## PLANS FOR PROPOSED PUMP STATION IMPROVEMENTS TO

# SW 2nd Street SW 87 AVE AND SW 2 ST

MIAMI-DADE COUNTY PROJECT NO. 20200042

STORMWATER DRAINAGE DESIGN SECTION

STEPHEN P. CLARK CENTER

111 NW 1 ST, SUITE 1510

MIAMI, FLORIDA 33128

#### INDEX OF SHEETS

#### SHT. No. SHEET DESCRIPTION

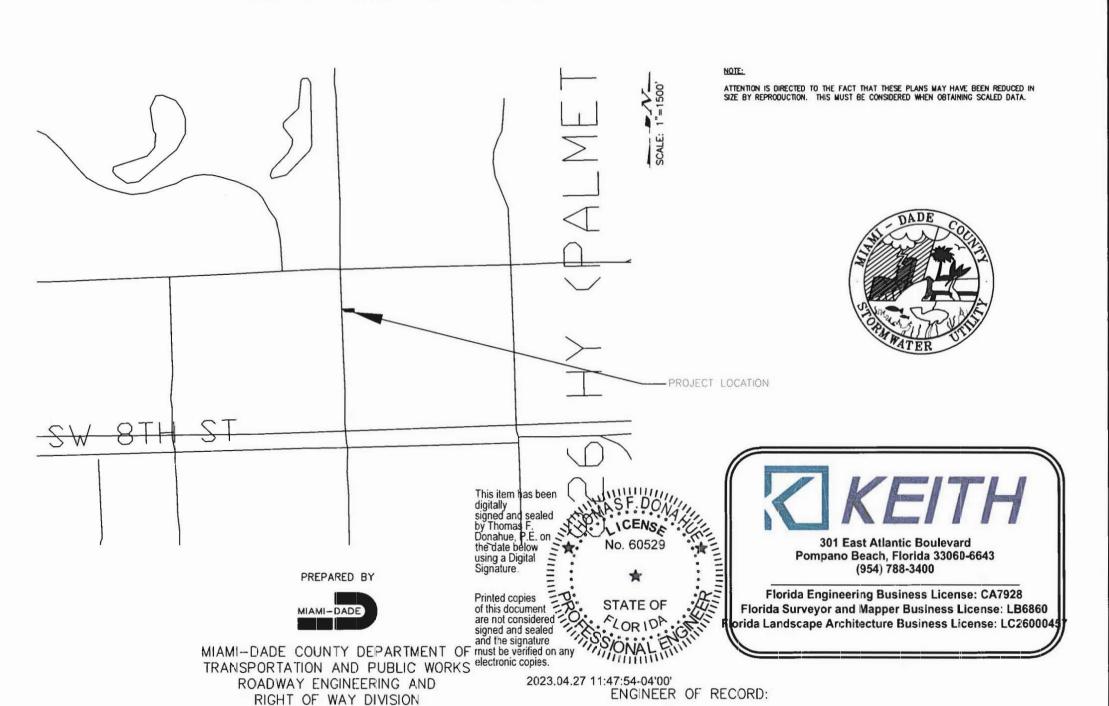
- 1 COVER SHEET
- 2 TOPOGRAGHIC BOUNDARY SURVEY
- 3 C-101 CIVIL PLAN
- 4 E-101 GENERAL ELECTRICAL NOTES, LEGEND AND DETAILS
- 5 E-102 ELECTRICAL PLAN
- 6 E-103 RTU MONITORING FUNCTIONS DIAGRAM & NOTES
- 7 E-104 GATE CONTROL SCHEMATIC DIAGRAM
- 8 E-105 NEW SENSORS DIAGRAM
- 9 E-106 ELECTRICAL RISERS DIAGRAMS
- 10 E-107 ELECTRICAL PANEL SCHEDULE AND DETAIL
- 11 S-100 STRUCTURAL PLAN

SUI	MMARY OF Q	JANTIT	IES
Item No.	Description	Unit	Quantity
600-4	Pump Station Improvements	L.S.	1

Note: This Pump Station Improvements item will include but is not limited to the installation of One (1) Rosemount 5408A Radar Sensor; One (1) Senix Ultrasonic Sensor; One(1) Protex-Max Explosion Proof Process Meter Pump Local Controller; One(1) Four Port Serial Communication Module; One(1) 24" Sluice Gate with Auma actuator; One (1) 6" Top slab with steel hatch; Mobilization; Demolition and Disposal of debris; Coordination of electrical service with Florida Power and Light; and all appurtenant work.

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE MIAMI-DADE COUNTY PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS PARTS 1, 2 AND 3. THE MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS. THE FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND THAFFIC DESIGN STANDARDS, AND THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AS AMENDED BY CONTRACT DOCUMENTS.





DESIGN

DATE SEPTEMEBR 2022

THOMAS F. DONAHUE, P.E. FLORIDA REGISTRATION P.E. No. 60529 KEITH CIVIL ENGINEER

CHECK

DRAWN

SHEET

TD

VC/MD/JN

OF 11



SCALE: N.T.S.

## TREE TABLE:

THE TOTAL FINAL JOB POINT LIST DO NOT SHOWN ANY EXISTING TREES AFFECTING THE PROPERTY.

