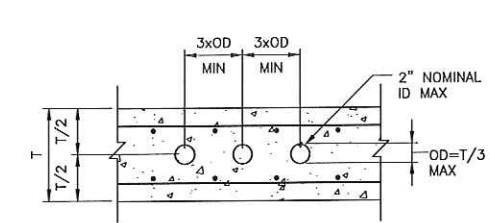
STRUCTURAL NOTES



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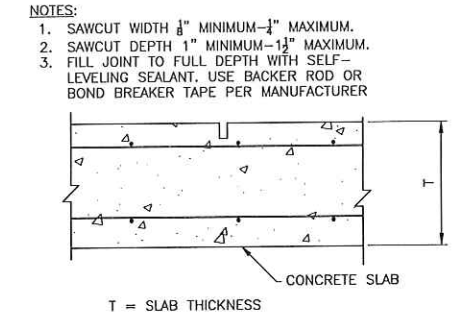


- PIPE ENCASUREMENT NOTES:
- MINIMUM ENCASEMENT  
PIPES LESS THAN 12"Ø - 6"  
PIPES 12"Ø AND GREATER - 12"
  - ALL PIPES SHALL BE PRESSURE TESTED BEFORE CONCRETE PLACEMENT.
  - ALL BELOW GRADE PIPES SHALL BE SUPPORTED ON CONCRETE BLOCKS PRIOR TO CASTING OF CONCRETE BEDDING. SIZE AND SPACING OF CONCRETE BLOCK SUPPORTS SHALL BE PER PIPE MANUFACTURER.
  - FOR ALL PIPES 12"Ø AND LARGER, ENCASEMENT SHALL BE CAST IN TWO POURS. INITIAL CAST SHALL BE CURED FOR 12 HOURS BEFORE CASTING THE SECOND POUR.
  - THE DEPTH OF THE INITIAL POUR SHALL BE SELECTED TO PREVENT FLOATATION OF THE PIPE. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT FLOATATION OF THE PIPE DURING CONCRETING.
  - ENCASE ALL PIPES BELOW SLABS AND FOOTINGS. EXTEND ENCASEMENT AS SHOWN IN DETAIL.
  - MAINTAIN MINIMUM COVER FOR LAPS FOR PIPES SMALLER THAN 6"Ø.
  - FOR CASE "B", PROVIDE A JOINT IN THE PIPE AT EACH JOINT IN STRUCTURE. PROVIDE CONSTRUCTION JOINTS IN ENCASEMENT AT LOCATIONS OF CONSTRUCTION JOINTS IN STRUCTURE. PROVIDE PARTIAL CONTRACTION JOINTS IN ENCASEMENT AT LOCATIONS OF CONTROL JOINTS AND EXPANSION JOINTS IN STRUCTURE.

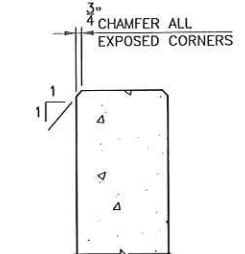


- CONDUIT NOTES:
- NO CONDUIT SHALL BE EMBEDDED IN STRUCTURAL BEAMS, COLUMNS, WALLS OR SLABS UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWING.
  - CONDUIT SHALL BE PLACED 6" BELOW SLABS
  - WHERE CONDUIT MUST PASS THROUGH A SLAB OR WALL, MINIMUM SIZE AND SPACING REQUIREMENT PER THIS DETAIL.
  - ALUMINUM SHALL NOT BE EMBEDDED IN CONCRETE UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION

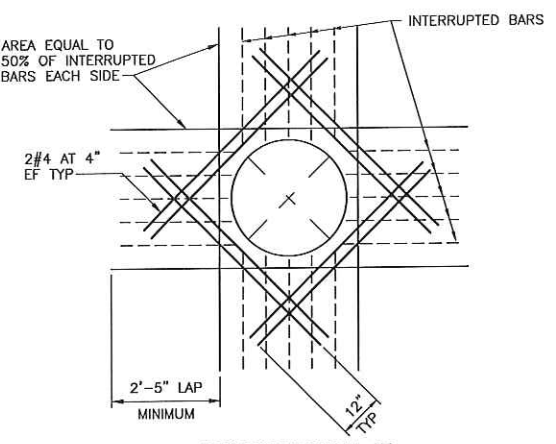
CONDUIT IN SLAB  
DETAIL D  
NTS



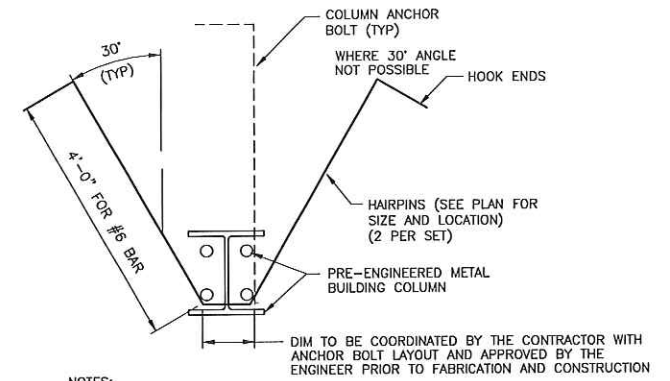
END OF PIPE ENCASEMENT  
UNDER STRUCTURES  
DETAIL B  
NTS



CHAMFER  
DETAIL C  
NTS



REINFORCEMENT AT  
CIRCULAR OPENINGS GREATER THAN 12"  
DETAIL E  
NTS



- NOTES:
- LOCATE HAIRPIN BEHIND ALL COLUMN ANCHOR BOLTS.
  - LOCATE FIRST SET HAIRPIN 3" BELOW TOP OF CONCRETE AND THE SECOND ONE 5" BELOW TOP OF CONCRETE.

DETAIL F  
NTS

CLASS B TENSION LAP SPICE LENGTHS IN WALLS AND SLABS (INCHES)

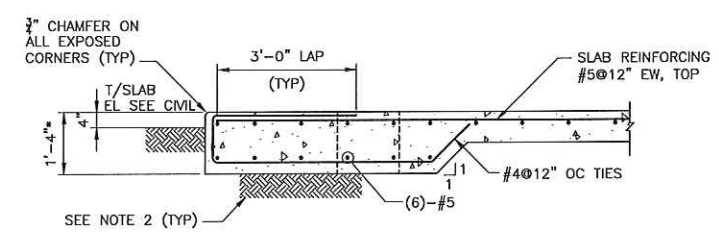
BAR SIZE	f'c=4000 psi	
	TOP BARS	OTHER BARS
3	15	12
4	20	15
5	29	23
6	40	31
7	65	50
8	81	62
8*	49	37
9*	60	46
10*	74	57

TENSION DEVELOPMENT LENGTHS IN WALLS AND SLABS (INCHES)

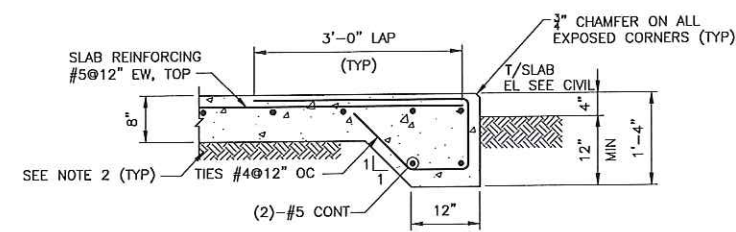
BAR SIZE	f'c=4000 psi	
	TOP BARS	OTHER BARS
3	12	12
4	15	12
5	22	17
6	31	24
7	50	38
8	62	48
8*	37	29
9*	46	36
10*	57	44

- NOTES:
- MINIMUM BAR SPACING = 6" INCHES ON CENTER.
  - MINIMUM CONCRETE COVER = 1", EXCEPT AS NOTED BY \*.  
\* INDICATES MINIMUM CONCRETE COVER= 2".
  - A TOP BAR IS A HORIZONTAL BAR WHERE MORE THAN 12" OF FRESH CONCRETE IS CAST DIRECTLY BELOW THE BAR. WHERE HORIZONTAL WALL REINFORCEMENT IS UNIFORMLY SPACED IN A VERTICAL PLANE AT 12" MAXIMUM SPACING, LENGTHS MAY BE AS FOR "OTHER BARS".

LAP SPICE AND DEVELOPMENT LENGTHS  
BLACK REINFORCING STEEL



SECTION 1  
1/2" = 1'-0"



SECTION 2  
1/2" = 1'-0"

- NOTES:
- \* - COORDINATE SLAB THICKNESS WITH MINIMUM CONCRETE COVER AS INDICATED ON 1/M-3
  - COMPACTED STRUCTURAL FILL TO 95% MODIFIED PROCTOR DENSITY (MP) PER ASTM D1557

DESIGNED BY: K. FRANCOFORTE  
DRAWN BY: P. SCHIAVO  
SHEET CHK'D BY: P. KALARA  
CROSS CHK'D BY: M. TRAPP  
APPROVED BY: K. FRANCOFORTE  
DATE: MARCH 2024

CDM Smith  
4210 Metro Pkwy., Suite 230  
Fort Myers, FL 33916  
Tel (239) 938-6600  
FL COA No. EB-0000020

COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

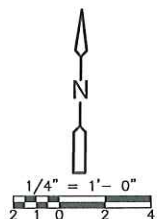
STRUCTURAL DETAILS



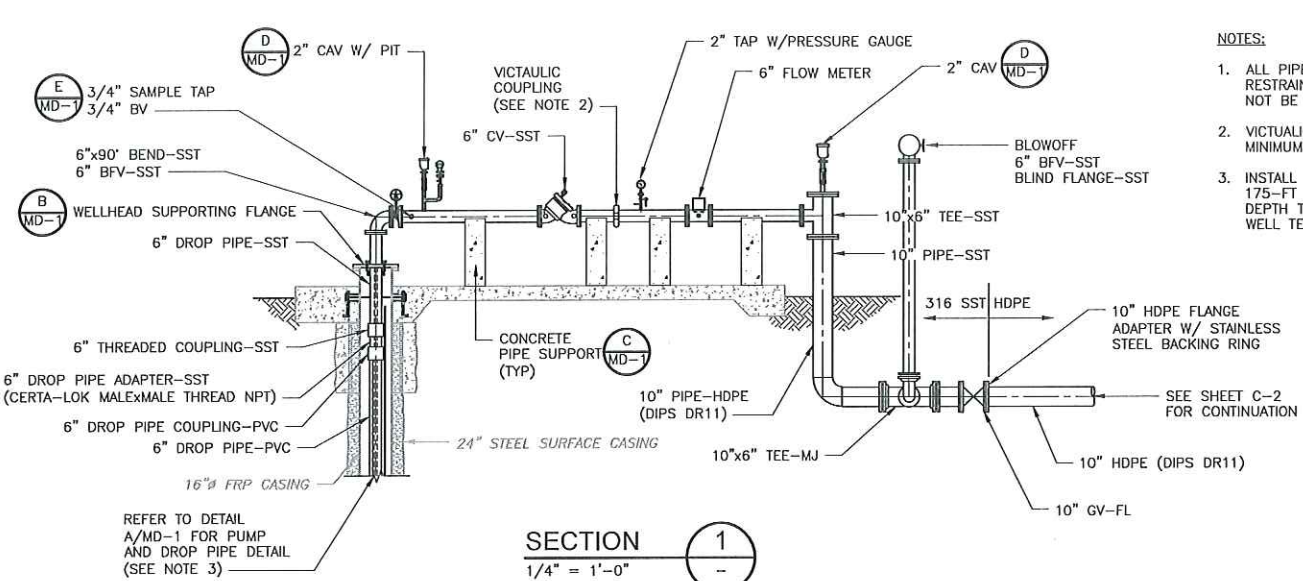
DATE: KEVIN M FRANCOFORTE  
PE NO. 73949  
PROJECT NO. 6295-283550  
FILE NAME: SD01STD.DWG  
SHEET NO.  
SD-1

[illegible]

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$$1/4'' = 1'-0''$$


1. ALL PIPE JOINTS, VALVES, AND FITTINGS SHALL BE RESTRAINED. RESTRAINED JOINT CALCULATIONS WILL NOT BE ACCEPTED..
2. VIRTUAL STYLE 31 COUPLINGS ARE TO INCLUDE A MINIMUM OF TWO HARNESSING RODS FOR RESTRAINTS.
3. INSTALL SUBMERSIBLE PUMP INTAKE AT A DETPH OF 175'-FT BELOW LAND SURFACE. FINAL INSTALLED DEPTH TO BE CONFIRMED PENDING THE RESULTS OF WELL TESTING.

M-2

## NRO WELLS 117N AND 119N IMPROVEMENTS

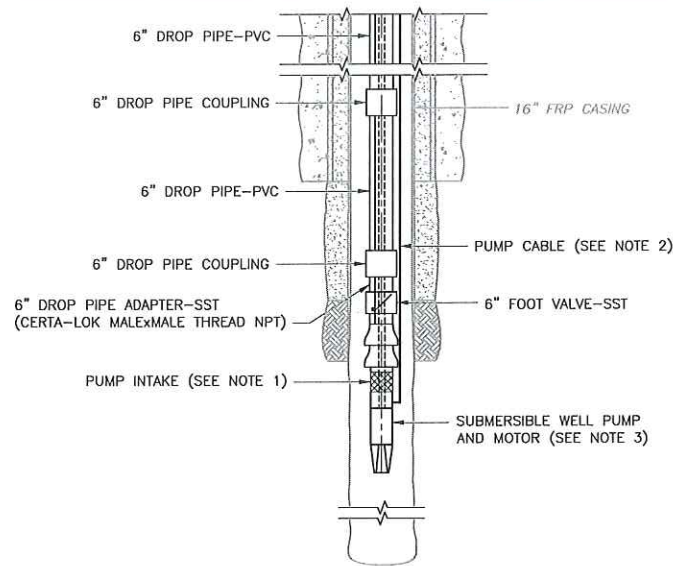
PROPOSED NRO WELL 117N  
PLAN AND SECTION

DESIGNED BY: I. HOLOWELL  
DRAWN BY: A. EDWARDS  
SHEET CHK'D BY: M. STONEHOUSE  
CROSS CHK'D BY: X  
APPROVED BY: I. HOLOWELL  
DATE: MARCH 2024

**CDM  
Smith**  
4210 Metro Pkwy., Suite 230  
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Tel: (239) 938-9600  
FL COA No. EB-0000020



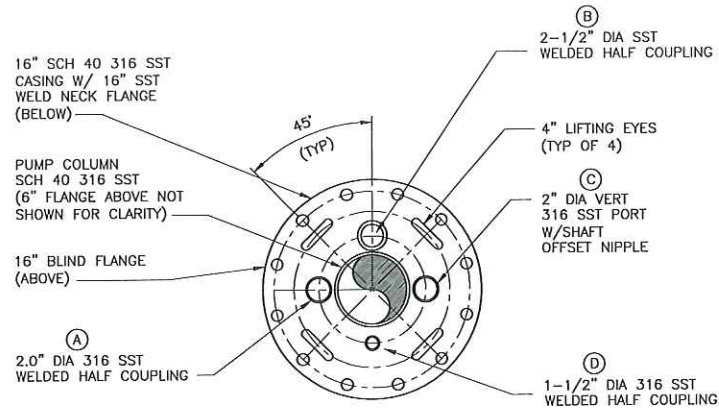
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p:\cdm\smith-az02-pw\benley\compw\_p1\6295\283550\04 Design Services NRO\_WELLS\_117N\_119N\_Improvements\10 BIM\_CADD\WDC1MTDT.dwg  
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PUMP AND DROP PIPE  
DETAIL  
NTS

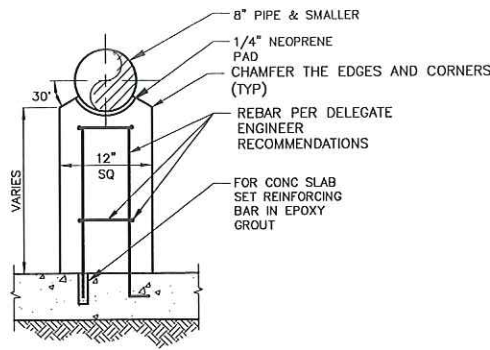
NOTES:

1. PUMP INTAKE TO BE SET WITHIN CASING. NEAR CASING SEAT AT A MINIMUM DEPTH OF 170 FEET BLS.
2. PUMP SAFETY CABLE SHALL BE INSTALLED WITH LESS SLACK THAN ELECTRICAL CABLE.
3. CONTRACTOR TO INSTALL PUMP AND MOTOR COMBINATION AT THE DEPTH PROVIDED IN THE DRAWINGS AND SPECIFICATIONS.