#### ABBREVIATIONS AND MEANINGS:

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

APPROXIMATE DIAMETER OF TREE TRUNK

APPROXIMATE HEIGHT OF TREE

CITY OF MIAMI MONUMENT LINE

PROFESSIONAL SURVEYOR AND MAPPER RIGHT-OF-WAY

R/W

APPROXIMATE DIAMETER OF TREE CANOPY

TREE

## LEGEND:

CONTROL POINT METAL PEDESTRIAN POLE EXISTING ELEVATIONS

S SANITARY SEWER MANHOLE M STORM SEWER MANHOLE

(NH) MANHOLE UNKNOWN

- CONCRETE LIGHT POLE S GAS VALVE

M WATER VALVE

₿ SEWER VALVE

() VALVE UNKNOWN ─o─ SIGN

CATCH BASIN

HAND-HOLE TRAFFIC SIGNAL SH SPRINKLER HEAD

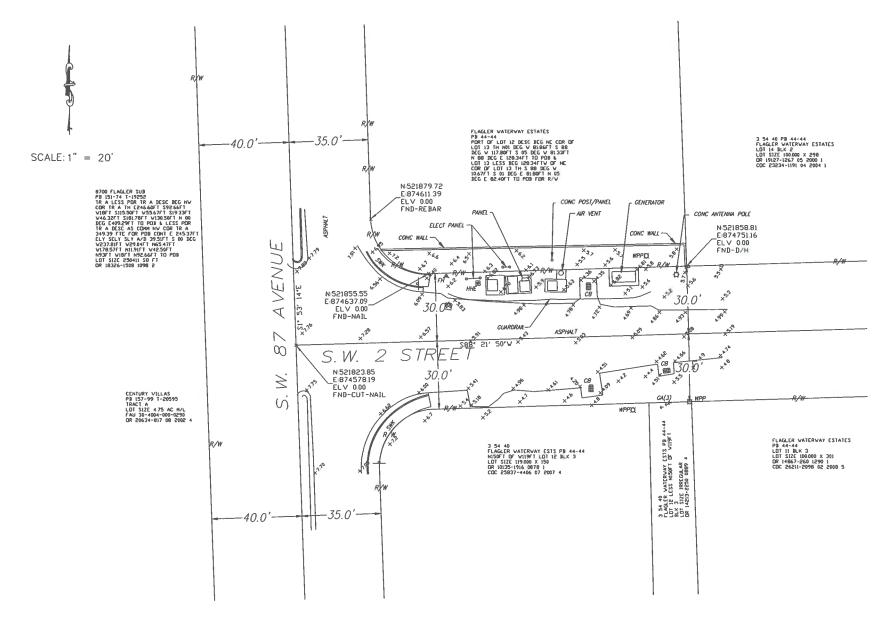
TREE (VARIOUS) PALM TREE

MAND-HOLE FIBER OPTIC

M MONITORING WELL A STANDPIPE

HANDHOLE UNKNOWN

## TOPOGRAPHIC BOUNDARY SURVEY. A PUMP STATION ON A PORTION OF LAND LYING IN SOUTHWEST QUARTER OF SECTION 3, TOWNSHIP 54 SOUTH, RANGE 40 EAST, MIAMI-DADE COUNTY, FLORIDA.



#### LEGAL NOTES TO ACCOMPANY SPECIFIC PURPOSE SURVEY:

- -THIS SURVEY MAP REPRESENTS A TOPOGRAPHIC BOUNDARY SURVEY.
- -THE PURPOSE OF THIS SURVEY IS TO DEPICT THE LOCATION OF TOPOGRAPHIC FEATURES AND THE BOUNDARY SURVEY OF THE PUMP STATION LOCATED AT S.W 87th AVENUE & S.W. 2th STREET
- -THE SURVEY MAP AND REPORT OR THE COPIES THEREOF ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL SEAL OF A FLORIDA LICENSED SURVEYOR & MAPPER.
- -THIS SURVEY IS SUBJECT TO DEDICATIONS, LIMITATIONS, RESTRICTIONS, OR EASEMENTS OF RECORD; ALL EASEMENTS (IF ANY) WERE SUPPLIED BY THE CLIENT.
- -SOURCES OF DATA: BASED ON A PROPERTY RECORDER LEGAL DESCRIPTION AND PLAT ROOK 44 PAGE 44 OF THE PUBLIC RECORDS OF MIAMS-DADE COUNTY FLORIDA
- -ALL DISTANCE MEASUREMENTS WERE MADE IN UNITED STATES SURVEY FEET, UNLESS SHOWN OTHERWISE.
- -THE PROJECT SITE IS LOCATED IN SECTION 3 TOWNSHIP 54 SOUTH, RANGE 40 EAST, IN MIAMI-DADE COUNTY, FLORIDA
- -THE BEARING BASIS FOR THIS SURVEY IS NORTH 88'51'50" EAST (ASSUMED) ALONG THE CENTER LINE OF S.W. 2th STREET.
- -ELEVATIONS SHOWN HEREON ARE REFERRED TO A RECORDED MIAMI-DADE COUNTY BENCH-MARK N-337, ELEVATION=6.68' N.G.V.D.-29.
- -NO ATTEMPT WAS MADE TO LOCATE UNDERGROUND UTILITIES, FOOTINGS, BUILDINGS, EXCEPT AS SHOWN HEREON, IF ANY,
- -AN OPINION OF TITLE FOR THE SUBJECT PARCEL WAS NOT PROVIDED: THE SOURCES OF DATA LISTED ABOVE WERE USED AS THE BASIS FOR THIS SURVEY.
- -ARCHITECTS SHALL VERIFY ZONING REGULATIONS, RESTRICTIONS AND SETBACKS AND THEY WILL BE RESPONSIBLE FOR SUBMITTING PLOT PLANS WITH THE CORRECT INFORMATION FOR THE APPROVAL BY MIAMI-DADE COUNTY AUTHORITIES IN ALL CONSTRUCTION, UNLESS OTHERWISE NOTED. -AERIAL BACKGROUND IMAGES ARE SHOWN FOR GRAPHICAL PURPOSES ONLY AND MAY NOT BE INDICATIVE OF EXISTING SITE CONDITIONS, AERIAL IMAGE ACQUISITION WAS COMPLETED ON JULY 30, 2020.
- -THIS MAP IS INTENDED TO BE DISPLAYED AT A SCALE OF 1"= 20' OR SMALLER. AT THE MAXIMUM INTENDED DISPLAYED SCALE, THE MAP'S POSITIONAL VALUE OCCUPIES 1/20" ON THE DISPLAY (EXCLUDING THE LOCATION MAP)
- -ADDITIONS OR DELETIONS TO THE SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.

THE SURVEY DEPICTED HERE IS NOT COVERED BY PROFESSIONAL LIABILITY INSURANCE.

#### I HEREBY CERTIFY:

THAT THE ATTACHED "SPECIFIC PURPOSE SURVEY" OF THE PROPERTY SHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AS RECENTLY SURVEYED AND DRAWN UNDER MY SUPERVISION AND DIRECTION. THIS SURVEY COMPLES WITH THE STANDARDS OF PRACTICE AS SET FORTH IN RULES 5J-17.051 AND 5J-17.052 AS ADOPTED BY THE FLORIDA STATE BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS PURSUANT TO CHAPTER 472.027 FLORIDA STATUTES.

RICARDO. P.S.M.

RICARDO, P.S.M.
FLORIDA LICENSE NO-6283.
FOR THE DTPW-TRANSPORTATION.

Project Manager	Mismi Dade County A. F. C.	Department of Transportation	Survey Section		THI M.W. First Octoor, Oaks H 1870	Mines Floride 80099 (400-470-4047)	
		TODOGRAPHIC ROUNDARY SURVEY: MIAMI-DADE		DIMP STATION AT S W 87th AVENUE	_	AND S.W 2th STREET.	_
	Project Title:	OGRADHI		NOITATA		DNA	

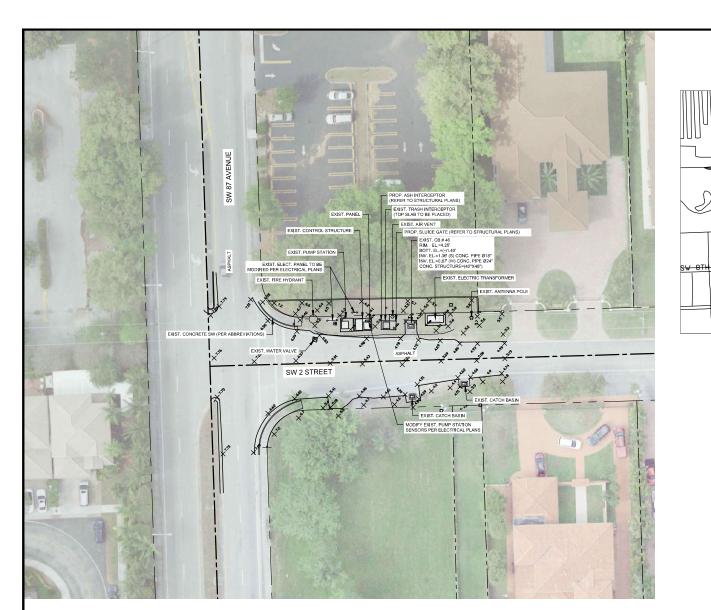
20200042 (NOT BUILDING)

Date Scale 6/15/2021 1°=20'

Drawing N

PAGE

1 of 1



SW 2nd Street SW 87 Ave and SW 2 St PUMP STATION IMPROVEMENT PROJECT

GRAPHIC SCALE 0 40 80 SCALE: 1" = 40 ' NOTE: PRINTED DRAWING SIZE MAY HAVE CHANGED FROM

ORIGINAL, VERIFY SCALE USING BAR SCALE ABOVE.

- THE CONTRACTOR SHALL ENSURE THAT ALL ADA CRITERIA IS MET FOR THE CONSTRUCTION OF THE SITE IMPROVEMENTS INCLUDINS BUT NOT LIMITED TO SIDEWALKS, RAMPS AND ADA PARKING STALLS).
- ALL ADA PARKING STALLS SHALL NOT EXCEED 2% IN AN DIRECTION.
- SIDEWALKS SHALL NOT EXCEED 5% IN THE LONGITUDINAL DIRECTION AND CROSS-SECTIONAL SLOPES SHALL NEVER EXCEED 2%, UNLESS CLEARLY IDENTIFIED ON PLANS.
- FOR ANY REASON THE CONTRACTOR FINDS ANY GRADING DISCREPANCIES THAT WOULD RESULT IN NOT BEING ABLE TO MEET ADA CRITERIA; IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ADVISE THE CONTRACTOR'S SOLE RESPONSIBILITY TO ADVISE THE ENCHMER AT ONCE AND PROVIDE ADDICATE THAT OF DETERMINE PROPER COLUME? THAT OF DETERMINE PROPER COLUMES OF ACTION, IF FOR ANY REASON IT IS DEEMED MECESSARY FOR AS-BILLY INFORMATION TO BE MADE. AVAILABLE TO THE ENCHMER IN FORMATION TO BE MORE TO MAY THE ACCESSARY DECISIONS AND/OR PROVIDE DIRECTION, THIS INFORMATION SHALL BE PROVIDED BY THE CONTRACTOR.



**KEY MAP** 

PROJECT LOCATION

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9

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NOTE
ELEVATIONS SHOWN HEREON ARE IN FEET AND BASED ON
THE NORTH GEODETIC VERTICAL DATUM OF 1929, (NOVD
1929), BASED ON THE SURVEY PREPARED BY MANIHOUSE
LEVATIONS TO AND 1988 FOR THE PROPERTY, 1,568 MUST
BE SUBTRACTED TO THE NAVID 1988 ELEVATIONS.



Pompano Beach, Florida 33060-6643 (954) 788-3400

Florida Engineering Business License: CA7928 Florida Surveyor and Mapper Business License: LB6860 orida Landscape Architecture Business License: LC2600045

This item has been digitally signed and sealed by Thomas F. Donahue, F.E. on the data below the

Printed copies of his document are not considered and the signature must be verified on any electronic copies.

THOMAS F. DONAHUE, P.E. FLORIDA REGISTRATION P.E. No. 60529 KEITH CIVIL ENGINEER

R E V I S I O N S DESCRIPTION DESCRIPTION DATE BY DESCRIPTION

SW 2nd Street SW 87 Ave and SW 2 St PUMP STATION IMPROVEMENT PROJECT

NAME VC/MD/JN SEPT. 2022

MIAMI-DADE

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

CIVIL PLAN

C-101

- THE "GENERAL CONDITIONS OF THE CONTRACT", CURRENT EDITION, PUBLISHED IN STANDARD FORM BY THE AMERICAN INSTITUTE OF ARCHITECTS SHALL BE PART OF THIS CONTRACT.
- IT IS NOT THE INTENT OF THESE PLANS AND SPECIFICATIONS TO SHOW EVERY AND ALL DETAILS OF CONSTRUCTION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION IN PROPER WORKING ORDER.
- ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE FLORIDA BUILDING CODE (2020), NATIONAL ELECTRICAL CODE (NEC 2017) AND THE LATEST STATE AND OTHER LOCAL CODES THAT APPLY.
- THE CONTRACTOR SHALL TAKE OUT PERMITS, PROCURE CERTIFICATES AND PAY ALL FEES CONNECTED WITH HIS WORK. PERMIT FEES WILL BE REIMBURSED WITH A DEDICATED ALLOWANCE.
- BIDDERS SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL CONDITIONS SURROUNDING THE WORK, IT SHALL BE THE RESPONSIBILITY OF THE BIDDERS TO VISIT THE SITE OF WORK AND ACQUAINT THEMSELVES WITH ALL AVAILABLE INFORMATION REGARDING THE EXISTING FACILITIES. FAILURE OF THE BIDDERS TO SO INFORM THEMSELVES OF EXISTING CONDITIONS AND TO INCLUDE IN THEIR PROPOSALS A SUM SUFFICIENT TO COVER SAME WILL NOT ENTITLE THEM TO AN EXTRA.
- THE CONTRACTOR IS REFERRED TO THE ARCHITECTURAL PLANS AND SPECIFICATIONS. SUCH PLANS AND SPECIFICATIONS ARE CONTRACT DOCUMENTS.
- DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE LOCATIONS OF ALL ELECTRICAL ITEMS. EXACT CONDUIT ROUTING SHALL BE DETERMINED IN THE FIELD, UNLESS OTHERWISE NOTED (UON).
- CONTRACTOR SHALL SUBMIT REQUESTS FOR SUBSTITUTION IN WRITING TO THE ENGINEER, 10 WORKING DAYS PRIOR TO BIDDING DATE.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL FOR ALL EQUIPMENT AND MATERIALS. SUBMIT A MINIMUM OF FOUR SETS TO THE A/E.
- GROUNDING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (ARTICLE 250) AND REQUIREMENTS OF THE INSPECTING AUTHORITY. ALL CONNECTIONS TO GROUND RODS SHALL BE MADE WITH UL APPROVED ACCESSIBLE GROUND CLAMPS, UNLESS OTHERWISE NOTED.
- 11. UPON COMPLETION OF WORK, THIS CONTRACTOR SHALL REMOVE ALL RUBBISH CAUSED BY HIS WORK AND SHALL THOROUGHLY CLEAN ALL ELECTRICAL EQUIPMENT
- ALL WORK SHALL BE GUARANTEED FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- ALL ITEMS OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE CONTROL OF ELECTRICAL CIRCUITS AND APPARATUS SHALL BE IDENTIFIED.
- 14. ALL POWER AND LIGHTING CIRCUIT WIRING SHALL BE COLOR CODED AS FOLLOWS:

120/240V PHASE "A" - BLACK PHASE "B" - RED PHASE "C" - BLUE NEUTRAL - WHITE

- ALL CONDUCTORS SHALL BE COPPER, 600V. #10 AND SMALLER, SOLID TYPE THWN/THHN; #8 AND LARGER, STRANDED TYPE THWN/THHN.
- ALL CONDUCTORS FOR POWER LIMITED CABLES SHALL COMPLY WITH ARTICLES 725 & 760 OF N.E.C. LATEST EDITION.
- NOMINAL MOUNTING HEIGHT OF DEVICES IN EXPOSED CONCRETE BLOCK. TILE OR BRICK WALLS SHALL ALL OCCUR WITHIN A STRUCTURAL COURSE. A MIN. AMOUNT OF BLOCK, TILE OR BRICK WALLS SHALL BE CUT.
- ALL ELECTRICAL EQUIPMENT AND DEVICES SHALL BE INDUSTRIAL GRADE, HEAVY-DUTY, AND U.L. LISTED UNLESS SPECIFIED OTHERWISE. ALL ELECTRICAL EQUIPMENT, DEVICES, WIRE, ETC., SHALL BE LISTED, FOR THE INTENDED USE, WITH UNDERWRITER'S LABORATORIES INC. (UL), WHERE STANDARDS HAVE BEEN ESTABLISHED BY UL. AS A MINIMUM, ALL EQUIPMENT SHALL MEET APPLICABLE STANDARDS, FOR THE TYPE OF EQUIPMENT AND THE INTENDED USE, OF THE FOLLOWING.
  - AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
  - ILLUMINATING ENGINEERS SOCIETY (IES)
  - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NÉMA)
- NOTE: THESE STANDARDS ARE SUBORDINATE TO STANDARDS SET BY U.L. AND LOCAL CODES. WIRING DEVICES SHALL BE SPECIFICATION GRADE. MINIMUM SIZE OF OUTLET BOXES SHALL BE 4" SQ. TRADE OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS AND SPECIAL ENCLOSURE FOR OTHER CLASSIFIED AREAS.
- ALL ELECTRICAL CONDUCTORS MUST BE IN CONDUIT. ALL CONDUITS SHALL BE INTERMEDIATE (IMC) OR RIGID GALVANIZED STEEL (RGS) EXCEPT THAT: (A) POLY VINYL CHLORIDE (PVC) CONDUITS MAY BE USED IN CONCRETE SLABS AND UNDERGROUND PROVIDED THAT ELBOWS AND RISERS ARE RGS; (B) ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN WALLS OR CEILINGS OF FINISHED AREAS WHERE NOT SUBJECT TO MECHANICAL DAMAGE, OR CORROSIVE CONDITIONS; (C) LIQUID TIGHT FLEXIBLE CONDUIT WHERE REQUIRED IN WET OR DAMP LOCATIONS; (D) FLEXIBLE METALLIC CONDUIT WHERE REQUIRED IN DRY LOCATIONS. ALL CONDUITS IN HAZARDOUS LOCATIONS SHALL MEET THE REQUIREMENTS
- OF NEC CHAPTER 5. THE USE OF ENT CONDUIT IS PROHIBITED.
  APPLY 2 COATS OF BITUMASTIC COATING TO ALL METALLIC CONDUITS INSTALLED UNDERGROUND.
  NO CONDUITS TO BE RUN IN DUCT WORK. A POLYESTER PULL CORD SHALL BE INSTALLED IN ALL EMPTY
- SIZE ALL WIREWAYS ACCORDING TO N.E.C. ARTICLE 378-22.
- ALL RATED WALL/FLOOR PENETRATIONS ARE TO BE SEALED WITH A FIRE RATED SEALER, PER ASTM E814.
- 25. ANY VARIATION FROM THE PLANS ARE TO BE PREVIOUSLY APPROVED BY THE ENGINEER IN WRITING.

	ELECTRICAL SYMBOL LEGEND
<b>(A)</b> O <sub>0</sub>	CEILING LIGHT FIXTURE-UPPER CASE LETTER DESIGNATES FIXTURE TYPE, LOWER CASE LETTER DESIGNATES SWITCHING.
<b>H</b>	FLUORESCENT LIGHT FIXTURE SEE FIXTURE SCHEDULE EMERGENCY LIGHT FIXTURE CONNECTED TO EMERGENCY LIGHTING CIRCUIT.
1	DUAL HEAD EMERGENCY STAND-BY LIGHT, WITH BATTERY PACK, WALL MOUNTED. MT. UP 9'0-" A.F.F. TO (L) OF OUTLET BOX.
\$ <sub>a</sub>	SINGLE POLE TOGGLE SWITCH, 20 AMP, 120/277V., SPECIFICATION GRADE. LETTER DENOTES LIGHTS ON SWITCH "A". MOUNT AT 48" A.F.F. TO Q. OF OUTLET BOX UNLESS NOTED.
₩	DUPLEX RECEPTACLE; 20 A.,120 V.,GROUNDING TYPE. MOUNTED 18" A.F.F. TO Q OF OUTLET BOX. (EXCEPT AS NOTED). HUBBELL 52621 U.O.N.
ю	DUPLEX RECEPTACLE; 20 A.,120 V.,GROUNDING TYPE. VERIFY MOUNTING HEIGHT. HUBBELL 52621 U.O.N.
	DUPLEX GFI RECEPTACLE MOUNTED HORIZONTALLY; 20 A.,120 V.,GROUNDING TYPE. MOUNTED UP AS NOTED DN PLANS. EXCEPT IN RESTROOMS NEXT TO SINKS WHERE IT SHALL BE MOUNTED AT 42" A.F.F. TO & OF DUTLET.
M	TELEPHONE/DATA OUTLET 4-11/16" X 4-11/16" 2-1/8" WITH BUSHED HOLE COVER PLATE- NOUNTED 18" A.F.F. TO C OF OUTLET(EXCEPT AS NOTED) PROVIDED 3/4" E.C. FROM EACH OUTLET TO PHONE (LOCAL) PULL BOX IN CL'G SPACE (EXCEPT AS NOTED.) TELECOMMUNICATIONS ROOM.
	SAFETY SWITCH - HEAVY DUTY NEMA CLASS "A" IN NEMA 1 ENCLOSURE, OUTDOOR TYPE NEMA 3R.
3 30 20	DESIGNATES SWITCH RATING, "3" DESIGNATES POLES; "20" TIME DELAY FUSE; "30"SWITCH AMPS.
1111111	120/208V., 3ø, 4W. PANEL BOARD.
J	EQUIPMENT JUNCTION BOX, FURNISHED WITH EQUIPMENT.
ত্য/ত	WALL CEILING MOUNTED JUNCTION BOX. MINIMUM 4" X 4" X 1 1/2" WITH BLANK PLATE. MT. WALL BOX UP AS SHOWN ON PLAN.
<b>1 1 1 1 1 1 1 1 1 1</b>	WALL/CEILING MOUNTED J.BOX FOR DATA OR POWER RESPECTIVELY. MT. WALL BOX UP AS SHOWN ON PLAN.

NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED ON THIS PROJECT.

ABBREVIATIONS							
ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION			
(TYP.)	TYPICAL	MIN.	MINIMUM	V.			
PNL.	PANEL	(MFR) MANUF.	MANUFACTURER	AMP.			
LT.	LIGHT	GFI.	GROUND FAULT INTERRUPTER	LTG.			
ø	PHASE	M.C.B.	MAIN CIRCUIT BREAKER	H.P.			
PVC	POLYVINYL-CHLORIDE	F/N	FULL NEUTRAL	J.B.			
RGS	RIGID GALVANIZED STEEL	SURF.	SURFACE	GRS.			