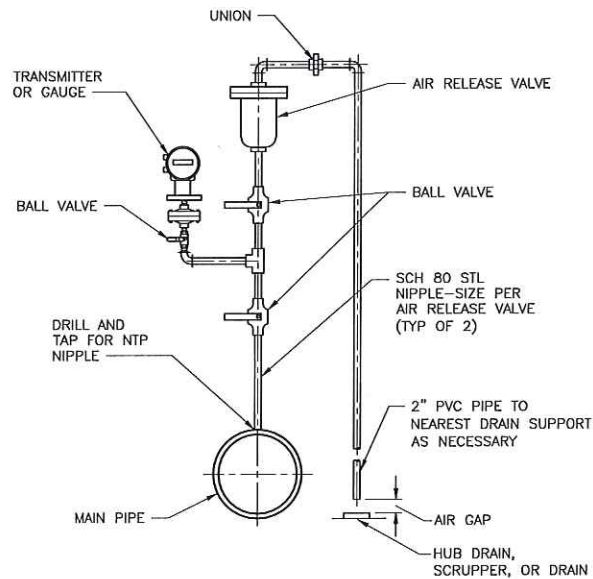


WELLHEAD SUPPORTING FLANGE  
DETAIL  
NTS

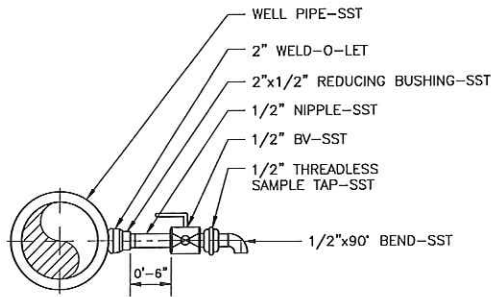
PORT ID	PORT SIZE	PURPOSE
A	2.0"	ARV
B	2.5"	ELECTRICAL CONDUIT
C	2.0"	MANUAL LEVEL MONITORING
D	1.5"	SPARE WITH PLUG



CONCRETE PIPE SUPPORT  
8" PIPE OR SMALLER  
DETAIL  
NTS



TYPE 1  
AIR RELEASE VALVE AND COMBINATION AIR VALVE  
DETAIL  
NTS



SAMPLE TAP CONNECTION  
DETAIL  
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: I. HOLOWELL  
DRAWN BY: A. EDWARDS  
SHEET CHK'D BY: M. STONEHOUSE  
CROSS CHK'D BY: X  
APPROVED BY: I. HOLOWELL  
DATE: MARCH 2024

**CDM Smith**  
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Tel: (239) 938-9600  
FL CDA No. EB-0000020

COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

MECHANICAL DETAILS I

ISAAC DAVID HOLOWELL  
NO. 83413  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
2024.04.29 08:49:21-04'00'

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

DATE:  
ISAAC DAVID HOLOWELL  
PE NO. 83413  
PROJECT NO. 6295-283550  
FILE NAME: MD01MTDT.DWG  
SHEET NO.  
MD-1

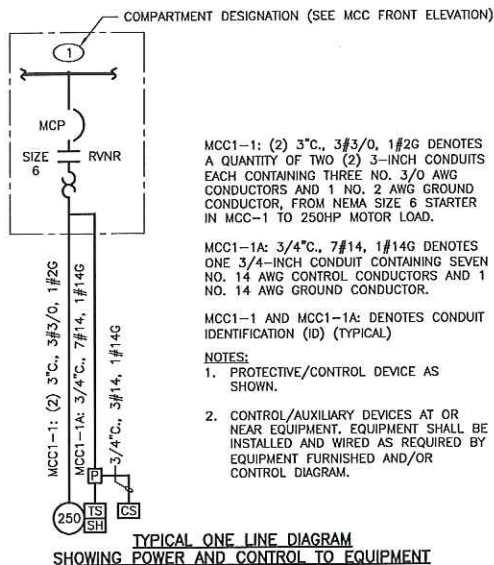
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ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION	ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION	ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION	ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS=CONTROL SWITCH		—	METER * WM — WATTMETER * WHM — WATTHOUR METER * WHDM — WATTHOUR DEMAND METER * WHDR — WATTHOUR DEMAND RECORDER * PF — POWER FACTOR METER * DMU — DIGITAL METERING UNIT		—	PILOT LIGHT, COLOR AS NOTED * R — RED * G — GREEN * B — BLUE * W — WHITE * A — AMBER		—	LIGHTNING ARRESTER
	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.		—	TRANSUCER * AX — CURRENT TRANSUCER * WX — WATT TRANSUCER * WHX — WATTHOUR TRANSUCER		—	PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.		—	FUSE, AMPERE RATING AS NOTED
	—	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: * FVR — FULL VOLTAGE REVERSING * RVNR — REDUCED VOLTAGE NON-REVERSING * RVAT — REDUCED VOLTAGE AUTOTRANSFORMER * RVSS — REDUCED VOLTAGE SOLID STATE * 2S1W — TWO SPEED, ONE WINDING * 2S2W — TWO SPEED, TWO WINDING (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)		—	RELAY, NO. AS INDICATED 25 — SYNCHRONISM CHECK RELAY 27 — UNDERVOLTAGE RELAY 32 — DIRECTIONAL POWER RELAY 38 — BEARING PROTECTIVE DEVICE 40 — LOSS OF EXCITATION RELAY 42 — RUNNING CONTACTOR/PILOT RELAY 46 — REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 — PHASE SEQUENCE VOLTAGE RELAY 49 — MACHINE OR TRANSFORMER THERMAL RELAY 50/51 — INSTANTANEOUS/TIME OVERCURRENT RELAY 50G — INSTANTANEOUS GROUND 51 — TIME OVERCURRENT RELAY 51G — TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N — TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V — TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 51X — AUXILIARY RELAY (TRIPS CB AND ALARMS) 59 — OVERVOLTAGE RELAY 60 — NEGATIVE SEQUENCE VOLTAGE RELAY 62 — TIME DELAY RELAY 63 — OVERPRESSURE RELAY 64 — GENERATOR FIELD GROUND RELAY 67 — AC DIRECTIONAL OVERCURRENT RELAY 74 — ALARM LATCHING RELAY 83 — AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 — LOCKING-OUT RELAY 87 — DIFFERENTIAL PROTECTIVE RELAY B — SUFFIX INDICATES "BUS" G — SUFFIX INDICATES "GENERATOR" GF — GROUND FAULT ST — SHUNT TRIP T — SUFFIX INDICATES "TRANSFORMER" X — SUFFIX INDICATES "AUXILIARY"		—	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)		—	LIQUID LEVEL (FLOAT) SWITCH * — ## INDICATES LOOP NO.
	—	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A FUSE RATING (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)		—	SPECIAL CAPACITOR * SC — SURGE CAPACITOR * PF — POWER FACTOR CORRECTION CAPACITOR		—	TEMPERATURE SWITCH OR THERMOSTAT * — ## INDICATES LOOP NO.		—	RESISTANCE TEMPERATURE DETECTOR
	—	MEDIUM VOLTAGE CABLE TERMINATION		—	TUNED POWER FACTOR CORRECTION CAPACITOR		—	FLOW SWITCH (AIR, WATER, ETC.) * — ## INDICATES LOOP NO.		—	VIBRATION DETECTOR
	—	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH		—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED		—	POSITION (LIMIT) SWITCH * — ## INDICATES LOOP NO.		—	DAMPER MOTOR
	—	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH * FUSE RATING		—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN		—	TORQUE SWITCH * — ## INDICATES LOOP NO.		—	MOTOR OPERATED VALVE OR GATE
	—	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER		—	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)		—	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED		—	CONDUCTORS ELECTRICALLY CONNECTED
	—	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED. UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS, ALL DRY TYPE TRANSFORMERS SERVING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING		—	START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP		—	SOLENOID VALVE			
	—	CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES		—	START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP						
	—	POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE		—	OFF/ON SELECTOR SWITCH						
	—	GENERATOR, RATINGS AND CONNECTIONS AS NOTED		—	LOCAL/REMOTE SELECTOR SWITCH						
	—	AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING		—	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED						
	—	VARIABLE SPEED DRIVE CONTROLLER * D.C. = D.C. DRIVE CONTROLLER * SCR = SILICON CONTROLLED RECTIFIER * VFD = VARIABLE FREQUENCY DRIVE		—	NAMEPLATE (A/B/C) HOA — HAND/OFF/AUTO HOR — HAND/OFF/REMOTE LOR — LOCAL/OFF/REMOTE RSL — RAISE/STOP/LOWER TOA — TEST/OFF/AUTO						
	—	UNIT HEATER — ELECTRIC HEATING COIL AND FAN # — RATING		—	GAS DETECTOR / VENTILATION FAILURE ALARM # INDICATES TYPE OF UNIT 1=MASTER, 2=REMOTE						
	—	UNIT HEATER — GAS FIRED, STEAM OR WATER HEATING COIL AND FAN		—	MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY						
	—	MOTOR, NUMERAL INDICATES HORSEPOWER		—	CONTROL RELAY COIL, NUMBER AS INDICATED						
	—	VOLTMETER WITH SWITCH, 3 PHASE									
	—	AMMETER WITH SWITCH, 3 PHASE									

NOTES:

- IN GENERAL CONDUIT ROUTING FOR EQUIPMENT AND DEVICES IS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS WHICH SHALL INCLUDE CONDUITS SHOWN ON ONE-LINE AND RISER DIAGRAMS AND HOME-RUNS SHOWN ON PLAN DRAWINGS. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- SWITCHGEAR AND MOTOR CONTROL CENTER COMPARTMENT DESIGNATIONS AS INDICATED BELOW:  
BLANK: NOT INTENDED FOR USE. PLATE ONLY  
SPACE: EQUIPPED WITH REQUIRED BUS AND HARDWARE FOR THE FUTURE ADDITION OF BREAKERS AND/OR STARTERS WITHIN THE SIZE AND RANGE SHOWN  
SPARE: CONTAINS A COMPLETELY INSTALLED BREAKER AND/OR STARTER OF SIZE AND TYPE INDICATED FOR FUTURE USE.
- INTERPRETATION OF ELECTRICAL DRAWINGS: CIRCUIT IDENTIFICATION, ROUTING, AND SIZES OF CONDUITS AND WIRES ARE SHOWN ON THE FOLLOWING DRAWINGS:  
A. POWER ONE LINE DIAGRAMS: POWER, CONTROL AND SIGNAL WIRING REQUIREMENTS FOR ELECTRICAL DISTRIBUTION EQUIPMENT AND UTILIZATION EQUIPMENT POWERED FROM SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS AND MAJOR POWER DISTRIBUTION PANELBOARDS ARE TYPICALLY SHOWN ON THE ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE AND QUANTITY FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT, AND SIZE OF THE GROUNDING ELECTRODE CONDUCTORS.  
B. INSTRUMENTATION AND CONTROL RISER DIAGRAM: POWER, CONTROL, SIGNAL AND DATA HIGHWAY WIRING REQUIREMENTS FOR INSTRUMENTS AND CONTROL DEVICES CONTROLLED/MONITORED FROM INSTRUMENTATION AND CONTROL PANELS SUCH AS RTUS, PLCs, TERMINAL CABINETS, AND REMOTE I/O PANELS ARE TYPICALLY SHOWN ON THE INSTRUMENTATION AND CONTROL ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE, QUANTITY AND TYPE FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT.  
C. FLOOR PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS LOCATED WITHIN STRUCTURES, FLOOR PLANS SHOW THE LOCATION OF ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, UTILIZATION EQUIPMENT, INSTRUMENTS, ANCILLARY EQUIPMENT AND DEVICES AND THE ANTICIPATED PENETRATION LOCATIONS WHERE CONDUITS EXIT/ENTER THE STRUCTURE. HOMERUNS MAY ALSO BE SHOWN FROM MISCELLANEOUS EQUIPMENT NOT SHOWN ON A ONE LINE OR RISER DIAGRAM.  
D. SITE PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS EXTERIOR TO STRUCTURES AND TO IDENTIFY THE SPECIFIC REQUIREMENTS OF THE UNDERGROUND CONDUITS OR DUCT BANKS, SITE PLANS SHOW THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS WITH SECTIONS INDICATING THE CONDUIT SIZE, ARRANGEMENT AND CIRCUIT ROUTING.  
E. NOTE THAT CONDUIT SIZE WITHIN STRUCTURE IS INDICATED ON ONE-LINE DIAGRAM AND UNDERGROUND SIZE IS INDICATED ON DUCT BANK SECTIONS.

EXISTING, NEW OR FUTURE CONDITION DESIGNATION

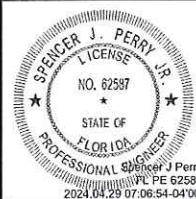


TYPICAL ONE LINE DIAGRAM  
SHOWING POWER AND CONTROL TO EQUIPMENT

GENERAL NOTE  
THIS IS A STANDARD LEGEND.  
SOME SYMBOLS MAY NOT  
APPEAR ON THE DRAWINGS.

THIS ITEM HAS BEEN DIGITALLY  
SIGNED BY SPENCER J. PERRY JR ON  
THE DATE ADJACENT TO THE SEAL.

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DATE: SPENCER PERRY  
PE NO. 62587

PROJECT NO. 6295-283550  
FILE NAME: E001NFLG.DWG

SHEET NO.