## SCOPE OF WORK:

SCOPE UNDER THIS PROJECT INCLUDES THE FOLLOWING:

- INSTALLING THREE (2) NEW WATER LEVEL SENSORS (RADAR AND ULTRASONIC). NEW SENSORS TO BE CONNECTED TO EXISTING REMOTE TERMINAL UNIT (RTU) AS PER DIAGRAM ON E-106. NEW SENSORS WILL BE INTEGRATED INTO EXISTING CONTROL SEQUENCE.
- NEW GATE AND THREE PHASE ACTUATOR WILL BE INSTALLED FED FROM NEW PANEL AS SHOWN ON PANEL SCHEDULE.

SHEET 4 OF 11

2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Concrete Floors and Walls using TREMstop IA

F-Rating = 2 Hr



PROJECT NO. \_20200042

T-Rating = 0 Hr Drawing not to scale

- Pre-Rated Concrete Floors or Block Walls | Min 4-1 2" thickness
- 2 Metallic Pipe A) Steel Pipe 12" dram (or smaller) Sch 10 (or heavier) steel pipe
  - B) fron Pipe 12" diam (or smaller) cast or ductile iron pipe
  - C) Conduit 4" diam (or smaller) EMT or 6" diam steel conduit
  - D) Copper Tubing 6" diam (or smaller) Type L (or heavier) copper tubing E) Copper Pipe - 6" diam (or smaller) Regular (or heavier) copper pipe
- (3) Packing Material-Min 4-1 4" thickness of mineral wool insulation (min 4 0 pcf) firmly packed into opening as a permanent form
- TREMstop 1A- Min 1 4" thickness of sealant applied within annulus, flush with top surface of floor or both sides of wall assembly

UL cUL System No. CAJ 1302



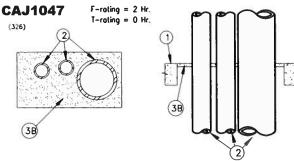
2 Hour Fire Rated Through Penetration Fireston for Multiple Metal Pipe through Concrete floors or walls using FYRE-SHIELD.

rkeiico. 3735 Green Rd. Benchwood, OH, 44122

> NOTE: Similar products of other manufacturers may

used if accepted equal.

Drawing not to scale



1) Floor or Wall assembly = 4 " thick concrete, Max. area of opening is 288 sq. in.

2 • Nom. 8" diam. (or smaller) Sch. 40 (or heavier) steel pipe • Nom. 4" diam. (or smaller) copper pipe. . Mox. number of pipes with opening is three (3).

3 A) Forming Material - (Not shown) - Nom. 1" thick polyurethone backer rod friction fitted into opening

B) Nom. 12" FYRE-SHIELD thickness installed within opening

CONCRETE FLOORS OR WALLS PENETRATION DETAILS

NOTE: For well apply FYRE-SHIELD to both surfaces of well.

TONA MORA No. 64981 STATE OF SSONAL ENGINE

Digitally signed by Zoila Morales DN: c=US, o=ME Engineering Consultants, ou=A01410D0000 01713107944800 01940F, cn=Zoila Morales Date: 2023.01.10 10:52:15 -05'00'

Zoila Morales, Electrical P.E.#64981



M.E. Engineering Consultants, Inc. 11401 SW 40TH Street Suite 301 Ph:(786)275-4635 CA 29121

REVISIONS DATE BY DESCRIPTION DATE BY DATE BY DESCRIPTION

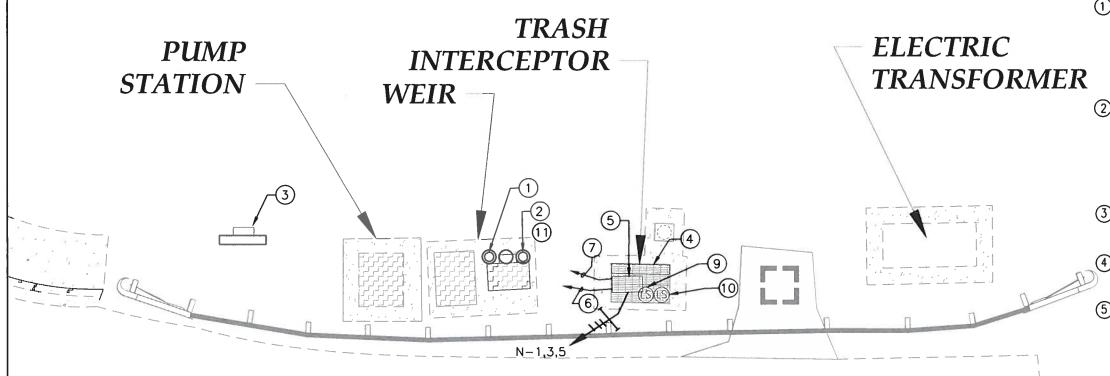
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ROADWAY ENGINEERING AND RIGHT OF WAY DIVISION

GENERAL ELECTRICAL NOTES, LEGEND AND DETAILS

E-101



SW 2 ST

DESCRIPTION DATE BY

DATE BY

**ELECTRICAL PLAN** SCALE: 1'=10'-0'

DESCRIPTION

DATE BY

**CODED NOTES:** 

SHEET 5 OF 11 PROJECT NO. \_20200042

NEW ROSEMOUNT 5408 RADAR LEVEL TRANSMITTER LOAD CONTROL NON CONTACT WET WELL LEVEL MOUNTED AS PER MANUFACTURER SPECIFICATIONS. MINIMUM 1FT DISTANCE FROM TANK WALL INSTALLATION. CONNECT TO RTU VIA PROTEX-MAX EXPLOSION PROOF PROCESS METER PUMP LOCAL CONTROLLER PRECISION DIGITAL PD-6000-6R7. REFER TO DETAIL ON E-105. COORDINATE EXACT SENSOR LOCATION WITH OWNER AND CIVIL DRAWINGS.

SENIX ULTRASONIC DISTANCE AND LEVEL SENSOR TF30 WITH SERIAL RS-485 INTERFACE FOR BACKUP LEVEL MEASUREMENT MOUNTED AS PER MANUFACTURER SPECIFICATIONS. USE A NEMA 4X (316SS) HOUSING FOR SENSOR AND TRANSMITTER, WITH POTTED CABLE CONNECTIONS. SIMPEL MODBUS RS485 FOR DIRECT CONNECTION TO SCADA; NO 4-20MA NEEDED. 2" NPT MOUNT INSTALLATION. COORDINATE EXACT SENSOR LOCATION WITH OWNER AND CIVIL DRAWINGS.

EXISTING RTU PANEL. INSTALL NEW FOUR-PORT COMMUNICATION MODULE WITH TWO RS-232 (EC 4/8 AND 4/9) AND TWO RS-485 PORTS (EC 6/10 AND 7/11). REFER TO DETAIL ON DRAWING E-104 FOR DETAILS.

NEW 24 INCHES SLUICE GATE IN THE WET WELL TO BE OPERATED VIA NEW ELECTRIC ACTUATOR MONITORED BY EXISTING RTU THROUGH 1.5 HP AUMA ELECTRIC ACTUATOR. LOCATION AND SPECIFICATIONS AS PER CIVIL DRAWINGS.

NEW AUMA 3 PHASE 240 VOLT, 1.5 HP ELECTRIC ACTUATOR SA16.2/AM02.1 IN NEMA 4X/6P MOTOR ENCLOSURE PROVIDED WITH LIMIT AND TORQUE SWITCHES BY PASS FOR BOTH DIRECTIONS AS PER MANUFACTURER SPECS AND SCHEMATIC WIRING ON DRAWINGS E-104 & E-105. OPEN-CLOSE LOCAL-REMOTE SIGNAL OUTPUT, OPEN-STOP-CLOSE SIGNAL INPUT, REMOTE SIGNAL READOUT AND ALARM OUTPUT. ACTUATOR TO PROVIDE OPEN/CLOSE SERVICE. PROVIDE CONTACTS FOR MONITORING GATE OPENED AND CLOSED STATUS AS WELL AS POSITION TRANSMITTER WITH 4-20MA D.C. OUTPUT. VENDOR TO VISIT THE SITE AND MAKE SURE TO INCLUDE ALL REQUIRED ACCESSORIES, INCLUDING STEM IF NEEDED, IN PRICE.

1.25" CONDUIT WITH 8 # 18 TSP CABLE TO RTU PANEL. VERIFY WITH MANUFACTURER DIAGRAM.

3/4" CONDUIT\_8\_#\_18\_1\_#\_18\_GROUND\_TO\_RTU\_PANEL\_\_VERIFY\_WITH\_ MANUFACTURER DIAGRAM.

PROVIDE PUMP SOFT STARTER PANEL IN NEMA 4X ENCLOSURE FOR CONTROLLING GATE ACTUATOR MOTOR. ENCLOSURE TO HAVE "HAND-OFF-AUTO" SELECTOR SWITCH ON COVER. INSTALL ADDITIONAL CONTACT BLOCKS TO PROVIDE ISOLATED CONTACTS FOR "HAND" AND "AUTO" POSITIONS.

NEW WATERPROOF LIMIT SWITCH AT THE FULLY OPENED GATE POSITION.

NEW SUBMERSIBLE LIMIT SWITCH AT THE FULLY CLOSED GATE POSITION.

PROVIDE PROTEX-MAX EXPLOSION PROOF PROCESS METER PUMP LOCAL CONTROLLER PRECISION DIGITAL PD6000-6R7 AS PER DIAGRAM ON DRAWING E-105. INSTALL THEM IN NEMA 4X ENCLOSURE.



Zoila Morales, Electrical P.E#6498



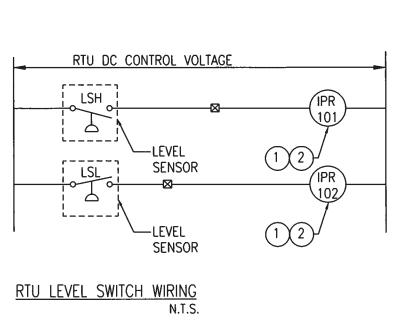
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ROADWAY ENGINEERING AND RIGHT OF WAY DIVISION

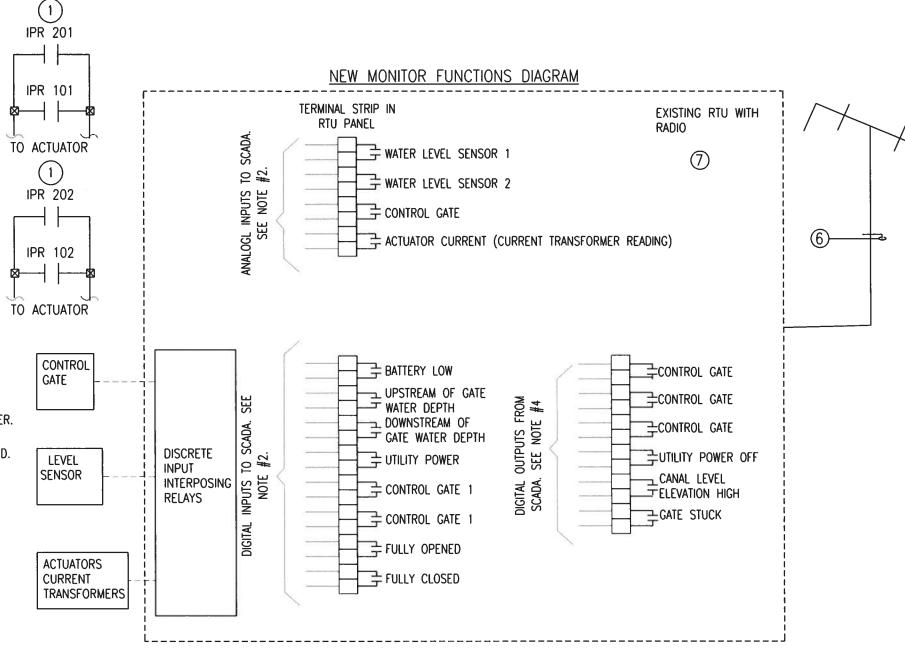


### RTU WIRING INSTALLATION NOTES:

- 1-. WIRING TO SCADA RTU PANEL TO BE FURNISHED AND INSTALLED BY CONTRACTOR. TERMINATIONS TO BE PERFORMED BY CONTRACTOR'S ELECTRICIANS AS SPECIFIED BY MANUFACTURER AND REQUESTED BY OWNER.
- 2-. DIGITAL INPUTS TO SCADA SHALL BE WIRED WITH #18 TWISTED SHIELDED
- DIGITAL OUTPUTS FROM SCADA SHALL BE WIRED WITH #18 THHN STR. RED.
- 4-20 MILLIAMPERES DIRECT CURRENT SIGNAL CABLE SHALL BE BELDEN 9341 TWISTED PAIR OR EQUAL INSTALL IN A SEPARATE CONDUIT.

#### KEYED NOTES

- 1-INTERPOSING RELAYS FOR DISCRETE INPUTS AND OUTPUTS LOCATED IN RTU PANEL.
- 2-PROVIDE INTERPOSING RELAY WITH DPDT CONTACTS. CONNECT ONE SET RELAY CONTACTS TO RTU DISCRETE INPUT POINTS FOR CANAL LEVEL STATUS AND OTHER SET OF CONTACTS USED FOR GATE CONTROL.
- 3-INSERT INTERPOSING RELAY CONTACTS INTO CONTROL WIRING CIRCUITS AS INDICATED.
- 4-COORDINATE WITH GATE ACTUATOR MANUFACTURER FOR ALL DETAILS.
- 5-PROVIDE ADDITIONAL CONTACT BLOCKS AS REQUIRED FOR ALL INPUT/OUTPUTS.
- 6-EXISTING ANTENNA AND CABLE TO REMAIN.
- 7-EXISTING RTU TO REMAIN.