E-1

BID SET

XREFS: [CDMS\_2234, 2234PW\_CDMIS] Images: [CDMS\_2234, 2234PW\_CDMIS]  
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SYMBOL	DESCRIPTION
	LIGHTING FIXTURE "A" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "B" - CONTROLLED BY SWITCH "B" "3" - CIRCUIT NUMBER
	LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	WALL MOUNTED TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	CROSS HATCH INDICATES LIGHTING FIXTURE THAT IS UNSWITCHED AND SHALL REMAIN ON AT ALL TIMES. NOTATIONS SAME AS ABOVE.
	SHADED AREA INDICATES LIGHTING FIXTURE THAT IS EQUIPPED WITH EMERGENCY BACKUP POWER SOURCE. NOTATIONS SAME AS ABOVE.
	POLE MOUNTED AREA TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	POLE MOUNTED ROADWAY TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS "EM" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - SUPERVISORY CIRCUIT "1" - FIXTURE TAG #
	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS "R-2" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "BU-1" - HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN (2) NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND (1) NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	COMBINATION BATTERY UNIT AND EXIT SIGN. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. (DOUBLE FACE DOUBLE CHEVRONS SHOWN)
	WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
	REMOTE EMERGENCY CEILING LIGHTING FIXTURE. "RH-3" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - SUPERVISORY CIRCUIT "BU-1" - HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	HOME RUN TO DESIGNATED EQUIPMENT. BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE NOTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	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.
	"X" INDICATES EXPLOSION PROOF CONDUIT SEAL FITTING.
	CONCRETE ENCASED DUCTBANK. WIDTH VARIES, SEE DUCTBANK SECTION/DETAILS FOR REQUIREMENTS AND WIDTH
	CONDUIT STUBBED OUT AND CAPPED
	DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR.
	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CABLE TO CONSIST OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	SAME AS ABOVE EXCEPT CABLE TO CONSIST OF THREE NO. 16 AWG CONDUCTORS TWISTED, SHIELDED AND COVERED WITH AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	THREE 4-INCH CONDUITS
	FLEXIBLE METAL CONDUIT "WHIP" (3/4", 2", 1", 1/2" UNLESS OTHERWISE NOTED) FOR LIQUID TIGHT MOTOR CONNECTIONS
	"X" INDICATES CONDUIT SEAL FITTING IN OTHER THAN CODE REQUIRED LOCATIONS.
	INDICATES MOTOR STARTER AND/OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE.

SYMBOL	DESCRIPTION
	SINGLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
	DOUBLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
	THREE WAY SWITCH "c" INDICATES FIXTURES CONTROLLED.
	FOUR WAY SWITCH "a" INDICATES FIXTURES CONTROLLED.
	DIMMER SWITCH "a" INDICATES FIXTURES CONTROLLED
	SINGLE POLE SWITCH "OS" INDICATES A PASSIVE INFRARED OCCUPANCY SENSOR
	DOUBLE POLE SWITCH "OS" INDICATES PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF INBOARD/OUTBOARD SWITCHING
	SINGLE POLE SWITCH "DT" INDICATES DUAL TECHNOLOGY PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF SENSING MOTION AND SOUND
	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED
	TIME SWITCH
	INDICATES ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	LIGHTING PANELBOARD (LP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	POWER PANELBOARD (PP-#) OR DISTRIBUTION PANELBOARD (DP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	LIGHTING CONTACTOR PANELBOARD (LCP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W "GFCI" - GROUND FAULT CIRCUIT INTERRUPTER TYPE "WP" - WEATHERPROOF "XP" - EXPLOSION PROOF "T" - TRANSIENT VOLTAGE SURGE SUPPRESSOR "IC" - ISOLATED GROUND "4" - CIRCUIT NUMBER
	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED ABOVE COUNTER-TOP OR 42" AFF "NOTATIONS SAME AS ABOVE"
	SPECIAL PURPOSE RECEPTACLE "V" - VOLT RATING "3" - NUMBER OF POLES "60" - AMPERE RATING "4W" - 4 WIRES IN ADDITION TO GROUND
	MULTI-OUTLET ASSEMBLY, SYMBOL DENOTES RECEPTACLE TYPE
	FLUSH FLOOR OUTLET BOX WITH TYPE OUTLET INDICATED
	UNDER FLOOR DUCT SYSTEM WITH TYPE OUTLETS INDICATED
	THREE CELL UNDER FLOOR DUCT SYSTEM JUNCTION BOX
	JUNCTION BOX
	PULL BOX
	TERMINAL CABINET
	OCCUPANCY SENSOR
	PHOTOCELL
	EMERGENCY EYEWASH/SHOWER ALARM STATION WITH FLOW SWITCH(ES)
	INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 12 CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR CORROSION RESISTANT CONSTRUCTION SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL CONFORM TO N.E.C. REQUIREMENTS FOR THE HAZARDOUS AREA CLASSIFICATION SHOWN.

SYMBOL	DESCRIPTION
	GROUND SYSTEM GRID OR LOOP, 36" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
	EXOTHERMIC WELD CONNECTION
	3/4" x 10'-0" GROUND ROD. UNLESS SPECIFIED OTHERWISE.
	GROUND ROD TEST WELL STATION (SEE DETAIL SHEET FOR REQUIREMENTS)
COMMUNICATION SYSTEMS	
	TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SYSTEM
	TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'-6") K = KEY SYSTEM
	PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET
	PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET, MOUNT UP 4'-6"
	PAGING SPEAKER, WALL MOUNTED H = HORN TYPE W = WIDE ANGLE TYPE
	PAGING SPEAKER, WALL MOUNTED, BI-DIRECTIONAL, HORN TYPE W = WIDE ANGLE TYPE
	PAGING SPEAKER, FLUSH MOUNTED CEILING TYPE
	PAGING SPEAKER, SURFACE MOUNTED CEILING TYPE
	REMOTE WALL MOUNTED VOLUME CONTROL FOR CEILING SPEAKER, MOUNT UP 5'-0"
	PAGING SPEAKER AMPLIFIER ASSEMBLY
	TELEPHONE CABINET OR BACKBOARD AS NOTED
	"C" - DATA INPUT/OUTPUT CABLE OUTLET "P" - PROCESS COMPUTER SYSTEM (CAT6 RJ-45 JACK)
	GAS DETECTOR/VENTILATION FAILURE ALARM, # INDICATES TYPE OF UNIT: 1 = MASTER, 2 = REMOTE
	GAS DETECTION/VENTILATION FAILURE WEATHERPROOF DUAL-LITE BEACON MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
	GAS DETECTION/VENTILATION FAILURE HORN/STROBE MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
	GAS DETECTION/VENTILATION FAILURE HORN, MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
	GAS DETECTION/VENTILATION FAILURE STROBE, MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
SECURITY SYSTEMS	
	SECURITY ALARM CONTROL PANEL
	SECURITY ALARM DOOR SWITCH
	SECURITY ALARM KEY PAD
	SECURITY SYSTEM CARD ACCESS READER
	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
	CLOSED CIRCUIT TV CAMERA
	PAN, TILT, ZOOM CAMERA LENS CONTROLS
	GLASS BREAK DETECTOR
FIRE ALARM SYSTEMS	
	FIRE ALARM HEAT DETECTOR 135 FIXED TEMPERATURE UNLESS OTHERWISE NOTED. "200" - 200 FIXED TEMPERATURE "R" - FIXED TEMPERATURE RATE-OF-RISE TYPE
	FIRE ALARM SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED. "I" - IONIZATION TYPE.
	FIRE ALARM DUCT SMOKE DETECTOR
	FIRE ALARM CONTROL PANEL
	FIRE ALARM VENTILATION PANEL WITH GRAPHIC PANEL
	REMOTE FIRE ALARM ANNUNCIATOR PANEL

SYMBOL	DESCRIPTION
	FIRE ALARM MASTER BOX
	FIRE ALARM HORN, MOUNT UP 7'-6"
	FIRE ALARM STROBE, MOUNT UP 6'-8" 15 = CANDELA RATING
	FIRE ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT UP 6'-8" 15 = CANDELA RATING
	FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'-0"
	SPRINKLER VALVE SUPERVISORY SWITCH
	SPRINKLER FLOW ALARM SWITCH
	FIRE ALARM BELL
	WEATHERPROOF HI-INTENSITY FIRE ALARM STROBE LIGHT WITH HORN
	PASSIVE INFRARED DETECTOR
	SMOKE BEAM DETECTOR (RECEIVER)
	SMOKE BEAM DETECTOR (TRANSMITTER)
	FIRE ALARM SMOKE DETECTOR REMOTE INDICATOR AND TEST SWITCH

ABBREVIATIONS	
A	AMPS
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
COD	COMBUSTIBLE GAS DETECTOR
CKT	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CLF	CURRENT LIMITING FUSE
CLP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH/CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
CWS	CONDUIT WALL SEAL
DC	DIRECT CURRENT
DIA	DIAMETER
DMU	DIGITAL METERING UNIT
DN	DOWN
EC	EMPTY CONDUIT
ELEC	ELECTRICAL

SHEET NO. WHERE DETAIL IS DRAWN  
SYMBOL WHERE THERE IS A DETAIL

DETAIL  
1/4" = 1'-0"  
SHEET NO. WHERE THERE IS A DETAIL

SYMBOL WHERE DETAIL IS DRAWN

DETAIL SYMBOL

SHEET NO. WHERE SECTION IS DRAWN  
SYMBOL WHERE THERE IS A SECTION

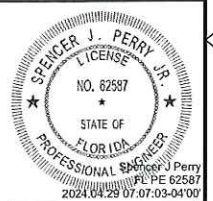
SECTION  
1/4" = 1'-0"  
SHEET NO. WHERE SECTION IS TAKEN

SYMBOL WHERE SECTION IS DRAWN

SECTION SYMBOL

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ABBREVIATIONS (CONTINUED)	
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE OR ENCLOSED
EQUIP	EQUIPMENT
EW	ELECTRIC WATER COOLER
EW	ELECTRIC WATER HEATER
EX	EXISTING
FO	FIBER OPTIC
FU	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
G, GND	GROUND
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HACR	HEATING & AIR CONDITIONING RATED
HH	HANDHOLE
HT	HEIGHT
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HZ	HERTZ
ID	IDENTIFICATION
INSTR	INSTRUMENT
K	KILO (PREFIX)
kcmil	1000 CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LA	LIGHTING ARRESTER
LTG	LIGHTING
LP	LIGHTING PANEL
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NV	MEDIUM VOLTAGE
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOAD
PB	PULL BOX
PCP	PUMP CONTROL PANEL
PH	PHASE
PMH	POWER MANHOLE
PNL	PANEL OR PANELBOARD
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RECP	RECEPTACLE
REQD	REQUIRED
QTY	QUANTITY
SA	SURGE ARRESTER
SEC	SECONDS OR SECONDARY
SH	SHIELDED OR SPACE HEATER
SHH	SIGNAL HANDHOLE
SPD	SURGE PROTECTIVE DEVICE
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME TO CLOSE OR TRAY CABLE
TEL	TELEPHONE
TO	TIME TO OPEN
TS	TWISTED SHIELDED OR THERMAL SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS, WIDTH, WITH, WIRE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER



DATE: SPENCER PERRY  
PE NO. 62587

PROJECT NO. 6295-283550  
FILE NAME: E002NFLG.DWG

SHEET NO.

E-2

BID SET

DESIGNED BY: L. VANG  
DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024

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COLLIER COUNTY, FLORIDA

NRO WELLS 117N AND 119N IMPROVEMENTS

ELECTRICAL LEGEND II

1. PROJECT PROVIDES INSTALLATION OF ONE NEW SUBMERSIBLE PUMP ON VFD AT NRO WELL 117N AND NRO WELL 119N FOR COLLIER COUNTY IN FLORIDA AS SHOWN ON THE DRAWINGS AND INCLUDED IN THE SPECIFICATIONS.
2. PROVIDE POWER SYSTEM STUDIES IN ACCORDANCE WITH SPECIFICATION 26 05 73.
3. PROVIDE A LIGHTNING PROTECTION SYSTEM IN ACCORDANCE WITH SPECIFICATION 26 41 13.

1. ELECTRICAL DRAWINGS ARE INTENDED TO SHOW THE GENERAL LAYOUT OF WORK TO BE INSTALLED UNDER THE CONTRACT WITHOUT ATTEMPTING TO SHOW ALL DETAILS. FURNISH LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE CONTRACT DOCUMENTS.
2. COORDINATE WORK WITH OTHER TRADES AND THE OWNER.
3. MAINTAIN EXISTING PROCESS OPERATIONS. POWER INTERRUPTIONS TO ELECTRICAL EQUIPMENT SHALL BE AT OWNER'S CONVENIENCE WITH 72 HOURS MINIMUM NOTICE. EACH INTERRUPTION SHALL HAVE PRIOR WRITTEN APPROVAL.
4. FIELD VERIFY EXISTING UNDERGROUND ELECTRICAL CONDUIT, CONCRETE DUCT BANKS, MANHOLES, PULL BOXES, ETC. AND MECHANICAL PIPING. CONTRACTOR SHALL INCLUDE IN BID COSTS ASSOCIATED WITH RELOCATION OR REMOVAL OF UNDERGROUND EQUIPMENT AS REQUIRED BY THIS CONTRACT. USE DUE CARE IN CONGESTED AREAS TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES.
5. CONTRACTOR'S WORK SHALL INCLUDE COMPLETE TESTING OF EQUIPMENT AND WIRING INCLUDING MAKING MINOR CORRECTIONS, CHANGES, OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY; SUBSTANDARD WORK WILL BE REJECTED.
6. DO NOT SCALE ELECTRICAL DRAWINGS. REFER TO MECHANICAL, STRUCTURAL DRAWINGS, AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR EXACT LOCATION OF EQUIPMENT. EXCEPT WHERE DIMENSIONS ARE SHOWN, LOCATIONS OF EQUIPMENT, FIXTURES, OUTLETS, AND SIMILAR DEVICES ARE APPROXIMATE.
7. WORK SHALL COMPLY WITH NEC AND LOCAL CODES.
8. DO NOT SPLICE CONDUCTORS EXCEPT AS NOTED.
9. POWER AND CONTROL CONDUITS SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR WIRE SIZED PER TABLE 250.122 OF THE NEC (UON).
10. COORDINATE SEQUENCE OF CONSTRUCTION WITH CIVIL, MECHANICAL, AND STRUCTURAL DISCIPLINES. PROVIDE TEMPORARY POWER AND CONTROL CIRCUITS AS REQUIRED TO MAINTAIN FACILITY OPERATION. VERIFY EXISTING UTILITIES IN AREA OF CONSTRUCTION. REFER TO CIVIL DRAWINGS FOR ADDITIONAL UNDERGROUND INFORMATION.
11. REPAIR, IN ACCORDANCE WITH SPECIFICATIONS, SIDEWALKS, WALLS, ROADWAYS, ETC. DISTURBED BY CONSTRUCTION ACTIVITIES WHETHER OR NOT SHOWN FOR REPAIR/REPAVING ON CIVIL DRAWINGS.
12. CONCEAL CONDUITS TO GREATEST EXTENT PRACTICABLE. CONDUITS RUN AT EXISTING STRUCTURES SHALL BE RUN EXPOSED.
13. WHERE LOCAL DISCONNECTS AND CONTROL PANELS ARE SHOWN ON PLAN VIEWS, LOCATIONS ARE APPROXIMATE. ADJUST LOCATION AS REQUIRED TO COMPLY WITH NEC ARTICLE 110 FOR WORKING CLEARANCES.
14. DO NOT INSTALL MAJOR CONDUIT RUNS THROUGH AREAS DESIGNATED FOR FUTURE STRUCTURES.