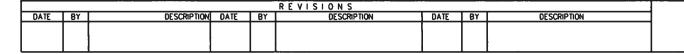


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Zoila Morales, Electrical P.E.#64981

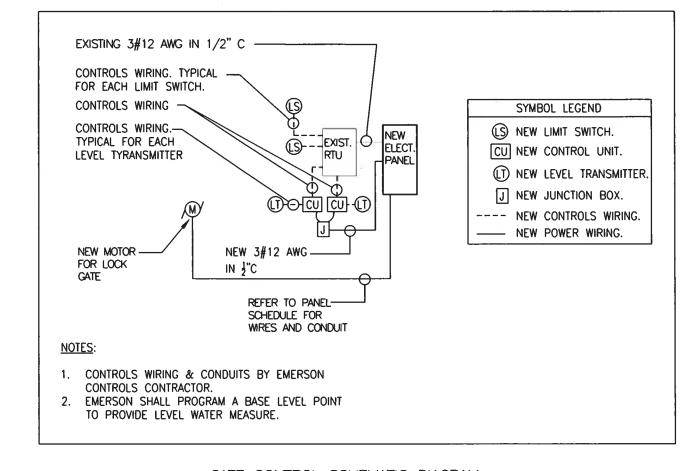
M.E. Engineering Consultants, Inc 11401 SW 40TH Street Suite 301 Ph:(786)275-4635

RTU MONITORING FUNCTIONS DIAGRAM & NOTES



SW 2nd Street SW 87 Ave and SW 2 St PUMP STATION IMPROVEMENT PROJECT

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## GATE CONTROL SCHEMATIC DIAGRAM

#### **CONTROLS SEQUENCE OF OPERATION:**

- GATE OPENS WHEN HI LEVEL FLOAT SWITCH REACHES SET POINTDETERMINED BY CIVIL ENGINEER/OWNER.
- GATE CLOSES WHEN LOW LEVEL FLOAT SWITCH REACHES ITS SET POINT DETERMINED BY CIVIL ENGINEER/OWNER.
- THERE SHALL BE A MANUAL OVERRIDE SWITCH IN THE ELECTRIC ACTUATOR TO CONTROL GATE OPERATION MANUALLY.
- LOCAL RECORDERS TO CONSTANTLY RECORD THE WATER LEVEL.

#### **NEW MONITOR FUNCTIONS:**

- WATER LEVEL: THERE WILL BE AN ULTRASONIC AND RADAR LEVEL SENSOR/TRANSMITTER INSTALLED CONSTANTLY MEASURING THE LEVEL OF WATER. EACH LEVEL TRANSMITTER IS CONNECTED TO THE RTU PANEL.
- GATE OPENED AND CLOSED: THERE WILL BE TWO LIMIT SWITCHES, ONE LOCATED AT THE FULLY OPENED GATE POSITION AND THE OTHER LOCATED AT THE FULLY CLOSED GATE POSITION, EACH LIMIT SWITCH SHALL BE CONNECTED TO THE RTU PANEL. THESE LIMIT SWITCHES WILL PROVIDE INFORMATION TO OWNER VIA RTU PANEL AS TO WHETHER GATE IS IN FULLY OPENED OR FULLY CLOSED POSITION. (DIGITAL INPUT)
- AC FAILURE (DIGITAL INPUT).
- BATTERY LOW (DIGITAL INPUT).



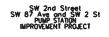
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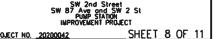


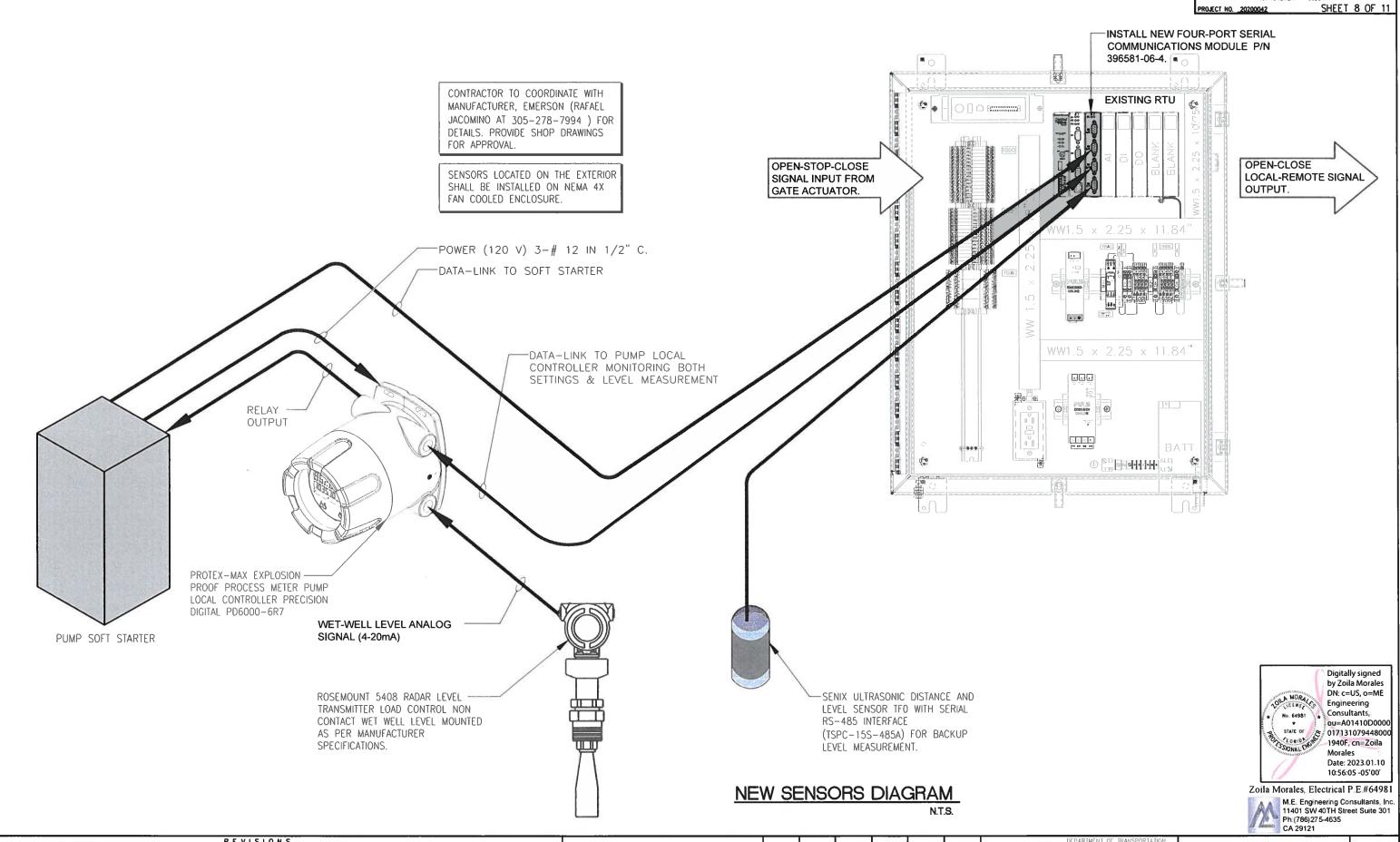
M.E. Engineering Consultants, Inc. 11401 SW 40TH Street Suite 301 Ph:(786)275-4635 CA 29121