1. SUBMIT SHOP DRAWINGS FOR EQUIPMENT, MATERIALS AND OTHER ITEMS FURNISHED UNDER DIVISION 26.
2. SUBMIT CONDUIT SHOP DRAWINGS FOR YARD ELECTRICAL, WITHIN AND UNDER ROADS, BUILDINGS AND STRUCTURES PRIOR TO COMMENCING WORK. DO NOT POUR CONCRETE UNTIL ENGINEER HAS APPROVED THE ASSOCIATED SHOP DRAWING.
3. SUBMIT POWER SYSTEM STUDIES IN ACCORDANCE WITH SECTION 26 05 73.
4. SUBMIT OPERATION AND MAINTENANCE MANUALS FOR EQUIPMENT FURNISHED UNDER DIVISION 26.
5. SUBMIT STARTUP/COMMISSIONING PLANS FOR EQUIPMENT FURNISHED UNDER DIVISION 26.
6. SUBMIT TESTING AND SERVICE REPORTS FOR EQUIPMENT AND MATERIALS FURNISHED UNDER DIVISION 26.
7. SUBMIT TRAINING PLANS FOR EQUIPMENT FURNISHED UNDER DIVISION 26.
8. SUBMIT RECORD DOCUMENTATION TO ACCURATELY SHOW COMPLETED INSTALLATION. INCLUDE MODIFICATIONS TO CONTRACT DOCUMENTS (ONE LINE POWER DIAGRAMS, EQUIPMENT ELEVATIONS, PANEL SCHEDULES, ELEMENTARY CONTROL DIAGRAMS, RISER DIAGRAMS, PLANS, CONDUIT AND DUCTBANK ROUTING, ETC) ALONG WITH ADDITIONAL DRAWINGS OR SKETCHES CREATED TO CONVEY COMPLETED INSTALLATION.

1. IF DURING PERFORMANCE OF WORK, THERE IS A CONFLICT, ERROR, OR DISCREPANCY BETWEEN OR AMONG CONTRACT DOCUMENTS AND LAWS AND REGULATIONS, PROVIDE THE HIGHER PERFORMANCE STANDARD UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. PRIORITY OF DOCUMENTS: FIGURED DIMENSIONS GOVERN OVER SCALED DIMENSIONS, DETAILED DRAWINGS GOVERN OVER GENERAL DRAWINGS, LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, CHANGE ORDER DRAWINGS SUPERCEDE ORIGINAL CONTRACT DRAWINGS, AND CONTRACT DRAWINGS GOVERN SHOP DRAWINGS.
3. IN GENERAL, DRAWINGS DO NOT SHOW CONDUIT ROUTING. PLAN AND ROUTE CONDUITS IN COMPLIANCE WITH SPECIFICATIONS AND DRAWING DETAILS. COORDINATE INSTALLATION WITH OTHER TRADES AND ACTUAL SUPPLIED EQUIPMENT.
4. DUCTBANK ROUTING SHOWN ON ELECTRICAL SITE PLANS IS DIAGRAMMATIC IN NATURE AND MAY NOT INCLUDE INTERFERENCES THAT MAY BE PRESENT.
5. SEE ADDITIONAL NOTES ON ELECTRICAL LEGEND I SHEET.

1. NEMA 1 IN DRY, NON-PROCESS INDOOR LOCATIONS.
2. NEMA 12 IN "DUST" LOCATIONS SHOWN ON THE DRAWINGS.
3. NEMA 4X IN OUTDOOR LOCATIONS, ROOMS BELOW GRADE INCLUDING BASEMENTS AND BURIED VAULTS AND "DAMP" OR "WET" LOCATIONS SHOWN ON THE DRAWINGS. ENCLOSURES SHALL BE 316 STAINLESS STEEL.
4. NEMA 4X IN "CORROSIVE" LOCATIONS SHOWN ON THE DRAWINGS. ENCLOSURES SHALL BE 316 STAINLESS STEEL.

1. PROVIDE NEW MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE LISTED BY UNDERWRITER'S LABORATORIES, INC., AND SHALL BEAR APPROPRIATE UL LISTING MARK OR CLASSIFICATION MARKING. EQUIPMENT, MATERIALS, ETC. UTILIZED NOT BEARING A UL CERTIFICATION SHALL BE FIELD OR FACTORY UL CERTIFIED PRIOR TO EQUIPMENT ACCEPTANCE AND USE.
3. PROVIDE MAJOR ELECTRICAL EQUIPMENT BY A SINGLE MANUFACTURER: I.E. UNIT SUBSTATIONS, SWITCHGEAR, MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, TRANSFORMERS, PANELBOARDS, ETC.

1. COORDINATE WITH EQUIPMENT MANUFACTURER SHIPPING SPLITS TO PERMIT SAFE HANDLING AND PASSAGE OF EQUIPMENT TO FINAL INSTALLATION LOCATION.
2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR UPRIGHT EQUIPMENT ORIENTATION DURING TRANSPORTATION.
3. PROTECT EQUIPMENT FROM MECHANICAL INJURY, OR EXPOSURE TO MOISTURE, CHEMICALS, OR CORROSIVE GASES. DO NOT STORE ELECTRICAL EQUIPMENT OUTDOORS.
4. PROVIDE AND ENERGIZE TEMPORARY SPACE HEATERS IF REQUIRED TO CONTROL MOISTURE DURING STORAGE.

1. CUT AND PATCH IN A WORKMANLIKE MANNER AS REQUIRED TO INSTALL ELECTRICAL WORK.
2. CUTTING OF STRUCTURAL MEMBERS SUCH AS JOISTS, BEAMS, GIRDERS OR COLUMNS IS PROHIBITED.
3. PATCH SURFACES TO RESTORE TO ORIGINAL INTEGRITY (WATERPROOF OR FIREPROOF AS REQUIRED) AND APPEARANCE.
4. CORE DRILL HOLES IN CONCRETE FLOORS AND WALLS AS REQUIRED. PRIOR TO CORING CONCRETE, SCAN SLAB OR WALL TO LOCATE AND IDENTIFY REBAR AND/OR CONDUIT AND WIRING. LOCATE CORES AS TO AVOID CUTTING OR DRILLING THROUGH REBAR AND/OR CONDUITS. SPACE CONDUITS SO AS NOT TO ALTER THE STRUCTURAL INTEGRITY OF THE EXISTING STRUCTURE BEING CORE DRILLED. NOTIFY ENGINEER IMMEDIATELY IF ANY REBARS ARE CUT OR UPON BECOMING AWARE OF DISCREPANCIES WITHIN AREA OF WORK.

1. REMOVE ALL RUBBISH AND DEBRIS FROM INSIDE AND AROUND ELECTRICAL EQUIPMENT AND ENCLOSURES.
2. REMOVE DIRT, DUST OR CONCRETE SPATTER FROM INTERIOR AND EXTERIOR OF EQUIPMENT USING BRUSHES, VACUUM CLEANER OR CLEAN LINT-FREE RAGS. DO NOT USE COMPRESSED AIR.

1. WHEN ENGINEERING SERVICES ARE SPECIFIED TO BE PROVIDED BY CONTRACTOR, CONTRACTOR SHALL RETAIN A LICENSED PROFESSIONAL ENGINEER TO PERFORM THE SERVICES. ENGINEER SHALL BE LICENSED AT THE TIME SERVICES ARE PERFORMED AND LICENSED IN THE STATE IN WHICH PROJECT IS LOCATED. IF THE STATE ISSUES DISCIPLINE SPECIFIC LICENSES, ENGINEER SHALL BE LICENSED IN THE APPLICABLE DISCIPLINE. ENGINEER SHALL BE EXPERIENCED IN THE TYPE OF WORK BEING PERFORMED.
2. ENGINEERING WORK SHALL BE DONE ACCORDING TO THE APPLICABLE REGULATIONS FOR PROFESSIONAL ENGINEERS TO INCLUDE SIGNING, SEALING AND DATING DOCUMENTS.

1. DRAWING PLANS SHOWING REMOVAL OF MAJOR MECHANICAL AND ELECTRICAL EQUIPMENT IS NOT INTENDED TO SHOW ALL COMPONENTS TO BE DEMOLISHED. NOT ALL PIPING, CONDUITS, DUCTS, EQUIPMENT, ANCILLARY DEVICES, ETC. ARE SHOWN. THE CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID.
2. UNLESS OTHERWISE SPECIFICALLY NOTED, REMOVE UNUSED EXPOSED CONDUIT AND SUPPORT SYSTEMS BACK TO SOURCE AND/OR POINT OF CONCEALMENT INCLUDING ABOVE ACCESSIBLE CEILING FINISHES. WIRING SHALL BE REMOVED.
3. CUT FLUSH WITH SLAB, CEILING, OR WALL ABANDONED CONCEALED CONDUIT. SUITABLY PLUG CONDUITS.
4. REPAIR AND RESTORE ADJACENT CONSTRUCTION AND FINISHES AFTER DEMOLITION IS COMPLETE.
5. MATERIAL AND EQUIPMENT INDICATED FOR REMOVAL OR DEMOLITION IS TO BECOME CONTRACTOR'S PROPERTY UPON REMOVAL, UNLESS NOTED OTHERWISE. REMOVED MATERIAL TO BE PROPERLY HANDLED AND DISPOSED.

[illegible]

DESIGNED BY: \_\_\_\_\_ L. VANG  
DRAWN BY: \_\_\_\_\_ D. HARTSFIELD  
SHEET CHK'D BY: \_\_\_\_\_ L. VANG  
CROSS CHK'D BY: \_\_\_\_\_ C. STELLMACK  
APPROVED BY: \_\_\_\_\_ S. PERRY  
DATE: \_\_\_\_\_ MARCH 2024

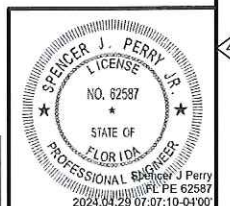


## NRO WELLS 117N AND 119N IMPROVEMENTS

## ELECTRICAL GENERAL NOTES

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DATE:  
SPENCER PERRY  
PE NO. 62587

PROJECT NO.	6295-283550
FILE NAME:	E003NFNT.DWG

SHEET NO.

E-3

XREFs: [CDMS-2234, 2234FW\_CDMs, 12390 - ASB - FO\_119 record, CWP000ST, MWPO00WE] Images: []  
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NOTES:

- PERFORM WORK AT NRO WELL 117N FOR A NEW SUBMERSIBLE PUMP AND ASSOCIATED INSTRUMENTS AS DETAILED ON THE NRO WELL 117N ONE LINES, DIAGRAMS AND PLANS. POWER SOURCE FOR THE NEW LOADS IS FROM THE EXISTING PDP-BPS/WELL-38 LOCATED IN THE EXISTING BOOSTER PUMP STATION AREA. SCADA SOURCE FOR THE NEW WELL NO. 117 PLC PANEL IS FROM EXISTING WELL NO. 17 LOCAL CONTROL PANEL LOCATED BY EXISTING WELL 17N.
- PERFORM WORK AT NRO WELL 119N FOR NEW SUBMERSIBLE PUMP AND ASSOCIATED INSTRUMENTS AS DETAILED ON THE NRO WELL 119N ONE LINES, DIAGRAMS AND PLANS. POWER SOURCE AND SCADA SOURCE FOR THE NEW LOADS ARE FROM EXISTING PANEL MDP AND WELL NO. 19 LOCAL CONTROL PANEL, RESPECTIVELY. EXISTING PANEL MDP AND WELL NO. 19 LOCAL CONTROL PANEL ARE LOCATED IN EXISTING WELL 19 PUMP STATION.

SITE  
PLAN

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: L. VANG  
DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024

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FL CQA No. EB-0000020

COLLIER COUNTY, FLORIDA

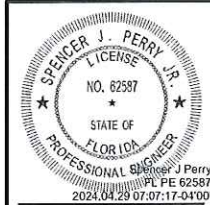
NRO WELLS 117N AND 119N IMPROVEMENTS

ELECTRICAL SITE PLAN

PROJECT NO. 6295-283550  
FILE NAME: E004STPL.DWG

SHEET NO.  
E-4

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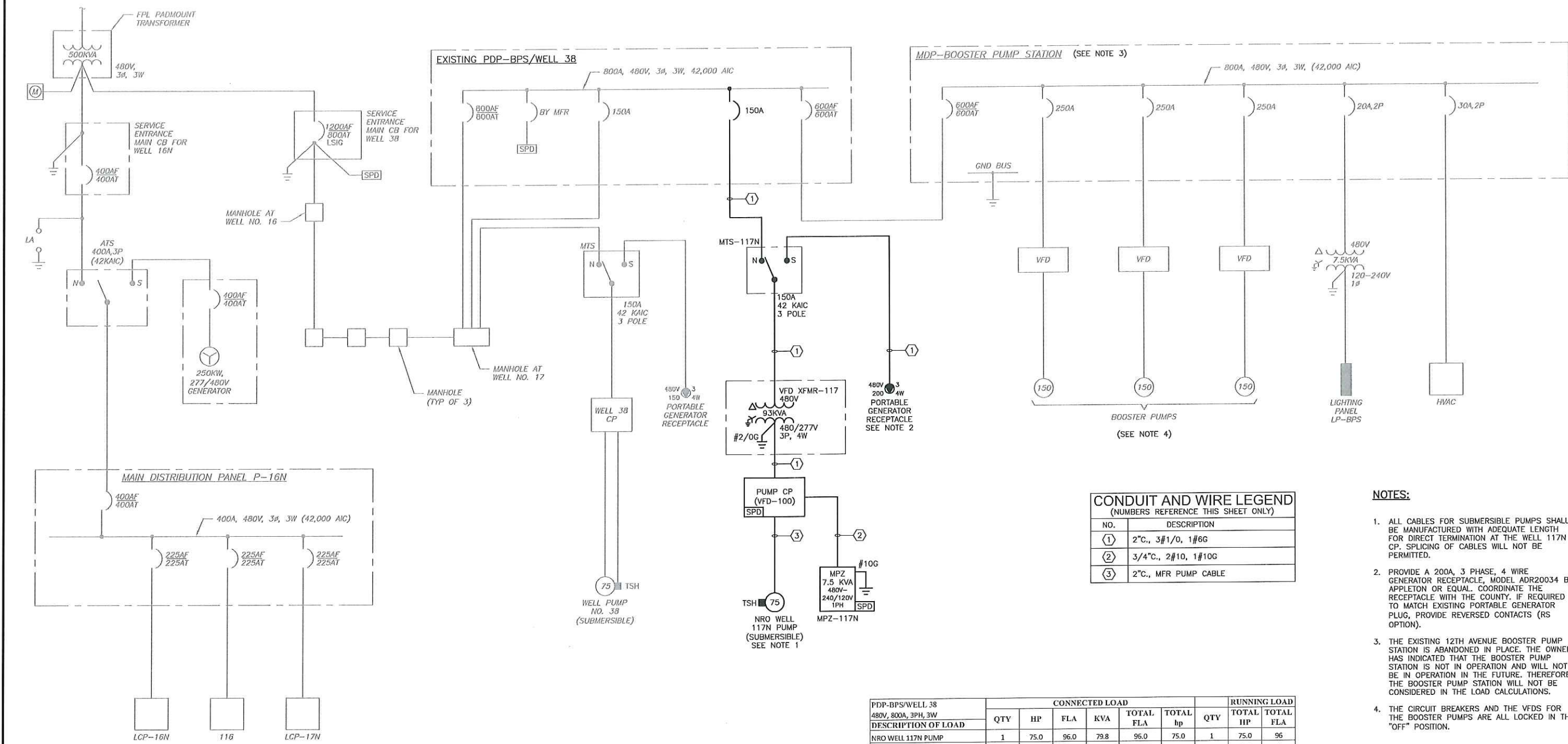
DATE:  
SPENCER PERRY  
PE NO. 62587

PROJECT NO. 6295-283550  
FILE NAME: E004STPL.DWG

SHEET NO.  
E-4

BID SET

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pw:\edmanth-ar02-pvbenley\compw-p1\6295\283550\04 Design Services NL\_BID\09 Electrical\10 BIM\_CADD\ED05NFOL.dwg  
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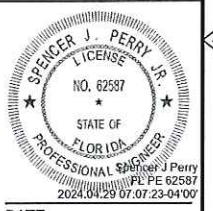


CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	2" C., 3#1/0, 1#6G
②	3/4" C., 2#10, 1#10G
③	2" C., MFR PUMP CABLE

- NOTES:**
- ALL CABLES FOR SUBMERSIBLE PUMPS SHALL BE MANUFACTURED WITH ADEQUATE LENGTH FOR DIRECT TERMINATION AT THE WELL 117N CP. SPLICING OF CABLES WILL NOT BE PERMITTED.
  - PROVIDE A 200A, 3 PHASE, 4 WIRE GENERATOR RECEPTACLE, MODEL ADR20034 BY APPLETON OR EQUAL. COORDINATE THE RECEPTACLE WITH THE COUNTY. IF REQUIRED TO MATCH EXISTING PORTABLE GENERATOR PLUG, PROVIDE REVERSED CONTACTS (RS OPTION).
  - THE EXISTING 12TH AVENUE BOOSTER PUMP STATION IS ABANDONED IN PLACE. THE OWNER HAS INDICATED THAT THE BOOSTER PUMP STATION IS NOT IN OPERATION AND WILL NOT BE IN OPERATION IN THE FUTURE. THEREFORE, THE BOOSTER PUMP STATION WILL NOT BE CONSIDERED IN THE LOAD CALCULATIONS.
  - THE CIRCUIT BREAKERS AND THE VFDs FOR THE BOOSTER PUMPS ARE ALL LOCKED IN THE "OFF" POSITION.