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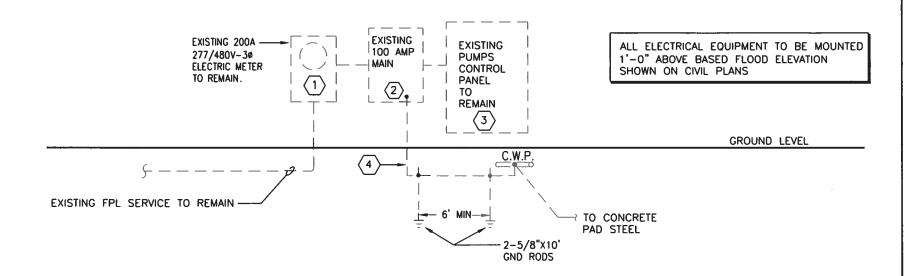
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TRANSPORTATION LIC WORKS SINEERING AND NEW SENSORS DIAGRAM

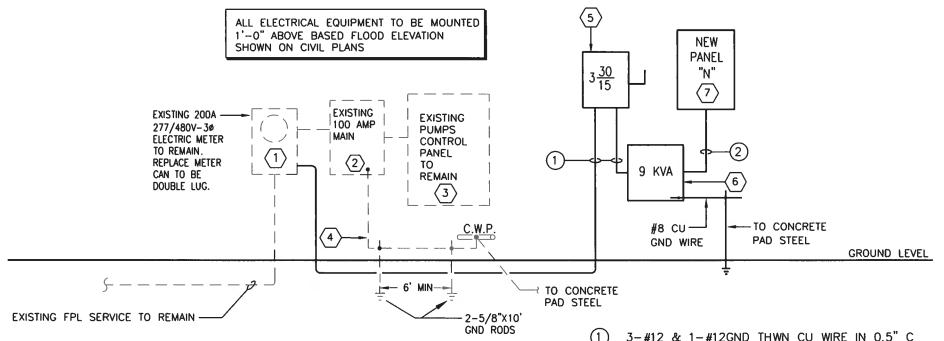
E-105



### **KEYED NOTES**

- (1) EXISTING 200 AMP 1 PH ELECTRICAL METER TO BE REPLACED.
- $\langle 2 \rangle$  EXISTING 3 POLE 100 AMP-100 AMP FUSED 480 VOLT MAIN TO REMAIN.
- (3) EXISTING PUMPS CONTROL PANEL TO REMAIN.
- (4) EXISTING GROUNDING SYSTEM TO REMAIN. CONTRACTOR TO VERIFY THAT A # 6 CU GROUNDING ELECTRODE CONDUCTOR IS EXISTING AND CONNECTED TO GROUND RODS, COLD WATER METALLIC PIPE AND BUILDING FOUNDATION STEEL TO COMPLY WITH NEC REQUIREMENTS. TEST THE SYSTEM TO MAKE SURE THAT MAXIMUM RESISTANCE TO GROUND IS LIMITED TO 5 OHMS. ADDITIONAL GROUND RODS SHALL BE DRIVEN IF REQUIRED TO MAINTAIN THIS LEVEL.

## EXISTING ELECTRICAL RISER DIAGRAM



- 3-#12 & 1-#12GND THWN CU WIRE IN 0.5" C
- 4-#10 MCM & 1-# 8 GND THWN CU WIRE IN 1.5" C

## **KEYED NOTES**

- $\langle 1 \rangle$  NEW 200 AMP 3 PH ELECTRICAL METER TO BE MOUNTED ON FPL APPROVED RACK ON UNISTRUCT STRUCTURE AT SAME LOCATION WHERE EXISTING BEING REMOVED IS MOUNTED.
- 2 NEW 60 AMP PANEL 120/240, 3PH, 4W WITH SERVICE ENTRANCE RATED MAIN BREAKER.
- 3 2#12, 1#12(G) IN ½"C FROM NEW 1P-20A C/B IN PANEL "N" TO FEED EXISTING "RTU" PANEL. REFER TO PANEL N SCHEDULE ON THIS DRAWING.
- EXISTING RTU PANEL TO REMAIN. CURRENTLY FED FROM EXISTING PANEL. FEED FROM NEW PANEL N AS SHOWN ON PANEL SCHEDULE ON THIS DRAWING.
- 5 NEW THREE PHASE 30 AMP WITH 15 AMP FUSE DISCONNECT MOUNTED ON UNISTRUCT. REFER TO DETAIL ON THIS DRAWING.
- 6 NEW 9 KVA THREE PHASE 480:240 TRANSFORMER MOUNTED ON UNISTRUCT. REFER TO DETAIL ON THIS DRAWING.
- $\langle 7 
  angle$  NEW 60 AMP PANEL N 120/240, 3PH, 4W WITH 30 AMP SERVICE ENTRANCE RATED MAIN BREAKER.



Zoila Morales, Electrical P.E.#64981

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## NEW ELECTRICAL RISER DIAGRAM

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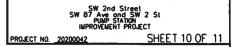
SW 2nd Street SW 87 Ave and SW 2 St PUMP STATION IMPROVEMENT PROJECT
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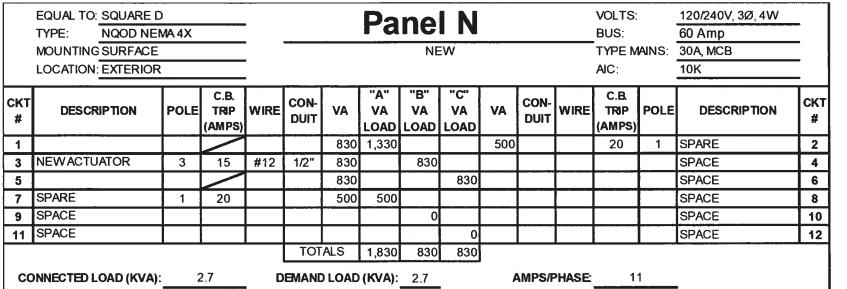
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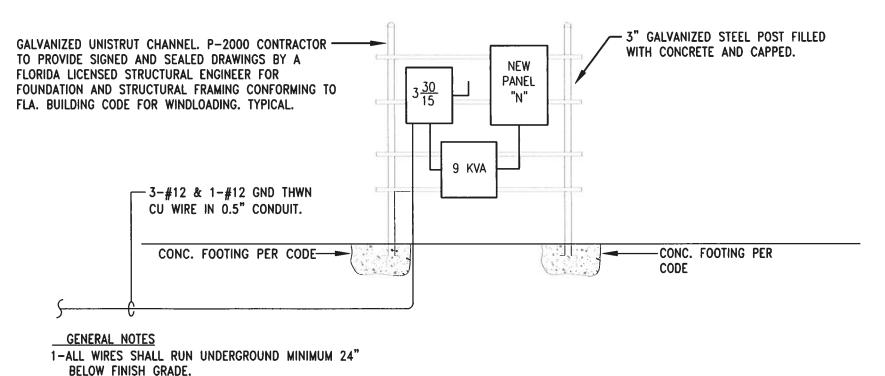


RIGHT OF WAY DIVISION

ELECTRICAL RISERS DIAGRAMS







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SW 2nd Street SW 87 Ave and SW 2 St PUMP STATION IMPROVEMENT PROJECT

2-ALL DEVICES SHALL BE NEMA-3R RATED.

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UNISTRUT MOUNTING DETAIL



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DEPARTMENT OF TRANSPORTATION
AND PUBLIC WORKS
ROADWAY ENGINEERING AND
RIGHT OF WAY DIVISION
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ELECTRICAL PANEL SCHEDULES AND DETAIL

E-107