PDP-BPS/WELL 38 480V, 800A, 3PH, 3W	CONNECTED LOAD						RUNNING LOAD	
	QTY	HP	FLA	KVA	TOTAL FLA	TOTAL hp	TOTAL IIP	TOTAL FLA
DESCRIPTION OF LOAD								
NRO WELL 117N PUMP	1	75.0	96.0	79.8	96.0	75.0	1	75.0 96
MPZ-117N	1		9.0	7.5	9.0	0.0	1	0.0 9
WELL PUMP NO. 38	1	75.0	96.0	79.8	96.0	75.0	1	75.0 96
25% Largest Motor					24.0		0	0
TOTALS (SEE NOTE 3):				167	225	150		201

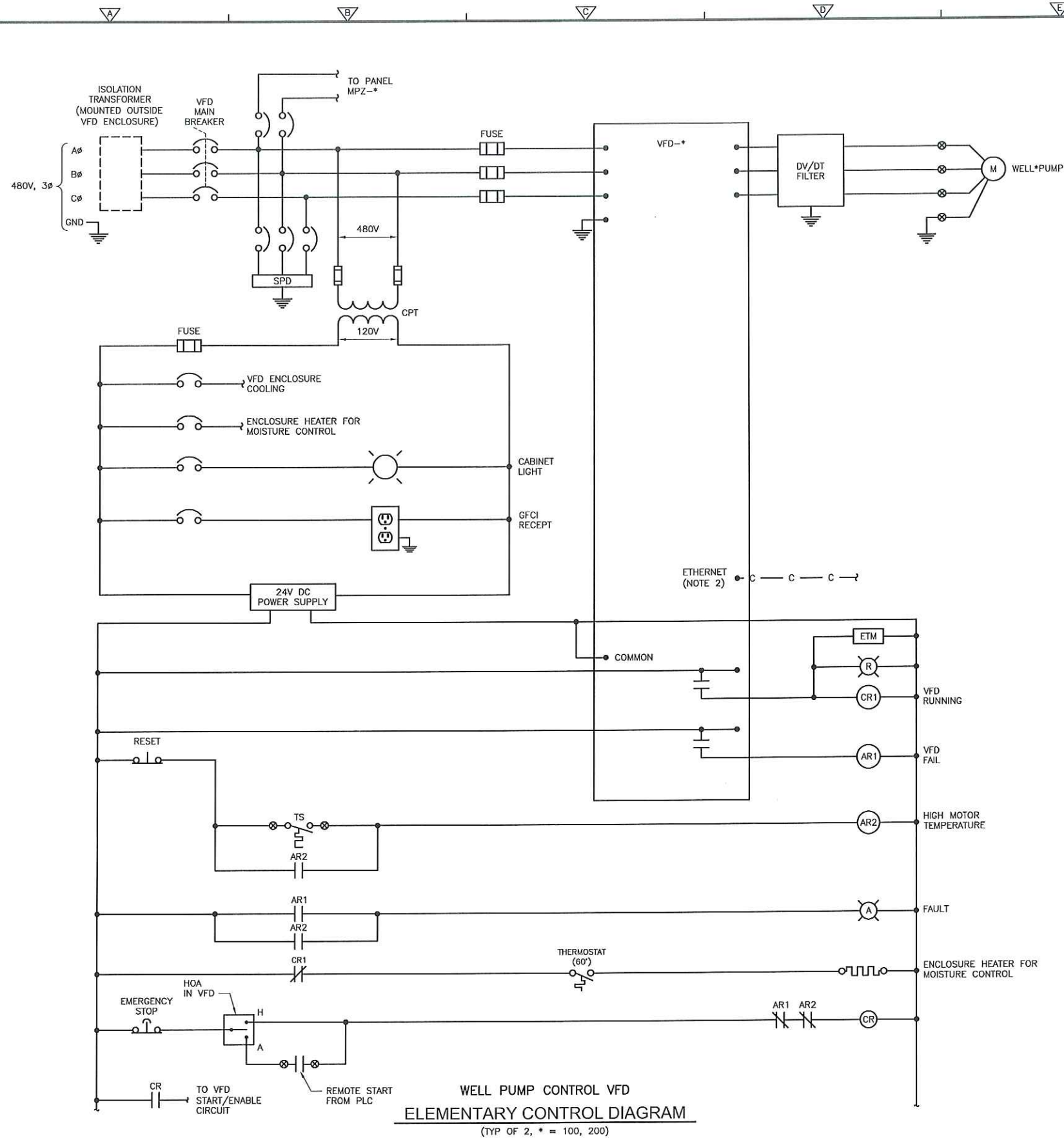
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<table><tr><th>REV.</th><th>NO.</th><th>DATE</th><th>DRWN</th><th>CHKD</th><th>REMARKS</th></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>	REV.	NO.	DATE	DRWN	CHKD	REMARKS							DESIGNED BY: L. VANG DRAWN BY: D. HARTSFIELD SHEET CHK'D BY: L. VANG CROSS CHK'D BY: C. STELLUMACK APPROVED BY: S. PERRY DATE: MARCH 2024	<b>CDM Smith</b> 4210 Metro Pkwy., Suite 230 Fort Myers, FL 33916 Tel: (239) 938-0600 FL COA No. EB-0000020	COLLIER COUNTY, FLORIDA NRO WELLS 117N AND 119N IMPROVEMENTS	NRO WELL 117N ONE LINE POWER DIAGRAM	PROJECT NO. 6295-283550 FILE NAME: E005NFOL.DWG SHEET NO. E-5
REV.	NO.	DATE	DRWN	CHKD	REMARKS												

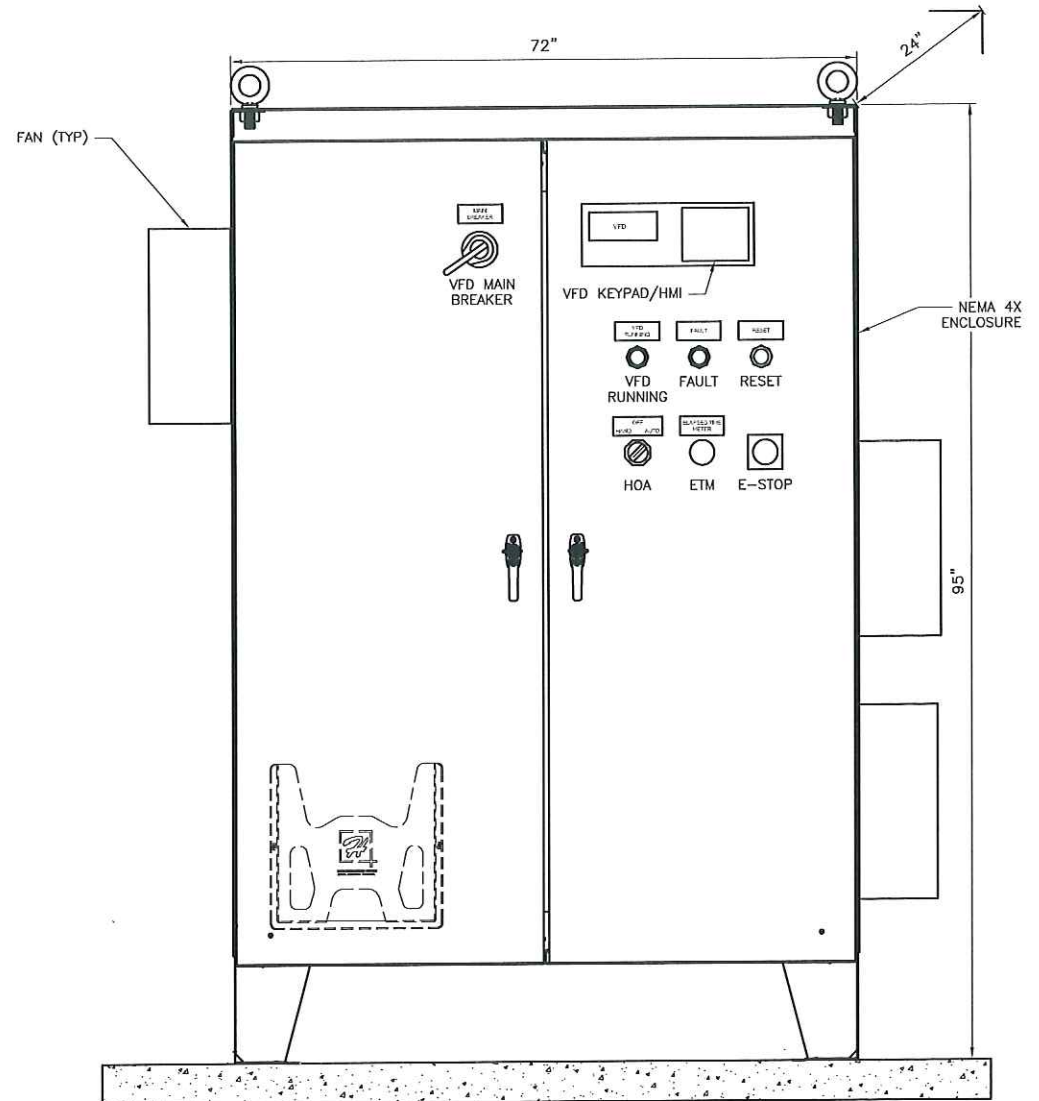


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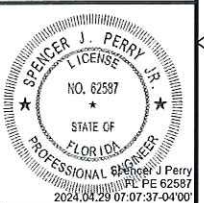
NOTES:

- SEE SPECIFICATIONS AND INSTRUMENTATION LOOP DIAGRAMS FOR ADDITIONAL CONTROL REQUIREMENTS.
- REMOTE CONTROL INCLUDING FIELD DEVICES ARE WIRED DIRECTLY INTO LOCAL PLC CABINET. VFD CONTROL IS VIA ETHERNET FROM PLC. ETHERNET CABLE CONNECTED TO ETHERNET SWITCH IN PLC CONTROL PANEL.
- CONTRACTOR TO VERIFY ALL CIRCUIT BREAKERS AND FUSES.
- VERIFY GROUND BAR IS BONDED TO CONTROL PANEL ENCLOSURE AND CONTROL PANEL BACK PANEL.
- REFER TO SHEET E-B FOR KEY BOM.



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DATE: SPENCER PERRY  
PE NO. 62587

PROJECT NO. 6295-283550  
FILE NAME: E007NFCD.DWG

SHEET NO.

E-7

DESIGNED BY: L. VANG  
DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024

**CDM Smith**  
4210 Metro Pkwy., Suite 230  
Fort Myers, FL 33916  
Tel: (238) 938-9000  
FL COA No. EB-0000020

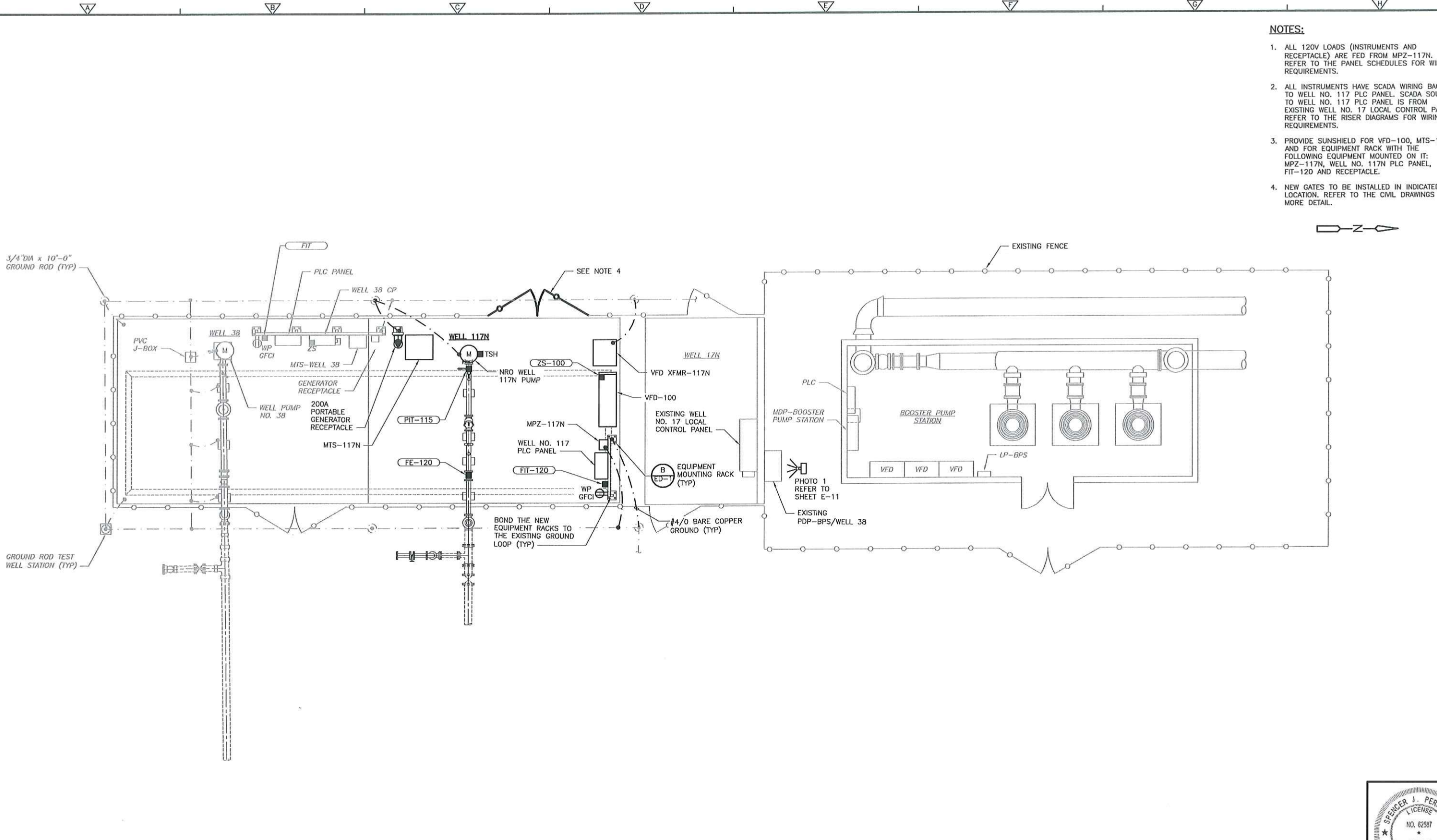
COLLIER COUNTY, FLORIDA

NRO WELLS 117N AND 119N IMPROVEMENTS

ELEMENTARY CONTROL DIAGRAM

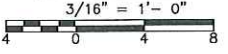


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- NOTES:**
1. ALL 120V LOADS (INSTRUMENTS AND RECEPTACLE) ARE FED FROM MPZ-117N. REFER TO THE PANEL SCHEDULES FOR WIRING REQUIREMENTS.
  2. ALL INSTRUMENTS HAVE SCADA WIRING BACK TO WELL NO. 117 PLC PANEL. SCADA SOURCE TO WELL NO. 117 PLC PANEL IS FROM EXISTING WELL NO. 17 LOCAL CONTROL PANEL. REFER TO THE RISER DIAGRAMS FOR WIRING REQUIREMENTS.
  3. PROVIDE SUNSHIELD FOR VFD-100, MTS-117N, AND FOR EQUIPMENT RACK WITH THE FOLLOWING EQUIPMENT MOUNTED ON IT: MPZ-117N, WELL NO. 117N PLC PANEL, FIT-120 AND RECEPTACLE.
  4. NEW GATES TO BE INSTALLED IN INDICATED LOCATION. REFER TO THE CIVIL DRAWINGS FOR MORE DETAIL.

NRO WELL 117N ELECTRICAL  
PLAN



REV. NO.	DATE	DRWN	CHKD	REMARKS

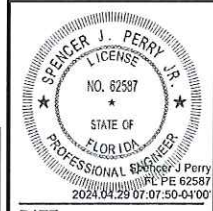
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DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024



COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

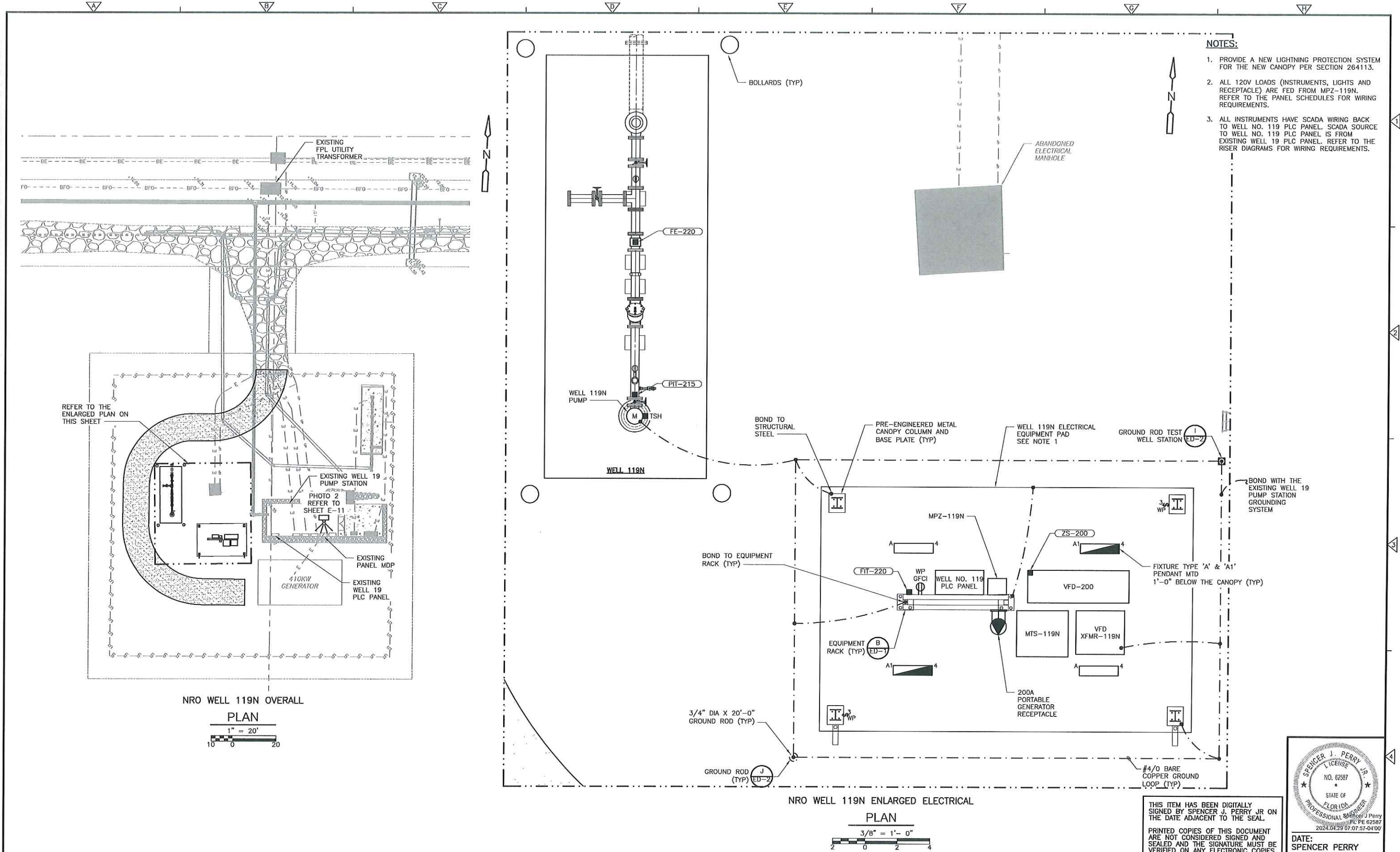
NRO WELL 117N ELECTRICAL PLAN

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DATE: SPENCER PERRY  
PE NO. 62587  
PROJECT NO. 6295-283550  
FILE NAME: E009NFPL.DWG  
SHEET NO.  
E-9

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DESIGNED BY: L. VANG  
DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024

**CDM Smith**  
4210 Metro Pkwy., Suite 230  
Fort Myers, FL 33916  
Tel: (239) 939-9600  
FL COA No. EB-0000020

COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

NRO WELL 119N ELECTRICAL PLAN

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SPENCER J. PERRY JR.  
LICENSE NO. 62587  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

DATE: SPENCER PERRY  
PE NO. 62587

PROJECT NO. 6295-283550  
FILE NAME: E01NFP1.DWG  
SHEET NO. E-10

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PHOTO 1

EXISTING PDP-BPS/WELL 38  
MFG: EATON POW-R-LINE SERIES  
EATON JOB NO: SML1034581-001  
RATINGS: 800A, 480V, 3PH, 3W, 42KAIC

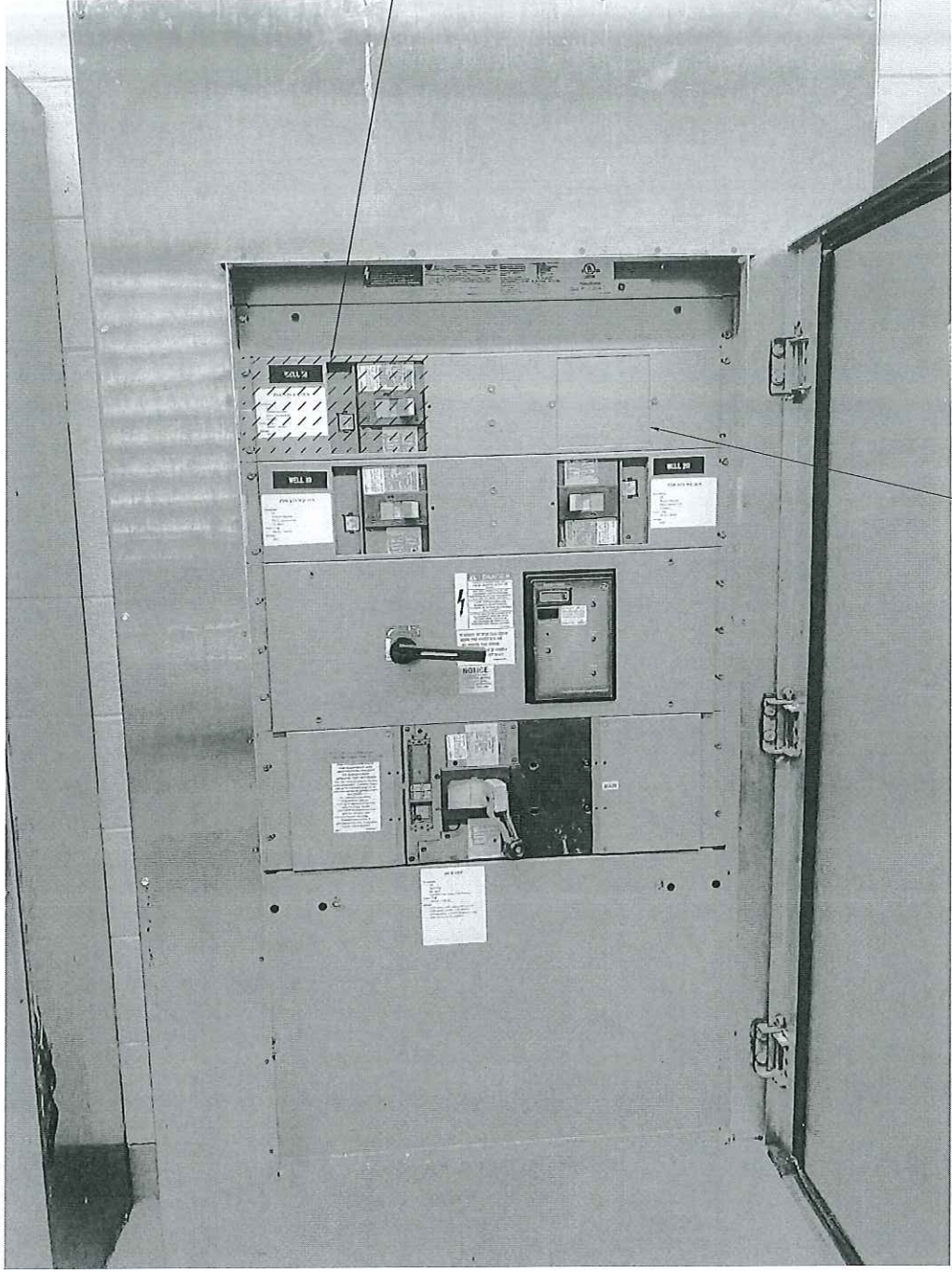


PHOTO 2

EXISTING PANEL MDP  
MFG: GE SPECTRA SERIES  
GE REQ NO: 84641106A3  
RATINGS: 1200A, 480/277V, 3PH, 4W, 100KAIC

NOTES:

1. PROVIDE 150A, 3P OEM CIRCUIT BREAKER IN INDICATED AVAILABLE SPACE OF EXISTING PANEL FOR THE NEW WELL 117N LOADS. CIRCUIT BREAKER SHALL MATCH OR EXCEED EXISTING PANEL SHORT CIRCUIT CURRENT RATING. PROVIDE THE NECESSARY MOUNTING HARDWARE AND COVER PLATES FOR THE INSTALLATION OF THE NEW BREAKER.
2. PROVIDE 250AF/200AT, 3P, ABB TMAX XT5 CIRCUIT BREAKER (ABB CATALOG #XT5LU325) WITH EKIP DIP LSI ELECTRONIC TRIP UNITS IN THE AVAILABLE SPACE FOR THE WELL 119N LOADS. CIRCUIT BREAKERS IN DUAL-MOUNT CONFIGURATION MUST BE THE SAME CIRCUIT BREAKER TYPE. THEREFORE, REPLACE EXISTING 400A, GE SPECTRA RMS CB SGLA36AT0400 FEEDING EXISTING WELLHOUSE 18 LOADS WITH A NEW 400AF/400AT, 3P, ABB TMAX XT5 CIRCUIT BREAKER (ABB CATALOG #XT5LU340) WITH EKIP DIP LSI ELECTRONIC TRIP UNITS. CIRCUIT BREAKERS SHALL MATCH OR EXCEED EXISTING PANEL SHORT CIRCUIT CURRENT RATING. PROVIDE RETROFIT KITS (ABB CATALOG #SRFB6XT5BFPX) FOR THE NEW BREAKERS AND ANY NECESSARY ACCESSORIES TO MOUNT THE NEW BREAKERS IN THE EXISTING PANEL.
3. UPDATE THE EXISTING PANEL SCHEDULE AND PROVIDE NAMEPLATES AND LABELS FOR THE NEW BREAKERS. NAMEPLATES SHALL BE BLACK LETTERS ON A WHITE FIELD, ENGRAVED, LAMINATED PLASTIC, 3/16-INCH HIGH LETTERING.

REV. NO.	DATE	DRWN	CHKD	REMARKS

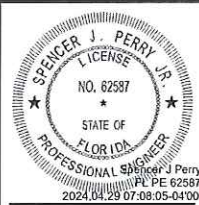
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DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024

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FL COA No. EB-0000020

COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

PANELBOARD IMAGES

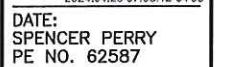
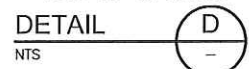
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PE NO. 62587  
PROJECT NO. 6295-283550  
FILE NAME: E011NFMU.DWG  
SHEET NO.  
E-11



- DETAIL C  
-

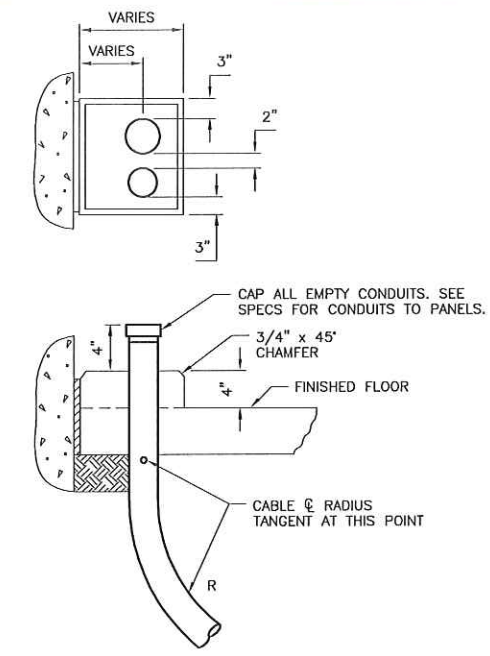


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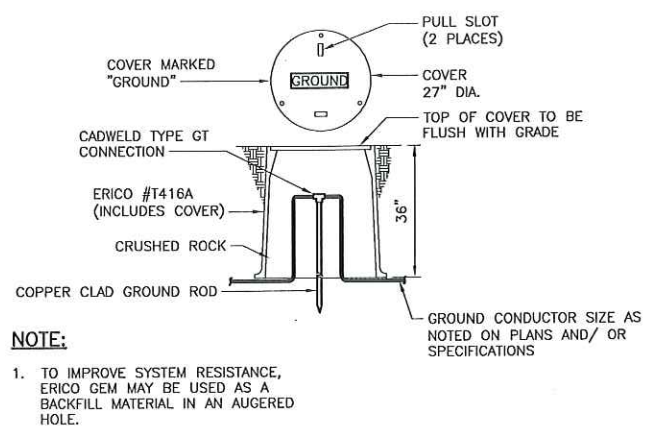
ED-1

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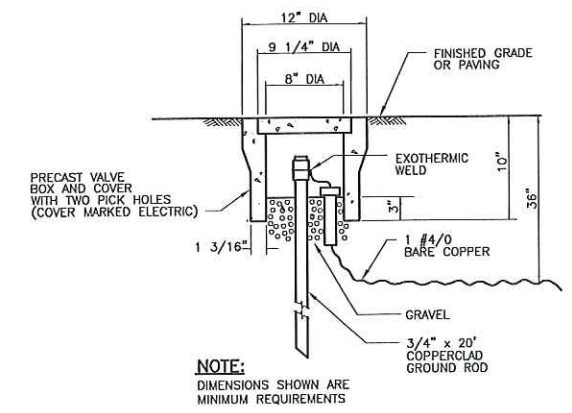


TYPICAL CONDUIT THROUGH SLAB  
DETAIL H  
N.T.S.



**NOTE:**  
1. TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGERED HOLE.

GROUND TEST WELL STATION  
DETAIL I  
N.T.S.



**NOTE:**  
DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS

GROUND ROD  
DETAIL J  
N.T.S.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: L. VANG  
DRAWN BY: D. HARTSFIELD  
SHEET CHK'D BY: L. VANG  
CROSS CHK'D BY: C. STELLMACK  
APPROVED BY: S. PERRY  
DATE: MARCH 2024



COLLIER COUNTY, FLORIDA  
NRO WELLS 117N AND 119N IMPROVEMENTS

ELECTRICAL DETAIL II

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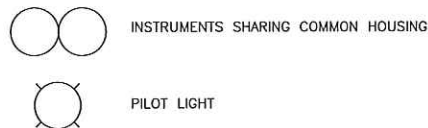
DATE: SPENCER PERRY  
PE NO. 62587

PROJECT NO. 6295-283550  
FILE NAME: ED02NFDI.DWG  
SHEET NO.  
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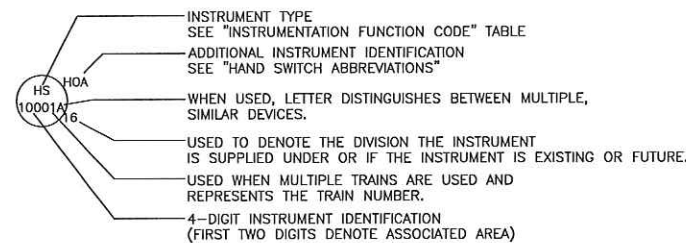
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## GENERAL INSTRUMENT OR FUNCTION SYMBOLS

SHARED DISPLAY/ SHARED CONTROL				LOCATION AND ACCESSIBILITY
PRIMARY CHOICE	SECONDARY CHOICE	COMPUTER SOFTWARE	DISCRETE	
				FIELD MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				PRIMARY CONTROL PANEL MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				PRIMARY CONTROL PANEL MOUNTED AND NOT NORMALLY OPERATOR ACCESSIBLE
				SECONDARY CONTROL PANEL MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				SECONDARY CONTROL PANEL MOUNTED AND NOT NORMALLY OPERATOR ACCESSIBLE



## TYPICAL TAG NUMBERS & DESIGNATION

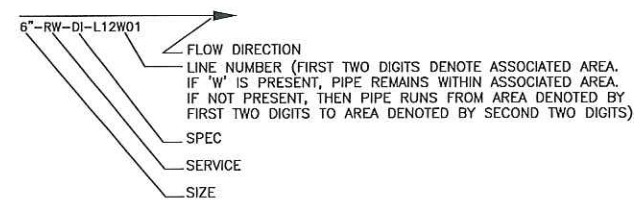


## HAND SWITCH ABBREVIATIONS

AO = AUTO/OFF  
AM = AUTO/MANUAL  
CM = COMPUTER/MANUAL  
CL = COMPUTER/LOCAL  
E-STOP = EMERGENCY STOP  
FR = FORWARD/REVERSE  
FOR = FORWARD/OFF/REVERSE  
FS = FAST SLOW  
FOS = FAST/OFF/SLOW  
HOA = HAND/OFF/AUTO  
LLS = LEAD/LAG/STANDBY  
LOC = LOCAL/OFF/COMPUTER

LOR = LOCAL/OFF/REMOTE  
LOS = LOCKOUT/STOP  
LA = LOCAL/AUTO  
LR = LOCAL/REMOTE  
OC = OPEN/CLOSE  
OCA = OPEN/CLOSE/AUTO  
OO = ON/OFF  
OOA = ON/OFF/AUTO  
OSC = OPEN/STOP/CLOSE  
RSL = RAISE/STOP/LOWER  
SS = START/STOP  
SOR = START/OFF/RESET

## TYPICAL PIPE TAG NUMBERS & DESIGNATION

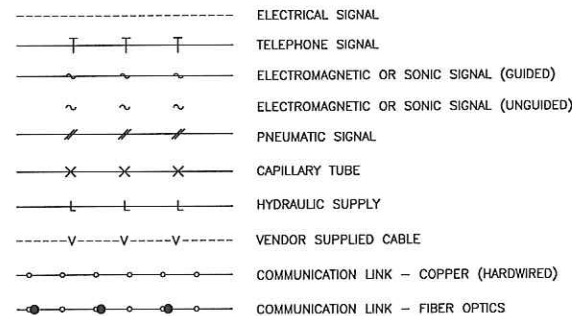


## INSTRUMENTATION FUNCTION CODE

FIRST LETTERS		SUCCEEDING LETTERS		
COLUMN 1 MEASURED/INITIATING VARIABLE	COLUMN 2 VARIABLE MODIFIER	COLUMN 3 READOUT/PASSIVE FUNCTION	COLUMN 4 OUTPUT/ACTIVE FUNCTION	COLUMN 5 FUNCTION MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C USER'S CHOICE			CONTROL	CLOSED
D USER'S CHOICE	DIFFERENCE, DIFFERENTIAL			DEVIATION
E VOLTAGE		SENSOR, PRIMARY ELEMENT		
F FLOW, FLOW RATE	RATIO			
G USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H HAND				HIGH
I CURRENT		INDICATE		
J POWER		SCAN		
K TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW
M MOISTURE				MIDDLE, INTERMEDIATE
N USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P PRESSURE		POINT (TEST CONNECTION)		
Q QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R RADIATION		RECORD		RUN
S SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T TEMPERATURE			TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V VIBRATION, MECHANICAL, ANALYSIS			VALVE, DAMPER, LOUVER	
W WEIGHT, FORCE		WELL, PROBE		
X UNCLASSIFIED (1)	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED (1)	UNCLASSIFIED (1)	UNCLASSIFIED (1)
Y EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENT SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED, FINAL CONTROL ELEMENT	

TABLE NOTES:  
(1) WHEN USED SYMBOL OR SIGNAL LINE IS ANNOTATED.

## INSTRUMENT LINE SYMBOLS



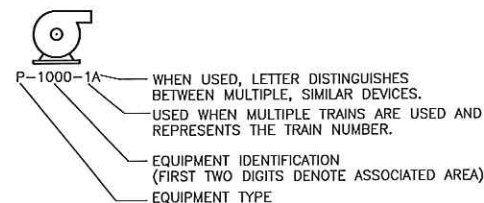
## ELECTRICAL / AIR SOURCES

UPS ----- UPS POWERED ELECTRICAL SOURCE

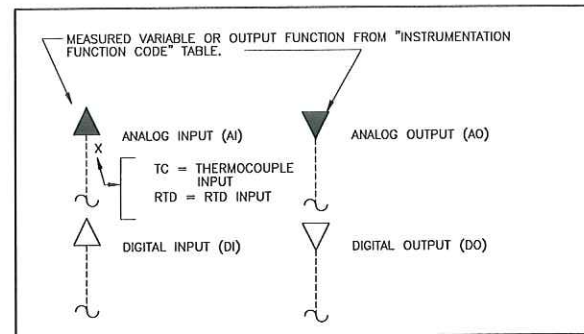
ES ----- ELECTRICAL SOURCE

IA ----- INSTRUMENT AIR SOURCE

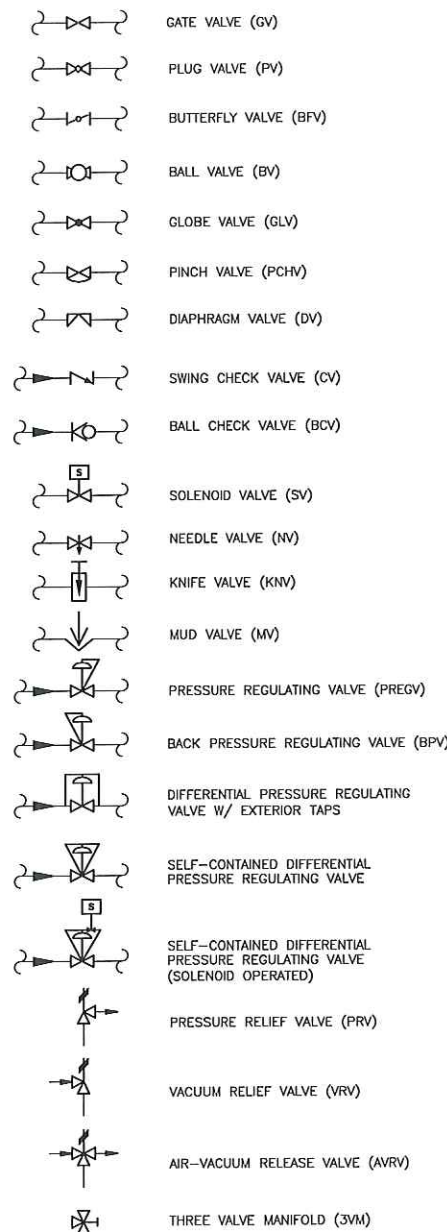
## TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION



## I/O SIGNALS



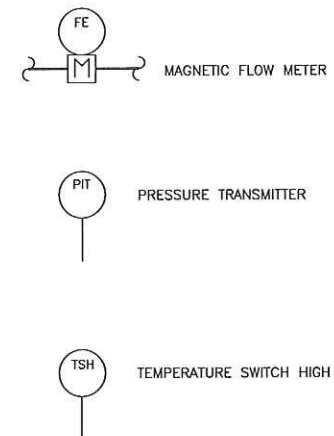
## VALVE SYMBOLS



## GENERAL NOTES

- THIS LEGEND APPLIES TO P&IDS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
- IN GENERAL THIS LEGEND SHEET AND THE P&IDS ARE BASED ON THE INTERNATIONAL SOCIETY OF AUTOMATION (ISA) STANDARDS AND RECOMMENDED PRACTICES FOR INSTRUMENTATION AND CONTROL. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE PROJECT REQUIREMENTS.
- SOME PROCESS ITEMS SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE P&IDS.
- SEE ELECTRICAL AND MECHANICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS.
- LIGHTER WEIGHT LINES, SHOWN AS \_\_\_\_\_, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE EXISTING. WEIGHTED LINES, SHOWN AS \_\_\_\_\_ OR HEAVIER \_\_\_\_\_, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE NEW. DASHED WEIGHTED LINES, SHOWN AS \_\_\_\_\_, INDICATED EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE GROUPED AS A PACKAGE.

## PRIMARY ELEMENTS

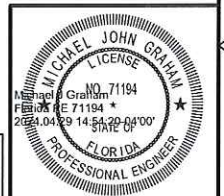


## GENERAL ABBREVIATIONS

AI ANALOG IN  
AO ANALOG OUT  
CPU CENTRAL PROCESSOR UNIT  
DI DIGITAL OR DISCRETE INPUT  
DO DIGITAL OUTPUT  
FC FAIL CLOSED  
FO FAIL OPEN OR FIBER OPTIC  
HMI HUMAN MACHINE INTERFACE  
MCC MOTOR CONTROL CENTER  
NC NORMALLY CLOSED  
NPW NON-POTABLE WATER  
NO NORMALLY OPEN  
PLC PROGRAMMABLE LOGIC  
CONTROLLER  
PW PLANT WATER  
RIO REMOTE INPUT/OUTPUT  
UPS UNINTERRUPTIBLE POWER SUPPLY  
VFD VARIABLE FREQUENCY DRIVE

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DATE:  
MICHAEL GRAHAM  
PE NO. 71194

PROJECT NO. 6295-283550  
FILE NAME: I001SYMB.DWG

SHEET NO.

I-1

BID SET

DESIGNED BY: M. GRAHAM  
DRAWN BY: R. CHARITY  
SHEET CHK'D BY: M. GRAHAM  
CROSS CHK'D BY: CZERNIEJEWSKI  
APPROVED BY: M. GRAHAM  
DATE: MARCH 2024

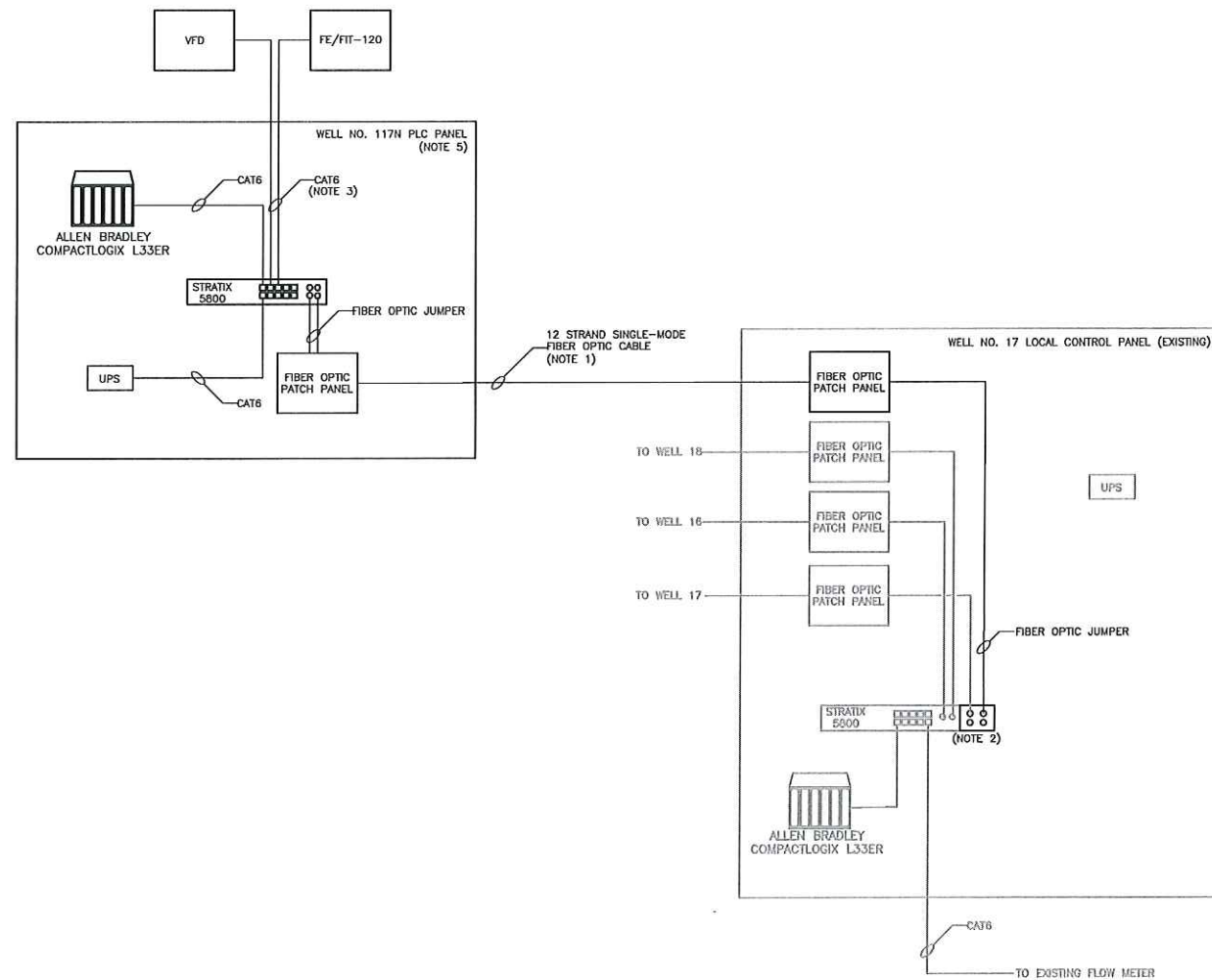
**CDM Smith**  
4210 Metro Pkwy., Suite 230  
Fort Myers, FL 33916  
Tel: (239) 938-0600  
FL CQA No. EB-0000020

COLLIER COUNTY, FLORIDA

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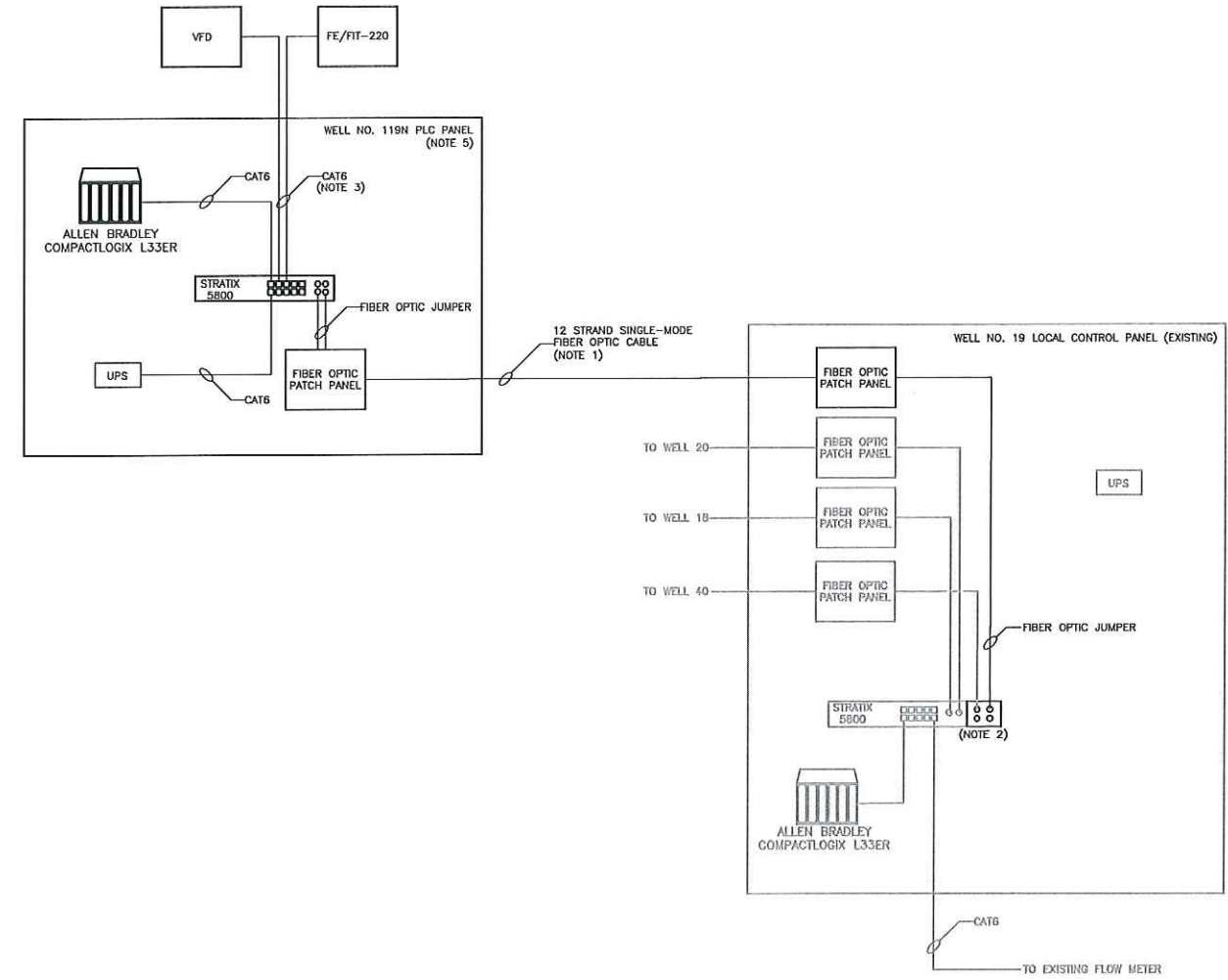
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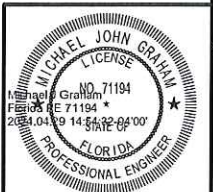
NOTES:

1. RUN NEW FIBER OPTIC CABLE TO EXISTING WELL NO. 17 CONTROL PANEL. INSTALL NEW FIBER OPTIC PATCH PANEL IN EXISTING WELL NO. 17 CONTROL PANEL TO ACCOMMODATE 12 STRAND SINGLE-MODE FIBER.
2. FURNISH AND INSTALL EXPANSION MODULE ON EXISTING ALLEN-BRALEY STRATIX 5800 (MODEL NO. 1783-MS10T) ETHERNET SWITCH TO ACCOMMODATE NEW FIBER OPTIC CONNECTION.
3. WELL MOTOR VFD AND MAGNETIC FLOW METER TO COMMUNICATE ETHERNET I/P TO NEW STRATIX 5800 ETHERNET SWITCH.
4. RUN NEW FIBER OPTIC CABLE TO EXISTING WELL NO. 19 CONTROL PANEL. INSTALL NEW FIBER OPTIC PATCH PANEL IN EXISTING WELL NO. 19 CONTROL PANEL TO ACCOMMODATE 12 STRAND SINGLE-MODE FIBER.
5. PLC PANELS SHALL BE 316 STAINLESS STEEL WHITE POWDER COATED. WELL NO. 117 PLC PANEL PROVIDED WITH SUN SHIELD AND RAIN SHED. WELL NO. 119 PLC PANEL PROVIDED WITH SUN SHIELD.



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PE NO. 71194

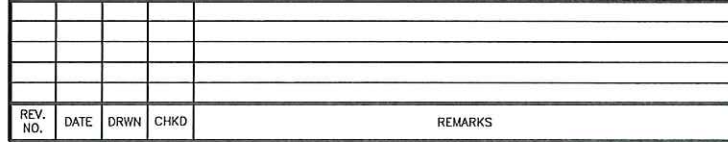
PROJECT NO. 6295-283550  
FILE NAME: I002PIDT.DWG

SHEET NO.

1-2

BID SET

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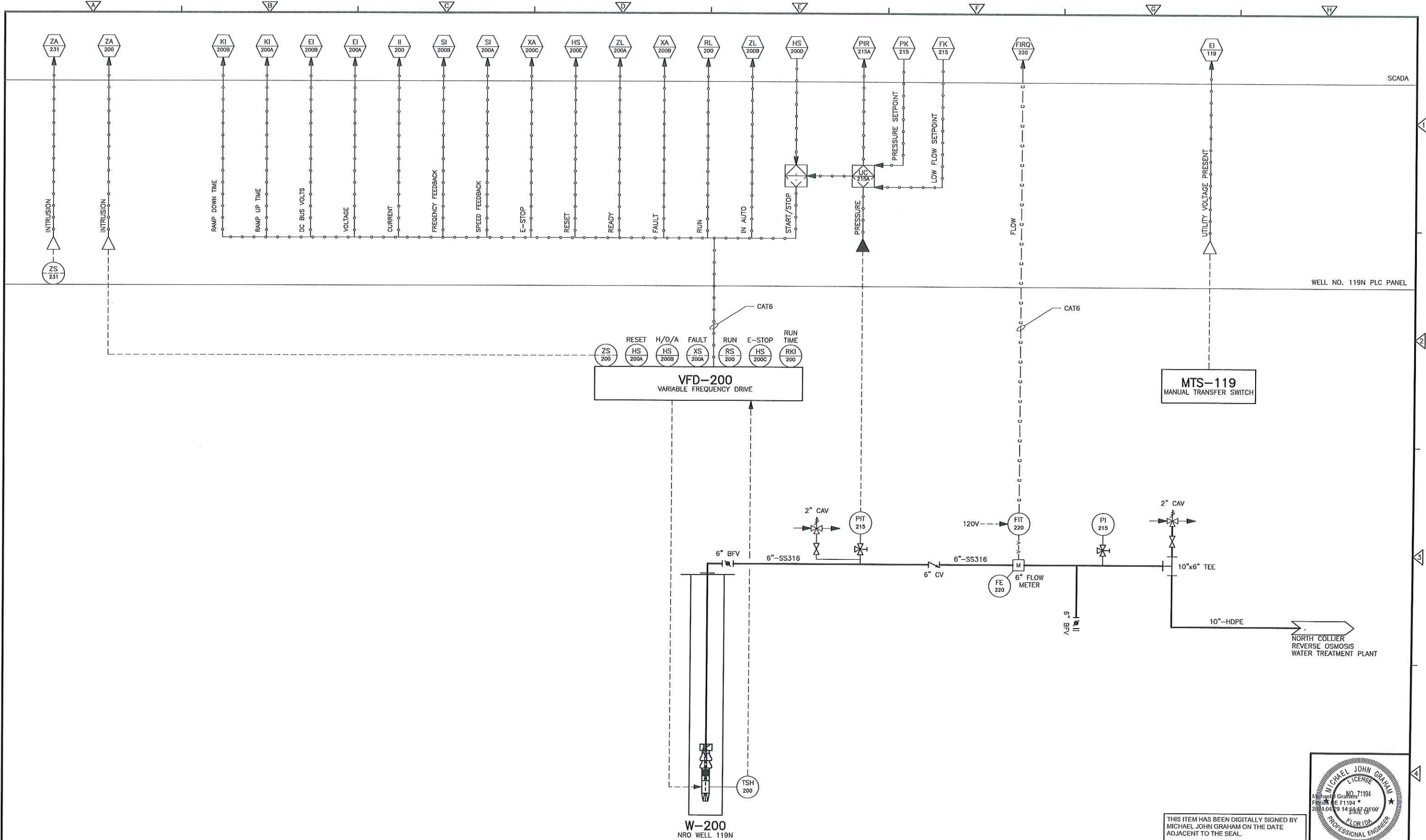
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FL COA No. EB-0000020

## PROCESS & INSTRUMENTATION DIAGRAM

Michael John Graham  
 License No. 71194  
 State of Florida  
 Professional Engineer

BID SET

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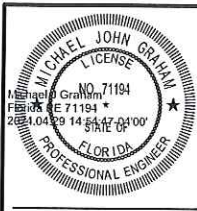
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. GRAHAM  
DRAWN BY: A. CARTER  
SHEET CHK'D BY: M. GRAHAM  
CROSS CHK'D BY: G. CZERNIEJEWSKI  
APPROVED BY: M. GRAHAM  
DATE: MARCH 2024

**CDM Smith**  
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FL COA No. EB-0000020

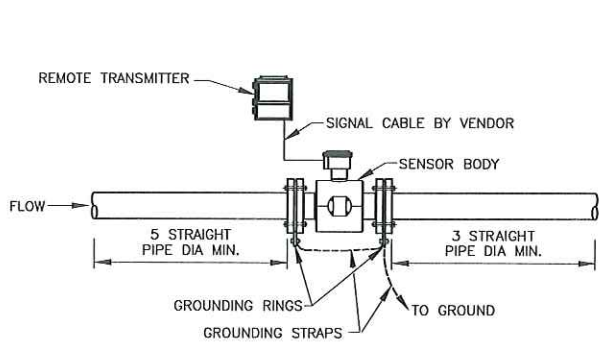
COLLIER COUNTY, FLORIDA  
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PROCESS & INSTRUMENTATION DIAGRAM  
WELL 119N



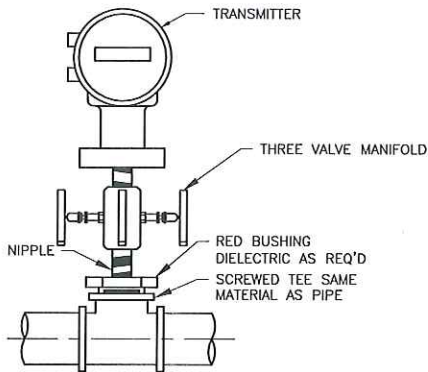
DATE: MICHAEL GRAHAM  
PE NO. 71194  
PROJECT NO. 6295-283550  
FILE NAME: 1004PID.DWG  
SHEET NO. I-4

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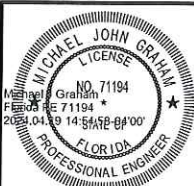
- NOTES:
1. PROVIDE GROUNDING RING(S) AS RECOMMENDED BY MANUFACTURER.
  2. PROVIDE SENSOR LINING TO PREVENT BUILDUP ON METER.

MAGNETIC FLOW METER  
DETAIL A  
NTS



PRESSURE TRANSMITTER/SWITCH/GAUGE  
(WITHOUT DIAPHRAGM SEAL)  
DETAIL B  
NTS

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DATE:  
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PE NO. 71194  
  
PROJECT NO. 6295-283550  
FILE NAME: 1005PIDT.DWG  
  
SHEET NO.  
I-5

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. GRAHAM  
DRAWN BY: R. CHARITY  
SHEET CHK'D BY: M. GRAHAM  
CROSS CHK'D BY: G. CZERNIEJEWSKI  
APPROVED BY: M. GRAHAM  
DATE: MARCH 2024

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Fort Myers, FL 33916  
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FL CCA No. EB-00000020

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INSTRUMENTATION DETAILS